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DOP_W_EN_20110516

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DELTA

DOP Series HMI Connection Manual

DELTA ELECTRONICS, INC.

DOP Series
HMI Connection Manual

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Allen Bradley Ethernet IP(Controllogix, Compactlogix)

(Support Allen Bradley ControlLogix, CompactLogix series PLC)

HMI Factory Setting:

Controller IP Address: 192.168.0.1

Controller COM Port: 44818 (Note 4)

Controller Station Number: 0 (Slot Number) (Note 5)

Control Area / Status Area: None / None

Connection

Standard Jumper Cable / Network Cable without jumper (Auto-detected by HMI)

Definition of PLC Read/Write Address

a. Registers

Type	Format File No.(f) Word No.(n)	Read/Write Range	Data Length	Note
SINT Variable	**SINT**f:n	**SINT**0:0 – **SINT**999:65534	Byte	1
INT Variable	**INT**f:n	**INT**0:0 – **INT**999:65535	Word	
DINT Variable	**DINT**f:n	**DINT**0:0 – **DINT**999:65535	Double Word	
BOOL Variable	**BOOL**f:n	**BOOL**0:0 – **BOOL**999:65504	Double Word	2
REAL Variable	**REAL**f:n	**REAL**0:0 – **REAL**999:65535	Double Word	

b. Contacts

Type	Format File No.(f) Word No.(n) Bit No.(b)	Read/Write Range	Note
SINT Variable	**SINT**f:n/b	**SINT**0:0/0 – **SINT**999:65535/7	
INT Variable	**INT**f:n/b	**INT**0:0/0 – **INT**999:65535/15	
DINT Variable	**DINT**f:n/b	**DINT**0:0/0 – **DINT**999:65535/31	
BOOL Variable	**BOOL**f:n	**BOOL**0:0 – **BOOL**999:65535	

NOTE

1) **SINT**f:n : n must be an even number.

2) **BOOL**f:n : n must be the multiple of 32.

3) PLC IP address must be set first on RSLogix 5000 software and downloaded to PLC; otherwise PLC IP address can not be read. For detailed information about the setting methods, please refer to RSLogix 5000 software user manual.
4) Please do not change the COM port setting.
5) In this driver, PLC station number represents PLC slot number.

Allen Bradley Ethernet IP(MicroLogix, SLC500)

(Support Allen Bradley MicroLogix, SLC500 series PLC)

HMI Factory Setting:

Controller IP Address: 192.168.0.1

Controller COM Port: 44818 (Note 2)

Controller Station Number: 1 (Note 3)

Control Area / Status Area: None / None

Connection

Standard Jumper Cable / Network Cable without jumper (Auto-detected by HMI)

Definition of PLC Read/Write Address

a. Registers

Type	Format Word No. (n) Slot No. (s) File No. (f)	Read/Write Range	Data Length	Note
Output file	**O**:n	**O**:0 – **O**:255 (s = 0, f = 0)	Word	
	O:s.n	**O**:0.0 – **O**:255.255 (f = 0)		
Input file	**I**:n	**I**:0 – **I**:255 (s = 0, f = 1)	Word	
	I:s.n	**I**:0.0 – **I**:255.255 (f = 1)		
Status file	**S2**:n	**S2**:0 – **S2**:255 (f = 2)	Word	
Bit file	**B**:n	**B**:0 – **B**:255 (f = 3)	Word	
	Bf:n	**B**3:0 – **B**3:255, **B**9:0 – **B**255:255		
Timer flag	**T**:n	**T**:0 – **T**:255 (f = 4)	Word	
	Tf:n	**T**4:0 – **T**4:255, **T**9:0 – **T**255:255		
Timer Preset Value	**T**:n.PRE	**T**:0.PRE – **T**:255.PRE (f = 4)	Word	
	Tf:n.PRE	**T**4:0.PRE – **T**4:255.PRE, **T**9:0.PRE – **T**255:255.PRE		
Timer Accumulator Value	**T**:n.ACC	**T**:0.ACC – **T**:255.ACC, (f = 4)	Word	
	Tf:n.ACC	**T**4:0.ACC – **T**4:255.ACC, **T**9:0.ACC – **T**255:255.ACC		
Counter flag	**C**:n	**C**:0 – **C**:255, (f = 5)	Word	
	Cf:n	**C**5:0 – **C**5:255, **C**9:0 – **C**255:255		
Counter Preset Value	**C**:n.PRE	**C**:0.PRE – **C**:255.PRE, (f = 5)	Word	
	Cf:n.PRE	**C**5:0.PRE – **C**5:255.PRE, **C**9:0.PRE – **C**255:255.PRE		

Type	Format Word No. (n) Slot No. (s) File No. (f)	Read/Write Range	Data Length	Note
Counter Accumulator Value	**C**:n.ACC	**C**:0.ACC – **C**:255.ACC, (f = 5)	Word	
	Cf:n.ACC	**C**5:0.ACC – **C**5:255.ACC, **C**9:0.ACC – **C**255:255.ACC		
Control file	**R**:n	**R**:0 – **R**:255, (f = 6)	Word	
	Rf:n	**R**6:0 – **R**6:255, **R**9:0 – **R**255:255		
Control Size of Bit Array	**R**:n.LEN	**R**:0.LEN – **R**:255.LEN, (f = 6)	Word	
	Rf:n.LEN	**R**6:0.LEN – **R**6:255.LEN, **R**9:0.LEN – **R**255:255.LEN		
Control Reserved file	**R**:n.POS	**R**:0.POS – **R**:255.POS, (f = 6)	Word	
	Rf:n.POS	**R**6:0.POS – **R**6:255.POS, **R**9:0.POS – **R**255:255.POS		
Integer file	**N**:n	**N**:0 – **N**:255, (f = 7)	Word	
	Nf:n	**N**7:0 – **N**7:255, **N**9:0 – **N**255:255		
Floating Point file	**F**:n	**F**:0 – **F**:255, (f = 8)	Double Word	
	Ff:n	**F**8:0 – **F**8:255, **F**9:0 – **F**255:255		
String File	**ST**f:n	**ST**9:0 – **ST**255:255	41 Words	
Long Word File	**L**f:n	**L**9:0 – **L**255:255	Double Word	

b. Contacts

Type	Format Word No. (n) Slot No. (s) File No. (f) Bit No. (b)	Read/Write Range	Note
Output	**O**:n/b	**O**:0/0 – **O**:255/15 (s = 0, f = 0)	
	O:s.n/b	**O**:0.0/0 – **O**:255.255/15 (f = 0)	
Input	**I**:n/b	**I**:0/0 – **I**:255/15 (s = 0, f = 1)	
	I:s.n/b	**I**:0.0/0 – **I**:255.255/15 (f = 1)	
Status	**S2**:n/b	**S2**:0/0 – **S2**:255/15 (f = 2)	
Bit	**B**:n/b	**B**:0/0 – **B**:255/15, (f = 3)	
	Bf:n/b	**B**3:0/0 – **B**3:255/15, **B**9:0/0 – **B**255:255/15	
Timer	**T**:n/b	**T**:0/0 – **T**:255/15, (f = 4)	
	Tf:n/b	**T**4:0/0 – **T**4:255/15, **T**9:0/0 – **T**255:255/15	
	T:n/EN	**T**:0/EN – **T**:255/EN, (b = 15) (f = 4)	
	Tf:n/EN	**T**4:0/EN – **T**4:255/EN, (b = 15), **T**9:0/EN – **T**255:255/EN (b = 15)	
	T:n/TT	**T**:0/TT – **T**:255/TT, (b = 14) (f = 4)	

Type	Format Word No. (n) Slot No. (s) File No. (f) Bit No. (b)	Read/Write Range	Note
Output	**O**:n/b	**O**:0/0 – **O**:255/15 (s = 0, f = 0)	
	O:s.n/b	**O**:0.0/0 – **O**:255.255/15 (f = 0)	
Input	**I**:n/b	**I**:0/0 – **I**:255/15 (s = 0, f = 1)	
	I:s.n/b	**I**:0.0/0 – **I**:255.255/15 (f = 1)	
Status	**S2**:n/b	**S2**:0/0 – **S2**:255/15 (f = 2)	
Bit	**B**:n/b	**B**:0/0 – **B**:255/15, (f = 3)	
	Bf:n/b	**B**3:0/0 – **B**3:255/15, **B**9:0/0 – **B**255:255/15	
	Tf:n/TT	**T**4:0/TT – **T**4:255/TT, (b = 14) **T**9:0/TT – **T**255:255/TT (b = 14)	
	T:n/DN	**T**:0/TT – **T**:255/TT, (b = 13), (f = 4)	
	Tf:n/DN	**T**4:0/TT – **T**4:255/TT, (b = 13) **T**9:0/TT – **T**255:255/TT (b = 13)	
Timer Preset Value	**T**:n.PRE/b	**T**:0.PRE/0 – **T**:255.PRE/15, (f = 4)	
	Tf:n.PRE/b	**T**4:0.PRE/0 – **T**4:255.PRE/15, **T**9:0.PRE/0 – **T**255:255.PRE/15	
Timer Accumulator Value	**T**:n.ACC/b	**T**:0.ACC/0 – **T**:255.ACC/15, (f = 4)	
	Tf:n.ACC/b	**T**4:0.ACC/0 – **T**4:255.ACC/15, **T**9:0.ACC/0 – **T**255:255.ACC/15	
Counter flag	**C**:n/b	**C**:0/0 – **C**:255/15, (f = 5)	
	Cf:n/b	**C**5:0/0 – **C**5:255/15, **C**9:0/0 – **C**255:255/15	
	C:n/CU	**C**:0/CU – **C**:255/CU, (b = 15) (f = 5)	
	Cf:n/CU	**C**5:0/CU – **C**5:255/CU, (b = 15) **C**9:0/CU – **C**255:255/CU (b = 15)	
	C:n/CD	**C**:0/CD – **C**:255/CD, (b = 14) (f = 5)	
	Cf:n/CD	**C**5:0/CD – **C**5:255/CD, (b = 14) **C**9:0/CD – **C**255:255/CD (b = 14)	
	C:n/DN	**C**:0/DN – **C**:255/DN, (b = 13) (f = 5)	
	Cf:n/DN	**C**5:0/DN – **C**5:255/DN, (b = 13) **C**9:0/DN – **C**255:255/DN (b = 13)	
	C:n/OV	**C**:0/OV – **C**:255/OV, (b = 12) (f = 5)	
	Cf:n/OV	**C**5:0/OV – **C**5:255/OV, (b = 12) **C**9:0/OV – **C**255:255/OV (b = 12)	
	C:n/UN	**C**:0/UN – **C**:255/UN, (b = 11) (f = 5)	
	Cf:n/UN	**C**5:0/UN – **C**5:255/UN, (b = 11) **C**9:0/UN – **C**255:255/UN (b = 11)	
	C:n/UA	**C**:0/UA – **C**:255/UA, (b = 10) (f = 5)	
	Cf:n/UA	**C**5:0/UA – **C**5:255/UA, (b = 10) **C**9:0/UA – **C**255:255/UA (b = 10)	

Type	Format Word No. (n) Slot No. (s) File No. (f) Bit No. (b)	Read/Write Range	Note
Output	**O**:n/b	**O**:0/0 – **O**:255/15 (s = 0, f = 0)	
	O:s.n/b	**O**:0.0/0 – **O**:255.255/15 (f = 0)	
Input	**I**:n/b	**I**:0/0 – **I**:255/15 (s = 0, f = 1)	
	I:s.n/b	**I**:0.0/0 – **I**:255.255/15 (f = 1)	
Status	**S2**:n/b	**S2**:0/0 – **S2**:255/15 (f = 2)	
Bit	**B**:n/b	**B**:0/0 – **B**:255/15, (f = 3)	
	Bf:n/b	**B**3:0/0 – **B**3:255/15, **B**9:0/0 – **B**255:255/15	
Counter	**C**:n.PRE/b	**C**:0.PRE/0 – **C**:255.PRE/15, (f = 5)	
	Cf:n.PRE/b	**C**5:0.PRE/0 – **C**5:255.PRE/15, **C**9:0.PRE/0 – **C**255:255.PRE/15	
Counter Accumulator Value	**C**:n.ACC/b	**C**:0.PRE/0 – **C**:255.PRE/15, (f = 5)	
	Cf:n.ACC/b	**C**5:0.PRE/0 – **C**5:255.PRE/15, **C**9:0.PRE/0 – **C**255:255.PRE/15	
Control	**R**:n/b	**R**:0/0 – **R**:255/15, (f = 6)	
	Rf:n/b	**R**6:0/0 – **R**6:255/15, **R**9:0/0 – **R**255:255/15	
	R:n/EN	**R**:0/EN – **R**:255/EN, (b = 15) (f = 6)	
	Rf:n/EN	**R**6:0/EN – **R**6:255/EN, (b = 15) **R**9:0/EN – **R**255:255/EN (b = 15)	
	R:n/EU	**R**:0/EU – **R**:255/EU, (b = 14) (f = 6)	
	Rf:n/EU	**R**6:0/EU – **R**6:255/EU, (b = 14) **R**9:0/EU – **R**255:255/EU (b = 14)	
	R:n/DN	**R**:0/DN – **R**:255/DN, (b = 13) (f = 6)	
	Rf:n/DN	**R**6:0/DN – **R**6:255/DN, (b = 13) **R**9:0/DN – **R**255:255/DN (b = 13)	
	R:n/EM	**R**:0/EM – **R**:255/EM, (b = 12) (f = 6)	
	Rf:n/EM	**R**6:0/EM – **R**6:255/EM, (b = 12) **R**9:0/EM – **R**255:255/EM (b = 12)	
	R:n/ER	**R**:0/ER – **R**:255/ER, (b = 11) (f = 6)	
	Rf:n/ER	**R**6:0/ER – **R**6:255/ER, (b = 11) **R**9:0/ER – **R**255:255/ER (b = 11)	
	R:n/UL	**R**:0/UL – **R**:255/UL, (b = 10) (f = 6)	
	Rf:n/UL	**R**6:0/UL – **R**6:255/UL, (b = 10) **R**9:0/UL – **R**255:255/UL (b = 10)	
	R:n/IN	**R**:0/IN – **R**:255/IN, (b = 9) (f = 6)	
	Rf:n/IN	**R**6:0/IN – **R**6:255/IN, (b = 9) **R**9:0/IN – **R**255:255/IN (b = 9)	
	R:n/FD	**R**:0/FD – **R**:255/FD, (b = 8) (f = 6)	
	Rf:n/FD	**R**6:0/FD – **R**6:255/FD, (b = 8) **R**9:0/FD – **R**255:255/FD (b = 8)	

Type	Format Word No. (n) Slot No. (s) File No. (f) Bit No. (b)	Read/Write Range	Note
Output	**O**:n/b	**O**:0/0 – **O**:255/15 (s = 0, f = 0)	
	O:s.n/b	**O**:0.0/0 – **O**:255.255/15 (f = 0)	
Input	**I**:n/b	**I**:0/0 – **I**:255/15 (s = 0, f = 1)	
	I:s.n/b	**I**:0.0/0 – **I**:255.255/15 (f = 1)	
Status	**S2**:n/b	**S2**:0/0 – **S2**:255/15 (f = 2)	
Bit	**B**:n/b	**B**:0/0 – **B**:255/15, (f = 3)	
	Bf:n/b	**B**3:0/0 – **B**3:255/15, **B**9:0/0 – **B**255:255/15	
Control size of bit array	**R**:n.LEN/b	**R**:0.LEN/0 – **R**:255.LEN/15, (f = 6)	
	Rf:n.LEN/b	**R**6:0.LEN/0 – **R**6:255.LEN/15, **R**9:0.LEN/0 – **R**255:255.LEN/15	
Control Reserved	**R**:n.POS/b	**R**:0.POS/0 – **R**:255.POS/15, (f = 6)	
	Rf:n.POS/b	**R**6:0.POS/0 – **R**6:255.POS/15, **R**9:0.POS/0 – **R**255:255.POS/15	
Integer	**N**:n/b	**N**:0/0 – **N**:255/15, (f = 7)	
	Nf:n/b	**N**7:0/0 – **N**7:255/15, **N**9:0/0 – **N**255:255/15	
Long Word File	**L**f:n/b	**L**9:0/0 – **L**255:255/31	

1) PLC IP address must be set first on RSLogix 5000 software and downloaded to PLC; otherwise PLC IP address can not be read. For detailed information about the setting methods, please refer to RSLogix 5000 software user manual.
2) Please do not change the COM port setting.
3) In this driver, PLC station number has no function.

Allen Bradley MicroLogix

HMI Factory Setting:

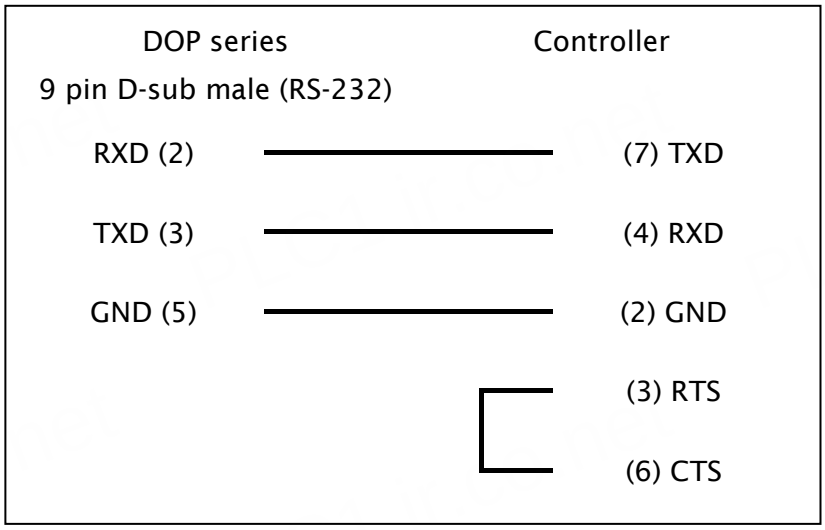
Baud Rate: 192.168.0.1

Controller Station Number: 1

Control Area / Status Area: B3:0/B3:10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n) File No. (f)			
Output file	**O:**n	**O:**0 – **O:**255 (f = 0)	Word	
Input file	**I:**n	**I:**0 – **I:**255 (f = 1)	Word	
Status file	**S2:**n	**S2:**0 – **S2:**255 (f = 2)	Word	
Bit file	**B3:**n	**B3:**0 – **B3:**255 (f = 3)	Word	
Timer flag	**T4:**n	**T4:**0 – **T4:**255 (f = 4)	Word	
Timer Preset Value	**T4:**n.PRE	**T4:**0.PRE – **T4:**255.PRE (f = 4)	Word	
Timer Accumulator Value	**T4:**n.ACC	**T4:**0.ACC – **T4:**255.ACC (f = 4)	Word	
Counter flag	**C5:**n	**C5:**0 – **C5:**255 (f = 5)	Word	
Counter Preset Value	**C5:**n.PRE	**C5:**0.PRE – **C5:**255.PRE (f = 5)	Word	
Counter Accumulator Value	**C5:**n.ACC	**C5:**0.ACC – **C5:**255.ACC (f = 5)	Word	

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n) File No. (f)			
Control file	**R6:**n	**R6:**0 – **R6:**255 (f = 6)	Word	
Control Size of Bit Array	**R6:**n.LEN	**R6:**0.LEN – **R6:**255.LEN (f = 6)	Word	
Control Reserved file	**R6:**n.POS	**R6:**0.POS – **R6:**255.POS (f = 6)	Word	
Integer file	**N7:**n	**N7:**0 – **N7:**255 (f = 7)	Word	
Floating Point file	**F8:**n	**F8:**0 – **F8:**255 (f = 8)	Double Word	2

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b) File No. (f)		
Output	**O:**n/b	**O:**0/0 – **O:**255/15 (f = 0)	
Input	**I:**n/b	**I:**0/0 – **I:**255/15 (f = 1)	
Status	**S2:**n/b	**S2:**0/0 – **S2:**255/15 (f = 2)	
Bit	**B3:**n/b	**B3:**0/0 – **B3:**255/15 (f = 3)	
Timer	**T4:**n/b	**T4:**0/0 – **T4:**255/15 (f = 4)	
	T4:n/EN	**T4:**0/EN – **T4:**255/EN (f = 4, b = 15)	
	T4:n/TT	**T4:**0/TT – **T4:**255/TT (f = 4, b = 14)	
	T4:n/DN	**T4:**0/DN – **T4:**255/DN (f = 4, b = 13)	
Timer Preset Value	**T4:**n.PRE/b	**T4:**0.PRE/0 – **T4:**255.PRE/15 (f = 4)	
Timer Accumulator Value	**T4:**n.ACC/b	**T4:**0.ACC/0 – **T4:**255.ACC/15 (f = 4)	
Counter	**C5:**n/b	**C5:**0/0 – **C5:**255/15 (f = 5)	
	C5:n/CU	**C5:**0/CU – **C5:**255/CU (f = 5, b = 15)	
	C5:n/CD	**C5:**0/CD – **C5:**255/CD (f = 5, b = 14)	
	C5:n/DN	**C5:**0/DN – **C5:**255/DN (f = 5, b = 13)	
	C5:n/OV	**C5:**0/OV – **C5:**255/OV (f = 5, b = 12)	
	C5:n/UN	**C5:**0/UN – **C5:**255/UN (f = 5, b = 11)	
	C5:n/UA	**C5:**0/UA – **C5:**255/UA (f = 5, b = 10)	
Counter Preset Value	**C5:**n.PRE/b	**C5:**0.PRE/0 – **C5:**255.PRE/15 (f = 5)	
Counter Accumulator Value	**C5:**n.ACC/b	**C5:**0.ACC/0 – **C5:**255.ACC/15 (f = 5)	
Control	**R6:**n/b	**R6:**0/0 – **R6:**255/15 (f = 6)	
	R6:n/EN	**R6:**0/EN – **R6:**255/EN (f = 6, b = 15)	
	R6:n/EU	**R6:**0/EU – **R6:**255/EU (f = 6, b = 14)	

Type	Format	Read/Write Range	Note
	Word No. (n) File No. (f) Bit No. (b)		
Control	**R6:**n/DN	**R6:**0/DN – **R6:**255/DN (f = 6, b = 13)	
	R6:n/EM	**R6:**0/EM – **R6:**255/EM (f = 6, b = 12)	
	R6:n/ER	**R6:**0/ER – **R6:**255/ER (f = 6, b = 11)	
	R6:n/UL	**R6:**0/UL – **R6:**255/UL (f = 6, b = 10)	
	R6:n/IN	**R6:**0/IN – **R6:**255/IN (f = 6, b = 9)	
	R6:n/FD	**R6:**0/FD – **R6:**255/FD (f = 6, b = 8)	
Control Size of Bit Array	**R6:**n.LEN/b	**R6:**0.LEN/0 – **R6:**255.LEN/15 (f = 6)	
Control Reserved	**R6:**n.POS/b	**R6:**0.POS/0 – **R6:**255.POS/15 (f = 6)	
Integer	**N7:**n/b	**N7:**0/0 – **N7:**255/15 (f = 7)	

NOTE

1) This protocol only supports DF1 protocol mode. Setting can be done on with panel located on the top of PLC. Setting parameter: Advance Set → DCOMM Cfg → Enable → Comms config set to DF1 default
2) This protocol supports BCC or CRC Error Check.
3) This protocol does not support Sring File and Long Word File, this request can be done by protocol SLC5.
4) F8 data is double word, used for Floating point.

Allen-Bradley SLC5

HMI Factory Setting:

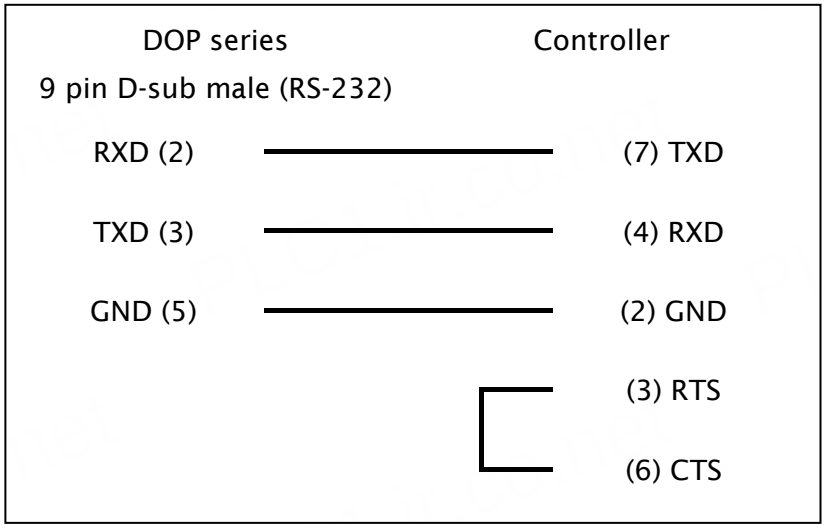
Baud rate: 19200. 8. None. 1

Controller Station Number: 1

Control Area / Status Area: B3:0/B3:10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n) Slot No. (s) File No. (f)			
Output file	**O:**n	**O:**0 – **O:**255 (s = 0, f = 0)	Word	
	O:s.n	**O:**0.0 – **O:**255.255 (f = 0)		
Input file	**I:**n	**I:**0 – **I:**255 (s = 0, f = 1)	Word	
	I:s.n	**I:**0.0 – **I:**255.255 (f = 1)		
Status file	**S2:**n	**S2:**0 – **S2:**255 (f = 2)	Word	
Bit file	**B**f:n	**B**3:0 – **B**3:255, **B**9:0 – **B**255:255	Word	
Timer flag	**T**f:n	**T**4:0 – **T**4:255, **T**9:0 – **T**255:255	Word	

Type	Format Word No. (n) Slot No. (s) File No. (f)	Read/Write Range	Data Length	Note
Timer Preset Value	**T**f:n.PRE	**T**4:0.PRE – **T**4:255.PRE, **T**9:0.PRE – **T**255:255.PRE	Word	
Timer Accumulator Value	**T**f:n.ACC	**T**4:0.ACC – **T**4:255.ACC, **T**9:0.ACC – **T**255:255.ACC		
Counter flag	**C**f:n	**C**5:0 – **C**5:255, **C**9:0 – **C**255:255	Word	
Counter Preset Value	**C**f:n.PRE	**C**5:0.PRE – **C**5:255.PRE, **C**9:0.PRE – **C**255:255.PRE		
Counter Accumulator Value	**C**f:n.ACC	**C**5:0.ACC – **C**5:255.ACC, **C**9:0.ACC – **C**255:255.ACC		
Control file	**R**f:n	**R**6:0 – **R**6:255, **R**9:0 – **R**255:255	Word	
Control Size of Bit Array	**R**f:n.LEN	**R**6:0.LEN – **R**6:255.LEN, **R**9:0.LEN – **R**255:255.LEN		
Control Reserved file	**R**f:n.POS	**R**6:0.POS – **R**6:255.POS, **R**9:0.POS – **R**255:255.POS		
Integer file	**N**f:n	**N**7:0 – **N**7:255, **N**9:0 – **N**255:255	Word	
Floating Point file	**F**f:n	**F**8:0 – **F**8:255, **F**9:0 – **F**255:255	Double Word	
String File	**ST**f:n	**ST**9:0 – **ST**255:255	41 Words	
Long Word File	**L**f:n	**L**9:0 – **L**255:255	Double Word	

b. Contacts

Type	Format Word No. (n) Slot No. (s) File No. (f) Bit No. (b)	Read/Write Range	Note
Output	**O:**n/b	**O:**0/0 – **O:**255/15 (s = 0, f = 0)	
	O:s.n/b	**O:**0.0/0 – **O:**255.255/15 (f = 0)	
Input	**I:**n/b	**I:**0/0 – **I:**255/15 (s = 0, f = 1)	
	I:s.n/b	**I:**0.0/0 – **I:**255.255/15 (f = 1)	
Status	**S2:**n/b	**S2:**0/0 – **S2:**255/15 (f = 2)	
Bit	**B**f:n/b	**B**3:0/0 – **B**3:255/15, **B**9:0/0 – **B**255:255/15	

Type	Format Word No. (n) Slot No. (s) File No. (f) Bit No. (b	Read/Write Range	Note
Timer	**T**f:n/TT	**T**4:0/TT – **T**4:255/TT, (b = 14) **T**9:0/TT – **T**255:255/TT (b = 14)	
	Tf:n/DN	**T**4:0/TT – **T**4:255/TT, (b = 13) **T**9:0/TT – **T**255:255/TT (b = 13)	
Timer Preset Value	**T**f:n.PRE/b	**T**4:0.PRE/0 – **T**4:255.PRE/15, **T**9:0.PRE/0 – **T**255:255.PRE/15	
Timer Accumulator Value	**T**f:n.ACC/b	**T**4:0.ACC/0 – **T**4:255.ACC/15, **T**9:0.ACC/0 – **T**255:255.ACC/15	
Counter flag	**C**f:n/b	**C**5:0/0 – **C**5:255/15, **C**9:0/0 – **C**255:255/15	
	Cf:n/CU	**C**5:0/CU – **C**5:255/CU, (b = 15) **C**9:0/CU – **C**255:255/CU (b = 15)	
	Cf:n/CD	**C**5:0/CD – **C**5:255/CD, (b = 14) **C**9:0/CD – **C**255:255/CD (b = 14)	
	Cf:n/DN	**C**5:0/DN – **C**5:255/DN, (b = 13) **C**9:0/DN – **C**255:255/DN (b = 13)	
	Cf:n/OV	**C**5:0/OV – **C**5:255/OV, (b = 12) **C**9:0/OV – **C**255:255/OV (b = 12)	
	Cf:n/UN	**C**5:0/UN – **C**5:255/UN, (b = 11) **C**9:0/UN – **C**255:255/UN (b = 11)	
	Cf:n/UA	**C**5:0/UA – **C**5:255/UA, (b = 10) **C**9:0/UA – **C**255:255/UA (b = 10)	
Counter	**C**f:n.PRE/b	**C**5:0.PRE/0 – **C**5:255.PRE/15, **C**9:0.PRE/0 – **C**255:255.PRE/15	
Counter Accumulator Value	**C**f:n.ACC/b	**C**5:0.PRE/0 – **C**5:255.PRE/15, **C**9:0.PRE/0 – **C**255:255.PRE/15	
Control	**R**f:n/b	**R**6:0/0 – **R**6:255/15, **R**9:0/0 – **R**255:255/15	
	Rf:n/EN	**R**6:0/EN – **R**6:255/EN, (b = 15) **R**9:0/EN – **R**255:255/EN (b = 15)	
	Rf:n/EU	**R**6:0/EU – **R**6:255/EU, (b = 14) **R**9:0/EU – **R**255:255/EU (b = 14)	
	Rf:n/DN	**R**6:0/DN – **R**6:255/DN, (b = 13) **R**9:0/DN – **R**255:255/DN (b = 13)	

Type	Format Word No. (n) Slot No. (s) File No. (f) Bit No. (b	Read/Write Range	Note
Control	**Rf:**n/EM	**R**6:0/EM – **R**6:255/EM, (b = 12) **R**9:0/EM – **R**255:255/EM (b = 12)	
	Rf:n/ER	**R**6:0/ER – **R**6:255/ER, (b = 11) **R**9:0/ER – **R**255:255/ER (b = 11)	
	Rf:n/UL	**R**6:0/UL – **R**6:255/UL, (b = 10) **R**9:0/UL – **R**255:255/UL (b = 10)	
	Rf:n/IN	**R**6:0/IN – **R**6:255/IN, (b = 9) **R**9:0/IN – **R**255:255/IN (b = 9)	
	Rf:n/FD	**R**6:0/FD – **R**6:255/FD, (b = 8) **R**9:0/FD – **R**255:255/FD (b = 8)	
Control size of bit array	**R**f:n.LEN/b	**R**6:0.LEN/0 – **R**6:255.LEN/15, **R**9:0.LEN/0 – **R**255:255.LEN/15	
Control Reserved	**R**f:n.POS/b	**R**6:0.POS/0 – **R**6:255.POS/15, **R**9:0.POS/0 – **R**255:255.POS/15	
Integer	**N**f:n/b	**N**7:0/0 – **N**7:255/15, **N**9:0/0 – **N**255:255/15	
Long Word File	**L**f:n/b	**L**9:0/0 – **L**255:255/31	

NOTE

1) This protocol only supports CRC Error Check.

Cimon PLC

(This PLC is applicable to BP, XP series of PLC)

HMI Factory Setting:

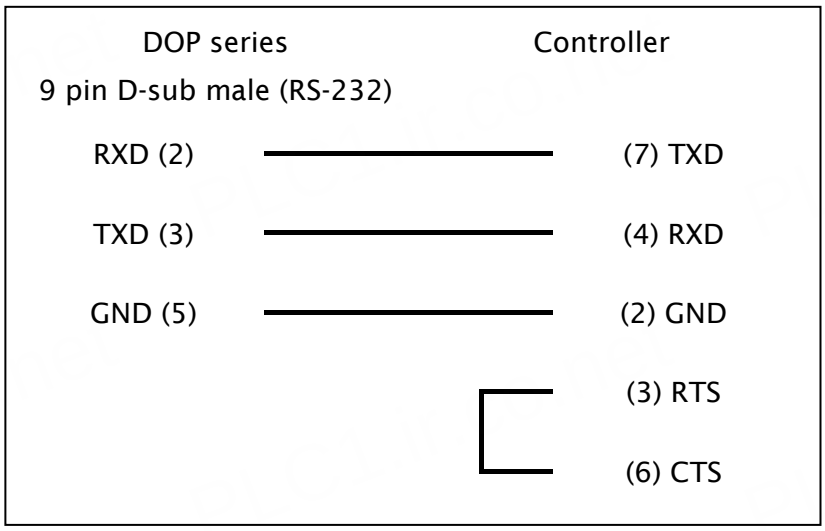
Baud rate: 38400. 8. None. 1

Controller Station Number: 1

Control Area / Status Area: D00000/D00010

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Input **X**	**X**n	**X**000 – **X**511	Word	
Output **Y**	**Y**n	**Y**000 – **Y**511	Word	
General Purpose Relay **M**	**M**n	**M**000 – **M**999	Word	
General Purpose Relay **L**	**L**n	**L**000 – **L**999	Word	
Latch Relay **K**	**K**n	**K**000 – **K**999	Word	
Flags **F**	**F**n	**F**000 – **F**127	Word	
Timer (Set) **TS**	**TS**n	**TS**0000 – **TS**4095	Word	
Timer (Current) **TC**	**TC**n	**TC**0000 – **TC**4095	Word	
Counter (Set) **CS**	**CS**n	**CS**0000 – **CS**4095	Word	
Counter (Current) **CC**	**CC**n	**CC**0000 – **CC**4095	Word	

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
General Purpose Word Data **D**	**D**n	**D**00000 – **D**31999	Word	
Step Controller **S**	**S**n	**S**0 – **S**99	Byte	1

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Input **X**	**X**nb	**X**0000 – **X**511F	
Output **Y**	**Y**nb	**Y**0000 – **Y**511F	
General Purpose Relay **M**	**M**nb	**M**0000 – **M**999F	
General Purpose Relay **L**	**L**nb	**L**0000 – **L**999F	
Latch Relay **K**	**K**nb	**K**0000 – **K**999F	
Flags **F**	**F**nb	**F**0000 – **F**127F	
Timer Status **T**	**T**b	**T**0000 – **T**4095	
Counter Status **C**	**C**b	**C**0000 – **C**4095	

NOTE

1) The unit of PLC internal memory is byte and Device S is read in the unit of byte. It is recommended NOT TO USE two consecutive devices S as the read address to prevent occurrence of interference. For example, when choosing two numeric input device, please use S24 and S26, do not use S24 and S25.

Copley Servo (Stepnet protocol)

HMI Factory Setting:

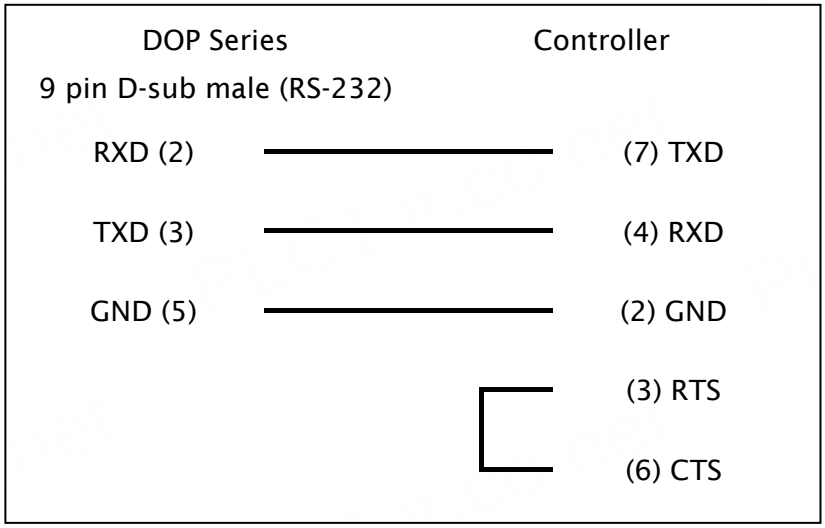
Baud rate: 9600. 8. None. 1

Controller Station Number: 0

Control Area / Status Area: None/None

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Ram memory **R**	**R**nn	**R**00 – **R**FF	Double Word	Hexadecimal
Flash memory **F**	**F**nn	**F**00 – **F**FF	Double Word	Hexadecimal
Internal Register **IR**	**IR**n	**IR**0 – **IR**31	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
BIT_DEVICE_RB	**RB**nn.b	**RB**00.0 – **RB**FF.31	1
BIT_DEVICE_FB	**FB**nn.b	**FB**00.0 – **FB**FF.31	1
BIT_DEVICE_T0	**T0**b	**T0**0	2, 5
BIT_DEVICE_T1	**T1**b	**T1**0	2, 5

Type	Format Word No. (n) Bit No. (b)	Read/Write Range	Note
BIT_DEVICE_T2	**T2**b	**T2**0	2, 5
BIT_DEVICE_RST	**RST**b	**RST**0	3, 5
BIT_DEVICE_CPR	**CPR**nn	**CPR**00 – **CPR**FF	Hexadecimal, 4, 5
BIT_DEVICE_CPF	**CPF**nn	**CPF**00 – **CPF**FF	Hexadecimal, 4, 5

NOTE

1) RB and FB are the bit access of Ram/Flash memory. Therefore, RB0x21.14 indicates bit 14 of Ram memory 0x21.
2) T0, T1 and T2 are virtual devices for simulating Trajectory Generator Command. The number of 0, 1 and 2 indicates the subcommand of that command, so only bit 0 is acceptable.
3) RST is for simulating Reset Command, so only bit 0 is acceptable.
4) CPR and CPF are for simulating Copy Command of Ram and Flash individually. The address (n) after CPR and CPF is just the copy address for Ram/Flash memory. For example, CPR12 indicates that the content of Ram memory 0x12 will be copied into Flash memory 0x12 and CPF6A indicates that the content of Flash memory 0x6A will be copied into Ram memory 0x6A.
5) T0, T1, T2, RST, CPR, CPF are all read-only and they can not be used on Reset button.

Danfoss VLT 2800 (FC protocol)

HMI Factory Setting:

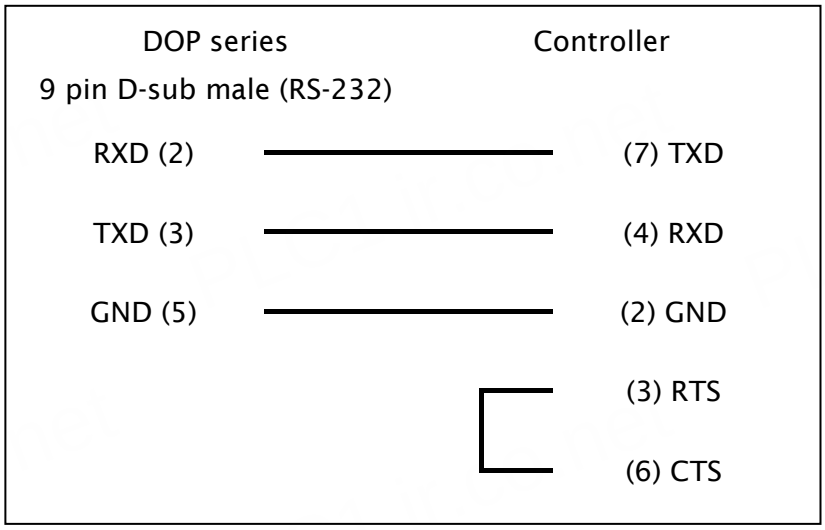
Baud rate: 9600. 8. EVEN. 1(RS-485)

Controller Station Number: 1

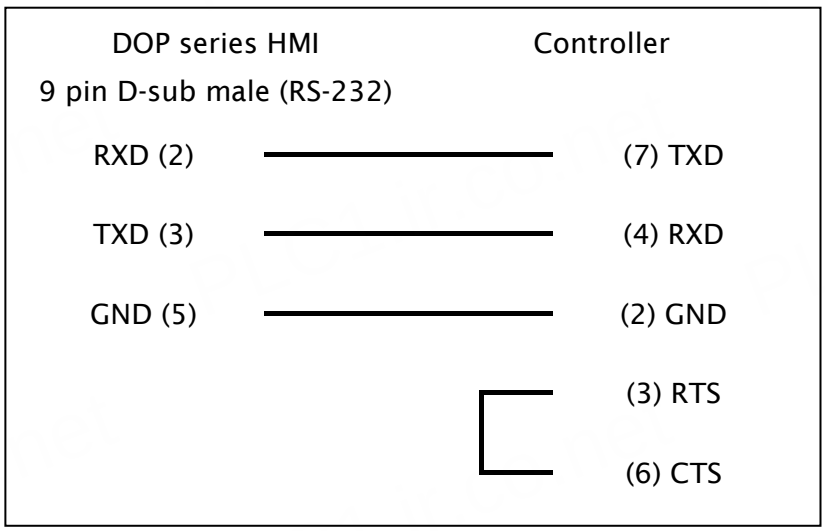
Control Area / Status Area: None/None

Connection

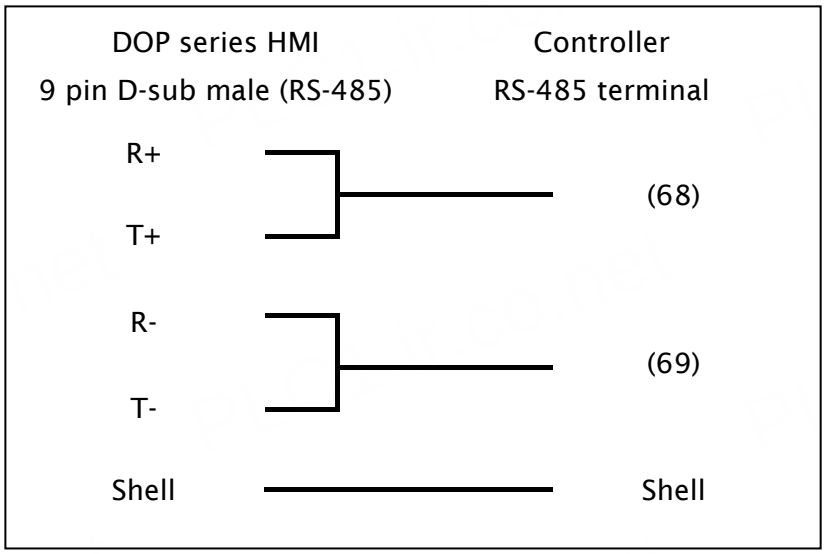
a. RS-232 (DOP-A/AE/AS, DOP-B Series)



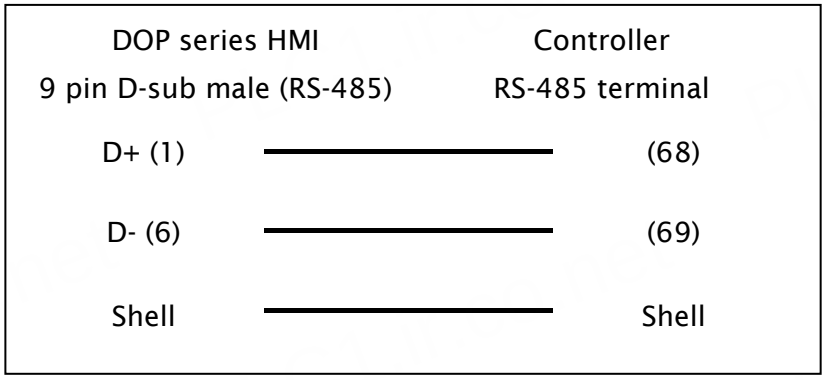
b. RS-485 (DOP-AS57 Series)



c. RS-485 (DOP-AS35/AS38 Series)



d. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n) Index No.(i)			
Parameter	**P**n:i	**P**0:0 – **P**999:31	Double Word	6, 7, 8
Control Word	**CTRWD**n	**CTRWD**0	Word	9, 11
Status Word	**STAWD**n	**STAWD**0	Word	10, 12

b. Contacts

Type	Format	Read/Write Range	Note
	Word No.(n) Index No.(i) Bits No.(b)		
Parameter	**P**n:i.b	**P**0:0.0 – **P**999:31.31	

NOTE

1) Delta HMI can be connected to VLT-2800, 5000, 6000, 7000 controller.
2) Each data length format of Danfoss AC drive parameter is not fixed, therefore, “Multiple Duplicate” function is not provided.
3) Maximum supported alarm number is 16. An alarm number over 16 will result and error.
4) Does not support “optimum read/write” characteristic.
5) If the selected element is a string, the minimum data length should be greater than 2.
6) The default setting for no index No. is 0.
7) The default setting of index No. P606 ~ P617 is 1.
8) Please notice that it is necessary to enter index No. on certain parameters of Danfoss controllers. Please pay close attention to the setting range of index number. For example, the index No. setting range of the parameter does not starts with 0, if P615 is from 1 to 20, an index value (ex:P615:1) must be entered otherwise read & write failure would occur. For range detail, please see Danfoss manual.
9) **CTRWD**: Write-only. (Can not be used on the read devices that display the value and input value…etc. It is recommended to be used on the setting value/setting constant (button), or macro function.)
10) **STAWD**：Read-Only.
11) Control Word

Bit	Bit = 0	Bit = 1
15	No Function	Reversing
14	Choice of Setup 2 (msb)	
13	Choice of Setup 1 (lsb)	
12	No Function	Relay 04 activated
11	No Function	Relay 01 activated
10	Data Not Vaild	Vaild
9	Ramp 1	Ramp2
8	Jog 1 OFF	ON
7	No Function	Reset
6	Ramp Stop	Start
5	Hold	Ramp Enable
4	Quick-Stop	Ramp
3	Coasting	Enable
2	DC Brake	Ramp
1	Preset reference choice msb	
0	Preset reference choice msb	

Control Word is useable only if Bit 10 =1 (Data Valid).

12) Status Word

Bit	Bit = 0	Bit = 1
15	Timer OK	Above limit
14	Torque OK	Above limit
13	Voltage OK	Above limit
12	Temperature OK	Over-Temp, auto-start pending
11	Not Running	Running
10	Out of Range	Frequency OK
9	Local Control	Bus Control
8	Speed reference	Speed reference
7	No Warning	Warning
6	Reserved	
5	Reserved	
4	Reserved	
3	No Fault	Trip
2	Coasting	Enabled
1	VLT not ready	Ready
0	Control not ready	Ready

Delta Controller ASCII/RTU

HMI Factory Setting:

Baud rate: 9600, 7, None, 2 (ASCII); 9600, 8, None, 2 (RTU)

Controller Station Number: 1

Control Area / Status Area: None/None

Connection

Delta Servo

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

DOP series		Controller
9 pin D-sub male (RS-232)		CN3 cable connector (RS-232)
RXD (2)	———	(2) TX
TXD (3)	———	(4) RX
GND (5)	———	(1) GND

b. RS-422 (DOP-A/AE Series)

DOP series		Controller
9 pin D-sub male (RS-422)		CN3 cable connector (RS-422)
RXD- (1)	———	(6) TX-
RXD+ (2)	———	(5) TX+
TXD+ (3)	———	(3) RX+
TXD- (4)	———	(4) RX-

c. RS-422 (DOP-AS35/AS38/AS57 Series)

DOP series		Controller
9 pin D-sub male (RS-422)		CN3 cable connector (RS-422)
R-	———	(6) TX-
R+	———	(5) TX+
T+	———	(3) RX+
T-	———	(4) RX-

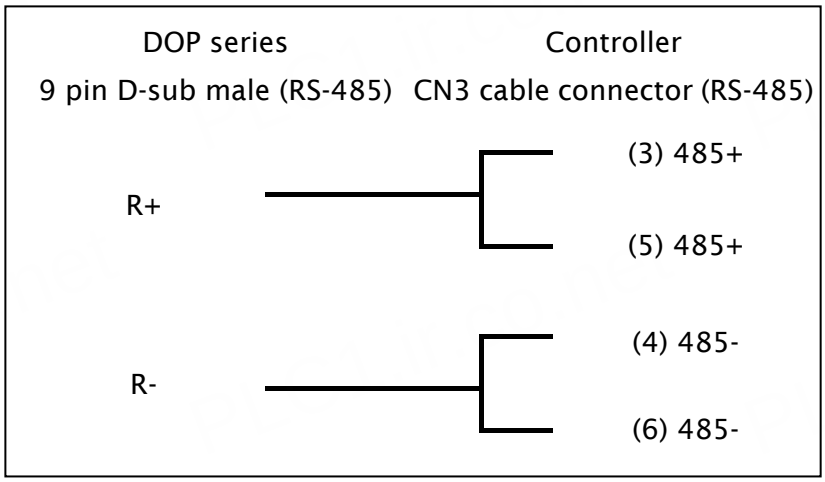
d. RS-422 (DOP-B Series)

DOP series		Controller
9 pin D-sub male (RS-422)		CN3 cable connector (RS-422)
RXD- (9)	———	(6) TX-
RXD+ (4)	———	(5) TX+
TXD+ (1)	———	(3) RX+
TXD- (6)	———	(4) RX-

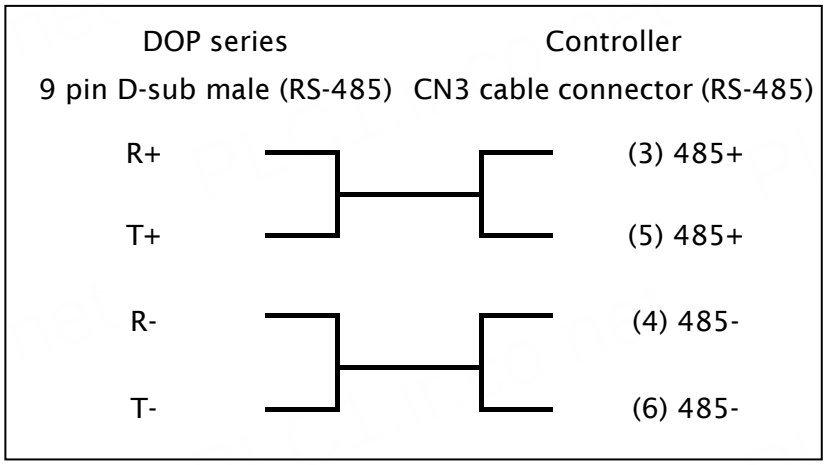
e. RS-485 (DOP-A/AE Series)

DOP series		Controller
9 pin D-sub male (RS-485)		CN3 cable connector (RS-485)
D+ (2)	———	(3) 485+
D+ (3)	———	(5) 485+
D- (1	———	(4) 485-
D- (4)	———	(6) 485-

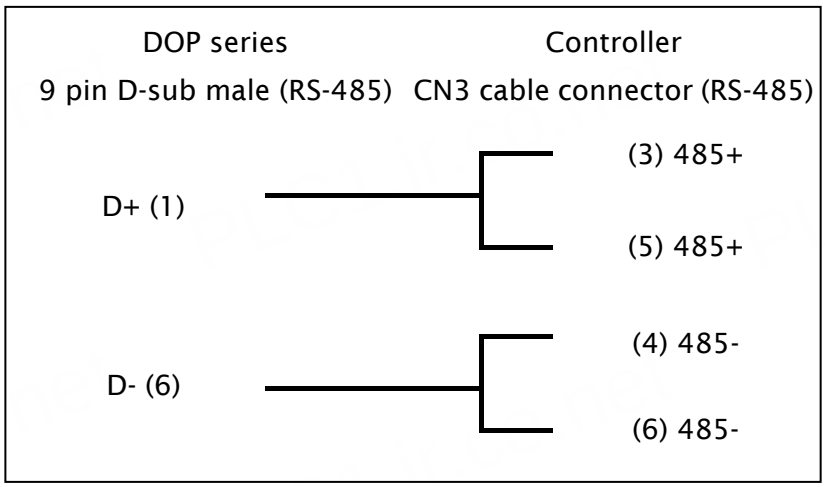
f. RS-485 (DOP-AS57 Series)



g. RS-485 (DOP-AS35/AS38 Series)

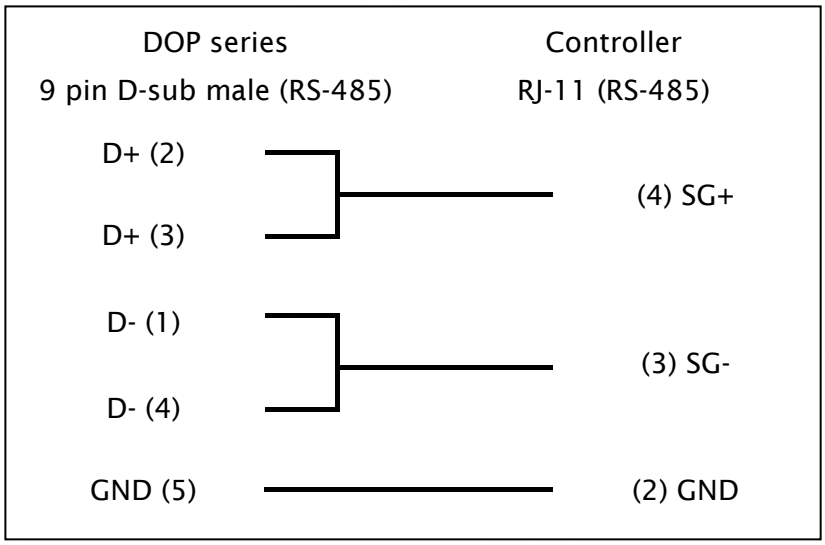


h. RS-485 (DOP-B Series)

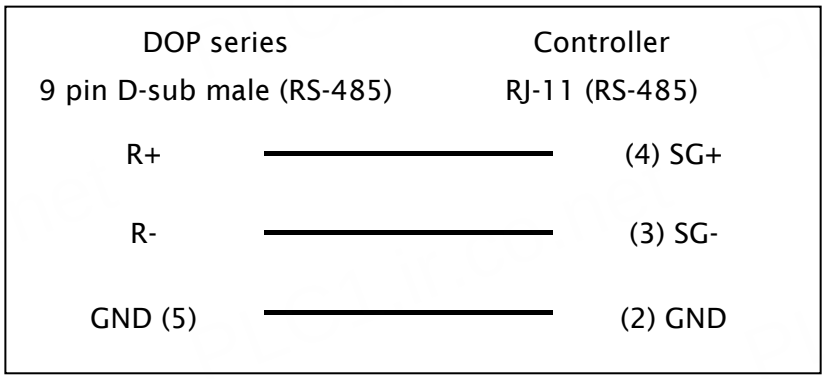


Delta AC Motor Dirve

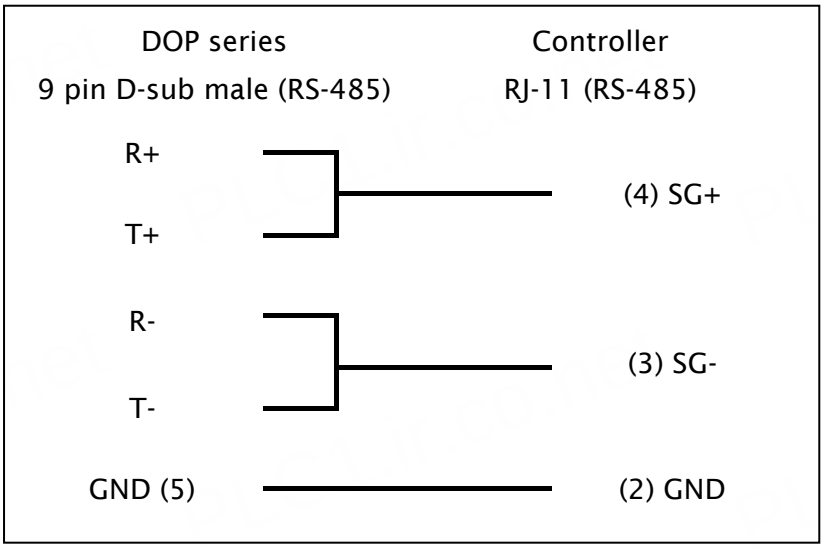
a. RS-485 (DOP-A/AE Series)



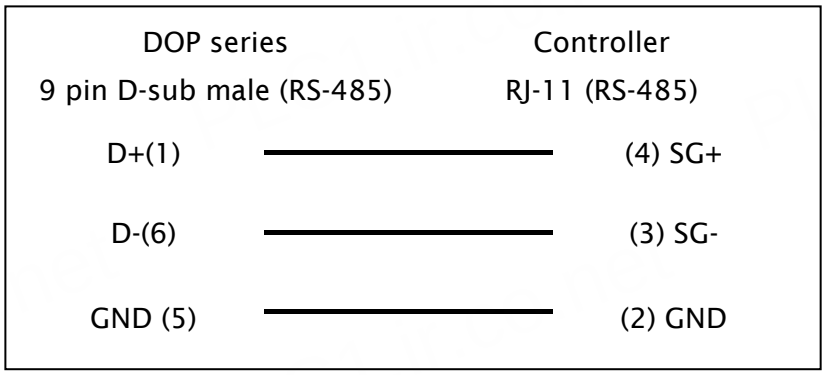
b. RS-485 (DOP-AS57 Series)



c. RS-485 (DOP-AS35/AS38 Series)

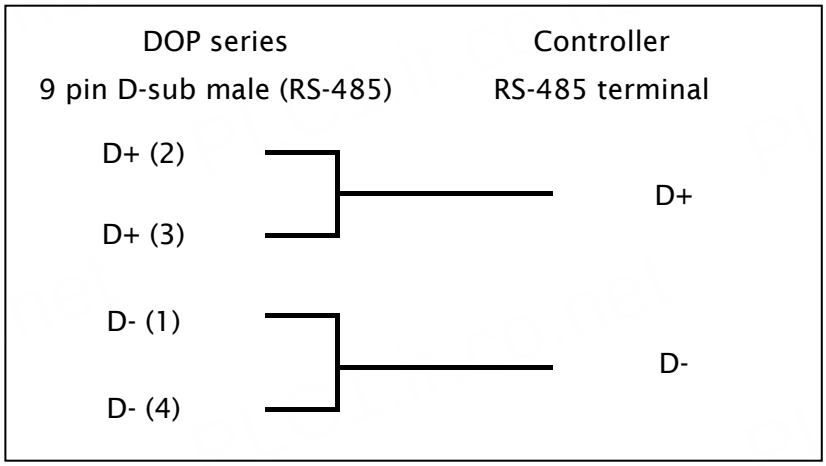


d. RS-485 (DOP-B Series)

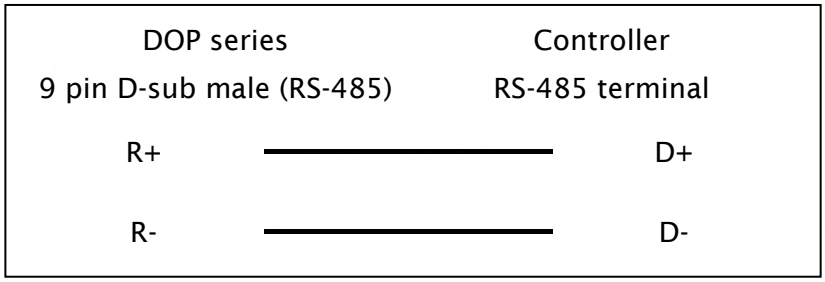


Temperature Controller

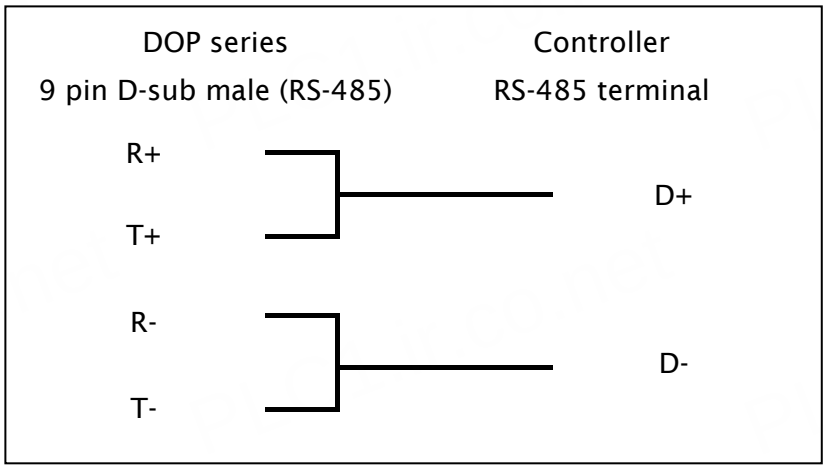
a. RS-485 (DOP-A/AE Series)



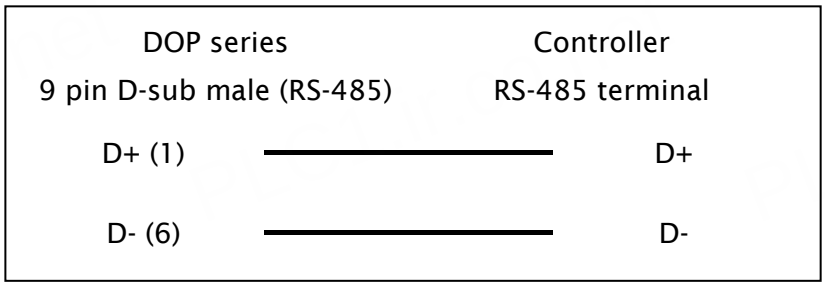
b. RS-485 (DOP-AS57 Series)



c. RS-485 (DOP-AS35/AS38 Series)



d. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format Word No. (n)	Read/Write Range	Data Length	Note
Servo Communication Address	**SERVO**-n	**SERVO**-0 – **SERVO**-FFFF	Word	Hexadecimal
AC Drive Communication Address	**INVERTER**-n	**INVERTER**-0 – **INVERTER**-FFFF	Word	Hexadecimal
Temperature Controller Communication Address	**TEMP_CTRL**-n	**TEMP_CTRL**-0 – **TEMP_CTRL**-6000	Word	Hexadecimal
PLC Communication Address X	**PLC_X**n	**PLC_X**0 – **PLC_X**360	Word	Octal, 1
PLC Communication Address Y	**PLC_Y**n	**PLC_Y**0 – **PLC_Y**360	Word	Octal, 1
PLC Communication Address M	**PLC_M**n	**PLC_M**0 – **PLC_M**1520, **PLC_M**1536 – **PLC_M**4080	Word	1
PLC Communication Address S	**PLC_S**n	**PLC_S**0 – **PLC_S**1008	Word	1

b. Contacts

Type	Format	Read/Write Range	Note
	Word No.(n) Bit No. (b)		
Servo Communication Address	**SERVO**-n.b	**SERVO**-0.0 – **SERVO**-FFFF.F	Hexadecimal
AC Drive Communication Address	**INVERTER**-n.b	**INVERTER**-0.0 – **INVERTER**-FFFF.F	Hexadecimal
Temperature Controller Communication Address	**TEMP_CTRL**-n.b	**TEMP_CTRL**-0.0 – **TEMP_CTRL**-6000.F	Hexadecimal
Servo Digital Input	**SERVO_DI**-b	**SERVO_DI**-1 – **SERVO_DI**-8	2
Servo Digital Output	**SERVO_DO**-b	**SERVO_DO**-1 – **SERVO_DO**-5	2
PLC Communication Address X	**PLC_X**b	**PLC_X**0 – **PLC_X**377	Octal
PLC Communication Address Y	**PLC_Y**b	**PLC_Y**0 – **PLC_Y**377	Octal
PLC Communication Address M	**PLC_M**b	**PLC_M**0 – **PLC_M**1535, **PLC_M**1536 – **PLC_M**4095	
PLC Communication Address S	**PLC_S**b	**PLC_S**0 – **PLC_S**1023	
PLC Communication Address T	**PLC_T**b	**PLC_T**0 – **PLC_T**255	
PLC Communication Address C	**PLC_C**b	**PLC_C**0 – **PLC_C**255	
Temperature Controller Bit Communication Address	**TEMP_CTRLB**-b	**TEMP_CTRLB**-800 – **TEMP_CTRLB**-8FF	Hexadecimal
Discrete Outputs	**RWB**-b	**RWB**-0 – **RWB**-FFFF	Hexadecimal
Discrete Inputs	**RB**-b	**RB**-0 – **RB**-FFFF	Hexadecimal
Discrete Outputs	**B**b	**B**1 – **B**10000	
Discrete Inputs	**B**b	**B**10001 – **B**20000	

NOTE

1) Device address must be the multiple of 16.

2) SERVO_DI-, SERVO_DO- are for Servo only。

3) HMI can be connected to several temperature controllers using RTU transmission mode. However a communication delay time of 5ms or longer is highly recommended.

Delta DVP PLC

HMI Factory Setting:

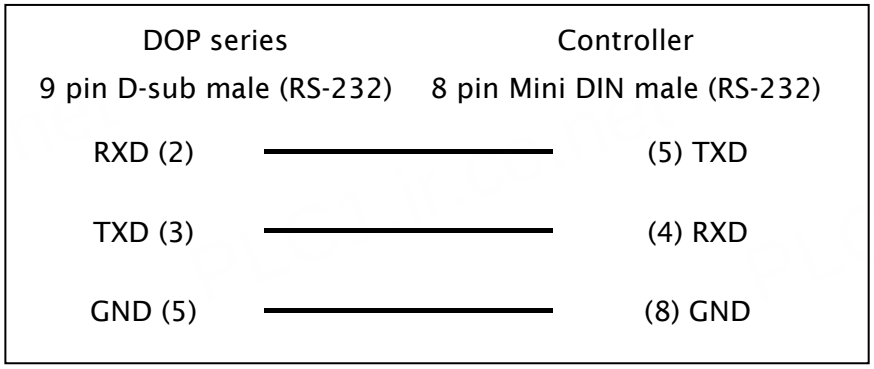
Baud Rate: 9600. 7. Even. 1

Controller Station Number: 1

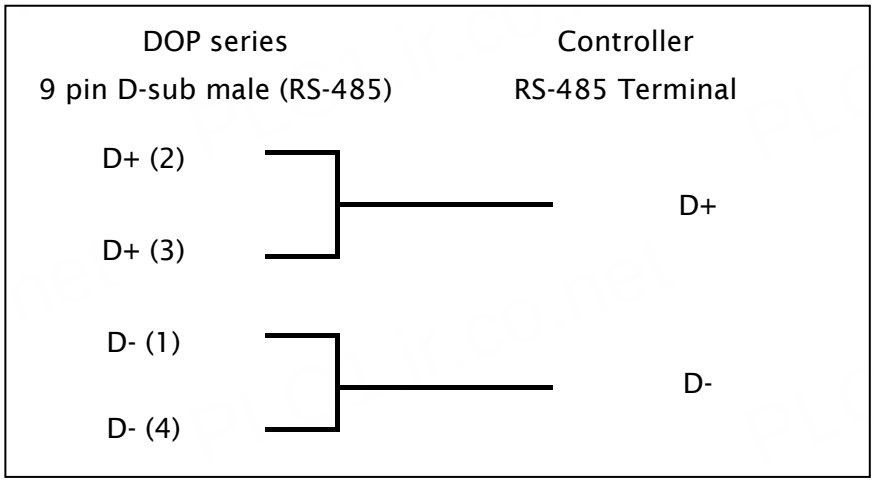
Control Area / Status Area: D0/D10

Connection

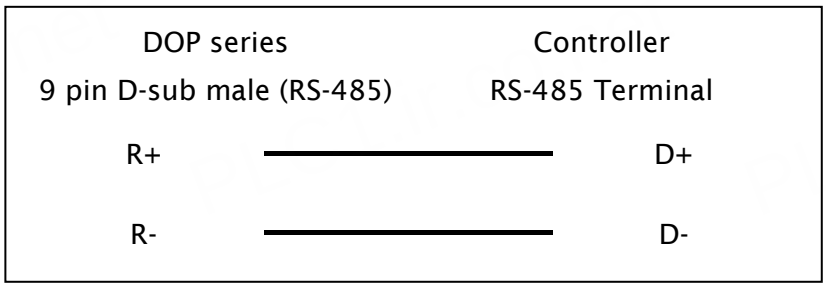
a. RS-232 (DOP-A/AE/AS, DOP-B Series)



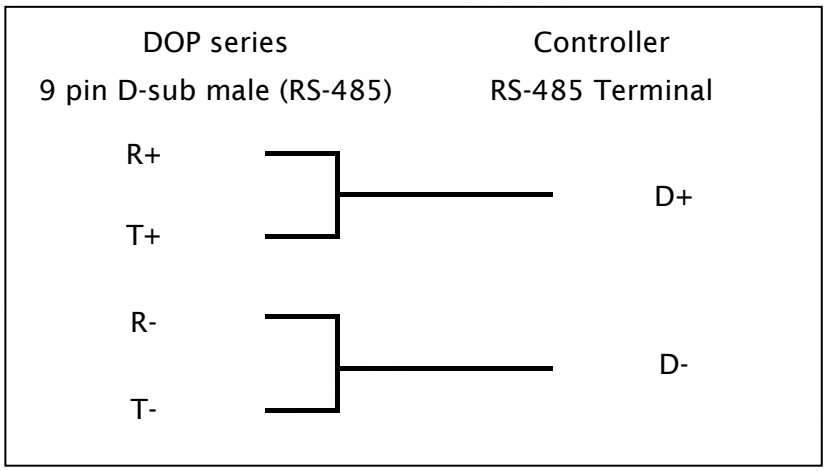
b. RS-485 (DOP-A/AE Series)



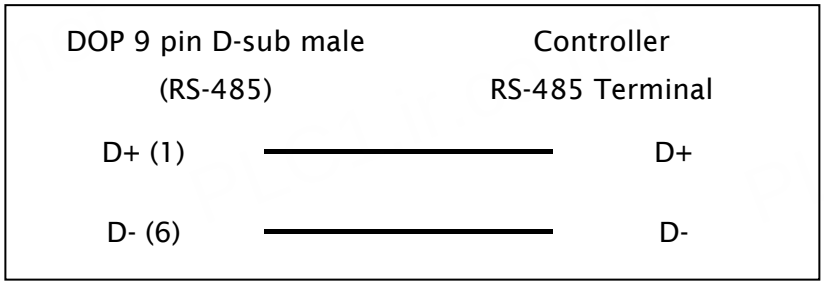
c. RS-485 (DOP-AS57 Series)



d. RS-485 (DOP-AS35/AS38 Series)



e. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
X_Data	**X**n	**X**0 – **X**360	Word	Octal, 1
Y_Data	**Y**n	**Y**0 – **Y**360	Word	Octal, 1
M_Data	**M**n	**M**0 – **M**1520, **M**1536 – **M**4080	Word	1
S_Data	**S**n	**S**0 – **S**1008	Word	1
T_Register	**T**n	**T**0 – **T**255	Word	
C_Register	**C**n	**C**0 – **C**199	Word	
D_Register	**D**n	**D**0 – **D**9999	Word	
HC_Register	**C**n	**C**200 – **C**255	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
X_Data	**X**b	**X**0 – **X**377	
Y_Data	**Y**b	**Y**0 – **Y**377	
M_Data	**M**b	**M**0 – **M**4080	
S_Data	**S**b	**S**0 – **S**1023	
T_Coil	**T**b	**T**0 – **T**255	
C_Coil	**C**b	**C**0 – **C**255	

NOTE

1) Device address must be the multiple of 16.

Delta DVP TCP/IP

HMI Factory Setting:

Controller IP Address: 192.168.0.1

Controller COM Port: 502

Controller Station Number: 1

Control Area / Status Area: D0/D10

Connection

Standard Jumper Cable / Network Cable without jumper (Auto-detected by HMI)

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
X_Data	**X**n	**X**0 – **X**360	Word	**Octal, 1**
Y_Data	**Y**n	**Y**0 – **Y**360	Word	**Octal, 1**
M_Data	**M**n	**M**0 – **M**1520, **M**1536 - **M**4080	Word	**1**
S_Data	**S**n	**S**0 – **S**1008	Word	**1**
T_Register	**T**n	**T**0 – **T**255	Word	
C_Register	**C**n	**C**0 – **C**199	Word	
D_Register	**D**n	**D**0 – **D**9999	Word	
HC_Register	**C**n	**C**200 – **C**255	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
X_Data	**X**b	**X**0 – **X**377	
Y_Data	**Y**b	**Y**0 – **Y**377	
M_Data	**M**b	**M**0 – **M**4080	
S_Data	**S**b	**S**0 – **S**1023	
T_Coil	**T**b	**T**0 – **T**255	

Type	Format	Read/Write Range	Note
	Bit No. (b)		
C_Coil	Cb	C0 – C255	

NOTE

1) Device address must be a multiple of 16

Delta RTU-EN01 (Modbus TCP)

HMI Factory Setting:

Controller IP Address: 192.168.0.1

Controller COM Port: 502

Controller Station Number: 1

Control Area / Status Area: None/None

Connection

Standard Jumper Cable / Network Cable without jumper (Auto-detected by HMI)

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Basic Register	**BR**-n	**BR**-0 – **BR**-63	Word	Read only
Timer Register	**T**-n	**T**-0 – **T**-15	Word	
Counter Register	**C**-n	**C**-0 – **C**-15	Word	
I/O Module Control Register	**RCR**-n	**RCR**-0 – **RCR**-399	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Input Relay	**RX**-b	**RX**-0 – **RX**-255	Read only
Output Relay	**RY**-b	**RY**-0 – **RY**-255	
Timer Relay	**T**-b	**T**-0 – **T**-15	
R Relay	**R**-b	**R**-0 – **R**-15	
Counter Relay	**C**-b	**C**-0 – **C**-15	

NOTE

1) The address number can be up to three digits. Even if leading 0 (zero) is used, the total address number should not be more than three digits.

2) Relationship between Modbus address and HMI register:

Delta RTU-EN01 (Modbus TCP) Address		Modbus Address (Dec)
Basic Register	**BR**-0 – **BR**-63	**W4**00001 – **W4**00064
Timer Register	**T**-0 – **T**-15	**W4**05633 – **W4**05648
Counter Register	**C**-0 – **C**-15	**W4**07681 – **W4**07696
I/O Module Control Register	**RCR**-0 – **RCR**-399	**W4**12289 – **W4**12689
Input Relay	**RX**-0 – **RX**-255	**B1**01025 – **B1**01280
Output Relay	**RY**-0 – **RY**-255	**B0**01281 – **B0**01536
Timer Relay	**T**-0 – **T**-15	**B0**05633 – **B0**05648
R Relay	**R**-0 – **R**-15	**B0**06401 – **B0**06416
Counter Relay	**C**-0 – **C**-15	**B0**07681 – **B0**07696

Delta Solectria Inverter

HMI Factory Setting:

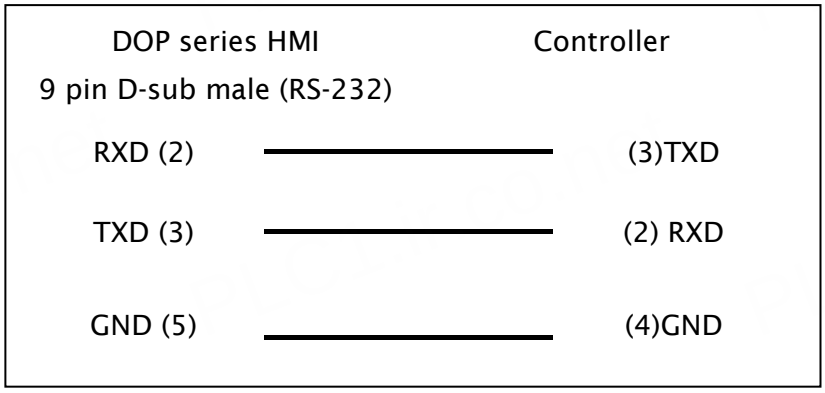
Baud Rate: 19200. 8. None. 1

Controller Station Number: 1

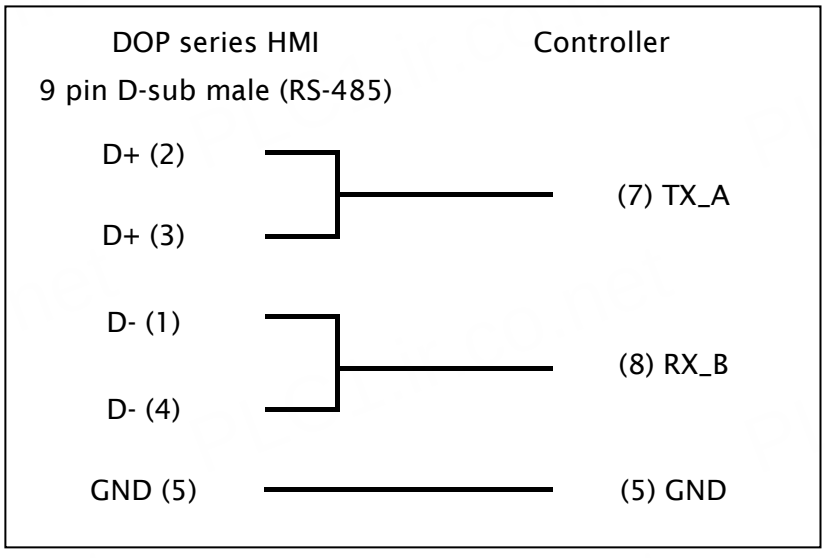
Control Area / Status Area: None/ None

Connection

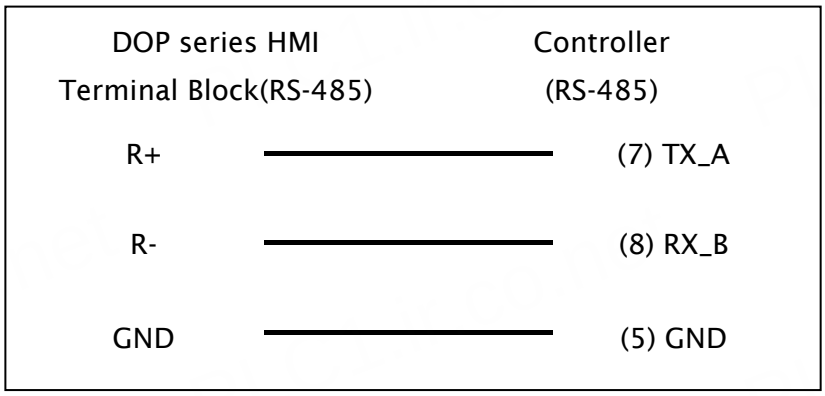
a. RS-232 (DOP-A/AE/AS, DOP-B Series)



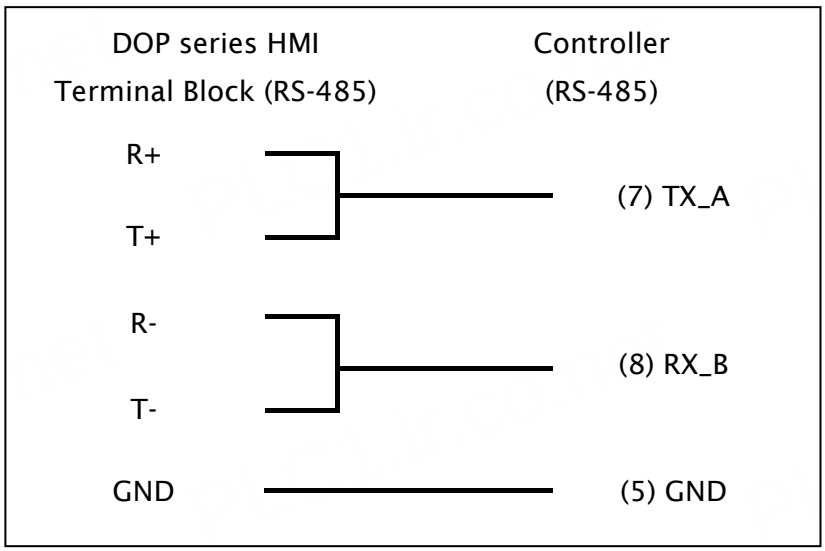
b. RS-485 (DOP-A/AE Series)



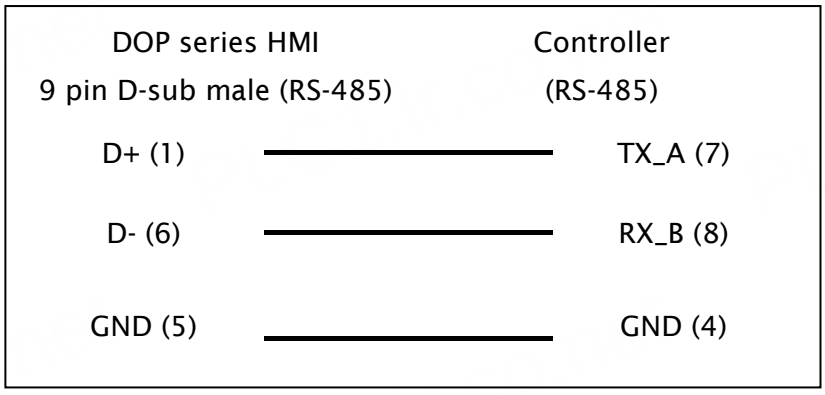
c. RS-485 (DOP-AS57 Series)



d. RS-485 (DOP-AS35/AS38 Series)



e. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	command(n) sub-command(m)			
Command Group	**CMDB**n:m	**CMDB**1:1 – **CMDB**255:127	Byte	
Command Group	**CMDW**n:m	**CMDW**1:1 – **CMDW**255:127	Word	
Command Group	**CMDD**n:m	**CMDD**1:1 – **CMDD**255:127	Double Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Command(n) Sub-Command(m) Bit No.(b)		
Command Group	**CMDB**n:m/b	**CMDB**1:1/0 – **CMDB**255:127/7	
Reset Group Data	**RST**b	**RST**1 – **RST**255	

NOTE

1) Device address indicates the function code provided by controller, “n” represent command and “m” represent sub-command. The suffix of CMD represent the data length (B/W/D = Byte/Word/Double word). Please refer to Delta PLC user manual for the function code and select the corresponding data length. For example, to access function 12:01 select CMDB; and to access function 22:03 select CMDD.
2) The address of CMDB indicates certain bit of the function code when the data length for read/write is byte. RST is the sub command of Reset. The address of RST indicates the reset function code. For example, RST23 represents the function code 23, i.e. 128 (reset statistic) function.
3) Sub-command 0 usually supports the access to all data in the command group, but in this case it does not support the access since the required data length is not fixed. For the same reason, command 0 is not supported as well.
4) Since every function is independent, it does not support read “optimized” function.
5) Data length should set according to the function code since the require setting differ among each function. If CMDB or CMDW is selected, data length setting should be Word; if CMDD is selected, data length setting should be Double Word. For example, data length setting for CMDW12:05 must be Word otherwise error may occur.

Emerson EC20 Series PLC

HMI Factory Setting:

Baud rate: 19200, 8, Even, 1

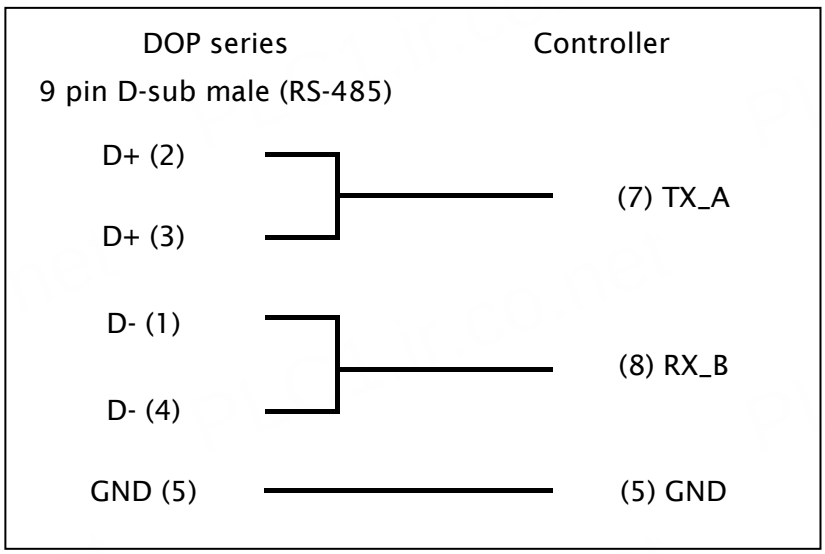
Controller Station Number: 1

Control Area / Status Area: D0/D10

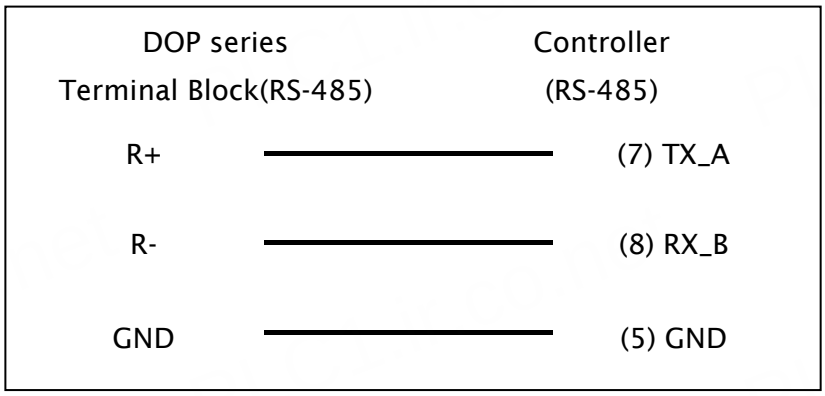
Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

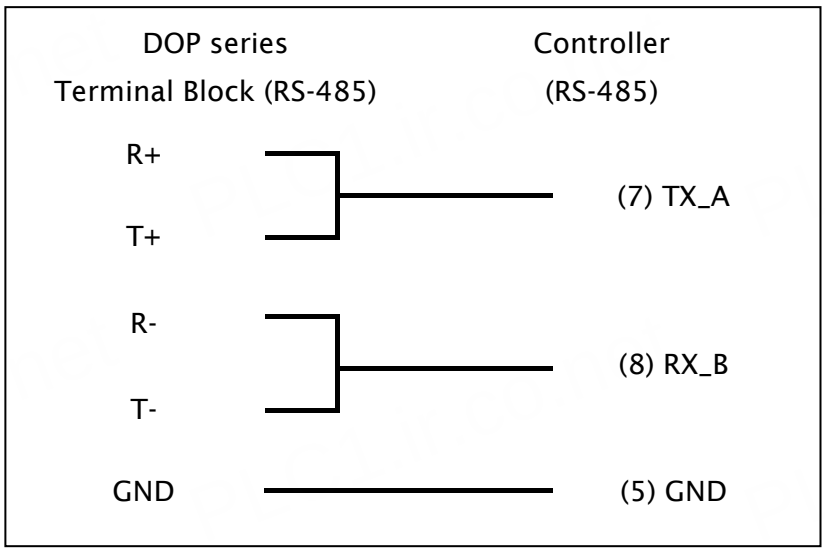
b. RS-485 (DOP-A/AE Series)



c. RS-485 (DOP-AS57 Series)



d. RS-485 (DOP-AS35/AS38 Series)



e. RS-485 (DOP-B series)

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Data Word **D**	**D**n	**D**0 – **D**7999	Word	
Special Data Word **SD**	**SD**n	**SD**0 – **SD**255	Word	3
Data Word **Z**	**Z**n	**Z**0 – **Z**15	Word	
Timer **T**	**T**n	**T**0 – **T**255	Word	
Counter **C**	**C**n	**C**0 – **C**199	Word	
Double word Counter **CDW**	**CDW**n	**CDW**200 – **CDW**255	Double Word	
Double word Data Word **DDW**	**DDW**n	**DDW**0 – **DDW**7998	Double Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
External Output Relay **Y**	**Y**b	**Y**0 – **Y**377	Octal
External Input Relay **X**	**X**b	**X**0 – **X**377	Octal
Internal Relay **M**	**M**b	**M**0 – **M**1999	
Special Internal Relay **SM**	**SM**b	**SM**0 – **SM**255	3
Status Relay **S**	**S**b	**S**0 – **S**991	
Timer **T**	**T**b	**T**0 – **T**255	
Counter **C**	**C**b	**C**0 – **C**255	

NOTE

1) Emerson EC20 series PLC has two communication ports, COM0 and COM1. They are provided for the communication protocol for connecting to PC, Modbus communication protocol and user-defined protocol. The default setting is COM0 to be enabled only, so the user needs to set the communication mode as Modbus RTU via PC software before using it.
2) COM1 supports RS-232 and RS-485.
3) Please note that not all of the addresses can be written when reading SM and SD device. We recommend the user not to set all of the addresses as write address except when setting parameters.

Facon FB Series PLC

HMI Factory Setting:

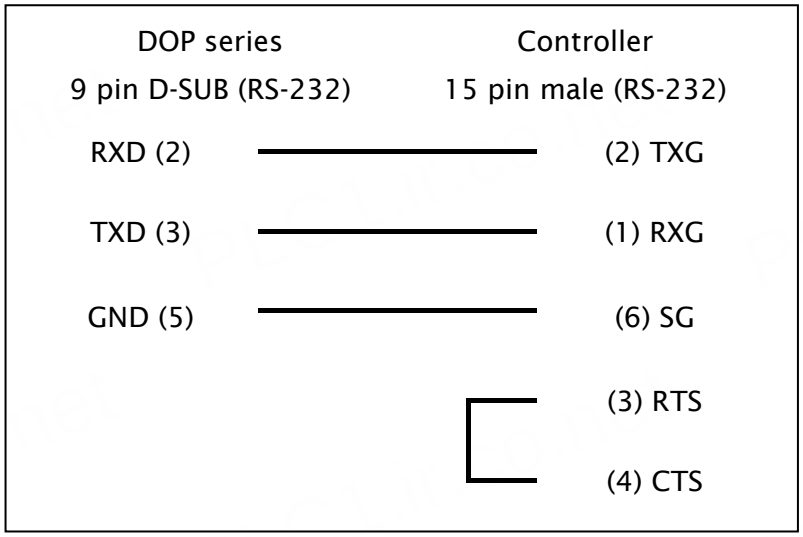
Baud rate: 9600, 7, Even, 1

Controller Station Number: 1

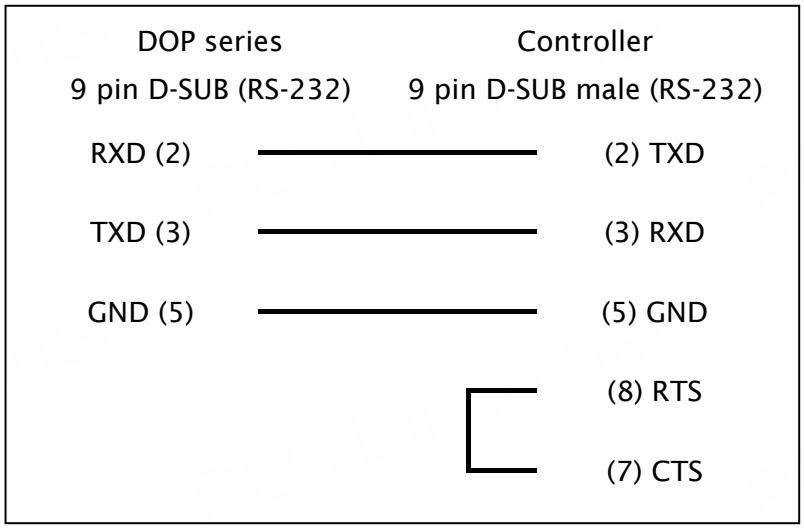
Control Area / Status Area: R0/R10

Connection

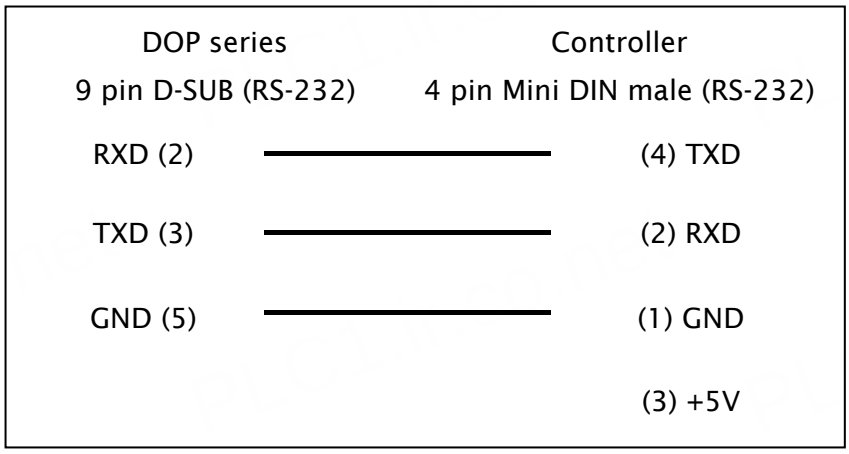
a. RS-232 (DOP-A/AE/AS, DOP-B Series)



b. RS-232 (DOP-A/AE/AS, DOP-B Series) CB(Communication Board)/ CM(Communication Module), FBs Series Port 1)



c. RS-232: FBs Series Port 0 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Input Relay	**WX**n	**WX**0 - **WX**9992	Byte	1
Output Relay	**WY**n	**WY**0 - **WY**9992	Byte	1
Internal Relay	**WM**n	**WM**0 - **WM**9992	Byte	1
Step Relay	**WS**n	**WS**0 - **WS**9992	Byte	1
Data Register	**R**n	**R**0 - **R**65534	Word	
Data Register	**D**n	**D**0 - **D**65534	Word	
Timer Present Value	**RT**n	**RT**0 - **RT**9999	Word	
Counter Present Value	**RC**n	**RC**0 - **RC**9999	Word	
Data Register	**DRC**n	**DRC**200 - **DRC**255	Double Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Input Relay	**X**b	**X**0 - **X**9999	
Output Relay	**Y**b	**Y**0 - **Y**9999	
Internal Relay	**M**b	**M**0 - **M**9999	
Step Relay	**S**b	**S**0 - **S**9999	
Timer Flag	**T**b	**T**0 - **T**9999	
Counter Flag	**C**b	**C**0 - **C**9999	

NOTE

1) Device address must be a multiple of 8.

Festo PLC

HMI Factory Setting:

Baud rate: 9600, 8, None, 1

Controller Station Number: 0 (no PLC station number in protocol)

Control Area / Status Area: R0/R10

Connection

PLC Communication Port: COM port

It needs to use the dedicated cable for FESTO controllers → Cable for transferring TTL to RS-232 and it is 6 pin RJ-12 connector at PLC side.

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
WORD_DEVICE_IW	**Iw**n	**IW**0 – **IW**255	Word	
WORD_DEVICE_OW	**Ow**n	**OW**0 – **OW**255	Word	
WORD_DEVICE_FW	**FW**n	**FW**0 – **FW**9999	Word	
WORD_DEVICE_TW	**TW**n	**TW**0 – **TW**255	Word	
WORD_DEVICE_CW	**CW**n	**CW**0 – **CW**255	Word	
WORD_DEVICE_R	**R**n	**R**0 – **R**255	Word	
WORD_DEVICE_TP	**TP**n	**TP**0 – **TP**255	Word	
WORD_DEVICE_CP	**CP**n	**CP**0 – **CP**255	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
BIT_DEVICE_I	**I**n.b	**I**0.0 – **I**255.15	
BIT_DEVICE_O	**O**n.b	**O**0.0 – **O**255.15	
BIT_DEVICE_F	**F**n.b	**F**0.0 – **F**9999.15	
BIT_DEVICE_T	**T**b	**T**0 – **T**255	
BIT_DEVICE_C	**C**b	**C**0 – **C**255	
BIT_DEVICE_TON	**TON**b	**TON**0 – **TON**255	
BIT_DEVICE_TOFF	**TOFF**b	**TOFF**0 – **TOFF**255	

NOTE

1) Connectable PLC: FEC-FC Model

FuFeng APC Controller

HMI Factory Setting:

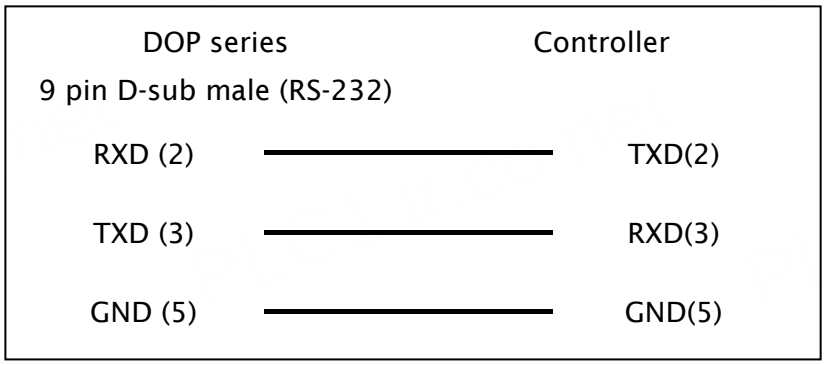
Baud rate: 115200, 8, None, 1

Controller Station Number: 0

Control Area / Status Area: D0/D10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Timer Setting Value	**TS**n	**TS**0 – **TS**127	Word	
Timer Present Value	**TN**n	**TN**0 – **TN**127	Word	1
Counter Setting Value	**CS**n	**CS**0 – **CS**127	Word	
Counter Present Value	**CN**n	**CN**0 – **CN**127	Word	1
Data Memory	**D**n	**D**0 – **D**999	Word	
Temperature Controller-Temperature Setting	**KS**n	**KS**0 – **KS**15	Word	
Temperature Controller-Present Value	**KN**n	**KN**0 – **KN**15	Word	1
Temperature Controller-Low-current Setting	**CL**n	**CL**0 – **CL**15	Word	
Temperature Controller-High Temperature Alarm	**H**n	**H**0 – **H**15	Word	
Temperature Controller-Low Temperature Alarm	**L**n	**L**0 – **L**15	Word	

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Temperature Controller - Present Value of Current	In	I0 – I15	Word	1
Temperature Controller- Cycle Setting	Rn	R0 – R15	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Node R	Rb	R0 – R255	
Node X	Xb	X0 – X239	
Node Y	Yb	Y0 – Y159	
Node S	Sb	S0 – S239	
Node K	Kb	K0 – K127	
Node T	Tb	T0 – K127	
Node C	Cb	C0 – C127	

NOTE

1) This type of device is read only.

Fuji Frenic Inverter

HMI Factory Setting:

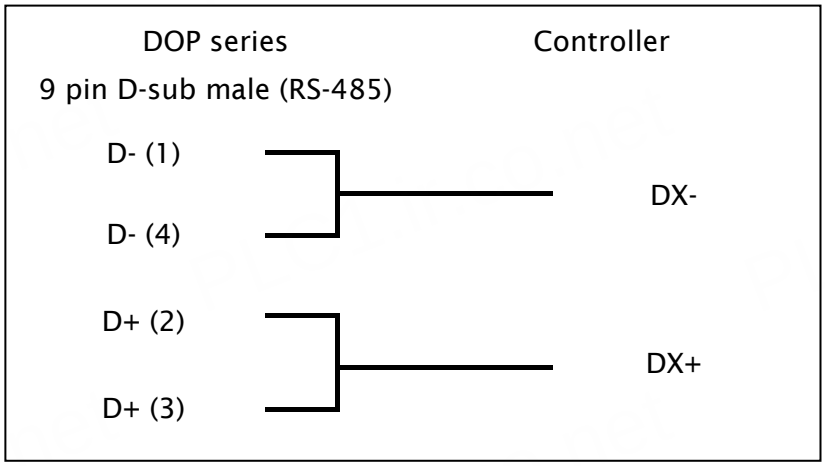
Baud rate: 9600, 8, None, 2

Controller Station Number: 1(Note1)

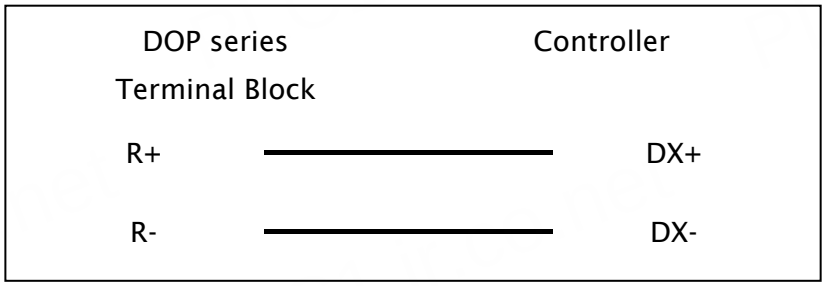
Control Area / Status Area: None/None

Connection

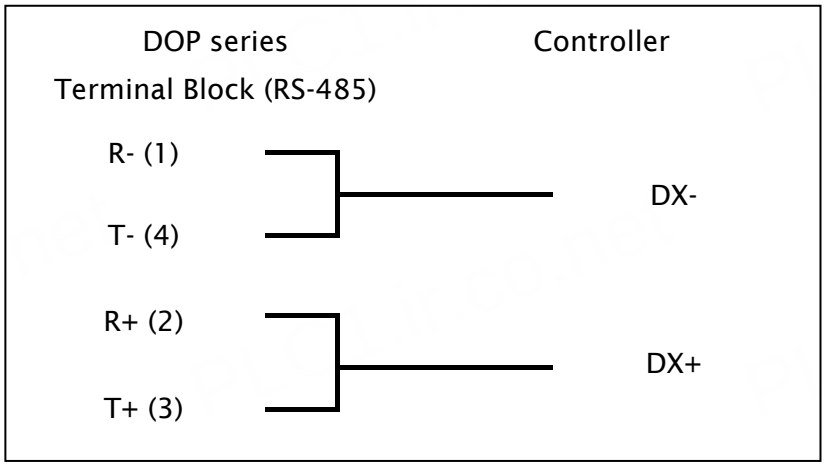
a. RS-485 (DOP-A/AE Series)



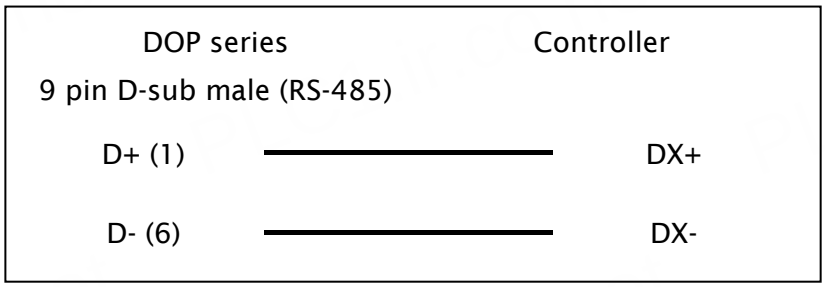
b. RS-485 (DOP-AS57 Series)



c. RS-485 (DOP-AS35/AS38 Series)



d. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Fundamental functions	**F**n	**F**0 – **F**42	Word	
Extension terminal functions	**E**n	**E**1 – **E**47	Word	
Control functions of frequency	**C**n	**C**1 – **C**33	Word	
motor Parameters	**P**n	**P**1 – **P**9	Word	
High speed frequency	**H**n	**H**3 – **H**39	Word	
Alternative motor parameters	**A**n	**A**1 – **A**18	Word	
Optional functions	**O**n	**O**1 – **O**29	Word	
Setting data function	**S**n	**S**1 – **S**12	Word	
Monitoring data functions	**M**n	**M**1 – **M**48	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Fundamental functions	**F**n.b	**F**0.0 – **F**42.15	
Extension terminal functions	**E**n.b	**E**1.0 – **E**47.15	
Control functions of frequency	**C**n.b	**C**1.0 – **C**33.15	
motor Parameters	**P**n.b	**P**1.0 – **P**9.15	
High speed frequency	**H**n.b	**H**3.0 – **H**39.15	
Alternative motor parameters	**A**n.b	**A**1.0 – **A**18.15	
Optional functions	**O**n.b	**O**1.0 – **O**29.15	
Setting data function	**S**n.b	**S**1.0 – **S**12.15	
Monitoring data functions	**M**n.b	**M**1.0 – **M**48.15	

NOTE

1) Controller Station Number range from 1 to 31, and Number 99 is for radio broadcast.
2) Not all address is applicable to radio broadcast. Please refer to Fuji Frenic Inverter manual for details on radio broadcast address.
3) Not all address can be read and write. Please refer to Fuji Frenic Inverter manual for details on read/ write characteristics.

GE Fanuc 90 Series SNP PLC

HMI Factory Setting:

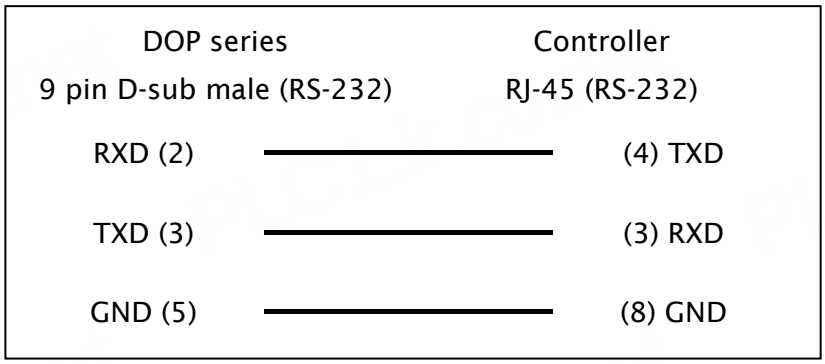
Baud rate: 19200, 8, Odd, 1

Controller Station Number: 0 (no PLC station number in protocol, therefore, only 1(HMI) to 1(PLC) communication is allowed.)

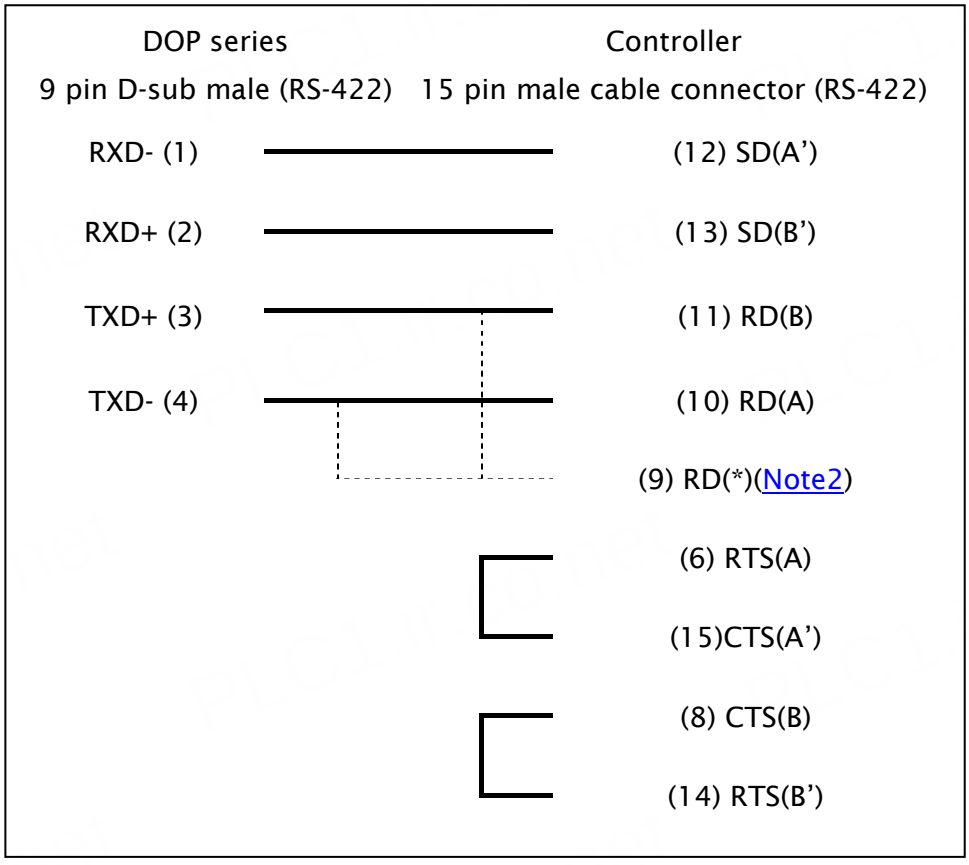
Control Area / Status Area: %R1 / %R10

Connection

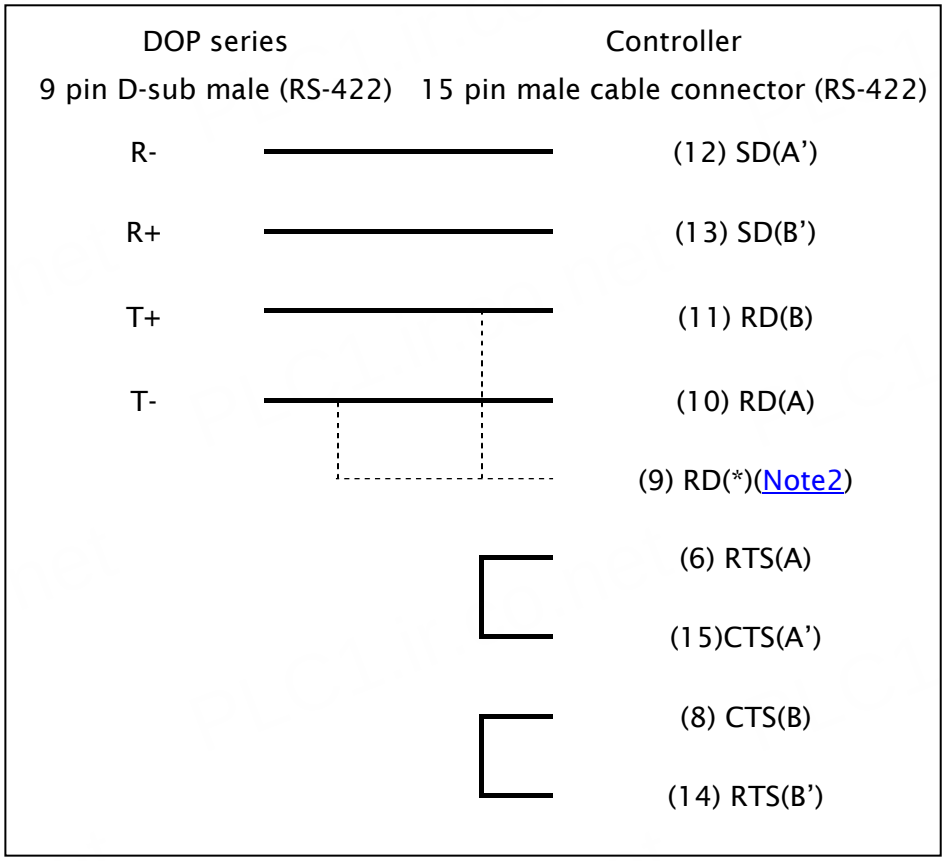
a. RS-232 (DOP-A/AE/AS, DOP-B Series)



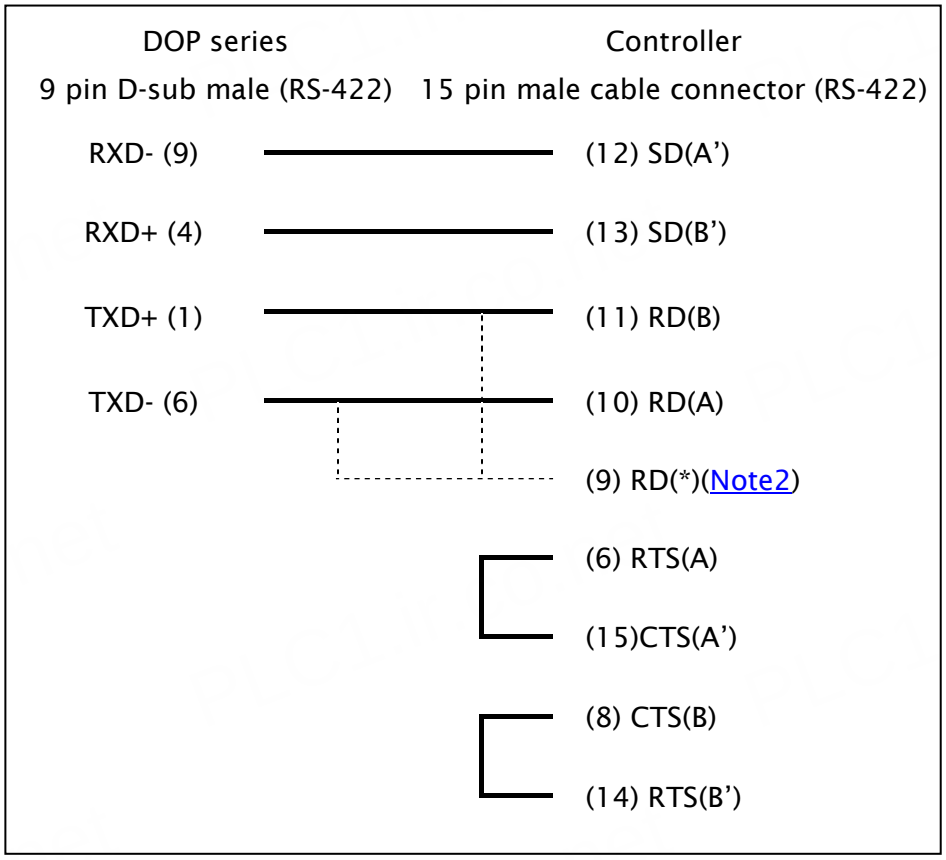
b. RS-422 (DOP-A/AE Series)



c. RS-422 (DOP-AS35/AS38/AS57 Series)



d. RS-422 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

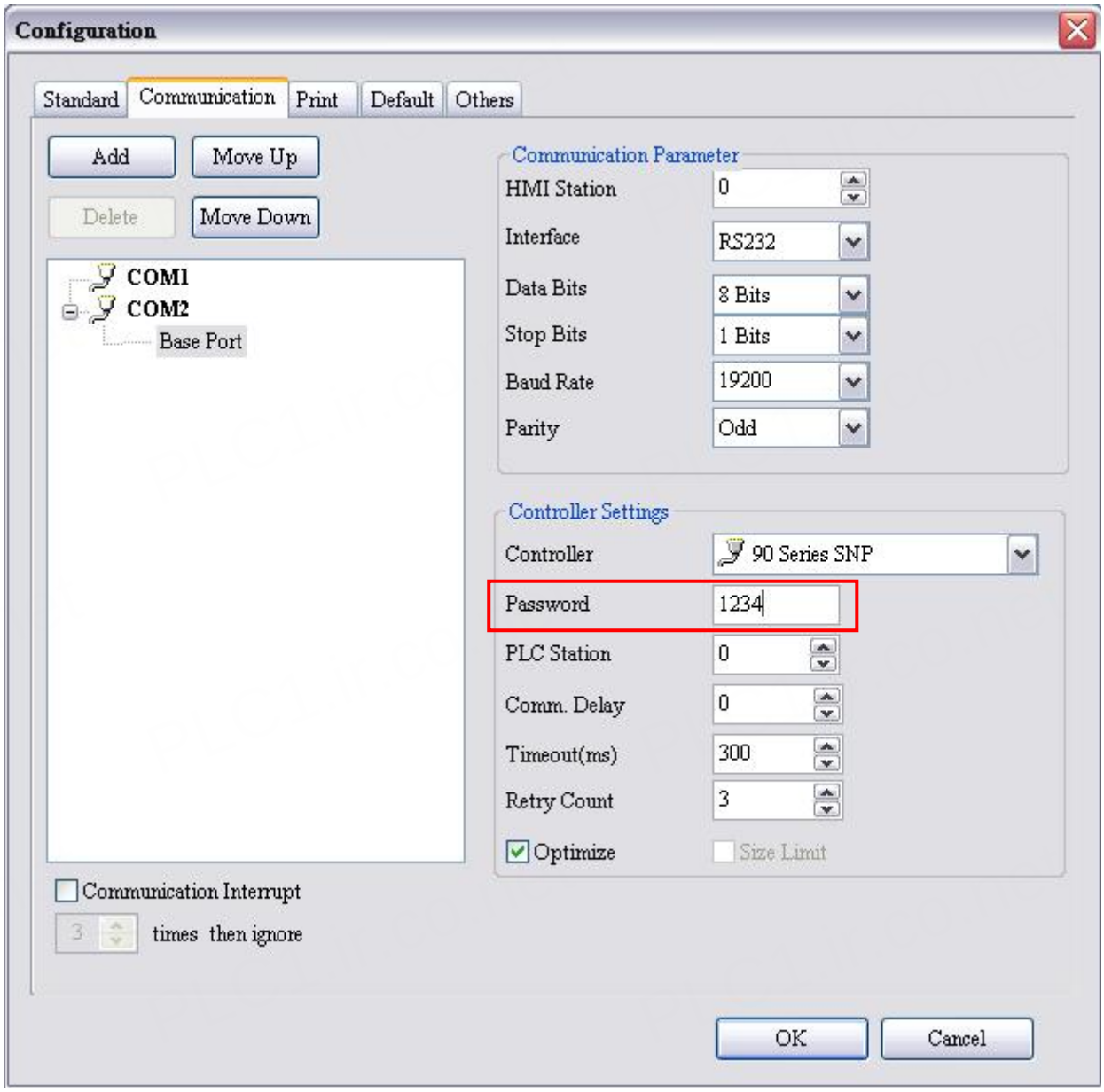
Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Discrete Inputs	%In	%I1 – %I12288	Word	3
Discrete Outputs	%Qn	%Q1 – %Q12288	Word	3
Discrete Temporaries	%Tn	%T1 – %T256	Word	3
Discrete Internals	%Mn	%M1 – %M12288	Word	3
%SA Discretes	%SAn	%SA1 – %SA128	Word	3
%SB Discretes	%SBn	%SB1 – %SB128	Word	3
%SC Discretes	%SCn	%SC1 – %SC128	Word	3
%S Discretes	%S-n	%S-1 – %S-128	Word	3
Genius Global Data	%Gn	%G1 – %G7680	Word	3
Registers	%Rn	%R1 – %R16384	Word	
Analog Inputs	%AIn	%AI1 – %AI8192	Word	
Analog Outputs	%AQn	%AQ1 – %AQ8192	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Discrete Inputs	%Ib	%I1 – %I12288	
Discrete Outputs	%Qb	%Q1 – %Q12288	
Discrete Temporaries	%Tb	%T1 – %T256	
Discrete Internals	%Mb	%M1 – %M12288	
%SA Discretes	%SAb	%SA1 – %SA128	
%SB Discretes	%SBb	%SB1 – %SB128	
%SC Discretes	%SCb	%SC1 – %SC128	
%S Discretes	%S-b	%S-1 – %S-128	
Genius Global Data	%Gb	%G1 – %G7680	

NOTE

1) If PLC has the "Password Detection" function, please enter 4 digits password under "password" in communication.



2) If PLC Series is 90-70 PLC IC697CPU731 and IC697CPU771 then (9) RD(*) must connect with (11) RD(B). For other series RD(*) must connect with (10) RD(A.

3) The device address must be a multiple of 16 + 1.

Hitachi EH Series PLC

(Supports Communication Mode: Procedure 1, Procedure 2)

HMI Factory Setting:

Baud rate: 19200, 7, Even, 1 (RS-232)

Controller Station Number: 0

Control Area / Status Area: W0 / W10

Connection

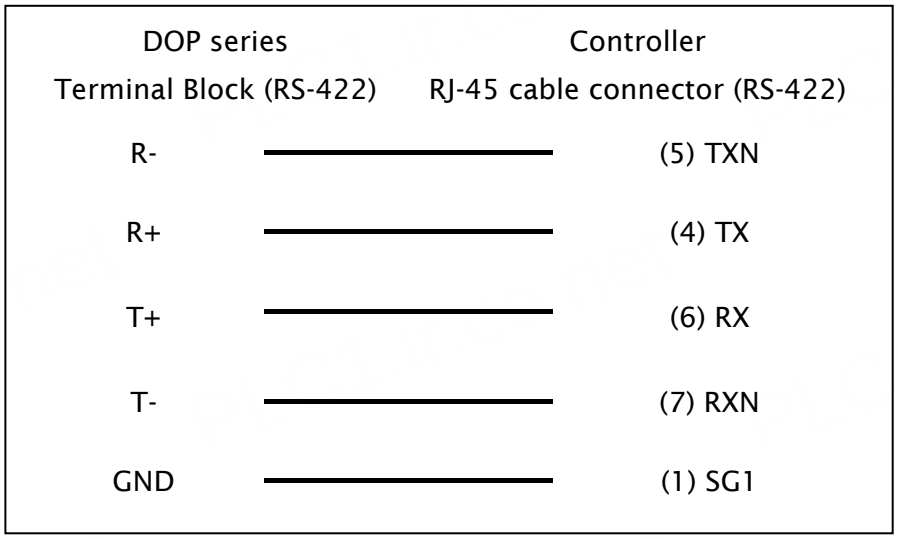
a. RS-232 (DOP-A/AE/AS, DOP-B Series)

DOP series		Controller
9 pin D-sub male (RS-232)		RJ-45 cable connector (RS-232)
RXD (2)	———	(5) SD1
TXD (3)	———	(6) RD1
GND (5)	———	(1) SG1
RTS (7)	———	(7) DR1
CTS (8)	———	(8) RS1

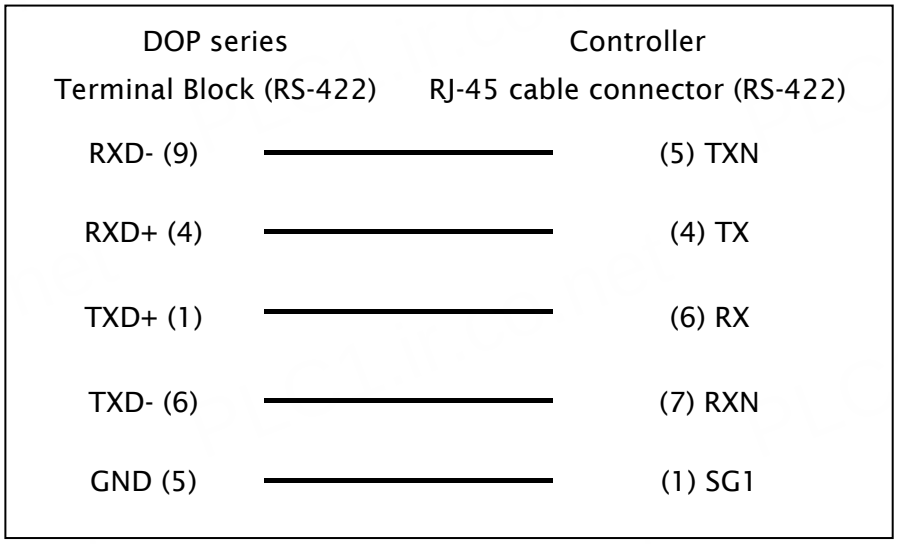
b. RS-422 (DOP-A/AE Series)

DOP series		Controller
9 pin D-sub male (RS-422)		RJ-45 cable connector (RS-422)
RXD- (1)	———	(5) TXN
RXD+ (2)	———	(4) TX
TXD+ (3)	———	(6) RX
TXD- (4)	———	(7) RXN
GND (5)	———	(1) SG1

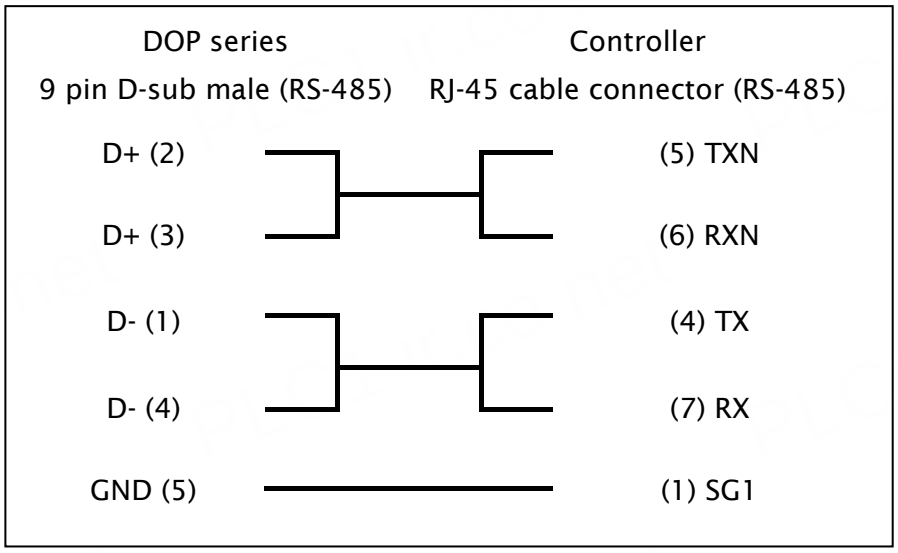
c. RS-422 (DOP-AS35/AS38/AS57 Series)



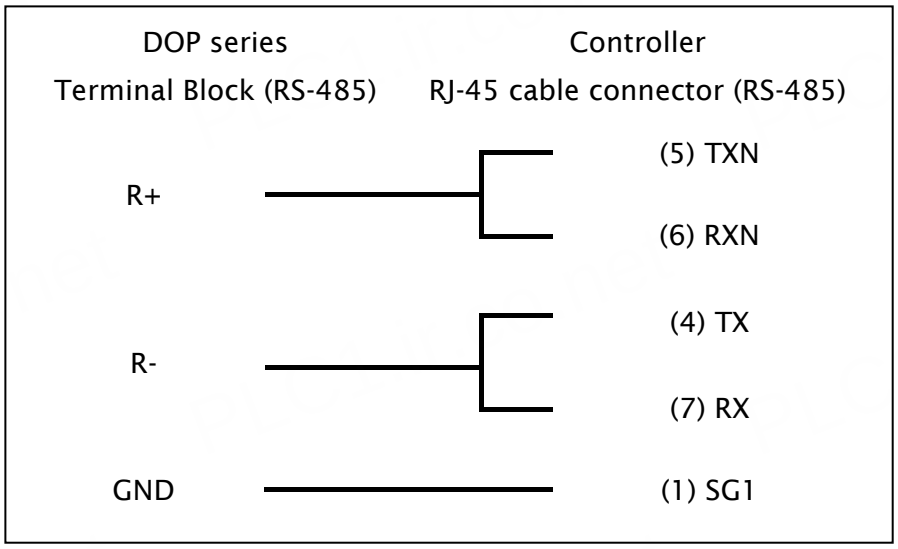
d. RS-422 (DOP-B Series)



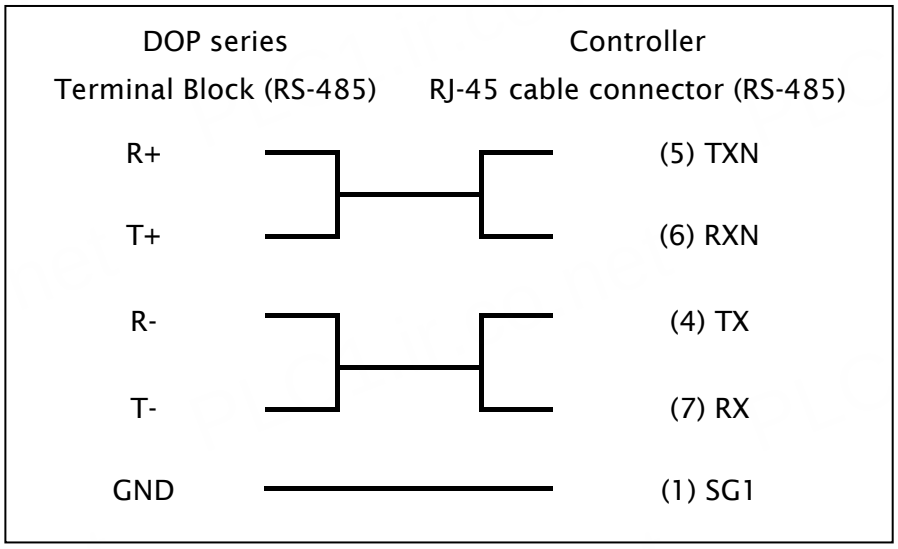
e. RS-485 (DOP-A/AE Series)



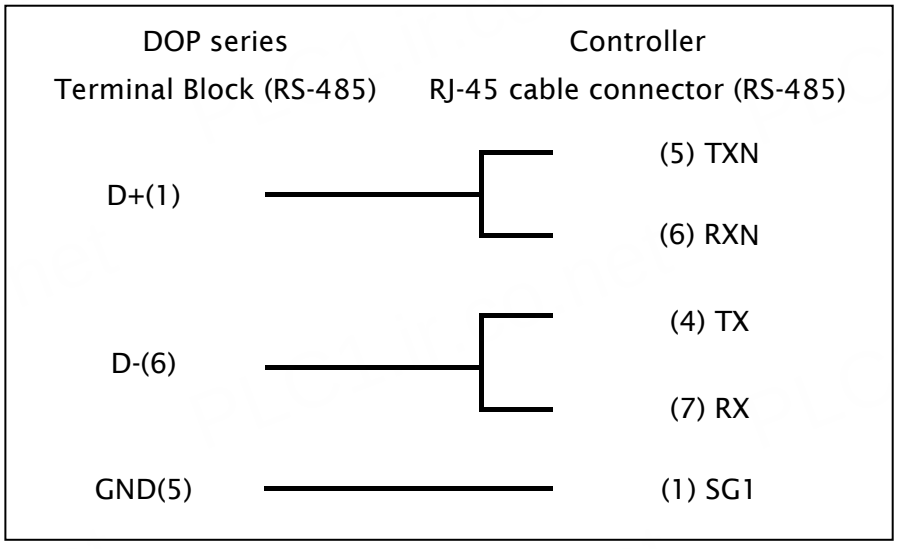
f. RS-485 (DOP-AS57 Series)



g. RS-485 (DOP-AS35/AS38 Series)



h. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format Rank No.(r) Unit No.(u) Slot No.(s) Word No.(n)	Read/Write Range	Data Length	Note
External Input	**WX**rusn	**WX**0000 – **WX**A744	Word	3, 5
External Output	**WY**rusn	**WY**0000 – **WY**A744	Word	3, 5
Internal Output	**WR**n	**WR**0 – **WR**C3FF	Word	
Special Internal Output	**WR**n	**WR**F000 – **WR**F1FF	Word	
Shared Internal Output	**WM**n	**WM**0 – **WM**3FF	Word	
CPU Link Area 1	**WL**n	**WL**0 – **WL**3FF	Word	4
CPU Link Area 2	**WL**n	**WL**1000 – **WL**13FF	Word	4
Timer/Counter	**TC**n	**TC**0 – **TC**511	Word	

b. Contacts

Type	Format Rank No.(r) Unit No.(u) Slot No.(s) Word No.(n) Bit No.(b)	Read/Write Range	Note
External Input	**X**rusb	**X**0000 – **X**44495	3, 5
External Output	**Y**rusb	**Y**0000 – **Y**44495	3, 5
Internal Output	**R**b	**R**0 – **R**7FF	
Shared Internal Output	**M**nb	**M**00 – **M**3FFF	
CPU Link Area 1	**L**nb	**L**00 – **L**3FFF	4
CPU Link Area 2	**L**nb	**L**10000 – **L**13FFF	4
On Delay Timer	**TD**b	**TD**0 – **TD**255	
Single-shot Timer	**SS**b	**SS**0 – **SS**255	
Up Counter	**CU**b	**CU**0 – **CU**511	
Up-down Counter up input	**CTU**b	**CTU**0 – **CTU**511	
Up-down Counter down input	**CTD**b	**CTD**0 – **CTD**511	
Up-down Counter down output	**CT**b	**CT**0 – **CT**511	

Type	Format Rank No.(r) Unit No.(u) Slot No.(s) Word No.(n) Bit No.(b)	Read/Write Range	Note
Progress Value Clear	**CL**b	**CL**0 – **CL**511	
Rising Edge Detection	**DIF**b	**DIF**0 – **DIF**511	
Falling Edge Detection	**DFN**b	**DFN**0 – **DFN**511	

NOTE

1) In Hitachi EH series PLC, the user can select procedure 1 and procedure 2 via DIP switch and Special Internal Input (WR). Please refer to Hitachi EH PLC manual for more detail.
2) In Hitachi EH-150 series，only EH-CPU***A/448/516/548 can use procedure 2.
3) EH PLC's External I/O (**WX, WY, X, Y**) data must be set up first before HMI can read and write the address. Please refer to Hitachi EH PLC for more detail.
4) This type of register is only supported by EH-150 series.
5) External I/O (**X, Y, WX, WY**)address rule
   - Symbol：
     Rank No.：r，only supported by EH-150 series
     Unit No.：u
     Slot No：s
     Word No.：n
     Bit No.：b
   - Address Sample:
     WX103 represents unit 1, word 3 of slot 0
     X103 represents bit 3 of slot 1
     X113 represents bit 13 of slot 1
     Y2004 represents unit 2, bit 4 of slot 0
     Y2104 represents unit 2, bit 4 of slot 1
6) EH-150 Setting
   - DIP5 should be set to ON.
   - If DIP5 is set to ON, PLC will determine the proper procedure (1 or 2) by the value of WRf037. When setting the address, the highest bit of write value must be 1 and then

PLC can write the value into other seven bits. The data will not lost even when the power of PLC is cut off. Therefore,

i. Write the value 0x8000 into the address. After restart PLC, the address value will become 0x0000 and perform communication by procedure 1.

ii. Write the value 0xC000 into the address. After restart PLC, the address value will become 0x4000 and perform communication by procedure 2.

- Use DIP3 and DIP4 to set the communication speed of port 1.

i. When DIP3 is ON and DIP4 is OFF, the communication speed is 19200bps.

- Use DIP6, PHL to set the communication speed of port 2.

i. When DIP6 is ON and PHL is OFF, the communication speed is 19200bps.

ii. The EH-150 PLC is a "Base Unit" which has a built-in CPU module. This unit allows easy connection of extension module, such as "External I/O".

7) MicroEH

- DIP5 is used to set communication speed.

i. When SW1 is ON, the communication speed is 19200bps. Please refer to Hitachi EH PLC manual for more detail.

- MicroEH PLC will determine the proper procedure (1 or 2) by the value of WRf01a. Different than EH-150, when setting the address, the highest bit of write value does not need to be 1. But the data will lost even the power of PLC is cut off. However, if set the value of R7f6 to 1, the data of WRf01a will be saved into Flash memory.

i. 0x0000 for procedure 1.

ii. 0x8000 for procedure 2.

iii. If the PLC uses procedure 2 and saves the data into Flash memory, it cannot connect to the peripheral devices and programs (Ladder Editor) that only support procedure 1.

iv. Standard External I/O built in MicroEH PLC are listed as below:

  - Digital Type
    - slot 0: X48
    - slot 1: Y32
    - slot 2: empty16
  - Analog Type
    - slot 3: X4W
    - slot 4: Y4W

HUST CNC

HMI Factory Setting:

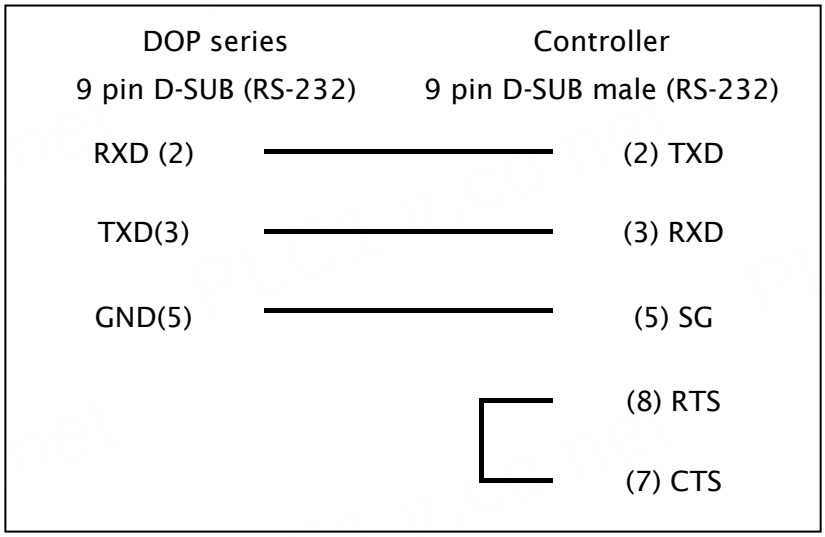
Baud rate: 9600, 7 ,Even, 2

Controller Station Number: 1

Control Area / Status Area: W0 / W10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Word Register	**W**n	**W**0 – **W**13500	Word	
Double Word Register	**D**n	**D**0 – **D**13500	Double Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bits No. (b)		
BIT_DEVICE_B	**B**n.b	**B**0.0 – **B**13500.31	
BIT_DEVICE_I	**I**b	**I**0 – **I**255	8 DW
BIT_DEVICE_O	**O**b	**O**0 – **O**255	8 DW
BIT_DEVICE_C	**C**b	**C**0 – **C**255	8 DW

Type	Format	Read/Write Range	Note
	Word No. (n) Bits No. (b)		
BIT_DEVICE_S	Sb	S0 - S255	8 DW
BIT_DEVICE_A	Ab	A0 - A1023	32 DW

IDEC Micro Smart PLC

HMI Factory Setting:

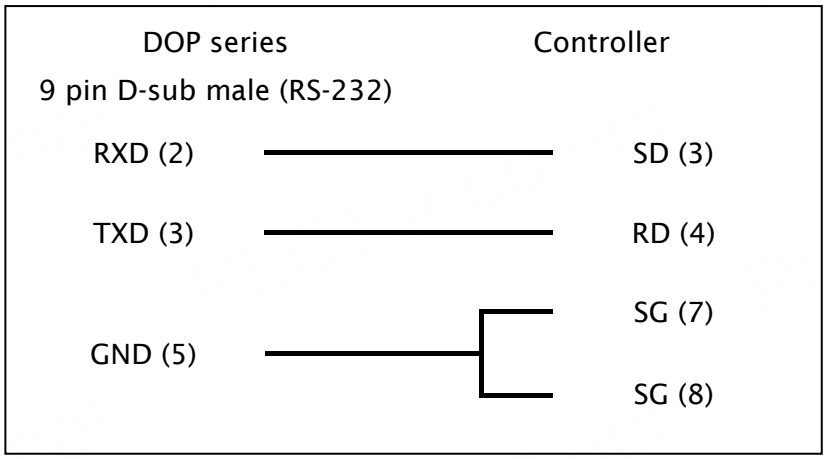
Baud rate: 9600. 7. Even. 1

Controller Station Number: 0 (0~31, 255)

Control Area / Status Area: D0/D10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
input	**X**n	**X**0 – **X**290	Word	
output	**Y**n	**Y**0 – **Y**290	Word	
internal relay (ordinary)	**M**n	**M**0 – **M**1260	Word	
internal relay (special)	**M**n	**M**8000 – **M**8140	Word	
shift register	**R**n	**R**0 – **R**112	Word	Octal
Timer(**P**reset value)	**TP**n	**TP**0 – **TP**99	Word	
Timer(**C**urrent value)	**TC**n	**TC**0 – **TC**99	Word	
Counter(**P**reset value)	**CP**n	**CP**0 – **CP**99	Word	
Counter(**C**urrent value)	**CC**n	**CC**0 – **CC**99	Word	
Data register	**D**n	**D**0 – **D**1299	Word	
Data register	**D**n	**D**2000 – **D**7999	Word	
Data register (special)	**D**n	**D**8000 – **D**8199	Word	
Calendar/clock	**W**n	**W**0 – **W**6	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
input	**X**nnb	**X**000 – **X**307	1
output	**Y**nnb	**Y**000 – **Y**307	1
internal relay (ordinary)	**M**nnnb	**M**0000 – **M**1277	1
internal relay (special)	**M**nnnb	**M**8000 – **M**8157	1
shift register	**R**b	**R**0 – **R**127	
Timer **S**tatus	**TS**b	**TS**0 – **TS**99	2
Counter **S**tatus	**CS**b	**CS**0 – **CS**99	2

NOTE

1) n represents decimal, b represents octal.

2) This type of device is for read only.

3) It supports MicroSmart / ONC (OpenNet Controller) / MICRO3 / MICRO3C.

4) **TS**n / **CS**n can only be used on MicroSmart / ONC (OpenNet Controller).

Jetter JC Series PLC

HMI Factory Setting:

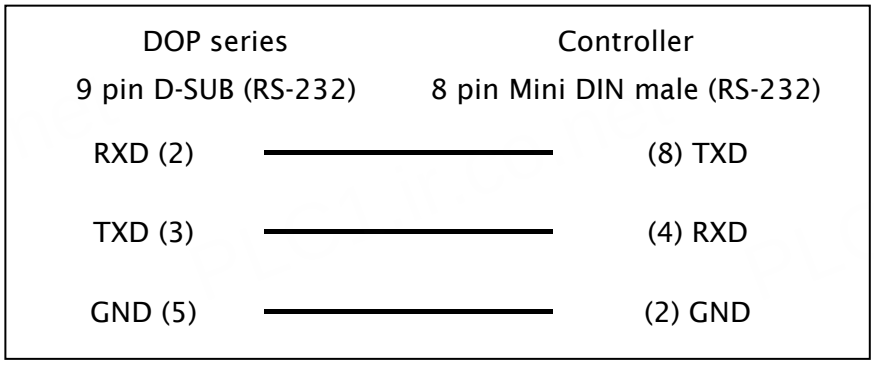
Baud rate: 9600. 8. Even. (RS232)

Controller Station Number: 0 (no PLC station number in protocol, one on one connection)

Control Area / Status Area: WR0/WR10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
16 Bits Register	**WR**n	**WR**0 – **WR**32767	16 Bits	
32 Bits Register	**R**n	**R**0 – **R**32767	24 Bits	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Input Relay	**I**nbb	**I**101 – **I**3216	
Output Relay	**O**nbb	**O**101 – **O**3216	
Flag Relay	**F**b	**F**0 – **F**32767	

Jetter Nano Series PLC

HMI Factory Setting:

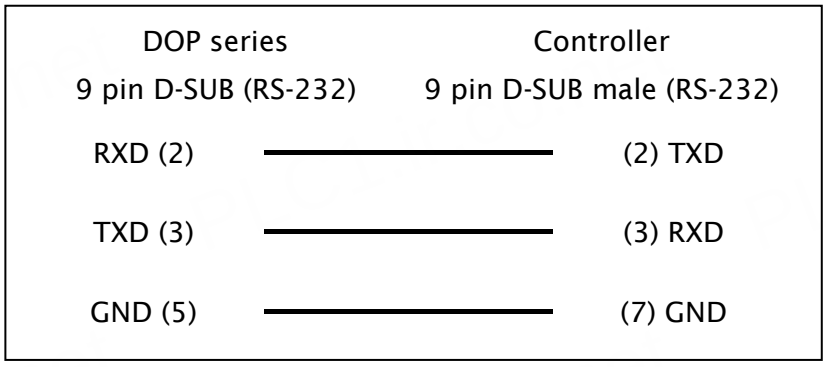
Baud rate: 9600. 8. Even. 1(RS-232)

Controller Station Number: 0 (no PLC station number in protocol, one HMI to one PLC connection)

Control Area / Status Area: WR0/WR10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
16 Bits Register	**WR**n	**WR**0 – **WR**32767	16 Bits	5
32 Bits Register	**R**n	**R**0 – **R**32767	24 Bits	3, 6, 7

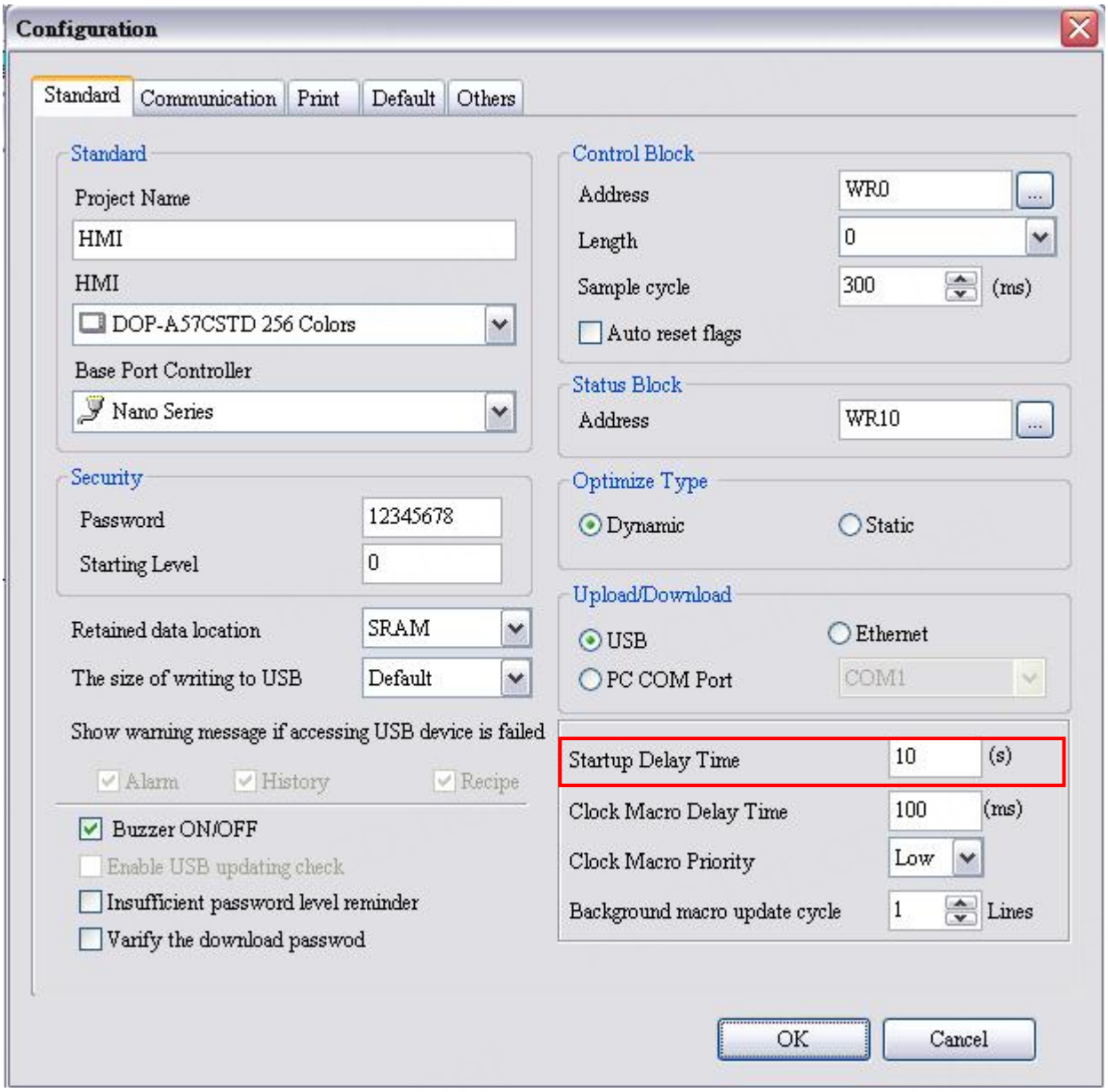
b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Input Relay	**I**nbb	**I**101 – **I**3208	
Output Relay	**O**nbb	**O**101 – **O**3208	
Flag Relay	**F**b	**F**0 – **F**32767	

NOTE

1) In general, every register occupies a maximum 24 Bits. However, some registers occupies only 8 Bits.

2) Jetter Nano Series PLC requires longer time at initial start, therefore it is recommended to set startup delay time greater than 10 (s).



3) When the register R is used for Double Word device, please set the format as signed format. (The default format in Screen Editor is signed format.)

4) Please be aware the pin definition for RS232 in this PLC series is different than the standard RS232, do not mistake.

5) **WR** only occupies Bit0~Bit15 of every register.

6) **R** occupies 24 Bits of every register and Bit24~Bit31 set to 0 by default setting.

7) Decimal notation range from -8388608 to +8388607； hexadecimal notation range from 0x000000 to 0xFFFFFF.

8) The difference between WRn and Rn register:

1. When using devices that the data length is in Word, only Bit 0 ~ 15 are valid for both of WRn and Rn registers.
2. When using devices that the data length is in Double Word, if the read/write address format is set to WRn, the Bit 0 ~ 15 of WRn register is the low word of a read/write value, the Bit 0 ~ 15 of WRn+1 register is the high word of a read/write value. If the read/write address format is set to Rn, only Bit 0 ~ 23 are valid for Rn registers. **(Notice: As the Jetter controller is a 24-bit format controller, the valid setting range is 24 Bits** (16777215)**. If setting exceeds this range, HMI will stop read/write operation and show "…..Value is Incorrect" on the screen.**
3. When using devices that the data length is in m Words, if the read/write address format is set to WRn, the Bit 0 ~ 15 of WRn register is the lowest word of a read/write value and the Bit 0 ~ 15 of WRn+m-1 register is the highest word of a read/write value. If the read/write address format is set to Rn, the Bit 0 ~ 23 of Rn register is the lowest word of a read/write value and the Bit 0 ~ 23 of Rn+1 register is the highest word of a read/write value. Each register is regards as a "Double Word". The value of Bit24 ~ Bit31 is 0.

Keyence KV1000

HMI Factory Setting:

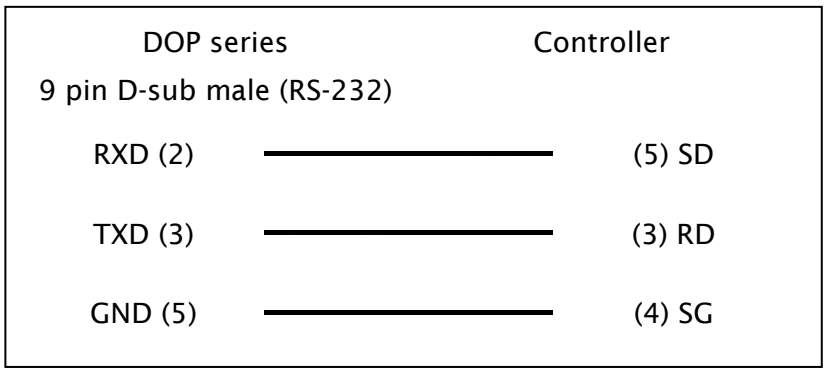
Baud rate: 9600. 8. Even. (RS232)

Controller Station Number: 0 (no PLC station number in protocol, one on one connection)

Control Area / Status Area: DM-0/DM-10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Data Memory	**DM**-n	**DM**-0 ~ **DM**-65535	Word	
Control Memory	**CM**-n	**CM**-0 ~ **CM**-11999	Word	
Temporary Data Memory	**TM**-n	**TM**-0 ~ **TM**-511	Word	
Extended Data Memory	**EM**-n	**EM**-0 ~ **EM**-65535	Word	
Extended Data Memory	**FM**-n	**FM**-0 ~ **FM**-32767	Word	
Address Register	**Z**-n	**Z**-1 ~ **Z**-12	Word	
Digital Trimmer	**AT**-n	**AT**-0 ~ **AT**-7	Word	
High-speed Counter	**CTH**-n	**CTH**-0 ~ **CTH**-1	Double Word	
CTC Preset Value	**PCTC**-n	**PCTC**-0 ~ **PCTC**-3	Double Word	
Timer Preset Value	**PT**-n	**PT**-0 ~ **PT**-3999	Double Word	
Counter Preset Value	**PC**-n	**PC**-0 ~ **PC**-3999	Double Word	

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
High-speed Counter Comparator	**CTC**-n	**CTC**-0 ~ **CTC**-3	Double Word	
Timer	**T**-n	**T**-0 ~ **T**-3999	Double Word	
Counter	**C**-n	**C**-0 ~ **C**-3999	Double Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Control Relay	**CR**-nbb	**CR**-000 ~ **CR**-3915	
Internal Memory Relay	**MR**-nbb	**MR**-000 ~ **MR**-99915	
Latch	**LR**-nbb	**LR**-000 ~ **LR**-99915	
Relay	**R**-nbb	**R**-000 ~ **R**-59915	
High-speed Counter comparator	**CTC**-b	**CTC**-0 ~ **CTC**-3	
Timer Contact	**T**-b	**T**-0 ~ **T**-3999	
Counter Contact	**C**-b	**C**-0 ~ **C**-3999	

Keyence KV/KZ Series

HMI Factory Setting:

Baud rate: 9600, 8, Even, 1 (RS-232)

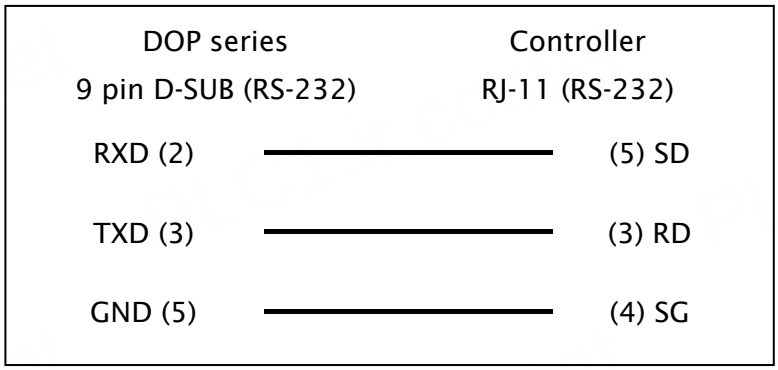
Controller Station Number: 0 (no PLC station number in protocol, one on one connection)

Control Area / Status Area: DM-0 / DM-10

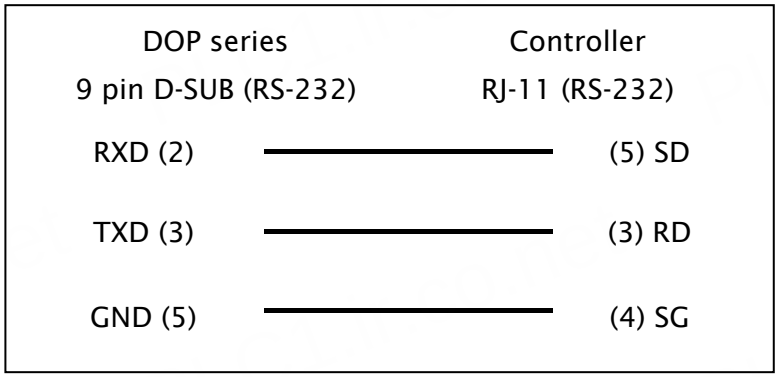
Connection

a. RS-232 (DOP-A, DOP-B Series)

KV Series (Note1)



KZ Series (Note1)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Timer	**T**-n	**T**-0 – **T**-199	Word	
Counter	**C**-n	**C**-0 – **C**-199	Word	
High-speed counter	**CTH**-n	**CTH**-0 – **CTH**-1	Word	
High-speed counter comparator	**CTC**-n	**CTC**-0 – **CTC**-3	Word	

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Data memory	**DM**-n	**DM**-0 – **DM**-1999	Word	
Temporary data memory	**TM**-n	**TM**-0 – **TM**-31	Word	
Timer preset value	**PT**-n	**PT**-0 – **PT**-199	Word	
Counter preset value	**PC**-n	**PC**-0 – **PC**-199	Word	
CTC preset value	**PCTC**-n	**PCTC**-0 – **PCTC**-3	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Relay	**R**-nbb	**R**-000 – **R**-6915	
Timer	**T**-b	**T**-0 – **T**-199	1
Counter	**C**-b	**C**-0 – **C**-199	1
High-speed counter comparator	**CTC**-b	**CTC**-0 – **CTC**-3	

NOTE

1) Please be aware the pin definition of SD, RD is reversed in KZ-80T and KV series.

This protocol regards PLC protocol in KV series, when communicates with KZ series PLC, the following divergence will occur.

1. Readable Timer address is not continuous. For example:

   T-0 ~ T-9 can be read

   T10 cannot be read

   T11 ~ T20 can be read

   T21 ~ T50 cannot be read …etc.

2. Counter cannot be read. For example:

   Registers: C-, CTH-, CTC-,PC-, PCTC- all cannot be read.

   Contacts: C-, CTC- cannot be read as well.

Koyo K-Sequence

HMI Factory Setting:

Baud rate: 9600. 8. Odd. 1(RS-232)

Controller Station Number: 1

Control Area / Status Area: R1400/R1420

Connection

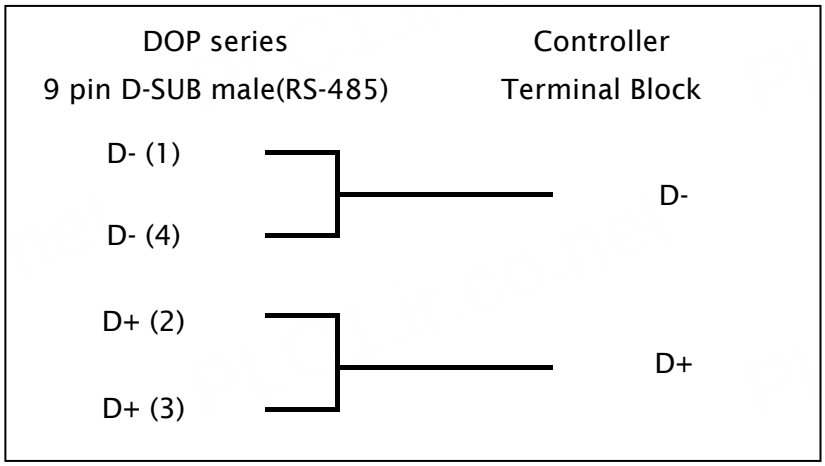
a. RS-232 (DOP-A/AE/AS, DOP-B Series) Port 0 communication line

DOP series 9 pin D-SUB (RS-232)		Controller RJ-11 (RS-232)
RXD (2)	———	(4) TXD
TXD (3)	———	(3) RXD
GND (5)	———	(1) GND
		(6) GND(Note3)

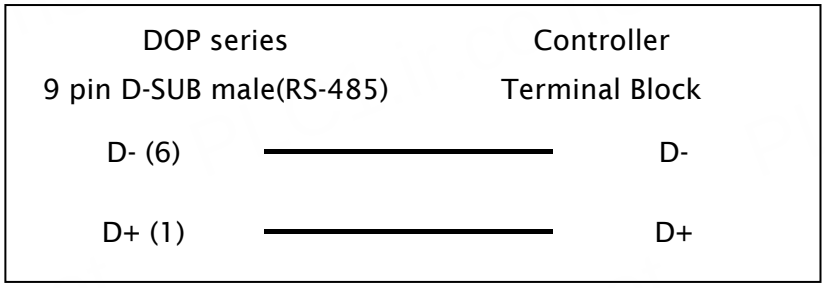
b. RS-232 (DOP-A/AE/AS, DOP-Series)

DOP series 9 pin D-SUB (RS-232)		Controller RJ-11 (RS-232)
RXD (2)	———	(3) TXD
TXD (3)	———	(2) RXD
GND (5)	———	(5) SG

c. RS-485 (DOP-A/AE Series) Port1 communication line



d. RS-485 (DOP-B Series) Port1 communication line



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Input Status	**X**n	**X**0 – **X**1760	Word	Octal, 2
Output Status	**Y**n	**Y**0 – **Y**1760	Word	Octal, 2
Link Relays	**GX**n	**GX**0 – **GX**3760	Word	Octal, 2
Relays	**GQ**n	**GQ**0 – **GQ**3760	Word	Octal, 2
Relays	**M**n	**M**0 – **M**3760	Word	Octal, 2
Stage	**S**n	**S**0 – **S**1760	Word	Octal, 2
Timer Status	**T**n	**T**0 – **T**360	Word	Octal, 2
Control Relays	**C**n	**C**0 – **C**360	Word	Octal, 2
Special Relay 1	**SP**n	**SP**0 – **SP**760	Word	Octal, 2
Register	**R**n	**R**0 – **R**41237	Word	Octal
Register	**P**n	**P**0 – **P**37777	Word	Octal

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Input Status	**X**b	**X**0 – **X**1777	Octal
Output Status	**Y**b	**Y**0 – **Y**1777	Octal
Link Relays	**GX**b	**GX**0 – **GX**3777	Octal
Relays	**GQ**b	**GQ**0 – **GQ**3777	Octal
Control Relays	**M**b	**M**0 – **M**3777	Octal
Stage	**S**b	**S**0 – **S**1777	Octal
Timer Status	**T**b	**T**0 – **T**377	Octal
Counter Status	**C**b	**C**0 – **C**377	Octal
Special Relay 1	**SP**b	**SP**0 – **SP**777	Octal

NOTE

1) When read & write action exceed valid address range, HMI will show an error message "….Error 6….. Command Can Not be Executed…."

2) Device address must be the multiple of 16.

3) If using SM-24R series PLC, pin6 must be grounded (GND).

4) The correspondence relationship of address between CCM2 communication protocol and the register of K-Sequence communication protocol.

CCM2	K sequence	SN32DRA
V	R	R
X	X	I
Y	Y	Q
C	M	M
S	S	S
T	T	T
CT	C	C
SP	SP	SP

Koyo SU/DL Series

HMI Factory Setting:

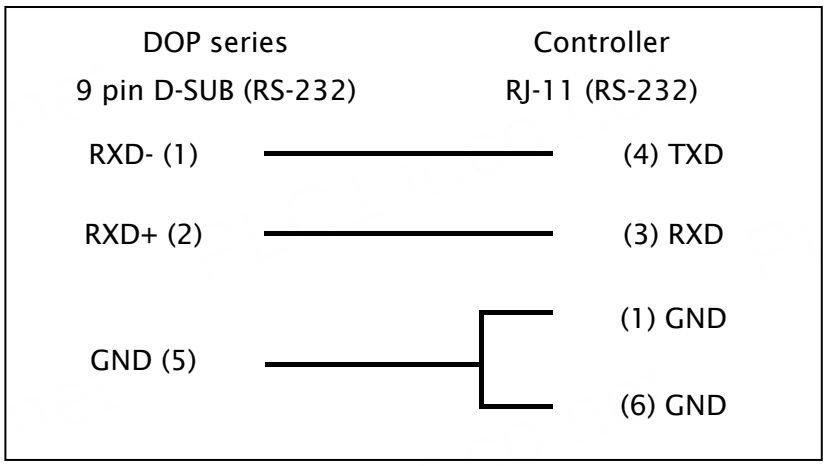
Baud rate: 9600. 8. Odd. 1(RS-232)

Controller Station Number: 1

Control Area / Status Area: V1400/V1420

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Timer Accumulated	Vn	V0 – V177	Word	Octal
Counter Accumulated	Vn	V1000 – V1177	Word	Octal
V Memory	Vn	V1400 – V7777	Word	Octal
Linker Relays	Vn	V40000 – V40037	Word	Octal
Input Status	Vn	V40400 – V40423	Word	Octal
Output Status	Vn	V40500 – V40523	Word	Octal
Control Relays	Vn	V40600 – V40635	Word	Octal
Stage	Vn	V41000 – V41027	Word	Octal
Timer Status	Vn	V41100 – V41107	Word	Octal
Counter Status	Vn	V41140 – V41147	Word	Octal
Spec. Relay 1	Vn	V41200 – V41205	Word	Octal
Spec. Relay 2	Vn	V41216 – V41230	Word	Octal

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Linker Relays	**GX**b	**GX**0 – **GX**777	Octal
Input Status	**X**b	**X**0 – **X**477	Octal
Output Status	**Y**b	**Y**0 – **Y**477	Octal
Control Relays	**C**b	**C**0 – **C**737	Octal
Stage	**S**b	**S**0 – **S**577	Octal
Timer Status	**T**b	**T**0 – **T**177	Octal
Counter Status	**CT**b	**CT**0 – **CT**177	Octal
Spec. Relay 1	**SP**b	**SP**0 – **SP**137	Octal
Spec. Relay 2	**SP**b	**SP**320 – **SP**617	Octal

Lenze LECOM-A/B protocol

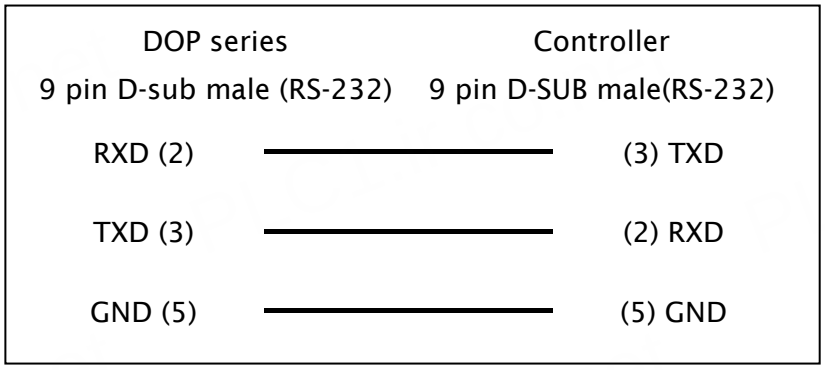
（Supports 82XX frequency inverters and 93XX servo inverters）

HMI Factory Setting:

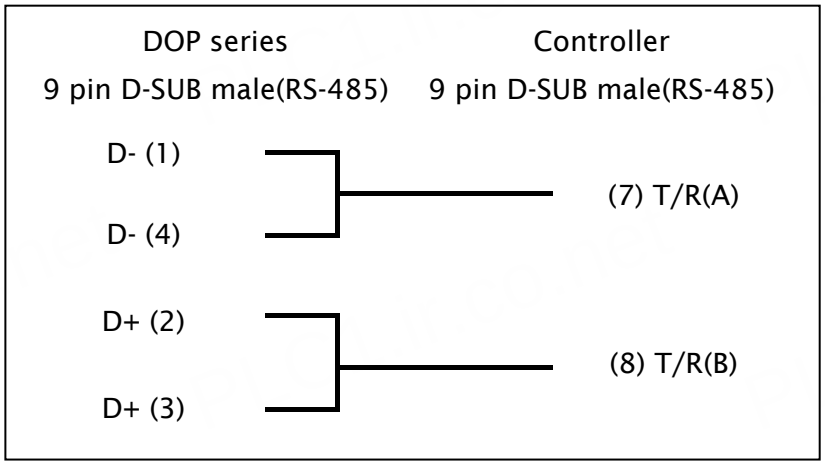
Baud rate: 9600, 7, Even, 1
Controller Station Number: 1 (1~99)(Note 5)
Control Area / Status Area: None/None

Connection

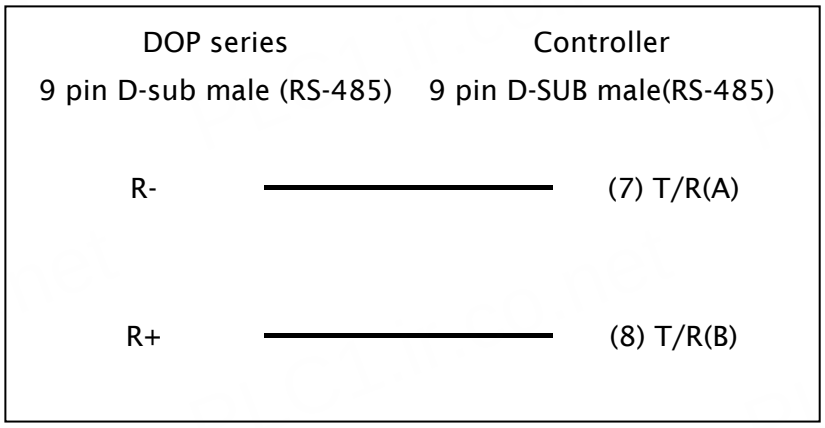
a. RS-232 (DOP-A/AE/AS, DOP-B Series) (Note1)



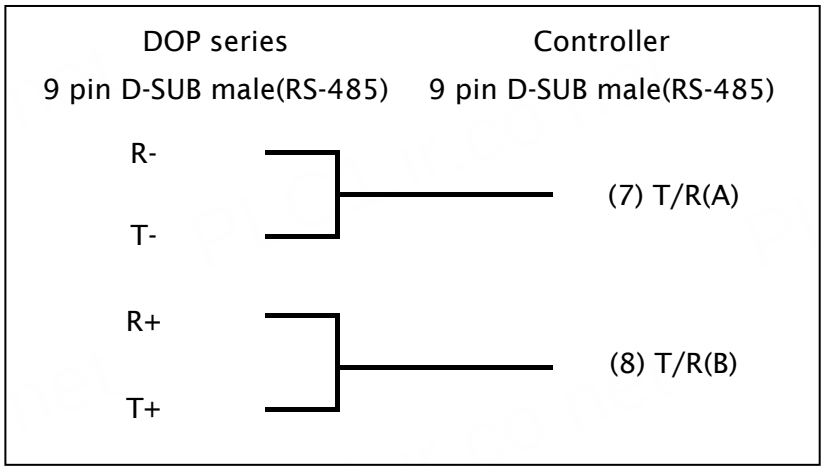
b. RS-485 (DOP-A/AE Series)



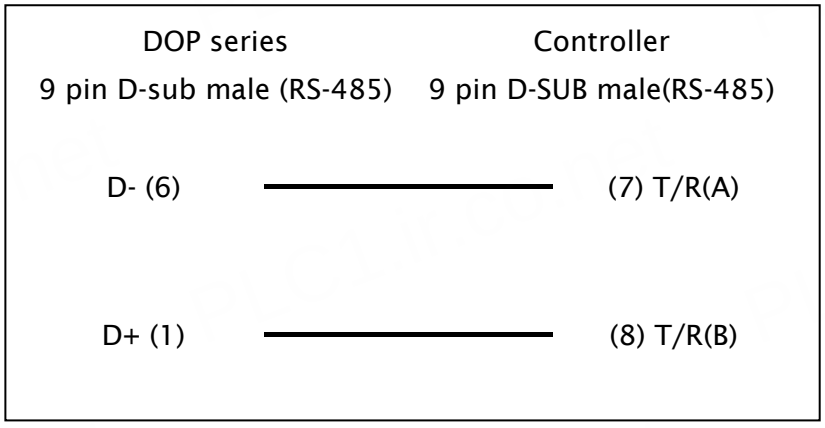
c. RS-485 (DOP-AS57 Series)



d. RS-485 (DOP-AS35/AS38 Series)



e. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format Word No.(n) Format(m) Subcode(y)	Read/Write Range	Data Length	Note
Parameter w/o subcode	**CW**n	**CW**1 – **CW**10000	Word	
	CWn.m	**CW**1.0 – **CW**10000.23	Word	2, 4
Parameter with subcode	**CW**n/y	**CW**1/1 – **CW**10000/255	Word	
	CWn/y.m	**CW**1/1.0 – **CW**10000/255.23	Word	2, 4
Parameter w/o subcode	**CD**n	**CD**1 – **CD**10000	Double Word	
	CDn.m	**CD**1.0 – **CD**10000.23		2, 4
Parameter with subcode	**CD**n/y	**CD**1/1 – **CD**10000/255	Double Word	
	CDn/y.m	**CD**1/1.0 – **CD**10000/255.23		2, 4

b. Contacts

Type	Format Word No.(n) Subcode(y) Bit No.(b)	Read/Write Range	Note
Parameter w/o subcode	**CB**n.b	**CB**1.0 - **CB**10000.31	3, 4
Parameter with subcode	**CB**n/y.b	**CB**1/1.0 - **CB**10000/255.31	3, 4

NOTE

1) If communication is using RS232, please NOT to use general RS232 pin-cable. For more information of pin definition, please refers to cable connections (Connector Pinouts) in in Lenze LECOM A/B Protocol controller.

2) m represent HMI communication data forma. Different set of value represents different data format as following?:

m = 0 ~10	• unsigned, ASCII decimal format (VD). m represents decimal place, For example: m=0 → no decimal place m=1 → one decimal place (tenth) m=2 → two decimal place (hundredth)

m = 11 ~20	• signed, ASCII decimal format (VD). m represents decimal place, For example: m=11 → one decimal place (tenth) m=12 → two decimal place (hundredth)
m = 21	• signed, ASCII decimal format (VD). without decimal place
m = 22	• ASCII hexadecimal format (VH). 2 numbers. when using this format, the write value will be limited within the range of 0~0xFF (low byte). For example: when entering 0x1234 during communication, the actual write value is 0x34, not 0x1234.
m >= 23	• ASCII hexadecimal format (VH). (4 or 8 numbers.)
No m setting	Same as above

3) Only VH type parameter supports bit read & write function.

4) Data format of LenzeLECOM-A/B protocol is categorized:

1. VS (String format)
2. VO (Octet string format data blocks)
3. VH (ASCII hexadecimal format)(1, 2, 4 bytes)
4. VD (ASCII decimal format)(positive number, negative number, decimal number.)

Different communication format is not compatible, therefore, it is needed to ensure the HMI communication data format is correct, or an error may occur. For more detail, please refers to Lenze user manual.

1. The settings of ASCII hexadecimal format (VH) and ASCII decimal format (VD) must be correct. If the write value is incorrect the HMI will show "….Write …. Command Can Not be Executed" or "Can not be write".

2. The decimal place of ASCII decimal format (VD) should be set correctly, or the write value will be incorrect.

3. ASCII hexadecimal format (VH), 2 numbers (m = 22). The value is limited to 2 numbers. Using this format the write value will be limited within the range of 0 ~ 0xFF (low byte) automatically.

4. Length of data varies upon different communication address. Use register CW to read/write the address with data length as Word format. Use register CD to read/write the address with data length as Double Word format. Please refer to Lenze user manual for more detail on communication address.

Contacts: only can read/write the data of ASCII hexadecimal format (VH). Read the following information:

1. Do not write the inexistent Bit address, or HMI will show "….Write …. Command Can Not be Executed" on the screen. For example: CW470/1. The valid value of CW470/1 is within the range of 0 ~ 0xFF. Therefore, Bit 8 ~31 is not existed. Although HMI will show the value of Bit 8 ~31 is 0, the user can not write or set the value.

5) The valid station number is from 0 to 99 and also supports broadcast function, setting detail as following:

Controller Station Number	Broadcast Station Range
0	1 – 99
10	11 – 19
20	21 – 29
30	31 – 39
40	41 – 49
50	51 – 59
60	61 – 69
70	71 – 79
80	81 – 89
90	91 – 99

LG Glofa GM6 CNET

HMI Factory Setting:

Baud rate: 19200, 8, None, 1 (RS-232)

Controller Station Number: 1

Control Area / Status Area: %MW0 / %MW10

Connection

a. Applicable to RS-232 (DOP-A/AE/AS, DOP-B Series)

via CPU Port

DOP Series 9 pin D-SUB (RS-232)		Controller 9 pin D-SUB male (RS-232)
RXD (2)	———	(7) TXD
TXD (3)	———	(4) RXD
GND (5)	———	(5) GND

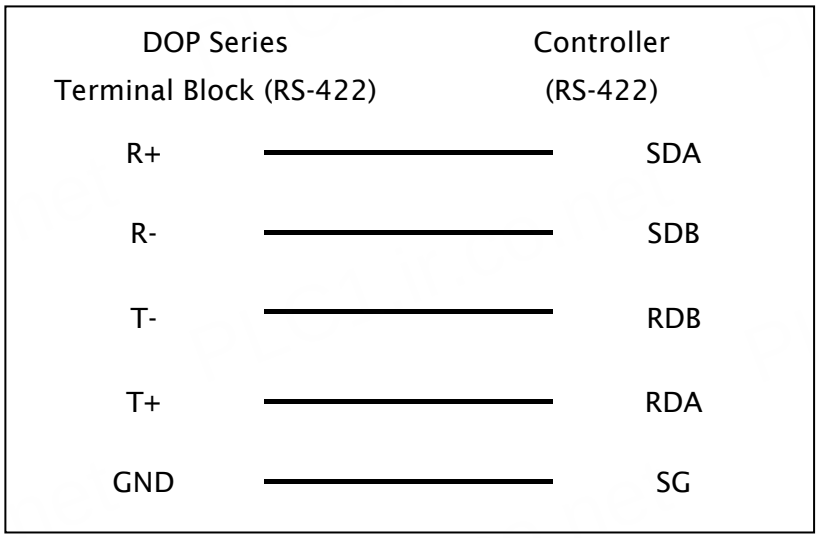
b. Applicable to RS-422 (DOP-A/AE Series)

via G6L-CUEC CNET Communication Module (0H Note1)

DOP Series 9 pin D-SUB male (RS-422)		Controller (RS-422)
RXD+ (2)	———	SDA
RXD- (1)	———	SDB
TXD- (4)	———	RDB
TXD+ (3)	———	RDA
GND (5)	———	SG

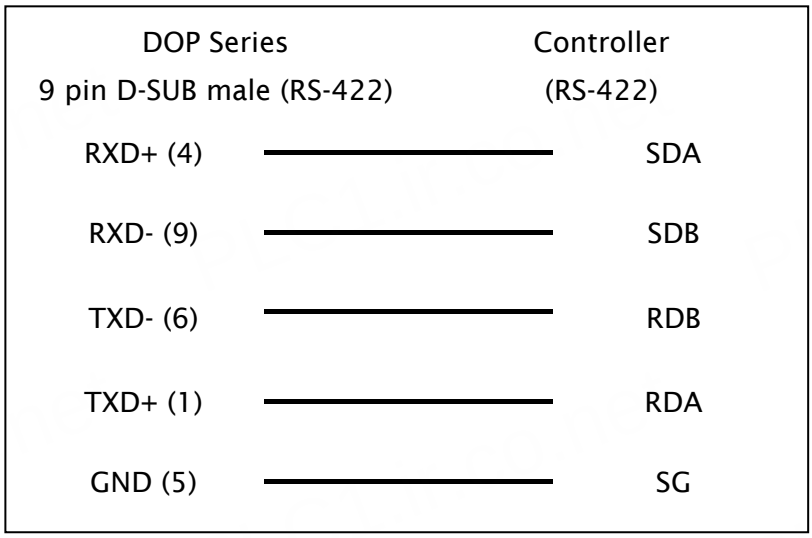
c. Applicable to RS-422 (DOP-AS35/AS38/AS57 Series)

via G6L-CUEC CNET Communication Module (1H Note1)



d. Applicable to RS-422 (DOP-B Series)

via G6L-CUEC CNET Communication Module (2H Note1)



Definition of PLC Read/Write Address

a. Registers

Type	Format Word No.(n) Slot No.(s) Base No.(b)	Read/Write Range	Data Length	Note
Input Image	**IW**b.s.n	**IW**0.0.0 – **IW**1.7.3	Word	
Input Image	**ID**b.s.n	**ID**0.0.0 – **ID**1.7.1	Double Word	
Output Image	**QW**b.s.n	**QW**0.0.0 – **QW**1.7.3	Word	

Type	Format Word No.(n) Slot No.(s) Base No.(b)	Read/Write Range	Data Length	Note
Output Image	**QD**b.s.n	**QD**0.0.0 – **QD**1.7.1	Double Word	
Internal Memory	**MW**n	**MW**0 – **MW**4095	Word	
Internal Memory	**MD**n	**MD**0 – **MD**2047	Double Word	

b. Contacts

Type	Format Bit No.(n) Slot No.(s) Base No.(b)	Read/Write Range	Note
Input Image	**IX**b.s.n	**IX**0.0.0 – **IX**1.7.63	
Output Image	**QX**b.s.n	**QX**0.0.0 – **QX**1.7.63	
Internal Memory	**MX**n	**MX**0 – **MX**65535	

NOTE

1) HMI default setting is predefined for CPU Port. If the user want to connect to CNET communication module, the baud rate should be changed to 38400, 8, None, 1. (RS-422 / RS-485).

LG Master K120S/200S

HMI Factory Setting:

Baud rate: 38400, 8, None, 1 (RS-232)

Controller Station Number: 0 (no PLC station number in protocol, therefore, only 1(HMI) to 1(PLC) communication is allowed.)

Control Area / Status Area: DW0/DW10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

DOP Series 9 pin D-SUB (RS-232)		Controller 9 pin D-SUB male (RS-232 for LG K120S/200S)
RXD (2)	———	(3) TXD
TXD (3)	———	(2) RXD
GND (5)	———	(5) GND

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
WORD_DEVICE_PW	**PW**n	**PW**0 – **PW**15	Word	
WORD_DEVICE_MW	**MW**n	**MW**0 – **MW**191	Word	
WORD_DEVICE_KW	**KW**n	**KW**0 – **KW**31	Word	
WORD_DEVICE_LW	**LW**n	**LW**0 – **LW**63	Word	
WORD_DEVICE_FW	**FW**n	**FW**0 – **FW**63	Word	
WORD_DEVICE_TW	**TW**n	**TW**0 – **TW**255	Word	
WORD_DEVICE_CW	**CW**n	**CW**0 – **CW**255	Word	
WORD_DEVICE_DW	**DW**n	**DW**0 – **DW**9999	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
BIT_DEVICE_P	**P**nb	**P**00 – **P**15F	
BIT_DEVICE_M	**M**nb	**M**00 – **M**191F	
BIT_DEVICE_K	**K**nb	**K**00 – **K**31F	
BIT_DEVICE_L	**L**nb	**L**00 – **L**63F	
BIT_DEVICE_F	**F**nb	**F**00 – **F**63F	
BIT_DEVICE_T	**T**b	**T**0 – **T**255	
BIT_DEVICE_C	**C**b	**C**0 – **C**255	

NOTE

1) If connecting to Pin 4 (RXD), Pin 7 (TXD) and Pin 5 (SG), it indicates that CNet protocol is used (Please refer to the section "LG Master-K CNET". 120S/200S protocol and CNet protocol cannot be used simultaneously. The users only can select either 120S/200S protocol or CNet protocol.

LG Master-K CNET

HMI Factory Setting (Note1):

Baud rate: 38400, 8, None, 1 (RS-422)

Controller Station Number: 0

Control Area / Status Area: DW0/DW10

Connection

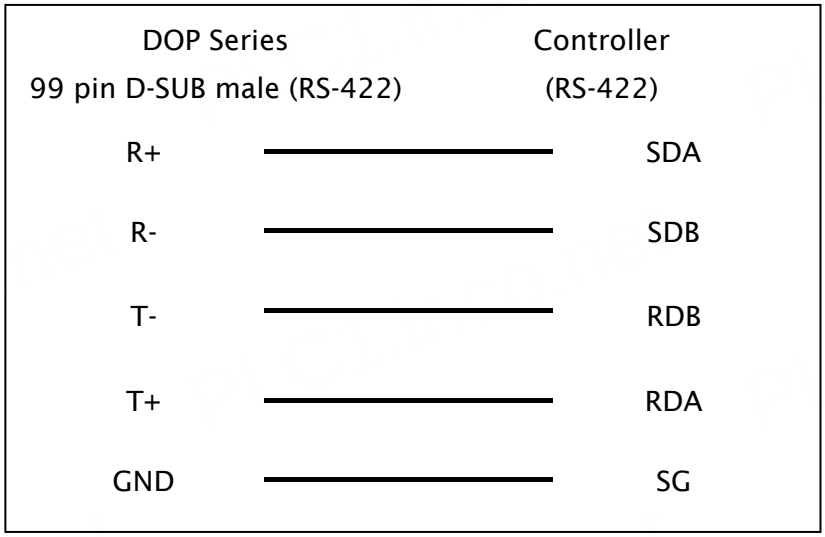
a. RS-232 (DOP-A/AE/AS, DOP-B Series) LG 120S PLC (Master K)

DOP Series 9 pin D-SUB (RS-232)		Controller 9 pin D-SUB male (RS-232)
RXD (2)	———	(7) TXD
TXD (3)	———	(4) RXD
GND (5)	———	(5) GND

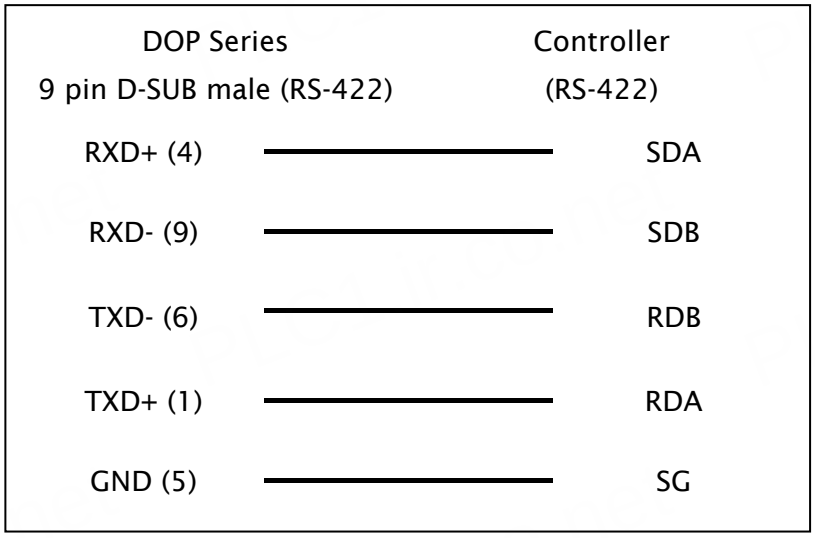
b. RS-422 (DOP-A/AE Series) via G6L-CUEC CNET Communication Module

DOP Series 99 pin D-SUB male (RS-422)		Controller (RS-422)
RXD+ (2)	———	SDA
RXD- (1)	———	SDB
TXD- (4)	———	RDB
TXD+ (3)	———	RDA
GND (5)	———	SG

c. RS-422 (DOP-AS35/AS38/AS57 Series) via G6L-CUEC CNET Communication Module



d. RS-422 (DOP-B Series) via G6L-CUEC CNET Communication Module



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
I/O Relay	**PW**n	**PW**0 – **PW**31	Word	
Auxiliary Relay	**MW**n	**MW**0 – **MW**191	Word	
Keep Relay	**KW**n	**KW**0 – **KW**31	Word	
Link Relay	**LW**n	**LW**0 – **LW**63	Word	
Special Relay	**FW**n	**FW**0 – **FW**63	Word	Read Only
Timer Elapsed Value	**TW**n	**TW**0 – **TW**255	Word	

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Counter Elapsed Value	**CW**n	**CW**0 – **CW**255	Word	
Data Register	**DW**n	**DW**0 – **DW**9999	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
I/O Relay	**PX**nb	**PX**00 – **PX**31F	
Auxiliary Relay	**MX**nb	**MX**00 – **MX**191F	
Keep Relay	**KX**nb	**KX**00 – **KX**31F	
Link Relay	**LX**nb	**LX**00 – **LX**63F	
Special Relay	**FX**nb	**FX**00 – **FX**63F	
Timer Contact Relay	**TX**b	**TX**0 – **TX**255	
Counter Contact Relay	**CX**b	**CX**0 – **CX**255	

NOTE

1) HMI default setting is predefined for G6L-CUEC CNET communication module.

LG XGT CNET

(Supports LG CNET communication module XG-CH2A)

HMI Factory Setting:

Baud rate: 9600, 8, None, 1

Controller Station Number: 0

Control Area / Status Area: DW0 / DW10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series) XGL-CH2A CNET Communication Module (Channel 1)

DOP Series		Controller
9 pin D-sub male (RS-232)		9 pin D-SUB male (RS-232)
RXD (2)	———	(3) TXD
TXD (3)	———	(2) RXD
GND (5)	———	(5) GND

b. RS-422 (DOP-A/AE Series) XGL-CH2A CNET Communication Module (Channel 2)

DOP Series		Controller
9 pin D-sub male (RS-422)		(RS-422)
RXD- (1)	———	TX-
RXD+ (2)	———	TX+
TXD+ (3)	———	RX+
TXD- (4)	———	RX-
GND (5)	———	GND

c. RS-422 (DOP-AS35/AS38/AS57 Series) XGL-CH2A CNET Communication Module (Channel 2)

DOP Series Terminal Block (RS-422)		Controller (RS-422)
R-	———	TX-
R+	———	TX+
T+	———	RX+
T-	———	RX-
GND (5)	———	GND

d. RS-422 (DOP-A/AE Series) XGL-CH2A CNET Communication Module (Channel 2)

DOP Series 9 pin D-sub male (RS-422)		Controller (RS-422)
RXD- (9)	———	TX-
RXD+ (4)	———	TX+
TXD+ (1)	———	RX+
TXD- (6)	———	RX-
GND (5)	———	GND

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
I/O Relay	**PW**n	**PW**0 – **PW**2047	Word	
Auxiliary Relay	**MW**n	**MW**0 – **MW**2047	Word	
Keep Relay	**KW**n	**KW**0 – **KW**2047	Word	
Link Relay	**LW**n	**LW**0 – **LW**11263	Word	
Special Relay	**FW**n	**FW**0 – **FW**2047	Word	Read only
Timer Elapsed Value	**TW**n	**TW**0 – **TW**2047	Word	

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Counter Elapsed Value	**CW**n	**CW**0 – **CW**2047	Word	
Data Register	**DW**n	**DW**0 – **DW**32767	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No.(n) Bit No.(b)		
I/O Relay	**PX**nb	**PX**0.0 – **PX**2047.F	
Auxiliary Relay	**MX**nb	**MX**0.0 – **MX**2047.F	
Keep Relay	**KX**nb	**KX**0.0 – **KX**2047.F	
Link Relay	**LX**nb	**LX**0.0 – **LX**11263.F	
Special Relay	**FX**nb	**FX**0.0 – **FX**2047.F	
Timer Contact Relay	**TX**b	**TX**0 – **TX**2047	
Counter Contact Relay	**CX**b	**CX**0 – **CX**2047	
Data Relay	**DX**n.b	**DX**0.0 – **DX**32767.F	

LIYAN LYPLC EX

HMI Factory Setting

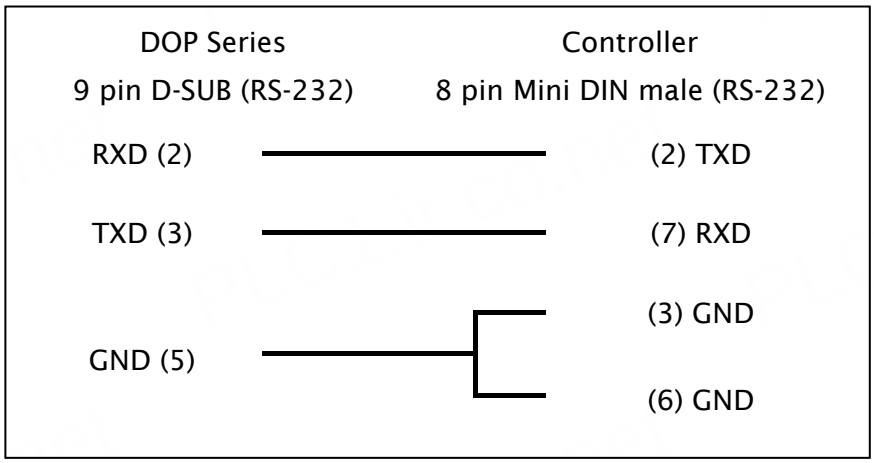
Baud rate: 9600, 7, Even, 1

Controller Station Number: 0

Control Area / Status Area: D0 / D10

Connection

a. Applicable to RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Auxiliary Relay	**M**n	**M**0 – **M**3064	Byte	1
Special Auxiliary Relay	**M**n	**M**8000 – **M**8248	Byte	1
Status Relay	**S**n	**S**0 – **S**992	Byte	1
Input Relay	**X**n	**X**0 – **X**360	Byte	Octal, 1
Output Relay	**Y**n	**Y**0 – **Y**360	Byte	Octal, 1
Timer PV	**T**n	**T**0 – **T**255	Word	
16-bit Counter PV	**C**n	**C**0 – **C**199	Word	
32-bit Counter PV	**C**n	**C**200 – **C**255	Double Word	
Data Register	**D**n	**D**0 – **D**7999	Word	
Special Data Register	**D**n	**D**8000 – **D**8255	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Auxiliary Relay	**M**b	**M**0 – **M**3071	
Special Auxiliary Relay	**M**b	**M**8000 – **M**8255	
Status Relay	**S**b	**S**0 – **S**999	
Input Relay	**X**b	**X**0 – **X**377	Octal
Output Relay	**Y**b	**Y**0 – **Y**377	Octal
Timer Flag	**T**b	**T**0 – **T**255	
Counter Flag	**C**b	**C**0 – **C**255	

NOTE

1) Device address must be the multiple of 8.

M2i Master

HMI Factory Setting

Baud rate: 38400, 8, None, 1

Controller Station Number: 1

Control Area / Status Area: SB0 / SB10

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Word Address	**SB**n	**SB**0000 – **SB**FFFF	Word	Hexadecimal

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Bit Address	**SB**n.b	**SB**0000.0 – **SB**FFFF.F	Hexadecimal

M2i Slave

HMI Factory Setting:

Baud rate: 38400, 8, None, 1

Controller Station Number: 1 (no PLC station number in protocol, therefore, only 1(HMI) to 1(PLC) communication is allowed.)

Control Area / Status Area: SB0 / SB10

Connection

Regarding DOP pin definition, please refers to "Pin Definition of Serial Communication" for more detail.

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Word Address	**SB**n	**SB**0000 - **SB**FFFF	Word	Hexadecimal

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Bit Address	**SB**n.b	**SB**0000.0 - **SB**FFFF.F	Hexadecimal

NOTE

1) HMI station number is Slave station number. (default setting is 0)

2) The relation between M2i communication address and HMI internal registers.

Modbus address		Data definition in HMI
SB0000 ~ SB7FFF	→	$0 ~ $32767
SB8000 ~ SB83FF	→	$M0 ~ $M1023
SB8400	→	RCPNO
SB8500 ~ SBFFFF	→	RCP0 ~ RCP31487

Matsushita FP PLC

HMI Factory Setting:

Baud rate: 9600, 8, Odd, 1

Controller Station Number: 238(Note 1)

Control Area / Status Area: DT0 / DT10

Connection

a. RS-232 for FP0 (DOP-A/AE/AS, DOP-B Series)

DOP Series		Controller
9 pin D-SUB (RS-232)		5 pin Mini DIN male(RS-232 for FP0)
RXD (2)	———	(2) TXD
TXD (3)	———	(3) RXD
GND (5)	———	(1) SG

b. RS-232 for FP1 (DOP-A/AE/AS, DOP-B Series)

DOP Series		Controller
9 pin D-SUB (RS-232)		9 pin D-SUB male(RS-232 for FP1)
RXD- (2)	———	(2) TXD
RXD+ (3)	———	(3) RXD
TXD+ (5)	———	(7) GND
	⌐	(4) RTS
	⌐	(5) CTS

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Internal Relay	WRn	WR0 – WR886, WR900 – WR910	Word	
Special Internal Relay				
Link Relay	WLn	WL0 – WL639	Word	
External Input Relay	WXn	WX0 – WX511	Word	
External Output Relay	WYn	WY0 – WY511	Word	
Timer/Counter P.V.	EVn	EV0 – EV3071	Word	
Timer/Counter S.V.	SVn	SV0 – SV3071	Word	
Data Register	DTn	DT0 – DT32764	Word	
Link Data Register	LDn	LD0 – LD8447	Word	
File Register	FLn	FL0 – FL32764	Word	
Speical Data Register	DT9_n	DT9_0 – DT9_511	Word	2

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Internal Relay	Rnb	Rn00 – Rn886F	
Special Internal Relay	Rnb	Rn9000 – Rn910F	
Link Relay	Lnb	Ln00 – Ln639F	
External Input Relay	Xnb	Xn00 – Xn511F	
External Output Relay	Ynb	Yn00 – Yn511F	
Timer Flag Contact	Tb	T0 – T3071	
Counter Flag Contact	Cb	C0 – C3071	

NOTE

1) PLC default setting is 238. It supports the external device connections of all station number. To change the setting, PLC supports station number range from 0 to 99. For more detail on PLC station number, please refer to PLC user manual.

2) Special data register (DT9_n) is applicable to FP0 T32C, FP2, FP2SH, FP10SH modules. The actual transmitted address of DT9_n is DT 90000 + n.

   For example, the actual transmitted address of DT9_0 is DT90001, the actual transmitted address of DT9_1 is DT90001, the actual transmitted address of DT9_2 is DT90002 and so on.

Mirle FAMA SC

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1

Controller Station Number: 0

Control Area / Status Area: 40100 / 40200

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

DOP Series 9 pin D-SUB (RS-232)		Controller 9 pin D-SUB male (RS-232)
RXD (2)	———	(3) TXD
TXD (3)	———	(2) RXD
GND (5)	———	(5) SG

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Output Registers	**W**n	**W**40001 – **W**50000	Word	
Input Registers	**W**n	**W**30001 – **W**40000	Word	Read Only

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Discrete Outputs	**B**b	**B**1 – **B**10000	
Discrete Inputs	**B**b	**B**10001 – **B**20000	Read Only

Mitsubishi A Series (CPU Port)

(Supporting A2A, A2AS, A2USH, A1SH, A3N, A2ASH(CPU-S1) Series)

HMI Factory Setting:

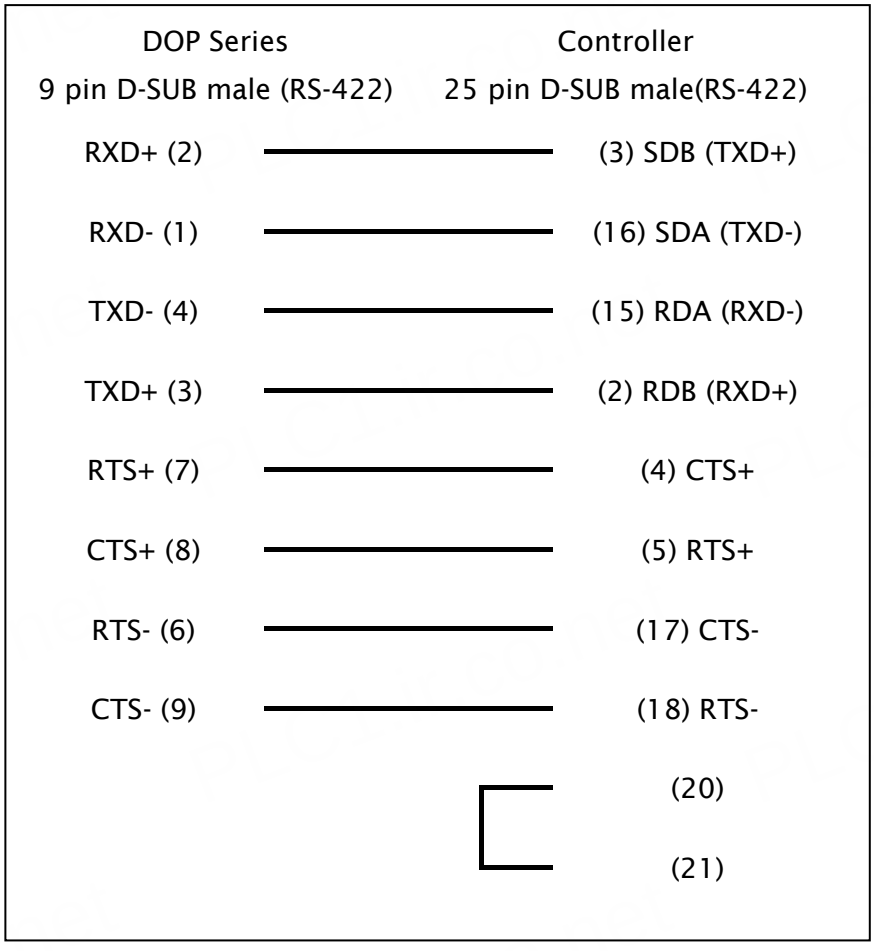
Baud rate: 9600, 8, ODD, 1

Controller Station Number: 0 (no PLC station number in protocol, therefore, only 1(HMI) to 1(PLC) communication is allowed.)

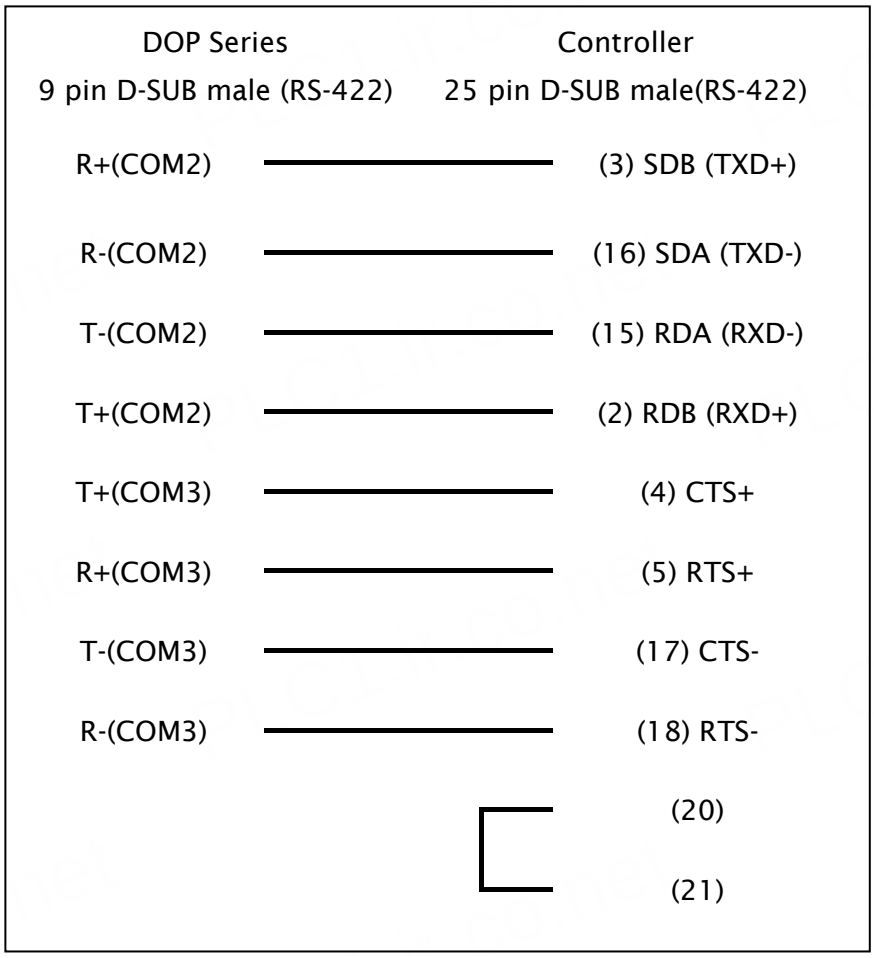
Control Area / Status Area: D0/D10

Connection

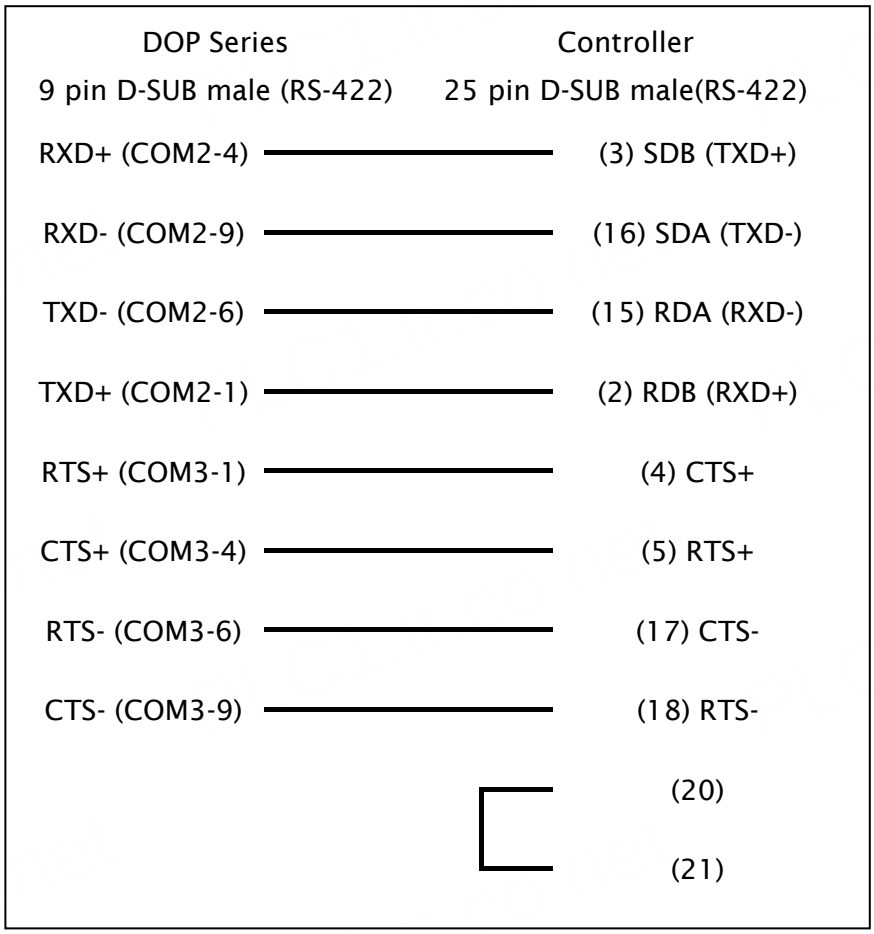
a. RS-422 (DOP-A/AE Series)



b. RS-422 (DOP-AS57 Series)



c. RS-422 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Input	**X**n	**X**0 – **X**7FF	Word	Hexadecimal, 1, 4
Output	**Y**n	**Y**0 – **Y**7FF	Word	Hexadecimal, 1
Link Relay	**B**n	**B**0 – **B**FFF	Word	Hexadecimal, 1
Internal Relay	**M**n	**M**0 – **M**8191	Word	1
Special Internal Relay	**SM**n	**SM**9000 – **SM**9255	Word	2
Latch Relay	**L**n	**L**0 – **L**8191	Word	1
Annunciator	**F**n	**F**0 – **F**2047	Word	1
Timer Value	**TN**n	**TN**0 – **TN**2047	Word	
Counter Value	**CN**n	**CN**0 – **CN**1023	Word	

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Data Register	**D**n	**D**0 – **D**8191	Word	
Special Data Register	**SD**n	**SD**9000 – **SD**9255	Word	
File Register	**R**n	**R**0 – **R**8191	Word	
Link Register	**W**n	**W**0 – **W**FFF	Word	Hexadecimal
Input Card Register	**PX**n	**PX**0 – **PX**7FF	Word	Hexadecimal, 1, 4

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Input	**X**b	**X**0 - **X**7FF	Hexadecimal, 4
Output	**Y**b	**Y**0 - **Y**7FF	Hexadecimal
Link Relay	**B**b	**B**0 - **B**FFF	Hexadecimal
Internal Relay	**M**b	**M**0 - **M**8191	
Special Internal Relay	**SM**b	**SM**9000 - **SM**9255	
Latch Relay	**L**b	**L**0 - **L**2047	
Annunciator	**F**b	**F**0 - **F**2047	
Timer Contact	**TS**b	**TS**0 - **TS**2047	
Timer Coil	**TC**b	**TC**0 - **TC**2047	
Counter Contact	**CS**b	**CS**0 - **CS**1023	
Counter Coil	**CC**b	**CC**0 - **CC**1023	
Input Card Register	**PX**b	**PX**0 - **PX**7FF	Hexadecimal, 4

NOTE

1) Device address must be the multiple of 16.

2) Device address must be 9000 plus the multiple of 16.

3) If the PLC station number is set as 0 and a read/write register error occurs on HMI, please reset the PLC station number to 255.

4) If a read/ write register X error occurs on HMI, please use register PX.

5) R address would vary upon the FILE REGISTER of PLC setting.

For Example：A2USH
1K：3800-4000H

2K : 3000-4000H

3K : 2800-4000H

4K : 2000-4000H

5K~8K : …

FILE REGISTER：PLC must be on or Read/Write will be incorrect..

6) How to set File Register (R) for Mitsubishi A serial PLC:

1. Startup MELSOFT series GX Developer.
2. Open “Project Data List” windows. (“View” Option)
3. Double click Parameter \ PLC Parameter, and open “Setting” window.
4. Set Memory Capacity \ File Register (0 ~8).
5. Press “End” button on the bottom and complete the setting.
6. Execute OnLine\Write to PLC.
7. Enable the “Parameter \ PLC/Network” and “File register \ Main” option (check the check box next to “Parameter \ PLC/Network” and “File register \ Main”).
8. Press “Execute” button.
9. Complete

Mitsubishi A Series/J71UC24 Computer Link

HMI Factory Setting:

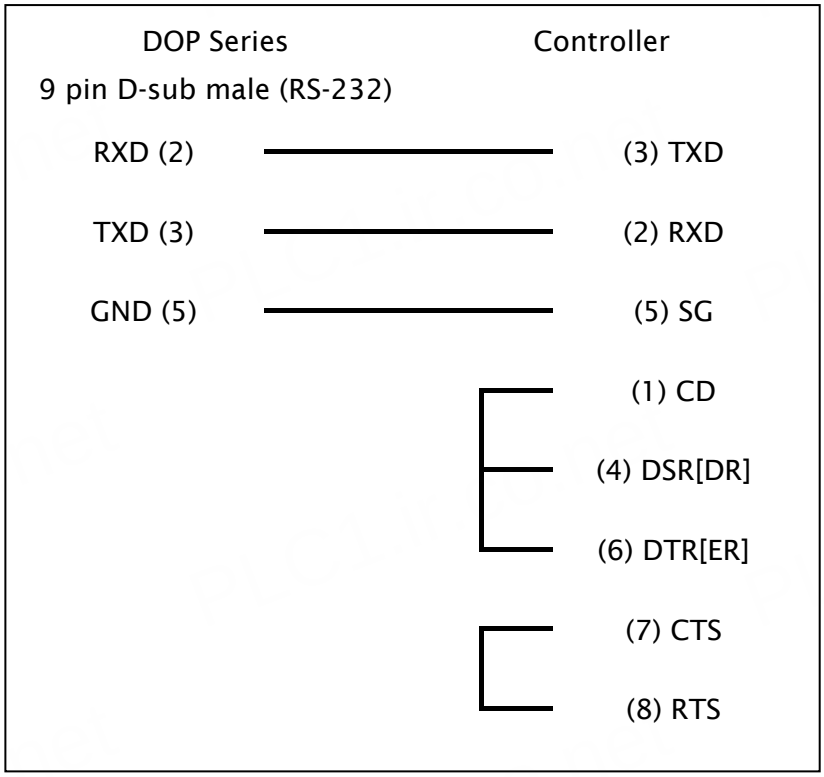
Baud rate: 9600, 8, ODD, 1

Controller Station Number: 0 (Note 1)

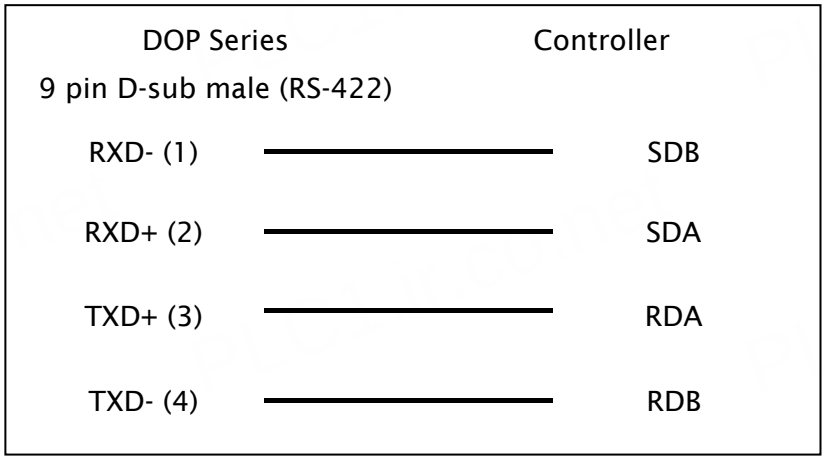
Control Area / Status Area: D0/D10

Connection

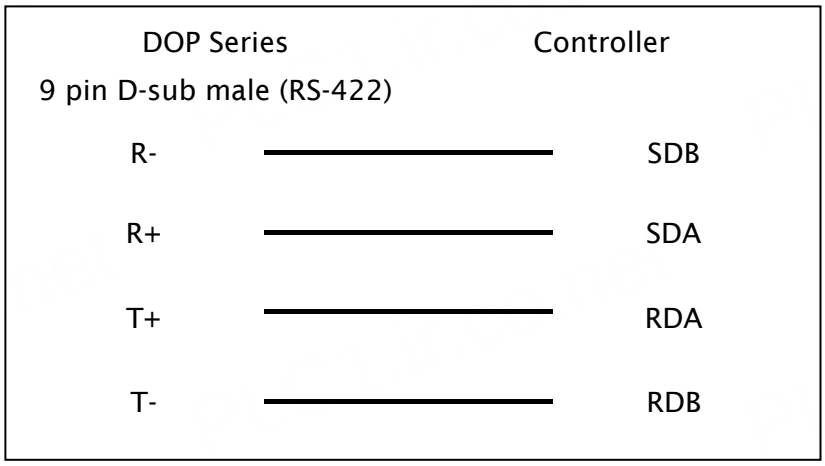
a. RS-232 (DOP-A/AE/AS, DOP-B Series)



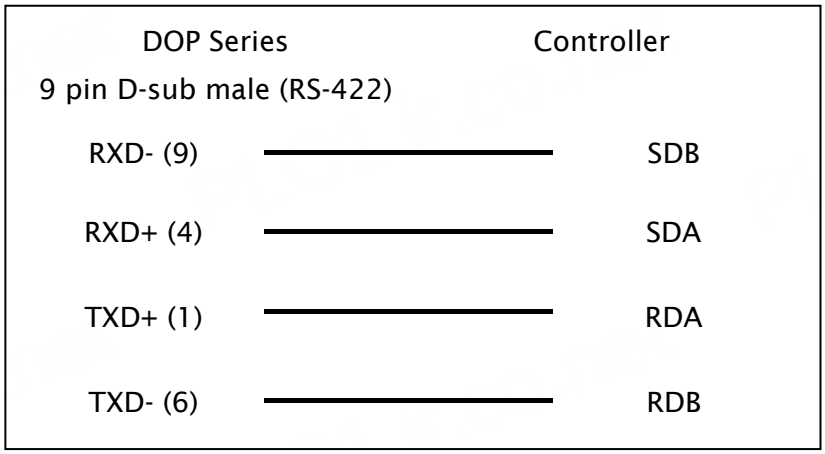
b. RS-422 (DOP-A/AE Series)



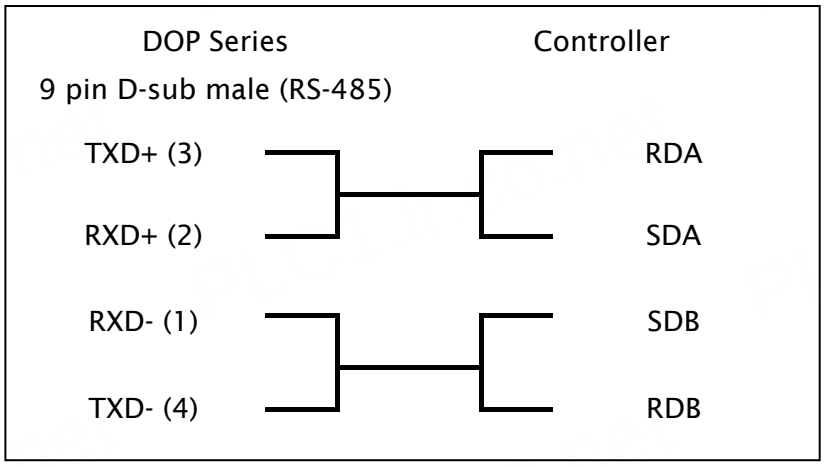
c. RS-422 (DOP-AS35/AS38/AS57 Series)



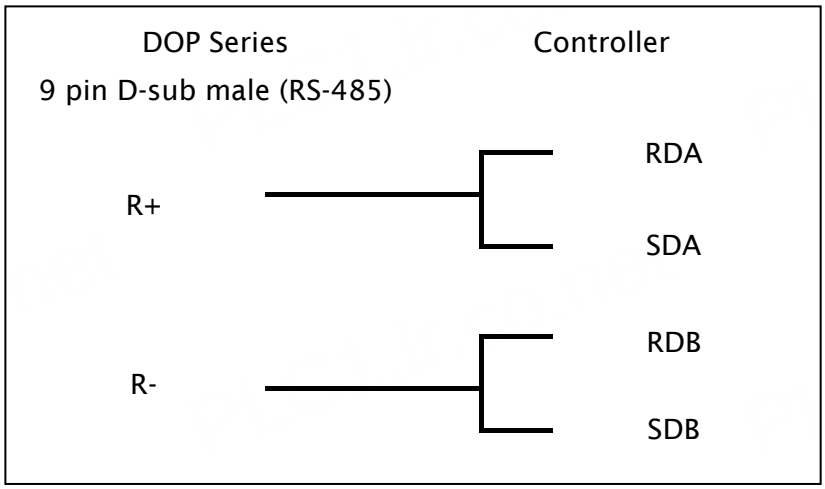
d. RS-422 (DOP-B Series)



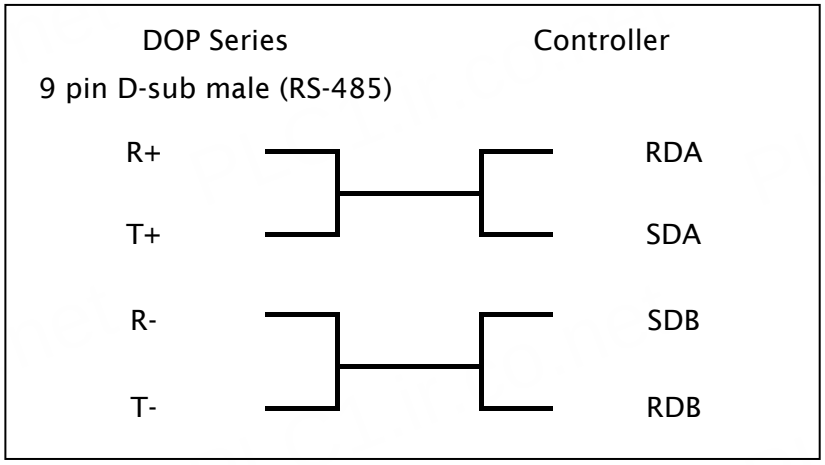
e. RS-485 (DOP-A/AE Series)



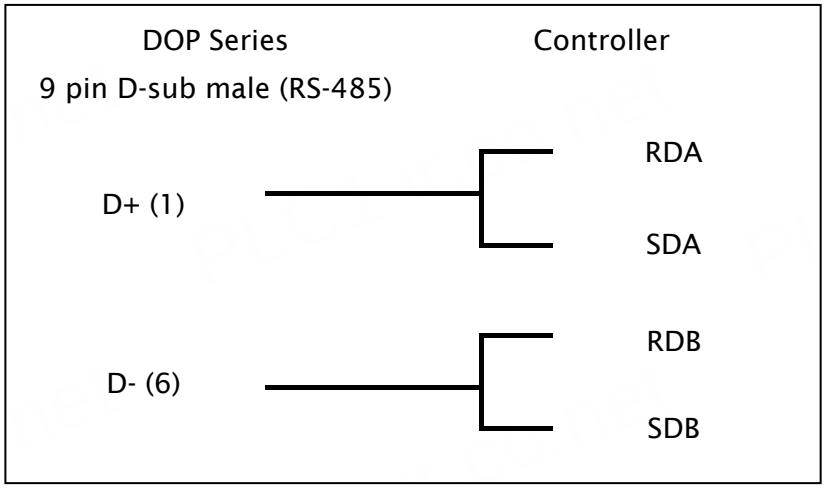
f. RS-485 (DOP-AS57 Series)



g. RS-485 (DOP-AS35/AS38 Series)



h. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Input	Xn	X0 – X7FF	Word	3
Output	Yn	Y0 – X7FF	Word	3
Link Relay	Bn	B0 – BFFF	Word	3
Internal Relay	Mn	M0 – M8176	Word	3
Special Internal Relay	SMn	SM9000 – SM9240	Word	4
Latch Relay	Ln	L0 – L2032	Word	3
Annunciator	Fn	F0 – F2032	Word	3
Timer Value	TNn	TN0 – TN999	Word	
Counter Value	CNn	CN0 – CN999	Word	
Data Register	Dn	D0 – D8191	Word	
Special Data Register	SDn	SD9000 – SD9255	Word	
File Register	Rn	R0 – R8191	Word	
Link Register	Wn	W0 - WFFF	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Input	Xb	X0 – X7FF	
Output	Yb	Y0 – Y7FF	
Link Relay	Bb	B0 – BFFF	
Internal Relay	Mb	M0 – M8191	
Special Internal Relay	SMb	SM9000 – SM9255	
Latch Relay	Lb	L0 – L2047	
Annunciator	Fb	F0 – F2047	
Timer Contact	TSb	TS0 – TS999	
Timer Coil	TCb	TC0 – TC999	
Counter Contact	CSb	CS0 – CS999	
Counter Coil	CCb	CC0 – CC999	

NOTE

1) a. The mode switch setting of AJ71UC24-R2 communication is 4 (Form 4), station number can only be 0.

b. The mode switch setting of AJ71UC24-R4 communication is 8 (Form 4), station number can be determined by switch setting X1/X10.

After PLC communication mode switch is set, please re-activate the PLC.
The protocol is CheckSum and PLC Mode is Form 4. For switch setting of other communication parameter, please refers to Mitsubishi user manual.

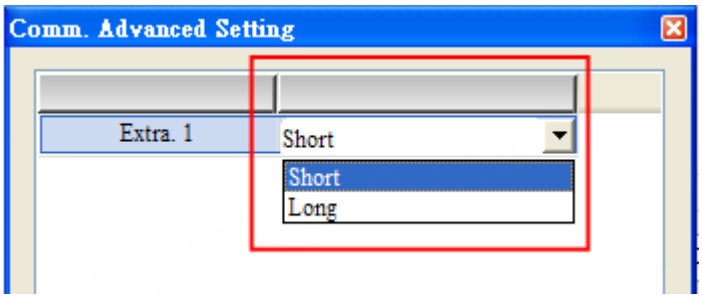
2) Parameter is set by the programming software GX Developer, please refers to PLC user manual for set up instruction.

3) Device address should be the multiple of 16.

4) Device address should be the multiple of 16 plus 9000.

5) When certain Output Relay (**Y**) and Special Data Relay (**SM**) are set as 1, PLC will stop function. Please RESET the PLC for re-activation.

6) Though the default setting is in short communication address, this protocol supports both Short/ Long communication address. If only certain type of address is suitable to your device, address format can be changed in special parameter under the setting menu.



Mitsubishi FX3U

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1

Controller Station Number: 0 (no PLC station number in protocol, therefore, only 1(HMI) to 1(PLC) communication is allowed.)

Control Area / Status Area: D0 / D10

Connection

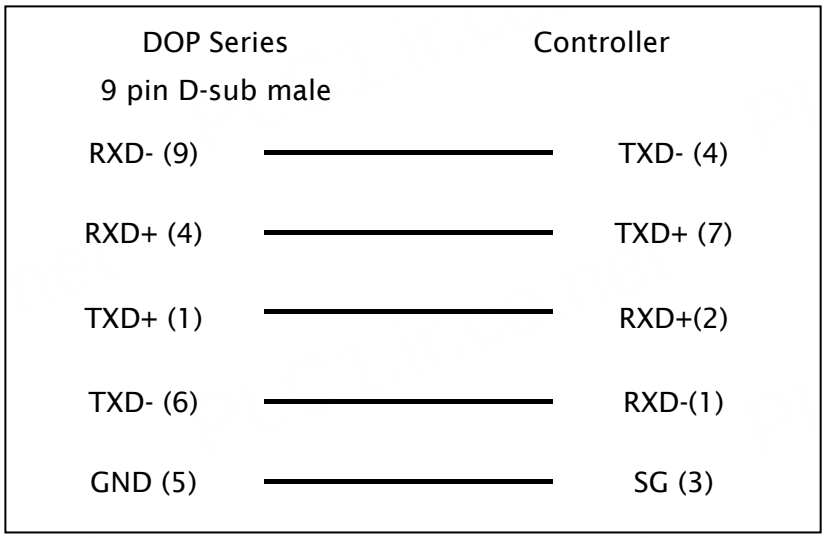
a. RS-422 (DOP-A/AE Series)

DOP Series 9 pin D-sub male		Controller
RXD- (1)	———	TXD- (4)
RXD+ (2)	———	TXD+ (7)
TXD+ (3)	———	RXD+(2)
TXD- (4)	———	RXD-(1)
GND (5)	———	SG (3)

b. RS-422 (DOP-AS35/AS38/AS57 Series)

DOP Series 9 pin D-sub male		Controller
R-	———	TXD- (4)
R+	———	TXD+ (7)
T+	———	RXD+(2)
T-	———	RXD-(1)
GND (5)	———	SG (3)

c. RS-422 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Auxiliary Relay	**M**n	**M**0 – **M**7664	Word	1
Special Auxiliary Relay	**M**n	**M**8000 – **M**8496	Word	1
Status Relay	**S**n	**S**0 – **S**4080	Word	1
Input Relay	**I**n	**I**0 – **I**360	Word	Octal, 1
Output Relay	**O**n	**O**0 – **O**360	Word	Octal, 1
Timer PV	**T**n	**T**0 – **T**255	Word	
16-bit Counter PV	**C**n	**C**0 – **C**199	Word	
32-bit Counter PV	**C**n	**C**200 – **C**255	Double Word	
Data Register	**D**n	**D**0 – **D**7999	Word	
Special Data Register	**D**n	**D**8000 – **D**8511	Word	
Extension Register	**R**n	**R**0 – **R**32767	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Auxiliary Relay	**M**b	**M**0 – **M**7679	
Special Auxiliary Relay	**M**b	**M**8000 – **M**8511	
Status Relay	**S**b	**S**0 – **S**4095	
Input Relay	**I**b	**I**0 – **I**377	Octal

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Output Relay	**O**b	**O**0 – **O**377	Octal
Timer Flag	**T**b	**T**0 – **T**255	
Counter Flag	**C**b	**C**0 – **C**255	

NOTE

1) The device address must be the multiple of 16.

Mitsubishi FX Series Computer Link

HMI Factory Setting:

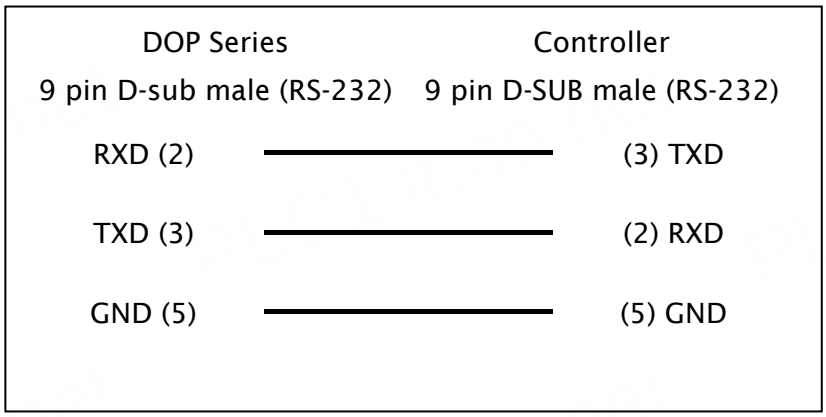
Baud rate: 9600, 7, Even, 1

Controller Station Number: 1

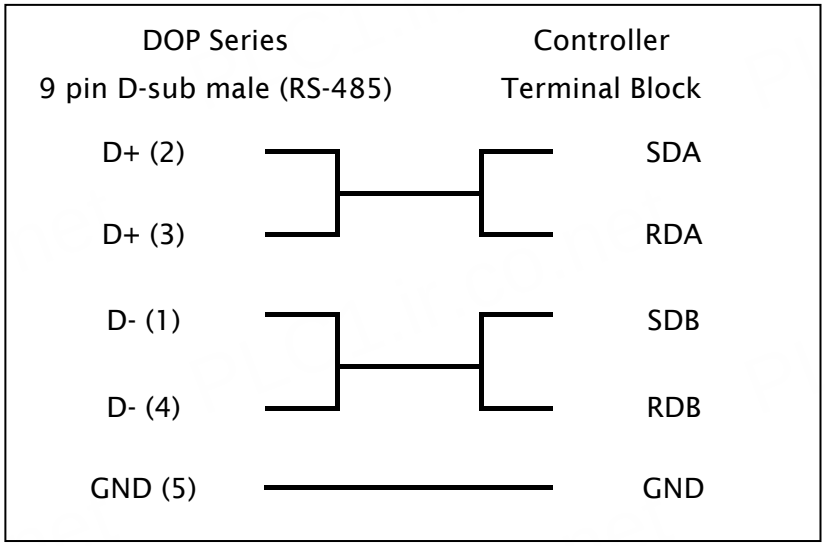
Control Area / Status Area: D0 / D10

Connection

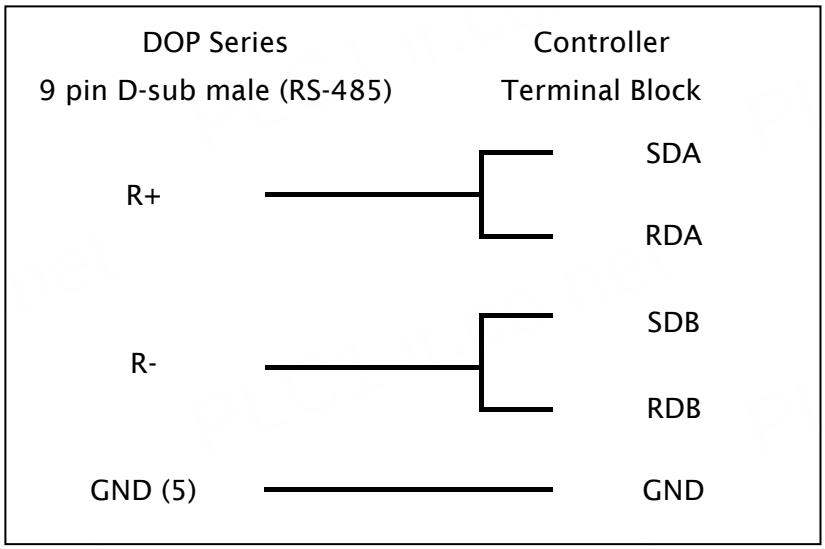
a. RS-232 (DOP-A/AE/AS, DOP-B Series)



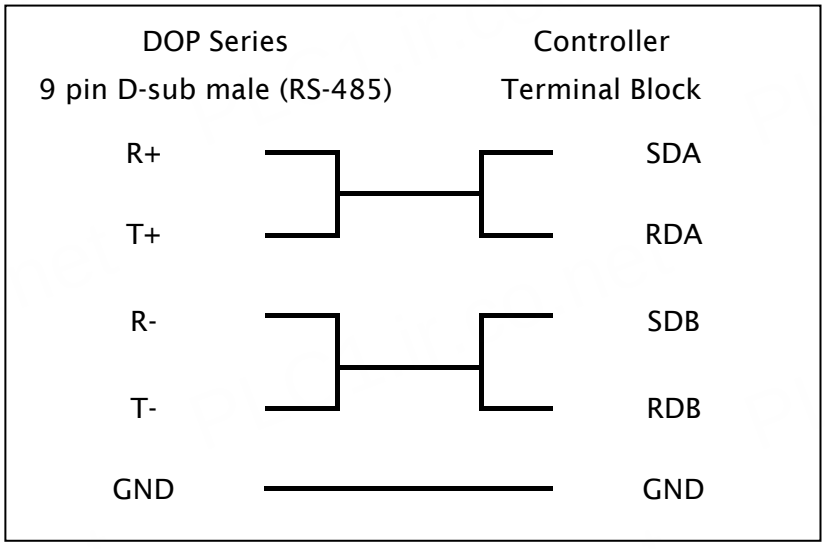
b. RS-485 (DOP-A/AE Series)



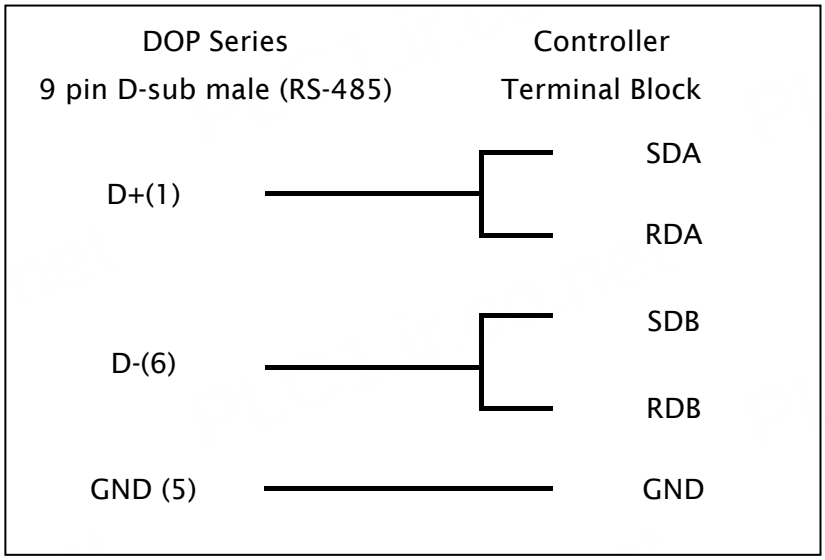
c. RS-485 (DOP-AS57 Series)



d. RS-485 (DOP-AS35/AS38 Series)



e. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n)			
Auxiliary Relay	**M**n	**M**0 – **M**7679	Word	2
Special Auxiliary Relay	**M**n	**M**8000 – **M**8511	Word	2
Status Relay	**S**n	**S**0 – **S**4095	Word	2
Input Relay	**X**n	**X**0 – **X**377	Word	Octal, 2
Output Relay	**Y**n	**Y**0 – **Y**377	Word	Octal, 2
Timer PV	**T**n	**T**0 – **T**255	Word	
16-Bits Counter PV	**C**n	**C**0 – **C**199	Word	
32-Bits Counter PV	**C**n	**C**200 – **C**255	Double Word	
Data Register	**D**n	**D**0 – **D**7999	Word	
Special Data Register	**D**n	**D**8000 – **D**8511	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No.(n)		
Auxiliary Relay	**M**b	**M**0 – **M**7679	
Special Auxiliary Relay	**M**b	**M**8000 – **M**8511	
Status Relay	**S**b	**S**0 – **S**4095	
Input Relay	**X**b	**X**0 – **X**377	Octal
Output Relay	**Y**b	**Y**0 – **Y**377	Octal
Timer Flag	**T**b	**T**0 – **T**255	
Counter Flag	**C**b	**C**0 – **C**255	

NOTE

1) This communication protocol supports FX Series 485-BD/232-BD communication module.

2) The device address must be the multiple of 16.

Mitsubishi FX Series PLC(Note 1) / Mitsubishi FX2N PLC(Note 2)

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1

Controller Station Number: 0 (no PLC station number in protocol, therefore, only 1(HMI) to 1(PLC) communication is allowed.)

Control Area / Status Area: D0 / D10

Connection

a. RS-422 (DOP-A/AE Series)

DOP Series		Controller
9 pin D-SUB male (RS-422)		8 pin Mini DIN male (RS-422)
RXD+ (2)	———	(7) TXD+
RXD- (1)	———	(4) TXD-
TXD+ (3)	———	(2) RXD+
TXD- (4)	———	(1) RXD-
GND (5)	———	(3) SG

b. RS-422 (DOP-AS35/AS38/AS57 Series)

DOP Series		Controller
9 pin D-SUB male (RS-422)		8 pin Mini DIN male (RS-422)
R+	———	(7) TXD+
R-	———	(4) TXD-
T+	———	(2) RXD+
T-	———	(1) RXD-
GND	———	(3) SG

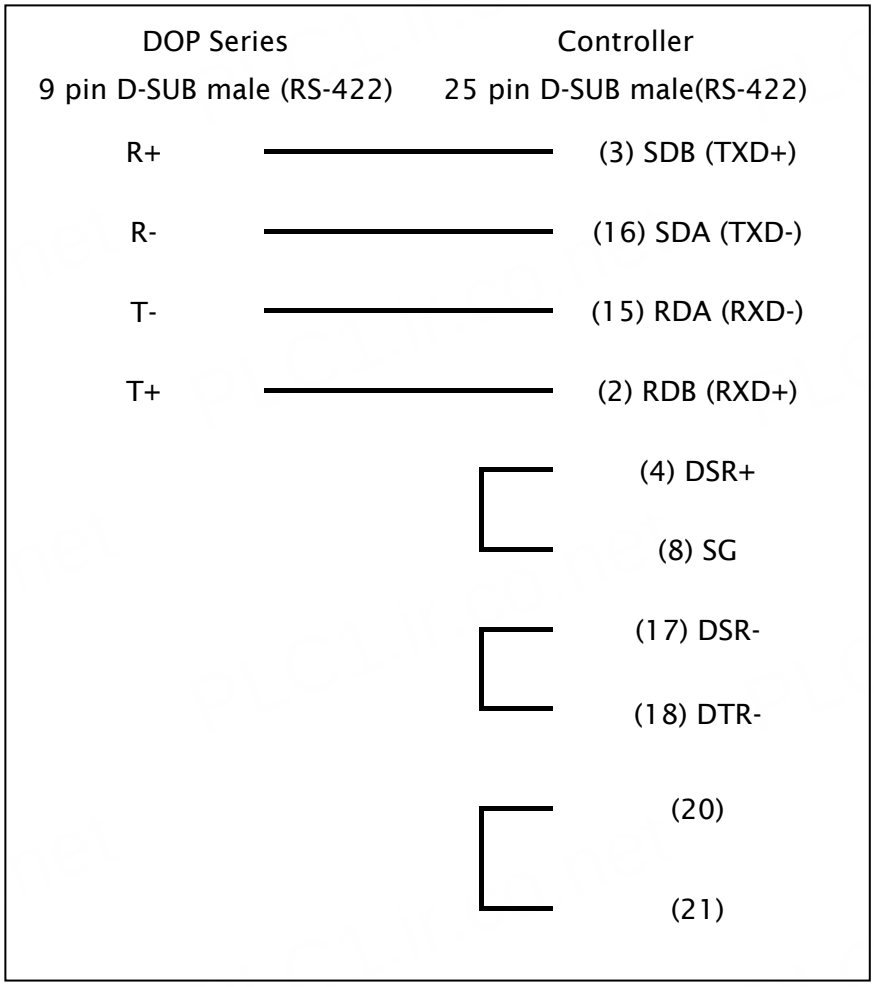
c. S-422 (DOP-B Series)

DOP Series 9 pin D-SUB male (RS-422)		Controller 8 pin Mini DIN male (RS-422)
RXD+ (4)	———	(7) TXD+
RXD- (9)	———	(4) TXD-
TXD+ (1)	———	(2) RXD+
TXD- (6)	———	(1) RXD-
GND (5)	———	(3) SG

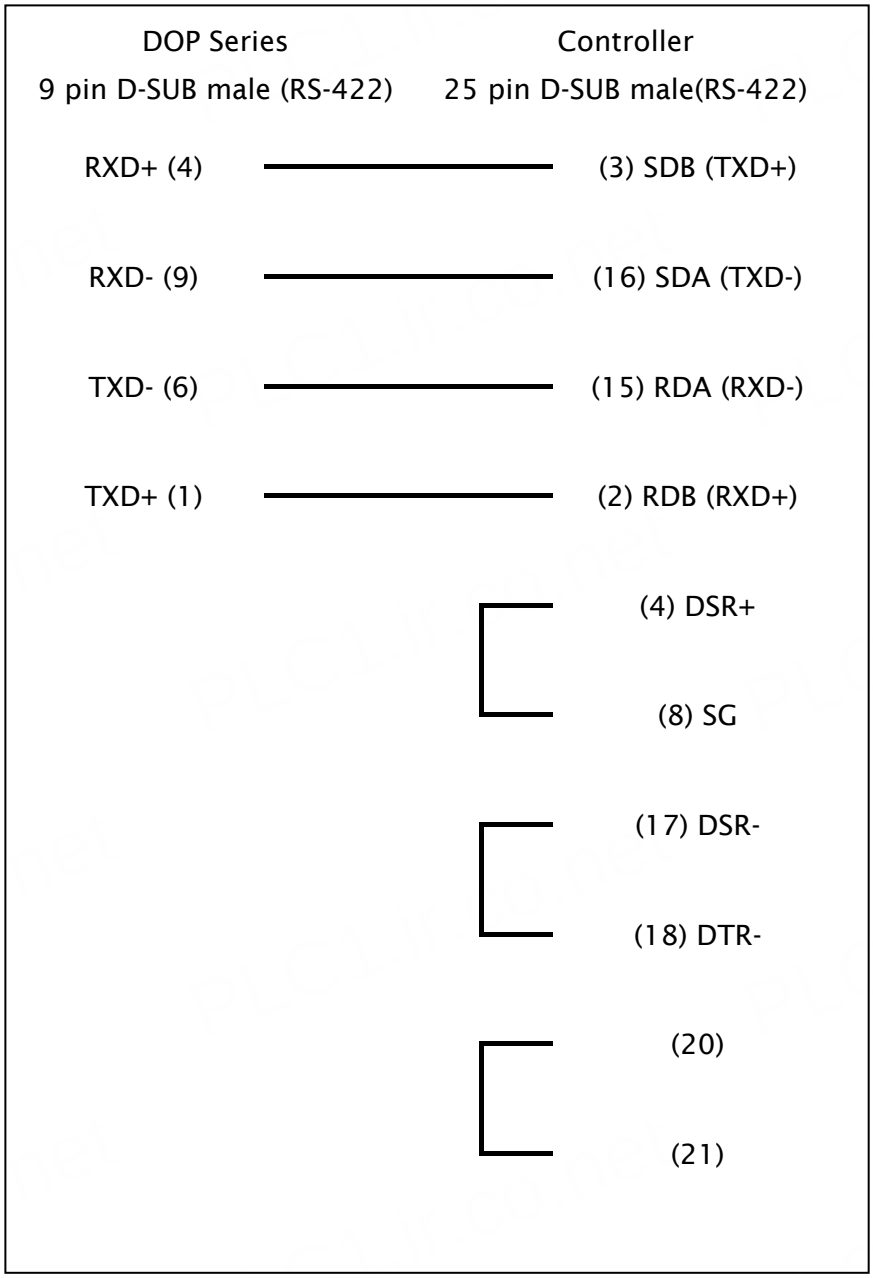
d. RS-422 (DOP-A/AE Series)

DOP Series 9 pin D-SUB male (RS-422)		Controller 25 pin D-SUB male(RS-422)
RXD+ (2)	———	(3) SDB (TXD+)
RXD- (1)	———	(16) SDA (TXD-)
TXD- (4)	———	(15) RDA (RXD-)
TXD+ (3)	———	(2) RDB (RXD+)
	⌐	(4) DSR+
	⌐	(8) SG
	⌐	(17) DSR-
	⌐	(18) DTR-
	⌐	(20)
	⌐	(21)

e. RS-422 (DOP-AS57 Series)



f. RS-422 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Auxiliary Relay	Mn	M0 – M3064	Byte	3
Special Auxiliary Relay	Mn	M8000 – M8248	Byte	3
Status Relay	Sn	S0 – S992	Byte	3
Input Relay	Xn	X0 – X360	Byte	Octal, 3
Output Relay	Yn	Y0 – Y360	Byte	Octal, 3
Timer PV	Tn	T0 – T255	Word	
16-位元 Counter PV	Cn	C0 – C199	Word	
32-位元 Counter PV	Cn	C200 – C255	Double Word	
Data Register	Dn	D0 – D7999	Word	
Special Data Register	Dn	D8000 – D8255	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Auxiliary Relay	Mb	M0 – M3071	
Special Auxiliary Relay	Mb	M8000 – M8255	
Status Relay	Sb	S0 – S999	
Input Relay	Xb	X0 – X377	Octal
Output Relay	Yb	Y0 – Y377	Octal
Timer Flag	Tb	T0 – T255	
Counter Flag	Cb	C0 – C255	

NOTE

1) If connecting to Mitsubishi FX series PLC, the user can only use FX series communication protocol.
2) If connecting to Mitsubishi FX1N/FX2N series PLC, the user can only use FX2N communication protocol.
3) The device address must be the multiple of 8.

Mitsubishi J2s Series

HMI Factory Setting:

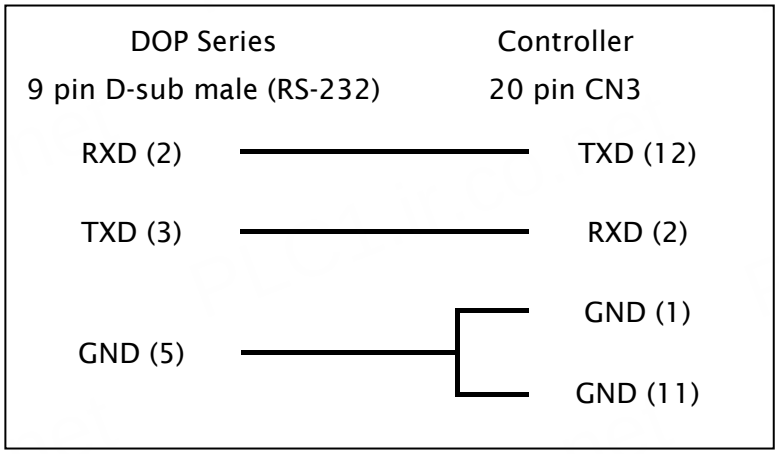
Baud rate: 9600, 8, Even, 1 (RS-232)

Controller Station Number: 0

Control Area / Status Area: None/None

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Parameter list (cmd: 05/84)	**P**n	**P**0 – **P**84	Double Word	
Status display (cmd: 01,8n/NA)	**S**n	**S**0 – **S**E	Double Word	Hexadecimal Read only, 1
Alarm **N**umber in history (cmd: 33,1n/NA)	**AN**n	**AN**0 – **AN**5	Word	Read only, 1
Alarm **O**ccurrence time in history (cmd: 33,2n/NA)	**AO**n	**AO**0 – **AO**5	Double Word	Read only, 1
Current alarm number (**AC**) (cmd: 02/NA)	**AC**n	**AC**0	Word	Read only, 1
Status display at alarm occurrence (**AS**) (cmd: 35,8/NA)	**AS**n	**AS**0	Double Word	Read only, 1

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
External **I**nput pin status (**EI**) (cmd: 12,40/92,00)	**EI**n	**EI**0	Double Word	
External **O**utput pin status (**EO**) (cmd: 12,C0/92,A0)	**EO**n	**EO**0	Double Word	
OPeration mode selection (**OP**) (cmd: NA/8B,00)	**OP**n	**OP**0	Word	Read only, 1
Speed for test operation (**TSPD**) (cmd: NA/A0,10)	**TSPD**n	**TSPD**0	Word	Read only, 1
Acceleration/deceleration for test operation (**TACC**) (cmd: NA/A0,11)	**TACC**n	**TACC**0	Double Word	Read only, 1
Distance for test operation (**TDIS**) (cmd: NA/A0,13)	**TDIS**n	**TDIS**0	Double Word	Read only, 1

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Status display clear (**SRST**) (cmd: NA/81,00)	**SRST**b	**SRST**0	Read only, 1
Alarm history clear (**ACLR**) (cmd: NA/82,20)	**ACLR**b	**ACLR**0	Read only, 1
Alarm reset (**ARST**) (cmd: NA/82,00)	**ARST**b	**ARST**0	Read only, 1
Turn off the external input signals (DI) (**OFDI**) (cmd: NA/90,00)	**OFDI**b	**OFDI**0	Read only, 1
Changes the external output signals (DO) (**CHDO**) (cmd: NA/90,03)	**CHDO**b	**CHDO**0	Read only, 1
Enable the disabled external input signals (**ENDI**) (cmd: NA/90,10)	**ENDI**b	**ENDI**0	Read only, 1
Enable the disabled external output signals (**ENDO**) (cmd: NA/90,13)	**ENDO**b	**ENDO**0	Read only, 1

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Clear the time constant of acceleration in test operation mode (**TCLR**) (cmd: NA/A0,12)	**TCLR**b	**TCLR**0	Read only, 1
Temporary stop of position mode in test operation (**TSTP**) (cmd: NA/A0,15)	**TSTP**b	**TSTP**0	Read only, 1

NOTE

1) Read / Write Limit

This communication protocol uses devices to simulate the operation of Servo, so there is a limit for the device to read and write the command. In the column of register type and contact type, the string of characters after "cmd:" indicates the corresponding Servo command that the device will read and write.

1. 「**P**arameter List (cmd: 05/84)」, the command input 05 is to read and 84 is to write. This register allows both read and write
2. 「**S**tatus display (cmd: 01,8n/NA), the command input 01,8n is to read and NA means this register does not support write command. This register allows read only.
3. 「**OP**eration mode selection (cmd: NA/8B,00)」, the command input 8B,00 is to write and NA means this register does not support read command. This register allows write only.

Mitsubishi Q Series Computer Link

HMI Factory Setting:

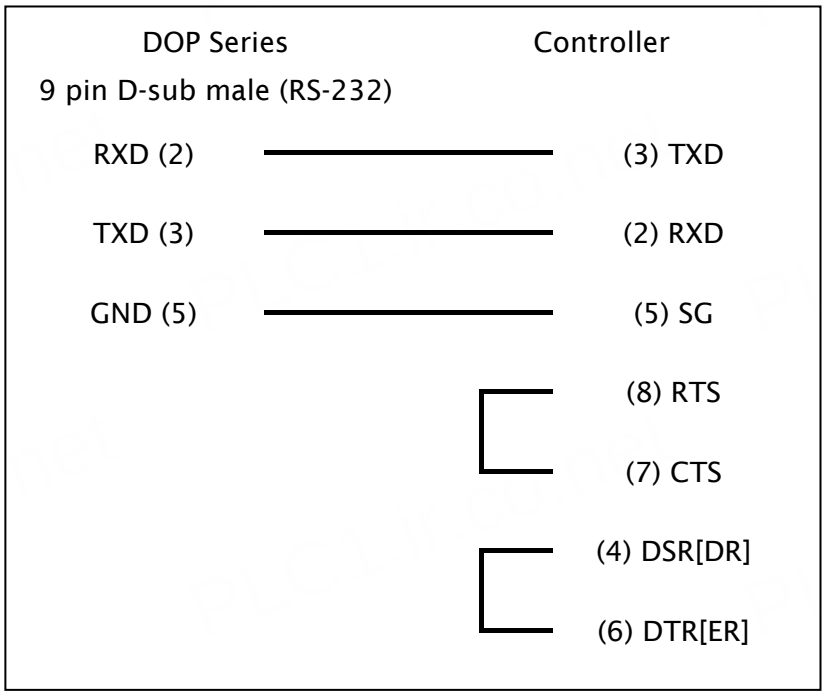
Baud rate: 19200, 8, None, 1

Controller Station Number: 0

Control Area / Status Area: D0 / D10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



b. RS-422 (DOP-A/AE Series)

DOP Series		Controller
9 pin D-sub male (RS-422)		
RXD- (1)	———	SDB (2)
RXD+ (2)	———	SDA (1)
TXD+ (3)	———	RDA (3)
TXD- (4)	———	RDB (4)
GND (5)	———	SG (5)

c. RS-422 (DOP-AS35/AS38/AS57 Series)

DOP Series		Controller
9 pin D-sub male (RS-422)		
R-	———	SDB (2)
R+	———	SDA (1)
T+	———	RDA (3)
T-	———	RDB (4)
GND	———	SG (5)

d. RS-422 (DOP-B Series)

DOP Series		Controller
9 pin D-sub male (RS-422)		
RXD- (9)	———	SDB (2)
RXD+ (4)	———	SDA (1)
TXD+ (1)	———	RDA (3)
TXD- (6)	———	RDB (4)
GND (5)	———	SG (5)

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Input	Xn	X0 – X1FF0	Word	Hexadecimal, 2
Output	Yn	Y0 – Y1FF0	Word	Hexadecimal, 2
Internal Relay	Mn	M0 – M8176	Word	2
Special Internal Relay	Mn	M9000 – M9240	Word	3
Link Relay	Bn	B0 – B1FF0	Word	Hexadecimal, 2
Annunciator	Fn	F0 – F2032	Word	2
Timer Value	TNn	TN0 – TN2047	Word	
Counter Value	CNn	CN0 – CN2047	Word	
Data Register	Dn	D0 – D8191	Word	
Special Data Register	Dn	D9000 – D9255	Word	
Link Register	Wn	W0 – W1FFF	Word	Hexadecimal

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Input	Xb	X0 – X1FFF	Hexadecimal
Output	Yb	Y0 – Y1FFF	Hexadecimal
Internal Relay	Mb	M0 – M8191	
Special Internal Relay	Mb	M9000 – M9255	
Link Relay	Bb	B0 – B1FFF	Hexadecimal
Annunciator	Fb	F0 – F2047	
Timer Contact	TSb	TS0 – TS2047	
Timer Coil	TCb	TC0 – TC2047	
Counter Contact	CSb	CS0 – CS2047	
Counter Coil	CCb	CC0 – CC2047	

NOTE

1) Before using this communication protocol, the user needs to set communication module via GX Developer programming tools. For more detailed information regarding the setting method, please refers to Mitsubishi PLC User Manual.
2) The device address must be the multiple of 16.
3) The device address must be the multiple of 16+9000.

Mitsubishi Q series CPU Port

HMI Factory Setting:

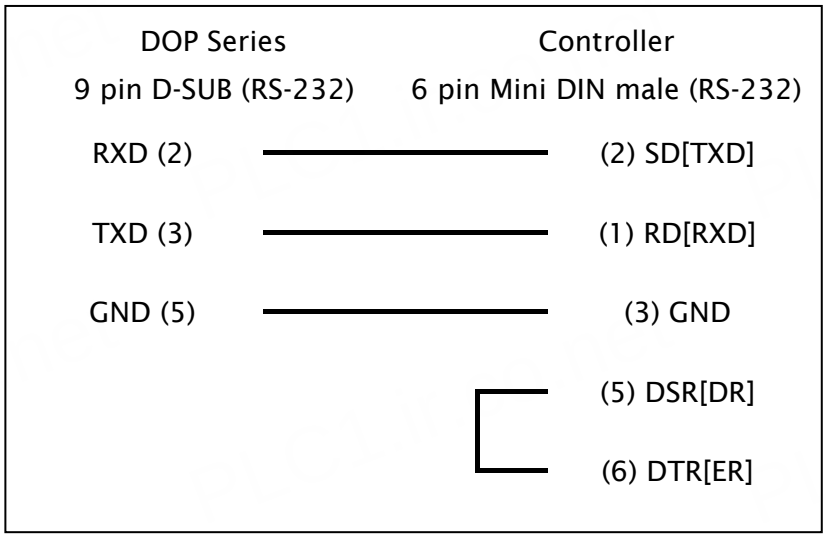
Baud rate: 19200, 8, Odd, 1

Controller Station Number: 0 (no PLC station number in protocol, therefore, only 1(HMI) to 1(PLC) communication is allowed.)

Control Area / Status Area: D0 / D10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Input	**X**-n	**X**-0 – **X**-1FFF	Word	Hexadecimal, 2
Output	**Y**-n	**Y**-0 – **Y**-1FFF	Word	Hexadecimal, 2
Direct input	**DX**-n	**DX**-0 – **DX**-1FFF	Word	Hexadecimal, 2
Direct output	**DY**-n	**DY**-0 – **DY**-15	Word	2
Latch Relay	**L**-n	**L**-0 – **L**-8191	Word	2
Annunciator	**F**-n	**F**-0 – **F**-2047	Word	2

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Edge Relay	**V**-n	**V**-0 – **V**-2047	Word	2
Step Relay	**S**-n	**S**-0 – **S**-8191	Word	2
Link Relay	**B**-n	**B**-0 – **B**-1FFF	Word	Hexadecimal, 2
Special Link Relay	**SB**-n	**SB**-0 – **SB**-7FF	Word	Hexadecimal, 2
Internal Relay	**M**-n	**M**-0 – **M**-8191	Word	2
Special Internal Relay	**SM**-n	**SM**-0 – **SM**-2047	Word	2
Timer Value	**TN**-n	**TN**-0 – **TN**-2047	Word	
Retentive timer Value	**SN**-n	**SN**-0 – **SN**-2047	Word	
Counter Value	**CN**-n	**CN**-0 – **CN**-1023	Word	
Data Register	**D**-n	**D**-0 – **D**-12287	Word	
Special Data Register	**SD**-n	**SD**-0 – **SD**-2047	Word	
Index Register	**Z**-n	**Z**-0 – **Z**-15	Word	
File Register	**R**-n	**R**-0 – **R**-32767	Word	
File Register	**ZR**-n	**ZR**-0 –**ZR**-32767	Word	
Link Register	**W**-n	**W**-0 – **W**-1FFF	Word	Hexadecimal
Special Link Register	**SW**-n	**SW**-0 – **SW**-7FF	Word	Hexadecimal

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Input	**X**-b	**X**-0 – **X**-1FFF	Hexadecimal
Output	**Y**-b	**Y**-0 – **Y**-1FFF	Hexadecimal
Direct input	**DX**-b	**DX**-0 – **DX**-1FFF	Hexadecimal
Direct output	**DY**-b	**DY**-0 – **DY**-15	
Latch Relay	**L**-b	**L**-0 – **L**-8191	
Annunciator	**F**-b	**F**-0 – **F**-2047	
Edge Relay	**V**-b	**V**-0 – **V**-2047	
Step Relay	**S**-b	**S**-0 – **S**-8191	
Link Relay	**B**-b	**B**-0 – **B**-1FFF	Hexadecimal
Special Link Relay	**SB**-b	**SB**-0 – **SB**-7FF	Hexadecimal
Internal Relay	**M**-b	**M**-0 – **M**-8191	
Special Internal Relay	**SM**-b	**SM**-0 – **SM**-2047	
Timer Contact	**TS**-b	**TS**-0 – **TS**-2047	
Timer Coil	**TC**-b	**TC**-0 – **TC**-2047	

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Retentive timer Contact	**SS**-b	**SS**-0 – **SS**-2047	
Retentive timer Coil	**SC**-b	**SC**-0 – **SC**-2047	
Counter Contact	**CS**-b	**CS**-0 – **CS**-1023	
Counter Coil	**CC**-b	**CC**-0 – **CC**-1023	

NOTE

1) If the baud rate is incorrect, HMI will set PLC baud rate as HMI baud rate automatically.
2) The device address must be the multiple of 16.
3) This protocol supports Mitsubishi Q00 and Q00J series.

Mitsubishi Q Series Ethernet

（Supports QJ71E71 / QJ71E71-B2 / QJ71E71-B5 / QJ71E71-100 Series Module）

HMI Factory Setting:

Baud rate: 192.168.0.1

Controller Station Number: 1025

Control Area / Status Area: D0 / D10

Connection

Standard jumper Cable/ Network Cable without jumper (Auto-detected by HMI)

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Input	**X**n	**X**0 – **X**1FF0	Word	Hexadecimal, 2
Output	**Y**n	**Y**0 – **Y**1FF0	Word	Hexadecimal, 2
Internal Relay	**M**n	**M**0 – **M**8176	Word	2
Special Internal Relay	**M**n	**M**9000 – **M**9240	Word	3
Link Relay	**B**n	**B**0 – **B**1FF0	Word	Hexadecimal, 2
Annunciator	**F**n	**F**0 – **F**2032	Word	2
Timer Value	**TN**n	**TN**0 – **TN**2047	Word	
Counter Value	**CN**n	**CN**0 – **CN**2047	Word	
Data Register	**D**n	**D**0 – **D**8191	Word	
Special Data Register	**D**n	**D**9000 – **D**9255	Word	
Link Register	**W**n	**W**0 – **W**1FFF	Word	Hexadecimal

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Input	**X**b	**X**0 – **X**1FFF	Hexadecimal
Output	**Y**b	**Y**0 – **Y**1FFF	Hexadecimal
Internal Relay	**M**b	**M**0 – **M**8191	
Special Internal Relay	**M**b	**M**9000 – **M**9255	

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Link Relay	**B**b	**B**0 – **B**1FFF	Hexadecimal
Annunciator	**F**b	**F**0 – **F**2047	
Timer Contact	**TS**b	**TS**0 – **TS**2047	
Timer Coil	**TC**b	**TC**0 – **TC**2047	
Counter Contact	**CS**b	**CS**0 – **CS**2047	
Counter Coil	**CC**b	**CC**0 – **CC**2047	

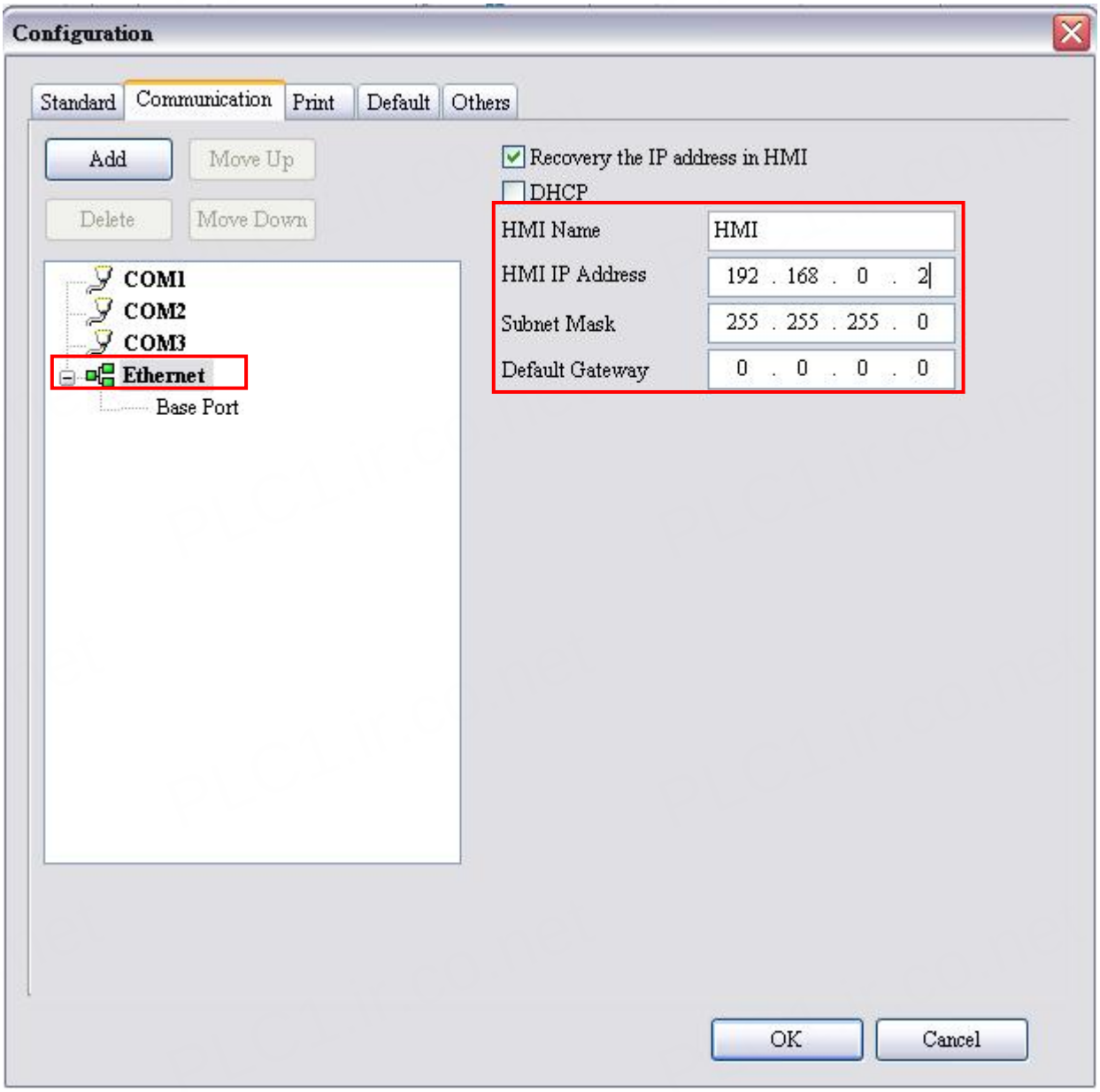
NOTE

1) Before using this communication protocol, the user needs to set communication module via GX Developer programming tools. For more detailed information regarding the setting method, please refers to Mitsubishi PLC User Manual.
2) The device address must be the multiple of 16.
3) The device address must be the multiple of 16 plus 9000.

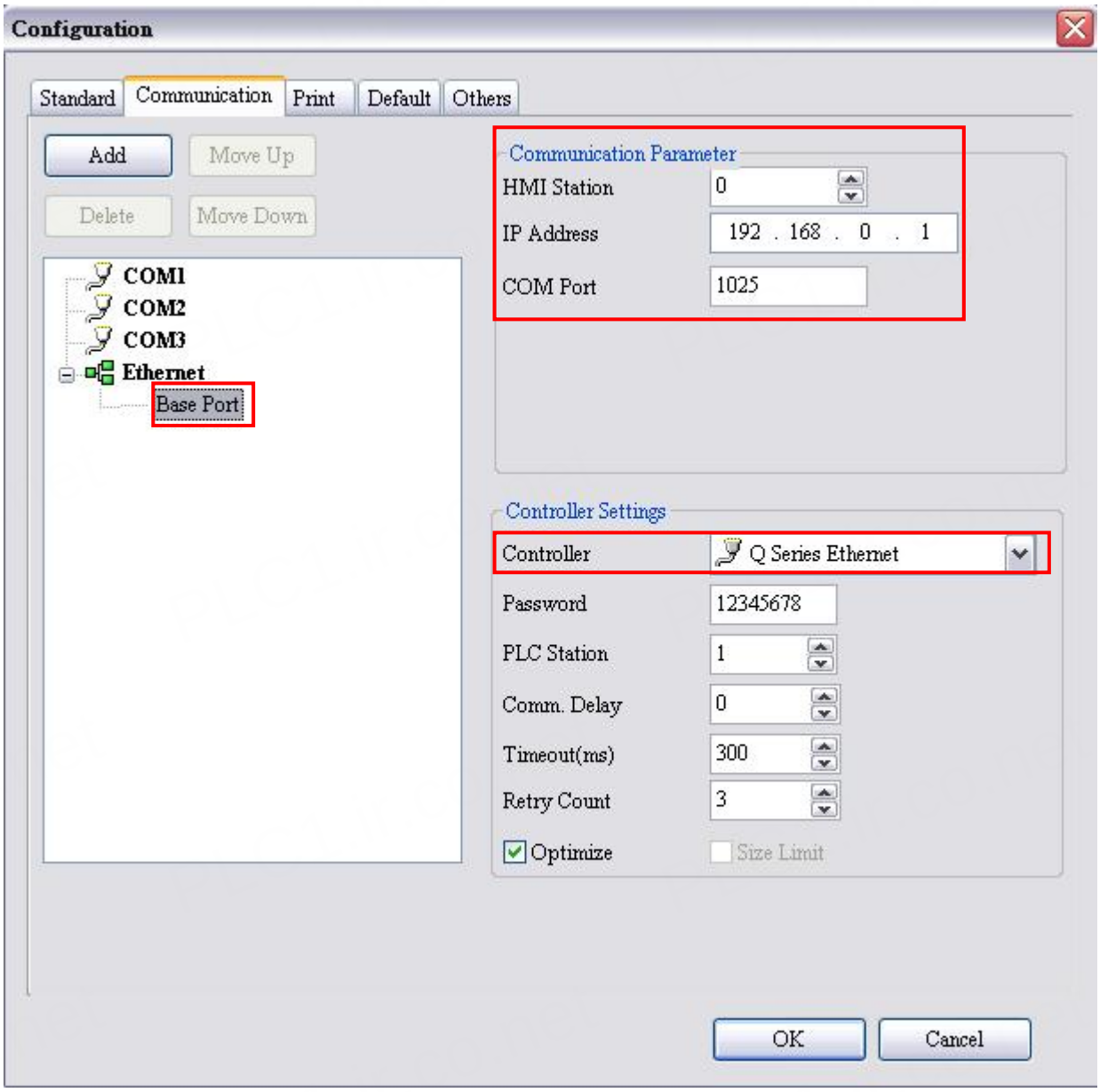
Settings

Screen Editor

1. HMI Configuration Setting



2. PLC Configuration Setting



GX Developer (V8.35M)

1. Network Parameter MNET/10H Ethernet Settings

Item	Setting
Network Type	Ethernet
Starting I/O No.	0000
Network No.	1
Group No.	1
Station No.	1
Mode	On-line

2. Operation Settings

Item	Setting
Communication Data Code	Binary code
Initial Timing	Always wait for OPEN
IP Address	192.168.0.1
Send Frame Setting	Ethernet (V2.0)
Enable Write at RUN time	Enable
TCP Living Confirmation Setting	Use the KeepAlive

3. Open Settings

Item	Setting
Protocol	TCP
Open Method	Unpassive
Fixed buffer	Send
Fixed buffer communication procedure	Procedure exist
Existence confirmation	No confirm
Host Station Port No.	0401(HEX)

4. For more detailed information regarding the setting method, please refers to Mitsubishi PLC User Manual.

MKS BY125 Low Cost Synchrocontroller

HMI Factory Setting:

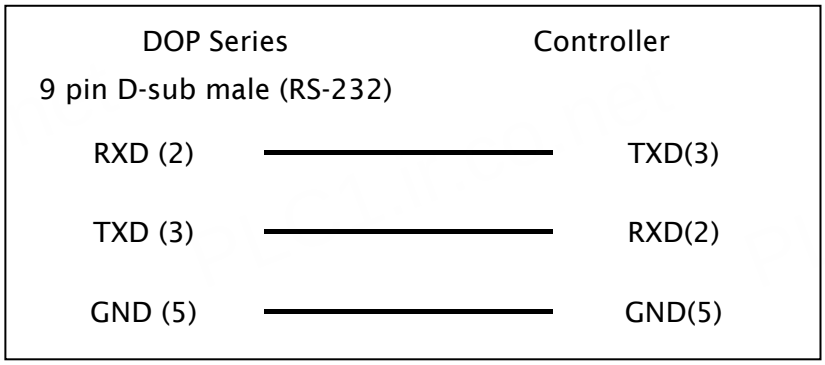
Baud rate: 9600, 7, Even, 1

Controller Station Number: 11(Note1)

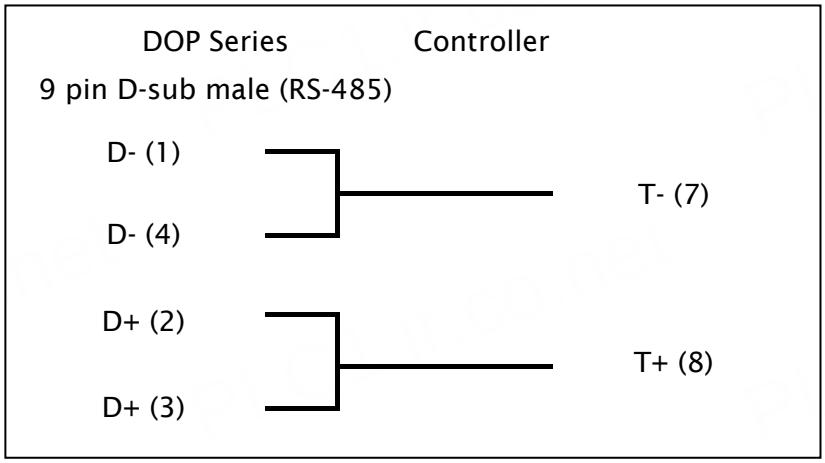
Control Area / Status Area: None/None

Connection

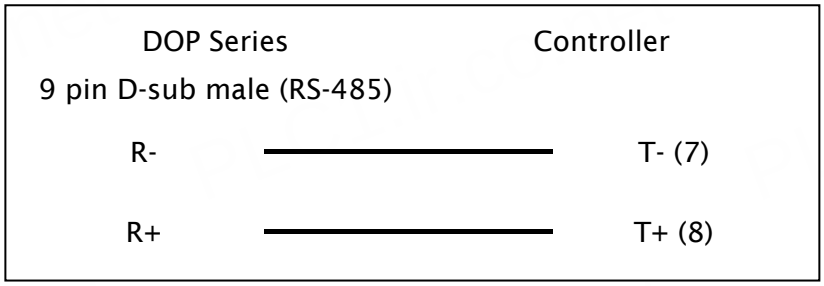
a. RS-232 (DOP-A/AE/AS, DOP-B Series)(Note2)



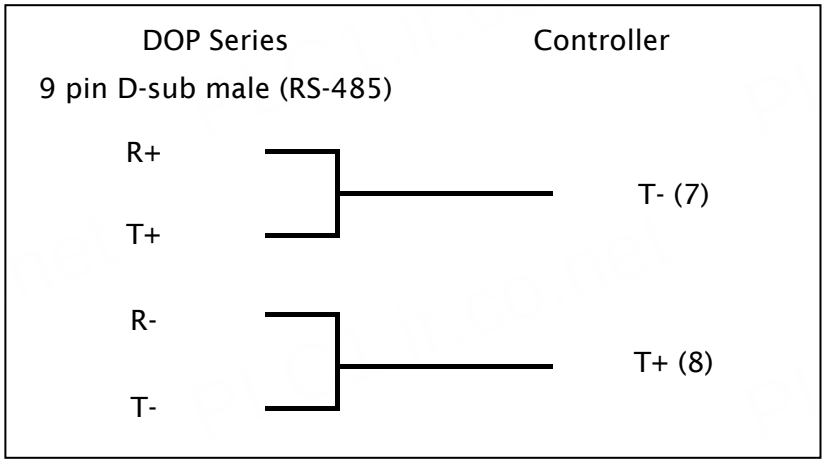
b. RS-485 (DOP-A/AE Series)



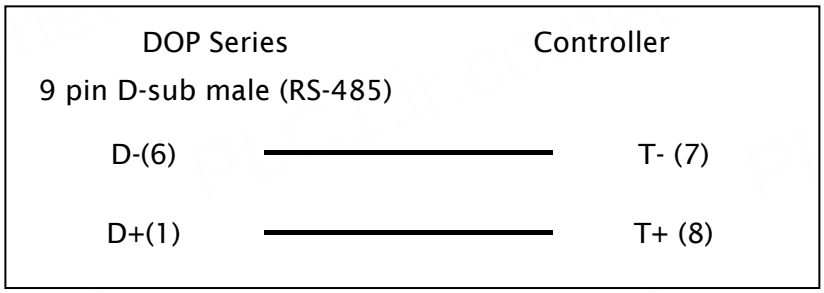
c. RS-485 (DOP-AS57 Series)



d. RS-485 (DOP-AS35/AS38 Series)



e. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n)			
Data In Register / Setup Register	**C**n	**C**0 – **C**17, **C**40 – **C**41, **C**45 – **C**48, **C**50, **C**90 – **C**92	Double Word	3
Synchronizing (Differential Counter)	**SYN_ERR**n	**SYN_ERR**0	Double Word	
Integration register	**IR**n	**IR**0	Double Word	
Actual Master speed	**MAS_SPD**n	**MAS_SPD**0	Double Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No.(n)		
Reset	**RST**b	**RST**0	
Jog Trim+	**JOGTRIM_INC**b	**JOGTRIM_INC**0	
Jog Trim-	**JOGTRIM_DEC**b	**JOGTRIM_DEC**0	
Activate Data	**ACT_DATA**b	**ACT_DATA**0	4

Type	Format	Read/Write Range	Note
	Bit No.(n)		
Store EEPROM	**STR_EEPROM**b	**STR_EEPROM**0	
Index Slave	**IND_SLA**b	**IND_SLA**0	
Index Master	**IND_MAS**b	**IND_MAS**0	

NOTE

1) The valid station number is in the range of 11 to 99. The station number 20, 30, 40, 50, 60, 70, 80, 90 are broadcast station number.

   00 for all broadcast

   10 for broadcast range from 11 to 19

   20 for broadcast range from 21 to 29

   … and so on

   The broadcast function is not yet available, therefore do not use broadcast station number.

2) Please be aware RS-232 can only be connected to pin2, pin3 and pin5. Pin 9 is for +5V. DO NOT use pin 9 or serious damage may occur.

3) The effective addresses of Cn are not consecutive (5 blocks: C0~17, C40~41, C45~C48, C50, C90~C92). When setting the addresses, do not exceed the block range. For example, when using a Numeric Entry or Character Entry element, if the address is C15, the data length can only be 6 Words(for C15, C16, C17). A data length exceed 6 words would occupy other address setting except C0 ~ C17, in this case, an error may occur.

4) The received value of the device will not change even when all register address is written in. The user needs to press ACT_DATA0 again for value be updated.

MKS CT150

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1 (RS-232)

Controller Station Number: 11

Control Area / Status Area: None / None

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

DOP Series 9 pin D-SUB (RS-232)		Controller 9 pin D-sub male (RS-232)
RXD (2)	———	(3) TXD
TXD (3)	———	(2) RXD
GND (5)	———	(5) SG

Definition of PLC Read/Write Address

a. Registers

Type	Format Word No.(n)	Read/Write Range	Data Length	Note
Data In Register	Cn	C0 – C25		
Setup Register	Cn	C40 – C43 ; C45 – C50 ; C90 – C97		
Error Count	Err_CNT	0		
LV Value	LV_VAL	0		
Printmark Error	PRTMARK_ERR	0		
Batch Counter	BAT_CNT	0		
Waste Counter	WASTE_CNT	0		
Line Speed	LINE_SPD	0		
Actual Cutting Length	ACT_CUT_LEN	0		

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No.(n)		
Reset	**RST**	0	
Jog Trim+	**JOGTRIM_INC**	0	
Jog Trim-	**JOGTRIM_DEC**	0	
Read PI	**READ_PI**	0	
Activate Data	**ACT_DATA**	0	
Store Eeprom	**STR_EEPROM**	0	
Start/Stop	**START_STOP**	0	
Reset Mark Counter	**RSTMARK_CNT**	0	

MKS MC700/720 Motion Controller

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1

Controller Station Number: 11(Note1)

Control Area / Status Area: None / None

Connection

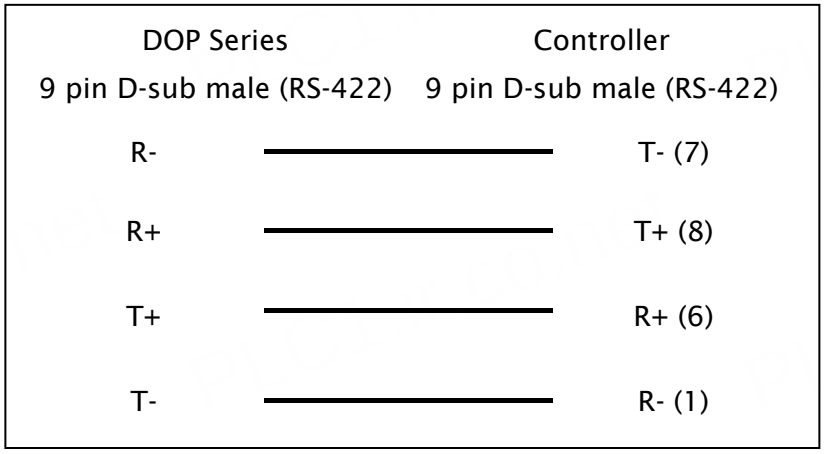
a. RS-232 (DOP-A/AE/AS, DOP-B Series) (Note2)

DOP Series 9 pin D-sub male (RS-232)		Controller
RXD (2)	———	TXD(3)
TXD (3)	———	RXD(2)
GND (5)	———	GND(5)

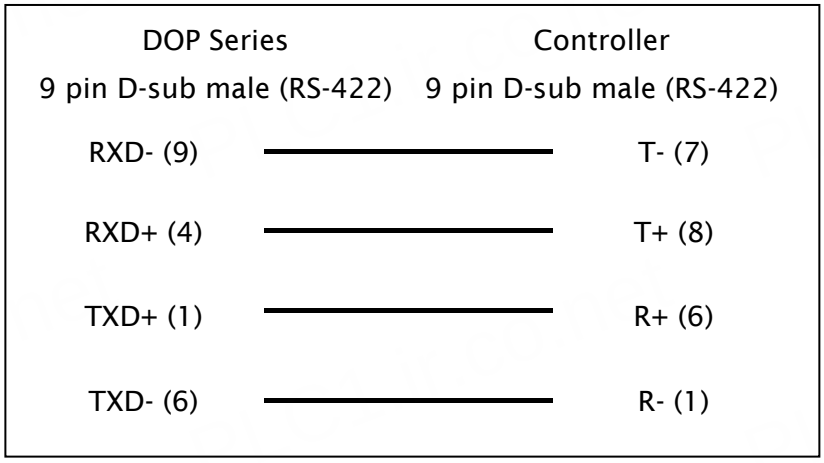
b. RS-422 (DOP-A/AE Series)

DOP Series 9 pin D-sub male (RS-422)		Controller 9 pin D-sub male (RS-422)
RXD- (1)	———	T- (7)
RXD+ (2)	———	T+ (8)
TXD+ (3)	———	R+ (6)
TXD- (4)	———	R- (1)

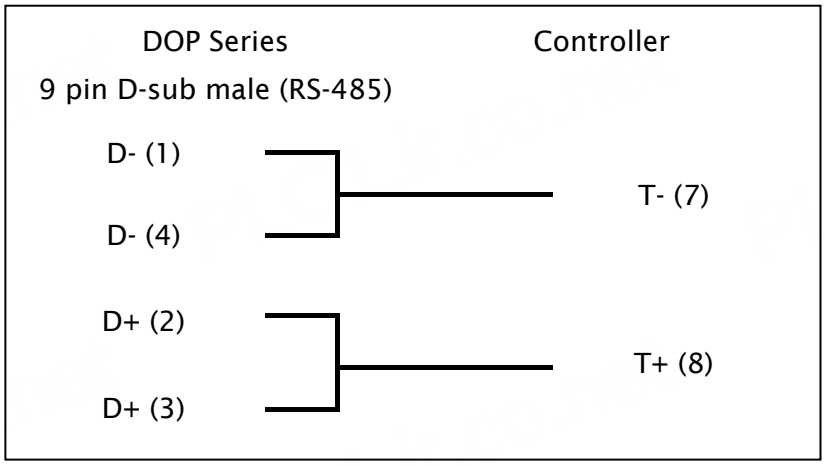
c. RS-422 (DOP-AS35/AS38/AS57 Series)



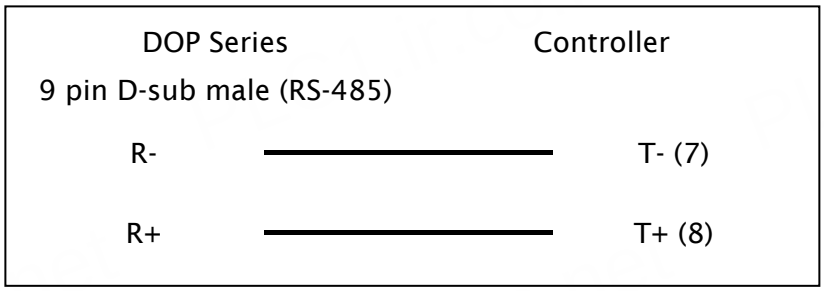
d. RS-422 (DOP-B Series)



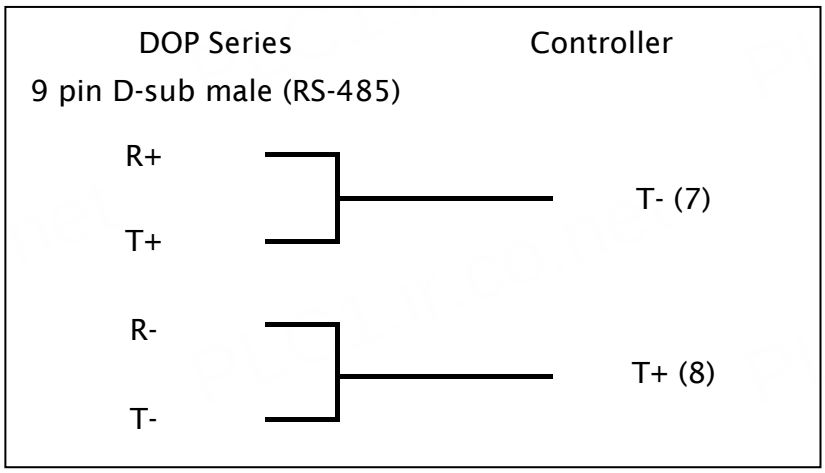
e. RS-485 (DOP-A/AE Series)



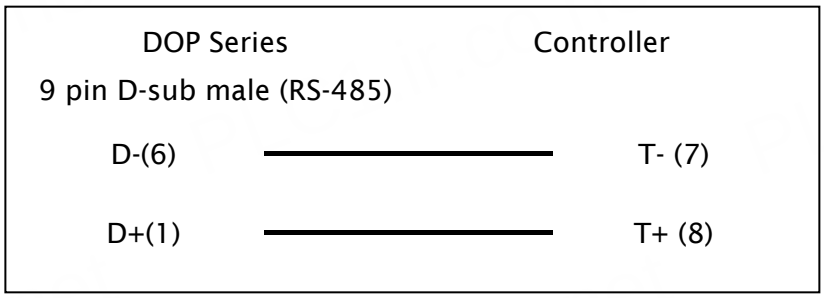
f. RS-485 (DOP-AS57 Series)



g. RS-485 (DOP-AS35/AS38 Series)



h. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n)			
General Parameters	**GP**n	**GP**0 – **GP**31	Double Word	
Parameter Block for Slave 1	**PB1**_n	**PB1**_0 – **PB1**_31	Double Word	
Parameter Block for Slave 2	**PB2**_n	**PB2**_0 – **PB2**_31	Double Word	
Parameter Block for Slave 3	**PB3**_n	**PB3**_0 – **PB3**_31	Double Word	
Parameter Block for Slave 4	**PB4**_n	**PB4**_0 – **PB4**_31	Double Word	
Process Data	**PROD**n	**PROD**0 – **PROD**31	Double Word	
Communication Settings	**CSET**n	**CSET**0 – **CSET**31	Double Word	

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n)			
Setup Settings	**STUP**n	**STUP**0 – **STUP**31	Double Word	
Status of Commands and Outputs	**S_CO**n	**S_CO**0 – **S_CO**4	Double Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No.(n) Bit No.(b)		
Commands	**CMD**b	**CMD**0 – **CMD**31	
Outputs	**OUT**b	**OUT**0 – **OUT**31	
Status of Commands and Outputs	**S_CO**n.b	**S_CO**0.0 – **S_CO**4.31	

NOTE

1) The valid station number is in the range of 11 to 99. The station number 20, 30, 40, 50, 60, 70, 80, 90 are broadcast station number.

   00 for all broadcast

   10 for broadcast range from 11 to 19

   20 for broadcast range from 21 to 29

   … and so on

   The broadcast function is not yet available, therefore do not use broadcast station number.

2) Please be aware RS-232 can only be connected to pin2, pin3 and pin5. Pin 9 is for +5V. DO NOT use pin 9 or serious damage may occur.

Modbus 984 RTU / ASCII (Master)

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1 (ASCII); 9600, 8, Even, 1 (RTU)

Controller Station Number: 0

Control Area / Status Area: W40100 / W40200

Connection

Please refer to “Pin Definition of Serial Communication” for more detail.

Definition of PLC Read/Write Address

a. Registers

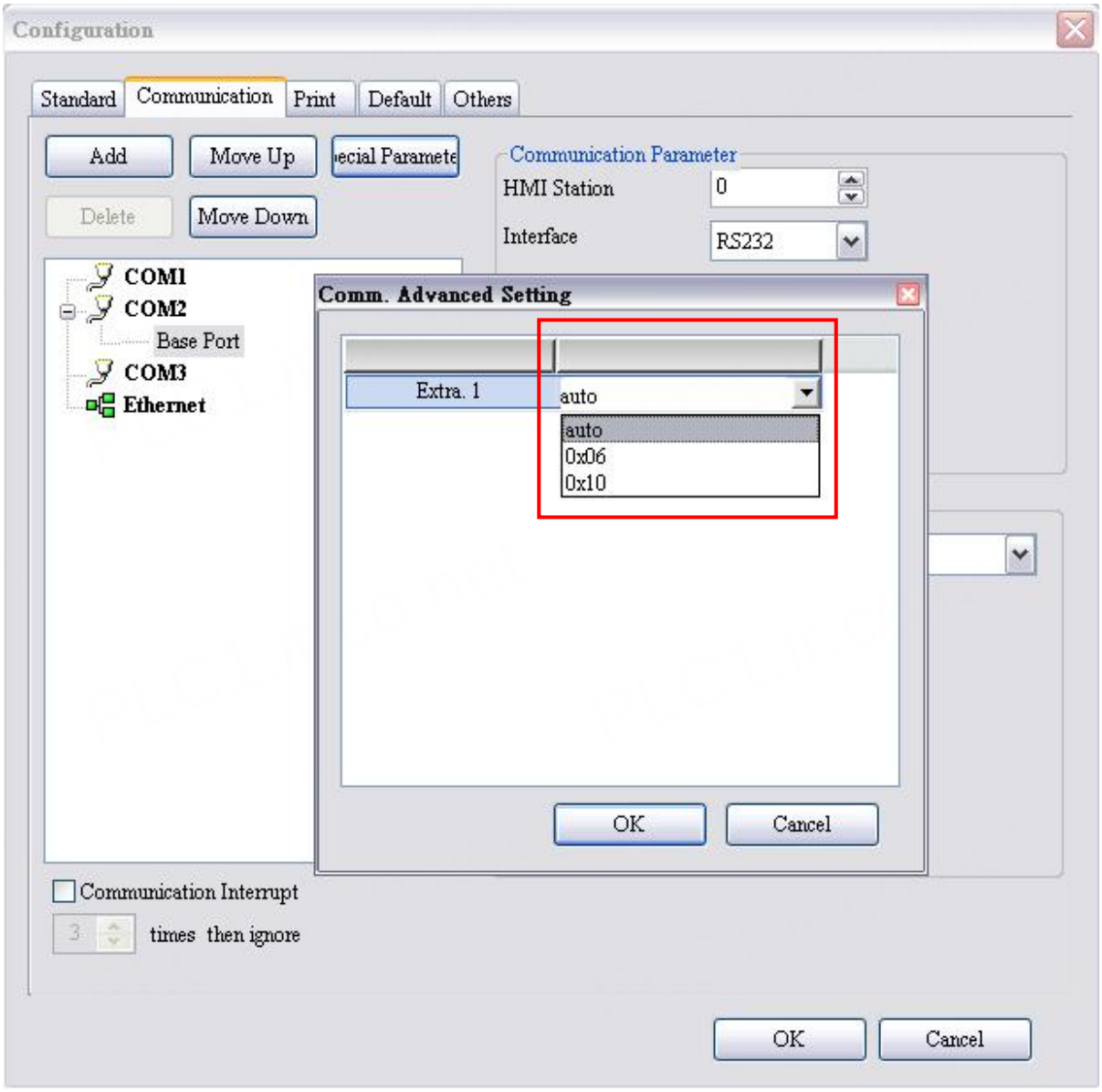
Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Output Registers	**W**n	**W**40001 – **W**50000	Word	
Input Registers	**W**n	**W**30001 – **W**40000	Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Discrete Outputs	**B**b	**B**1 – **B**10000	
Discrete Inputs	**B**b	**B**10001 – **B**20000	Read only

NOTE

1.) If the controller requests certain Modbus input during the connection, it can be done through special parameter setting. When the default value is set to Auto, HMI will automatically react to a single inputted command(0x06) or a multiple inputted command (0x10) according to the data length.



Modbus 984 RTU / ASCII (Master, 6 Digits)

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1 (ASCII); 9600, 8, Even, 1 (RTU)

Controller Station Number: 1

Control Area / Status Area: W4-1 / W4-11

Connection

Please refer to “Pin Definition of Serial Communication” for more detail.

Definition of PLC Read/Write Address

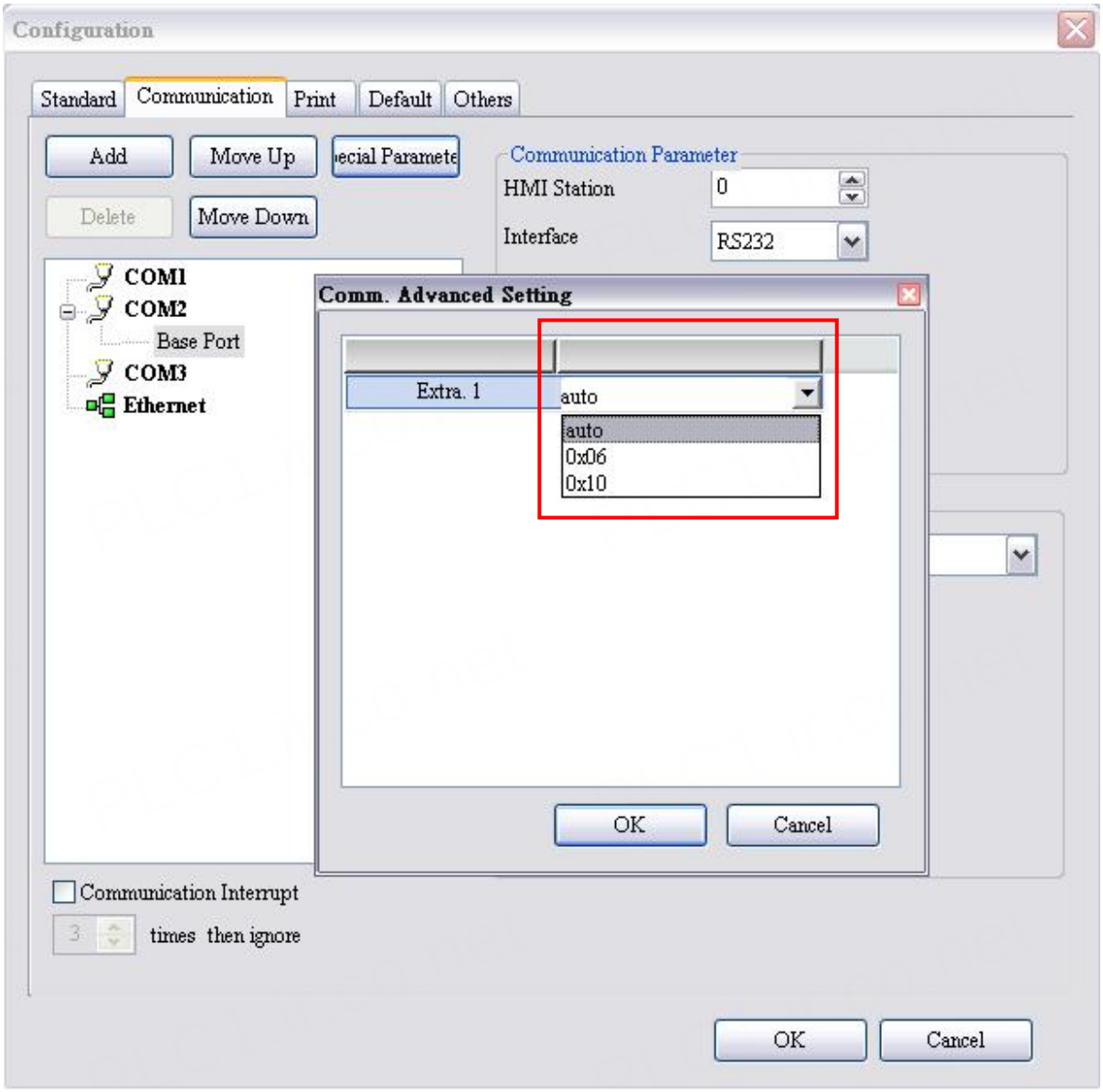
a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Output Registers	**W4**-n	**W4**-00001 – **W4**-65535	Word	
Input Registers	**W3**-n	**W3**-00001 – **W3**-65535	Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Discrete Outputs	**B0**-b	**B0**-00001 – **B0**-65535	
Discrete Inputs	**B1**-b	**B0**-00001 – **B0**-65535	Read only

1.) If the controller requests certain Modbus input during the connection, it can be done through special parameter setting. When the default value is set to Auto, HMI will automatically react to a single inputted command(0x06) or a multiple inputted command (0x10) according to the data length.



Modbus nW RTU / ASCII (Master)

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1.(ASCII); 9600, 8, Even, 1.(RTU)

Controller Station Number: 1(Note1)

Control Area / Status Area: W40100 / W40200

Connection

Please refer to "Pin Definition of Serial Communication" for more detail.

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Output Registers	**W**n	**W**40001 – **W**50000	Word	
Input Registers	**W**n	**W**30001 – **W**40000	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Discrete Outputs	**B**b	**B**1 – **B**10000	
Discrete Inputs	**B**b	**B**10001 – **B**20000	

NOTE

1) This communication protocol does not support station 0 (the broadcast function).

2) To attain optimize reading, please ensure the "Optimize" option is selected in communication setting. Do not select "Data Length Limit" if "Optimize" option is not selected,

Modbus RTU 2W (Master)

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1 (ASCII); 9600, 8, Even, 1 (RTU)

Controller Station Number: 0 (no PLC station number in protocol, therefore, only 1(HMI) to 1(PLC) communication is allowed.)

Control Area / Status Area: W40100 / W40200

Connection

Please refer to "Pin Definition of Serial Communication" for more detail.

Definition of PLC Read/Write Address

a. Registers

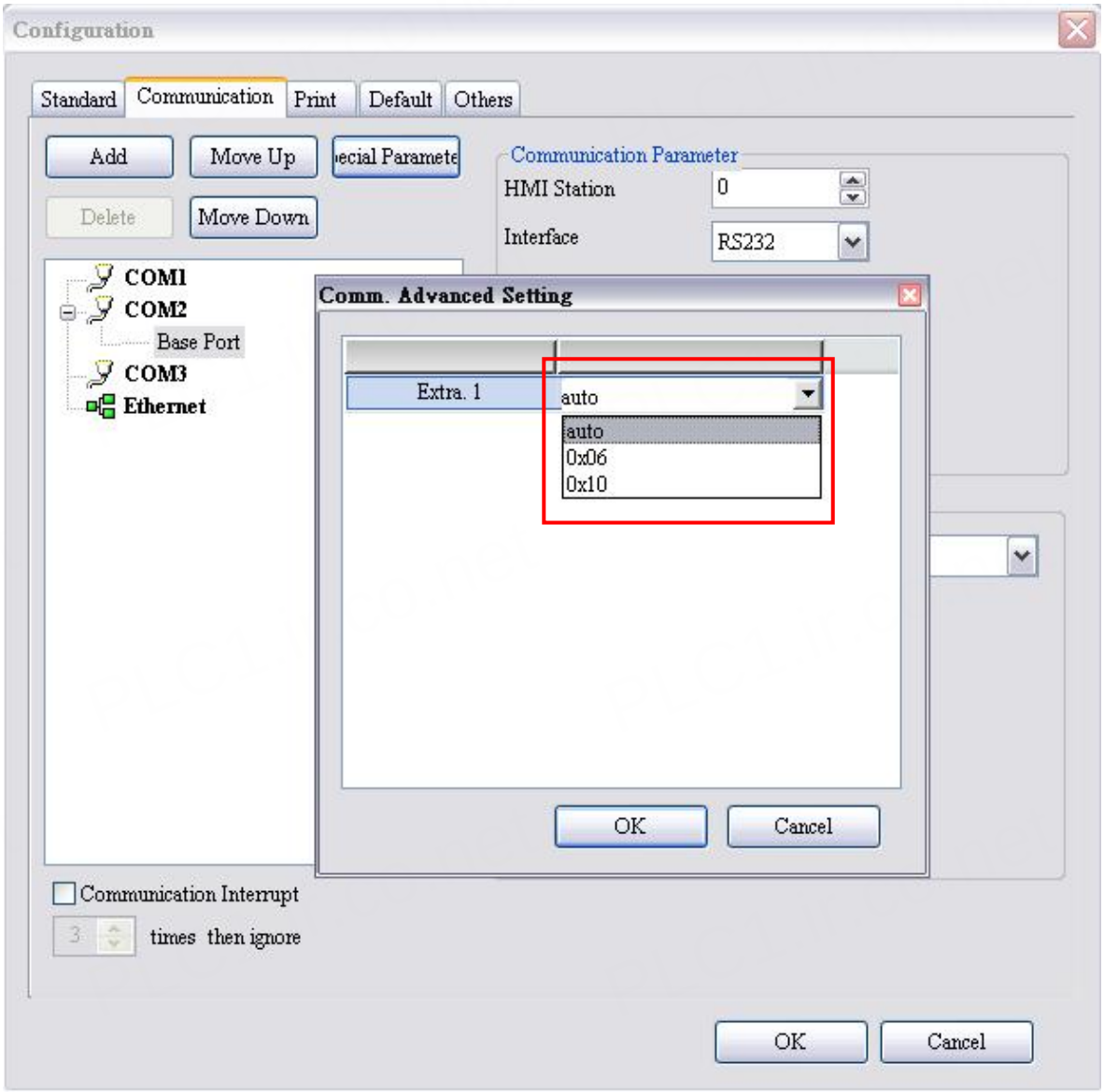
Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Output Registers	**W**n	**W**40001 – **W**50000	Word	
Input Registers	**W**n	**W**30001 – **W**40000	Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Discrete Outputs	**B**b	**B**1 – **B**10000	
Discrete Inputs	**B**b	**B**10001 – **B**20000	Read only

NOTE

1) If the controller requests certain Modbus input during the connection, it can be done through special parameter setting. When the default value is set to Auto, HMI will automatically react to a single inputted command(0x06) or a multiple inputted command (0x10) according to the data length.



Modbus RTU / ASCII (Slave)

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1 (ASCII); 9600, 8, Even, 1 (RTU)

Controller Station Number: 1 (No function)

Control Area / Status Area: W40100 / W40200

Connection

Please refer to “Pin Definition of Serial Communication” for more detail.

Definition of PLC Read/Write Address

a. Registers

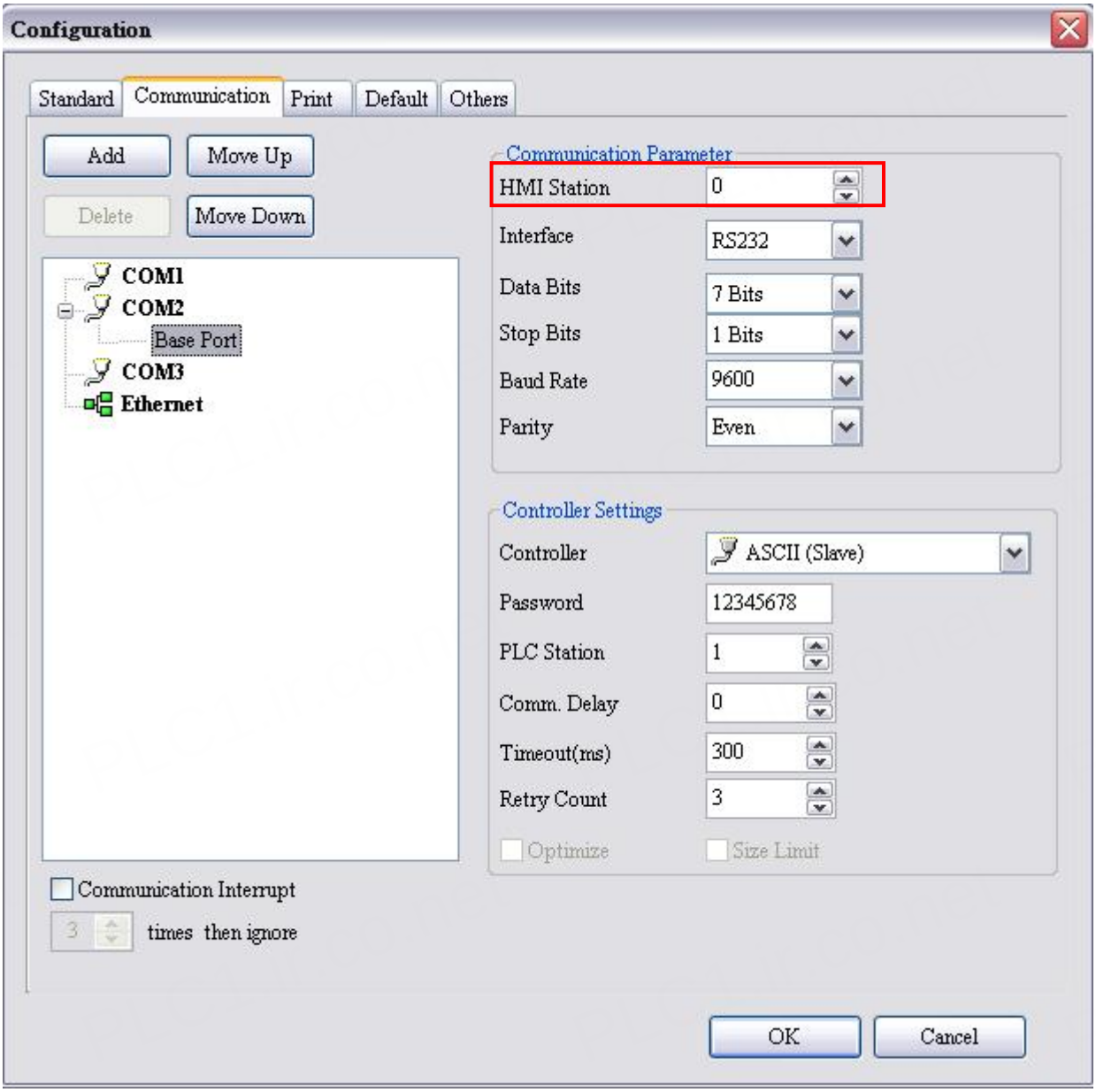
Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Output Registers	**W**n	**W**40001 – **W**50000	Word	2

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Discrete Outputs	**B**b	**B**1 – **B**2048	2

NOTE

1) When using this communication protocol, HMI station number is the Slave station number (default setting is 0).



2) Relationship between Modbus address HMI register:

Modbus Address	Modbus 6 Digits Address		Definition of Internal Registers in HMI	
W40001 – **W**41024	**W4**-00001 – **W4**-01024	→	**$**0 – **$**1023	Internal register
W42001 – **W**43024	**W4**-02001 – **W4**-00001	→	**$M**0 – **$M**1023	Non-volatile internal register
W44001	**W4**-04001	→	**RCPNO**	Receipt number register
W45001 …	**W4**-05001 …	→	**RCP**0 – **RCP**n	Receipt register
B00001 – **B**01024	**B0**-00001 – **B0**-01024	→	**$**2000.0 – **$**2063.15	Internal register (Bit)
B01025 – **B**02048	**B0**-01025 – **B0**-02048	→	**$M**200.0 – **$M**263.15	Non-volatile internal register (Bit)

For example, to read HMI internal memory $0, the Modbus address is W40001 and HMI will save W40001; to read non-volatile internal register $M200.1, then the Modbus address is B01026 and so on.

Modbus RTU / ASCII Hex Address (Master)

HMI Factory Setting:

Baud rate: 9600, 7, Even, 1 (ASCII); 9600, 8, Even, 1 (RTU)

Controller Station Number: 1

Control Area / Status Area: RW-0 / RW-10

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Output Registers	**RW**-n	**RW**-0 – **RW**-FFFF	Word	
Input Registers	**R**-n	**R**-0 – **R**-FFFF	Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Discrete Outputs	**RWB**-b	**RWB**-0 – **RWB**-FFFF	
Discrete Inputs	**RB**-b	**RB**-0 – **RB**-FFFF	Read only

NOTE

1) The communication protocol and communication address are in hexadecimal.

Modbus TCP/IP

HMI Factory Setting:

Controller IP Address: 192.168.0.1

Baud rate: 192.168.0.1

Controller Station Number: 1

Control Area / Status Area: RW-0 / RW-10

Connection

Standard Jumper Cable / Network Cable without jumper (Auto-detected by HMI)

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Output Registers	**RW**-n	**RW**-0 – **RW**-FFFF	Word	
Input Registers	**R**-n	**R**-0 – **R**-FFFF	Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Discrete Outputs	**RWB**-b	**RWB**-0 – **RWB**-FFFF	
Discrete Inputs	**RB**-b	**RB**-0 – **RB**-FFFF	Read only

Modbus TCP/IP (6 Digits)

HMI Factory Setting:

Controller IP Address: 192.168.0.1

Controller COM Port: 502

Controller Station Number: 1

Control Area / Status Area: W4-1 / W4-11

Connection

Standard Jumper Cable / Network Cable without jumper (Auto-detected by HMI)

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Output Registers	**W4**-n	**W4**-00001 – **W4**-65535	Word	
Input Registers	**W3**-n	**W3**-00001 – **W3**-65535	Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Discrete Outputs	**B0**-b	**B0**-00001 – **B0**-65535	
Discrete Inputs	**B1**-b	**B0**-00001 – **B0**-65535	Read only

Modicon TSX (Uni-Telway)

HMI Factory Setting:

Baud rate: 9600, 8, Odd, 1

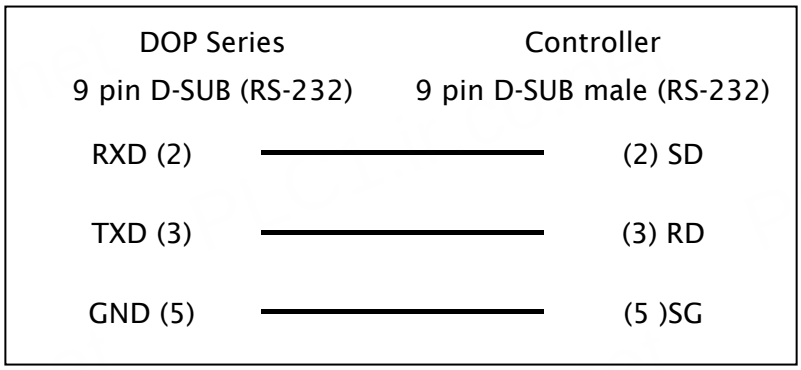
Controller Station Number: 2(Note2)

Control Area / Status Area: %MW0 / %MW10

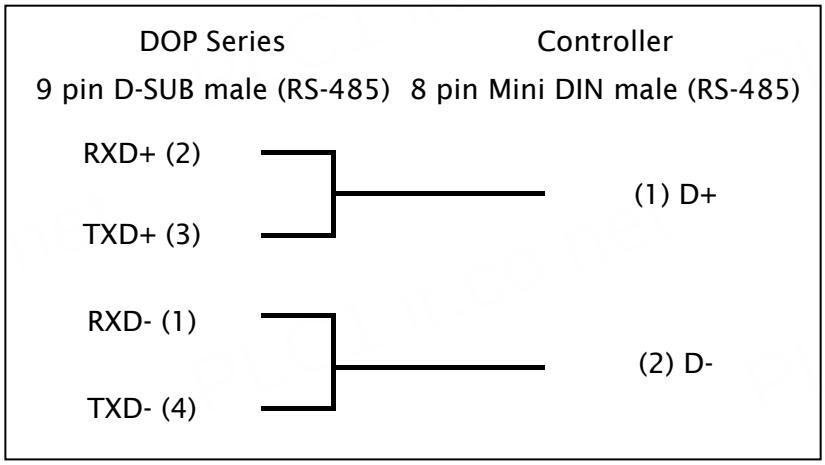
Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

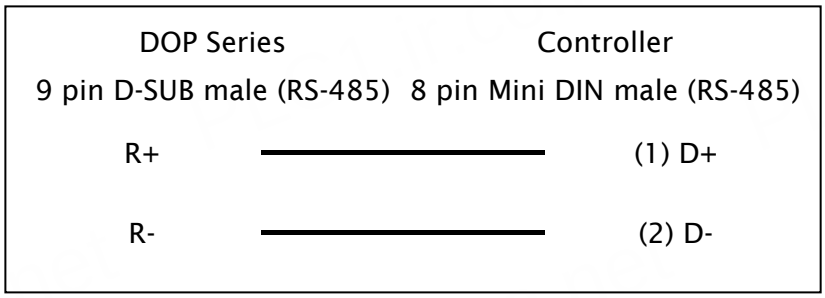
It requires specific TSX PCX1031 cable of Modicon Uni-Telway for wiring.



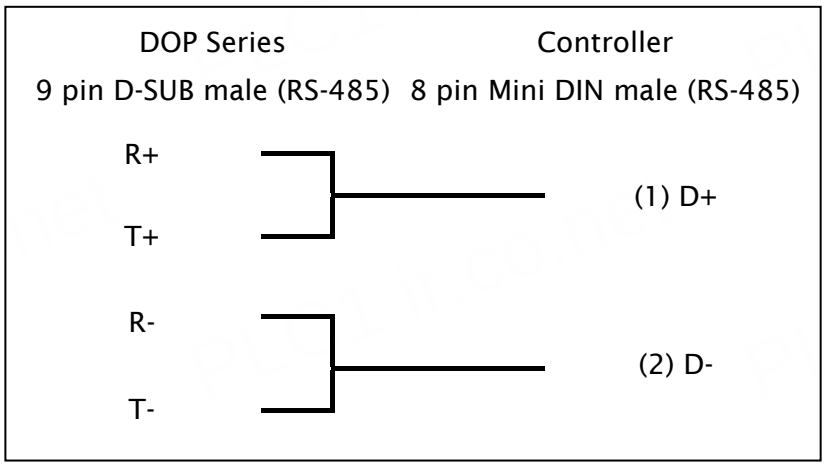
b. RS-485 (DOP-A/AE Series)



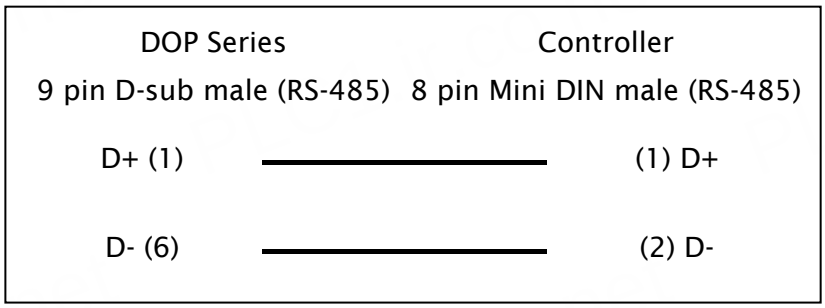
c. RS-485 (DOP-AS57 Series)



d. RS-485 (DOP-AS35/AS38 Series)



e. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
WORD_DEVICE_ Internal	%MWn	%MW0 – %MW65534	Word	6
WORD_DEVICE_ System	%SWn	%SW0 – %SW127	Word	
WORD_DEVICE_ Input	%KWn	%KW0 – %KW65534	Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
BIT_DEVICE_ Internal	%Mn:b	%M0:0 – %M65534:15	4, 6
BIT_DEVICE_ System	%Sb	%S0 – %S127	
BIT_DEVICE_ Internal1	%Mb	%M0 – %M65534	5

NOTE

1) HMI Station needs to be in range of 1 – 8.
2) PLC station number can be the same as HMI station number, but it can not be 0.
3) Internal memory of PLC and other relative parameters must be set up first or only %S will function, others will not be able to communicate.
4) %Mn:b is the Bit address that corresponds to WORD_DEVICE_ Internal (%MWn).
5) %Mb is the internal Relay address of PLC.
6) The read/write range of WORD_DEVICE_ Internal / BIT_DEVICE_ Internal depends on the used memory space of PLC.
7) The differences between **Modbus Slave** and **Uni-Telway Slave** mode:

When PLC is in **Modbus Slave** mode	When PLC is in **Uni-Telway Slave** mode
The following drivers are all available for use. 1. Modicon / TWIDO 2. Modbus / 984 RTU (Master) 3. Modbus / 984 RTU (Master, 6 Digits) 4. Modbus / RTU Hex Address (Master)	To increase communication efficiency: 1. Select TSX NEZA (Uni-Telway) when reading and writing only one word of %MW data for one time communication. 2. Select TSX (Uni-Telway) when reading and writing up to 30 words of %MW data for one time communication and there are more than two PLCs and HMIs connected. 3. Select TSX (1-1 Uni-Telway) when reading and writing up to 30 words of %MW data for one time communication and there are one PLC and one HMI connected.

Modicon TSX NEZA (Uni-Telway)

HMI Factory Setting:

Baud rate: 9600, 8, Odd, 1

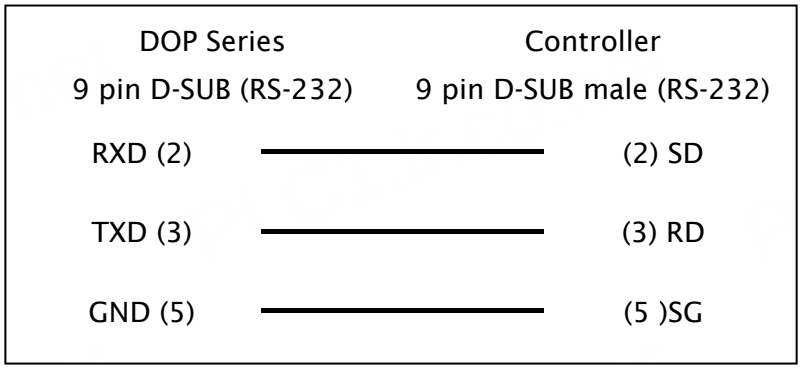
Controller Station Number: 2

Control Area / Status Area: %MW0 / %MW10

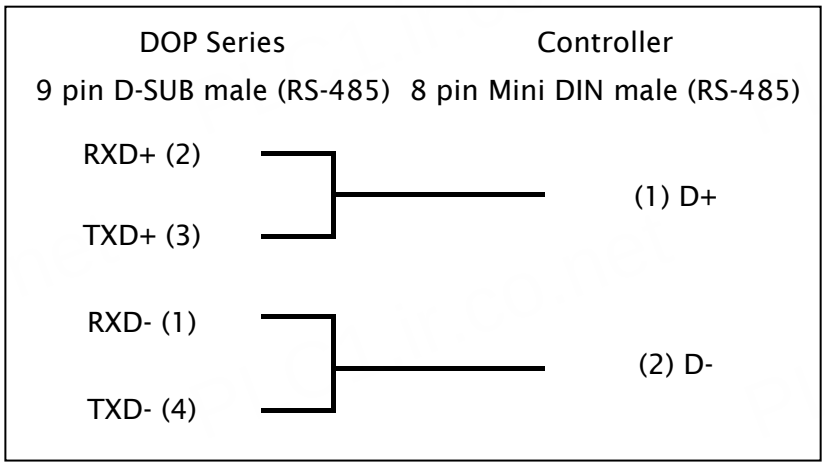
Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

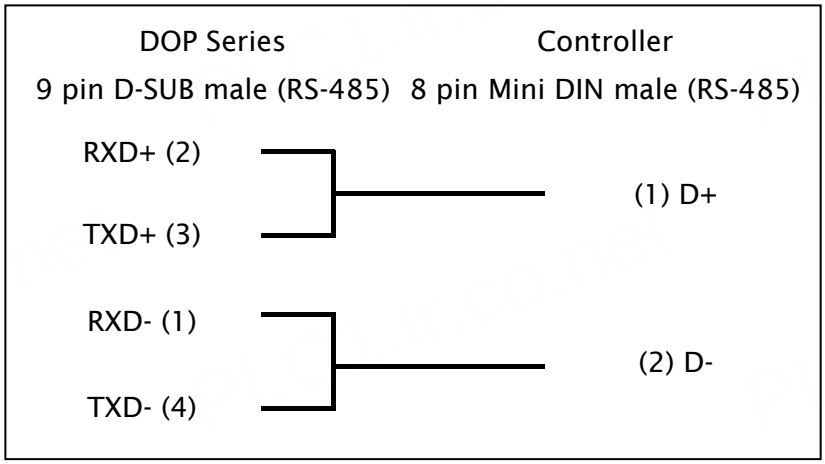
It requires specific TSX PCX1031 cable of Modicon Uni-Telway for wiring.



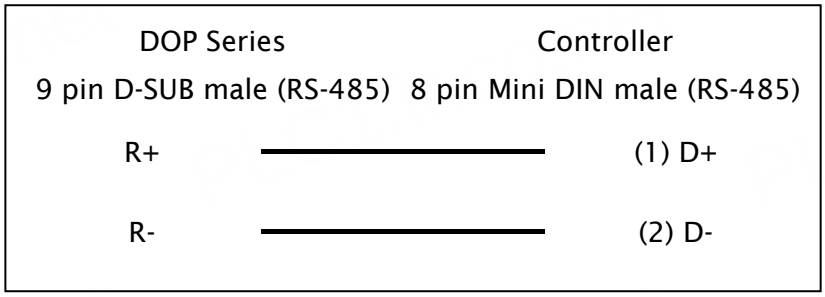
b. RS-232 (DOP-A/AE/AS, DOP-B Series)



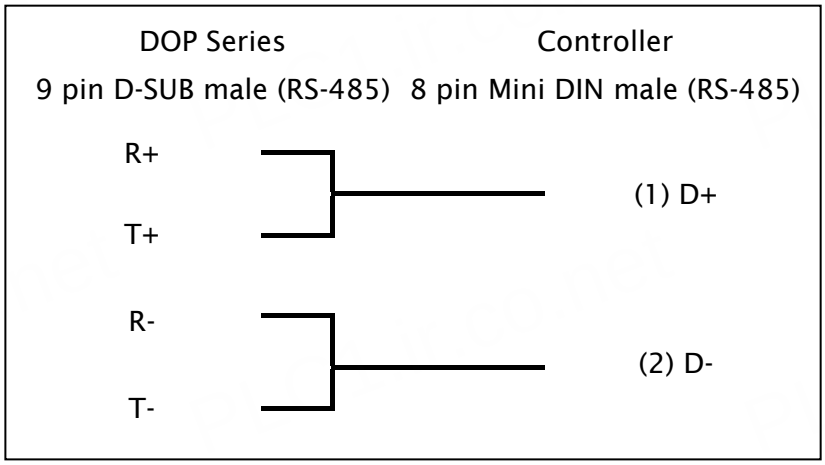
c. RS-485 (DOP-A/AE Series)



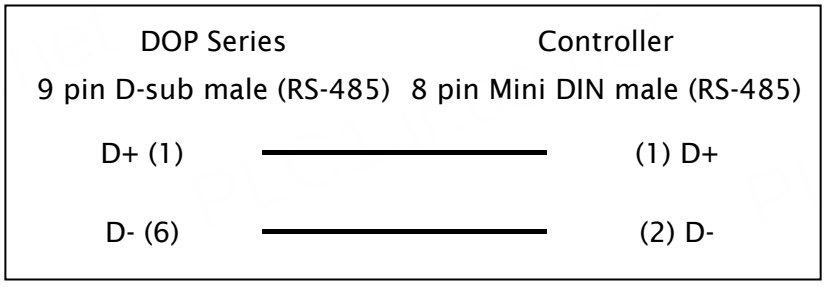
d. RS-485 (DOP-AS57 Series)



e. RS-485 (DOP-AS35/AS38 Series)



f. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
WORD_DEVICE_ Internal	%MWn	%MW0 – %MW65534	Word	6
WORD_DEVICE_ System	%SWn	%SW0 – %SW127	Word	
WORD_DEVICE_ Input	%KWn	%KW0 – %KW65534	Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
BIT_DEVICE_ Internal	%Mn:b	%M0:0 – %M65534:15	4, 6
BIT_DEVICE_ System	%Sb	%S0 – %S127	
BIT_DEVICE_ Internal1	%Mb	%M0 – %M65534	5

NOTE

1) HMI Station needs to be in range of 1 – 8.
2) PLC station number can be the same as HMI station number.
3) Internal memory of PLC and other relative parameters must be set up first or only %S will function, others will not be able to communicate.
4) **%M**n:b is the Bit address that corresponds to WORD_DEVICE_ Internal (**%MW**n).
5) **%M**b is the internal Relay address of PLC.
6) The read/write range of WORD_DEVICE_ Internal / BIT_DEVICE_ Internal depends on the used memory space of PLC.
7) The differences between **Modbus Slave** and **Uni-Telway Slave** mode:

When PLC is in **Modbus Slave** mode	When PLC is in **Uni-Telway Slave** mode
The following drivers are all available for use. 1. Modicon / TWIDO 2. Modbus / 984 RTU (Master) 3. Modbus / 984 RTU (Master, 6 Digits) 4. Modbus / RTU Hex Address (Master)	To increase communication efficiency: 1. Select TSX NEZA (Uni-Telway) when reading and writing only one word of %MW data for one time communication. 2. Select TSX (Uni-Telway) when reading and writing up to 30 words of %MW data for one time communication and there are more than two PLCs and HMIs connected. 3. Select TSX (1-1 Uni-Telway) when reading and writing up to 30 words of %MW data for one time communication and there are one PLC and one HMI connected.

Modicon TSX (1-1 Uni-Telway)

HMI Factory Setting:

Baud rate: 9600, 8, Odd, 1

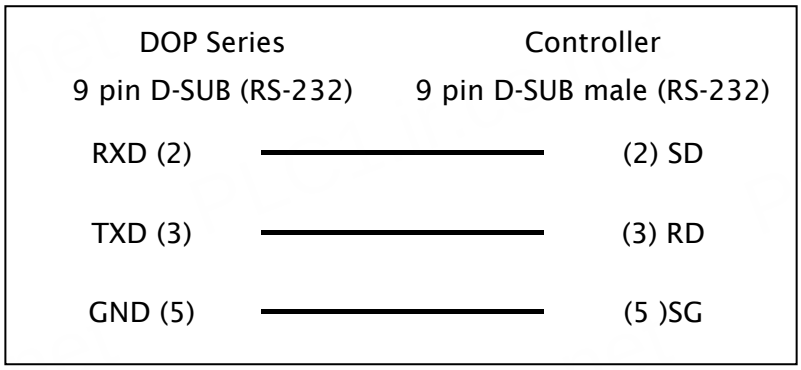
Controller Station Number: 1(no PLC station number in protocol, supports only 1(HMI) to 1(PLC) communication)

Control Area / Status Area: %MW0 / %MW10

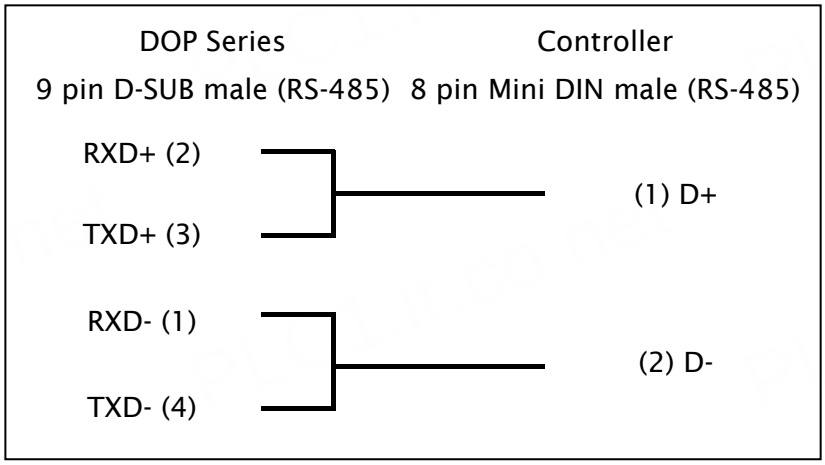
Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

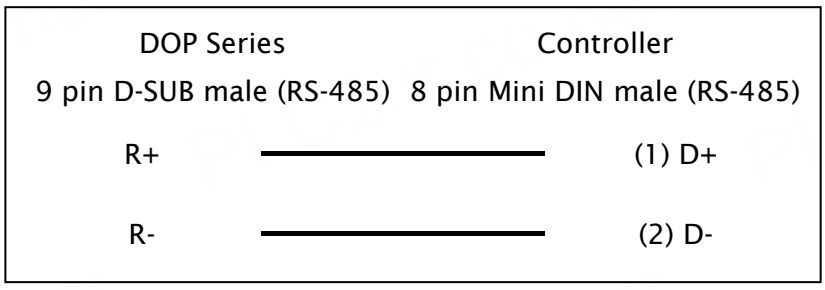
It requires specific TSX PCX1031 cable of Modicon Uni-Telway for wiring.



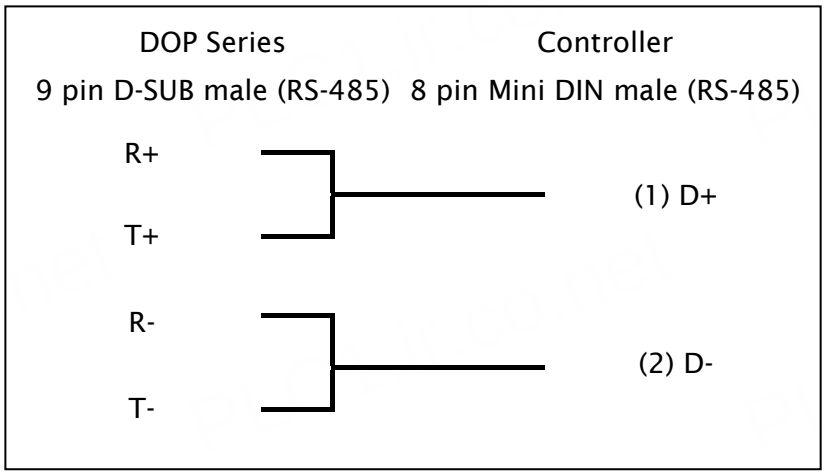
b. RS-485 (DOP-A/AE Series)



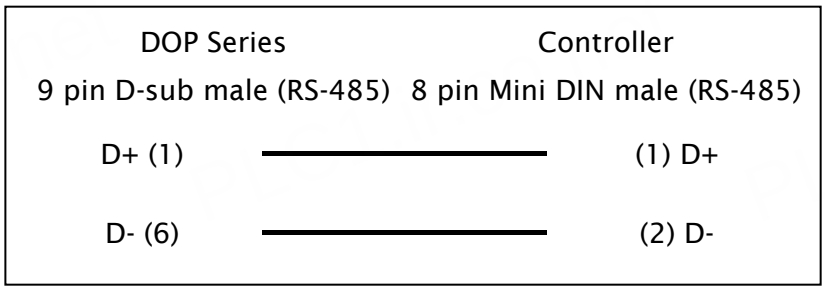
c. RS-485 (DOP-AS57 Series)



d. RS-485 (DOP-AS35/AS38 Series)



e. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
WORD_DEVICE_ Internal	%MWn	%MW0 – %MW65534	Word	4
WORD_DEVICE_ System	%SWn	%SW0 – %SW127	Word	
WORD_DEVICE_ Input	%KWn	%KW0 – %KW65534	Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
BIT_DEVICE_ Internal	%Mn:b	%M0:0 – %M65534:15	2, 4
BIT_DEVICE_ System	%Sb	%S0 – %S127	
BIT_DEVICE_ Internal1	%Mb	%M0 – %M65534	3

NOTE

1) Internal memory of PLC and other relative parameters must be set up first or only %S will function, others will not be able to communicate.

2) **%M**n:b is the Bit address that corresponds to WORD_DEVICE_ Internal (**%MW**n).

3) **%M**b is the internal Relay address of PLC.

4) The read/write range of WORD_DEVICE_ Internal / BIT_DEVICE_ Internal depends on the used memory space of PLC.

5) The differences between **Modbus Slave** and **Uni-Telway Slave** mode:

When PLC is in **Modbus Slave** mode	When PLC is in **Uni-Telway Slave** mode
The following drivers are all available for use. 1. Modicon / TWIDO 2. Modbus / 984 RTU (Master) 3. Modbus / 984 RTU (Master, 6 Digits) 4. Modbus / RTU Hex Address (Master)	To increase communication efficiency: 1. Select TSX NEZA (Uni-Telway) when reading and writing only one word of %MW data for one time communication. 2. Select TSX (Uni-Telway) when reading and writing up to 30 words of %MW data for one time communication and there are more than two PLCs and HMIs connected. 3. Select TSX (1-1 Uni-Telway) when reading and writing up to 30 words of %MW data for one time communication and there are one PLC and one HMI connected.

Modicon TWIDO

HMI Factory Setting:

Baud rate: 9600, 8, Even, 1

Controller Station Number: 1

Control Area / Status Area: W40100 / W40200

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

It requires specific TSX PCX1031 cable of Modicon Uni-Telway for wiring.

DOP Series 9 pin D-SUB (RS-232)		Controller 9 pin D-SUB male (RS-232)
RXD (2)	———	(2) SD
TXD (3)	———	(3) RD
GND (5)	———	(5)SG

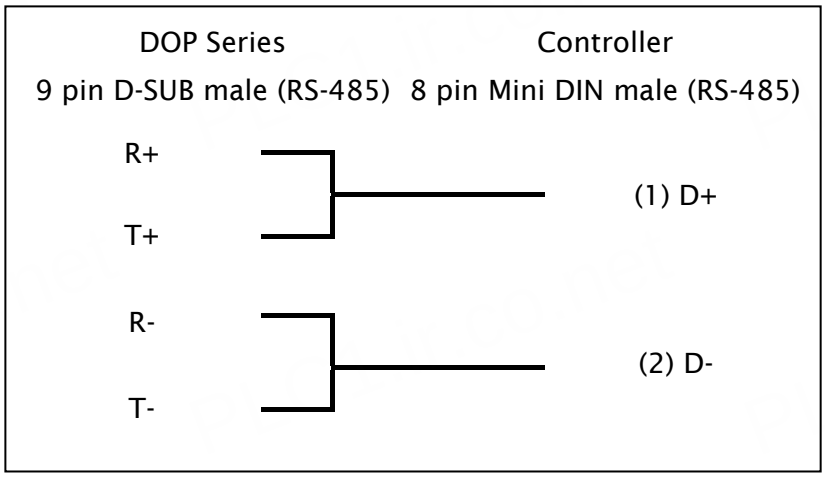
b. RS-485 (DOP-A/AE Series)

DOP Series 9 pin D-SUB male (RS-485)		Controller 8 pin Mini DIN male (RS-485)
RXD+ (2)	———	(1) D+
TXD+ (3)		
RXD- (1)	———	(2) D-
TXD- (4)		

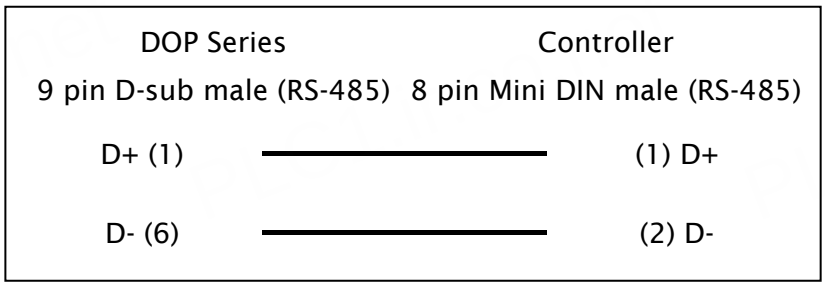
c. RS-485 (DOP-AS57 Series)

DOP Series 9 pin D-SUB male (RS-485)		Controller 8 pin Mini DIN male (RS-485)
R+	———	(1) D+
R-	———	(2) D-

d. RS-485 (DOP-AS35/AS38 Series)



e. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Output Registers	**W**n	**W**40001 – **W**50000	Word	
Input Registers	**W**n	**W**30001 – **W**40000	Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
Discrete Outputs	**B**b	**B**1 – **B**10000	
Discrete Inputs	**B**b	**B**10001 – **B**20000	Read only

NOTE

1) Before communication starts, the communication mode of PLC should be switched to Modbus Slave by using PL7 programming software..

Moeller EasyPLC 800/MFD

HMI Factory Setting:

Baud rate: 19200, 8, None, 1

Controller Station Number: 0

Control Area / Status Area: None/None

Connection

a. RS-232 (via PC-CAB-1) (DOP-A/AE/AS, DOP-B Series)

DOP Series 9 pin D-sub male		Controller PC-CAB-1 D-sub female
RXD (2)	———	TXD (2)
TXD (3)	———	RXD (3)
GND (5)	———	GND (5)
DC 12V	———	(7) (Note1)
DC 0V	———	(4) (Note1)

Definition of PLC Read/Write Address

a. Registers

Type	Format Word No. (n)	Read/Write Range	Data Length	Note
I Inputs	**I**n	**I**1	Word	
Q Outputs	**Q**n	**Q**1	Word	
R Inputs	**R**n	**R**1	Word	
S Outputs	**S**n	**S**1	Word	
P Buttons	**P**n	**P**1	Word	
Marker **MW**	**MW**n	**MW**1 – **MW**96	Word	
Marker **MD**	**MD**n	**MD**1 – **MD**96	Double Word	2
Diagnostics Bits **ID**	**ID**n	**ID**1	Word	

b. Contacts

Type	Format Word No. (n) Bit No. (b)	Read/Write Range	Note
I Inputs	**I**b	**I**1 – **I**16	
Q Outputs	**Q**b	**Q**1 – **Q**8	
R Inputs	**R**b	**R**1 – **R**16	
S Outputs	**S**b	**S**1 – **S**8	
P Buttons	**P**b	**P**1 – **P**4	
M Marker Bits	**M**b	**M**1 – **M**96	
Diagnostics Bits **ID**	**ID**b	**ID**1 – **ID**16	

NOTE

1) The communication port of Moeller EasyPLC requires additional 10~12V for communication. Please conduct positive voltage to pin 7 and negative voltage to pin 4, the voltage range of two pins should be in 10~12 V.

2) When using Moeller EasyPLC, the data length must be greater than 2 words or an encoding error may occur.

Moeller PS3/PS4 Series PLC

HMI Factory Setting:

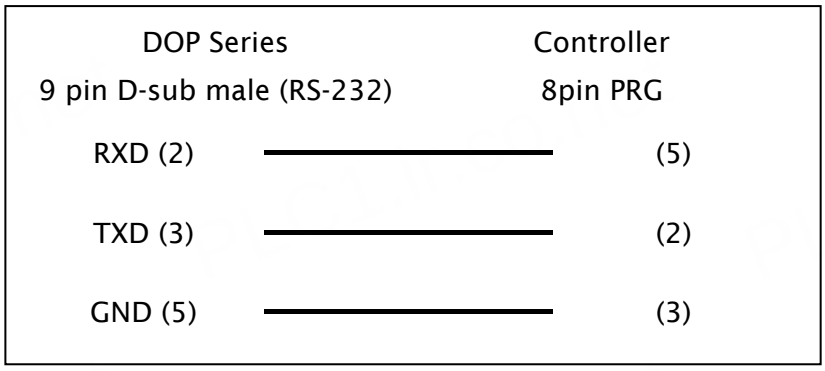
Baud rate: 9600, 8, None, 1 (RS-232)

Controller Station Number: 2

Control Area / Status Area: MW0/MW10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Marker **MW**	**MW**n	**MW**0 – **MW**32766	Byte	2
Diagnostic **S**tatus	**DSW**n	**DSW**0	Byte	
Process **S**tatus	**PSW**n	**PSW**0	Byte	
Diagnostic **C**ounter	**DC**n	**DC**0 – **DC**15	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Marker **M**	**M**n.b	**MW**0.0 – **MW**32766.7	2
Diagnostic **S**tatus	**DS**n.b	**DS**0.0 – **DS**1.7	
Process **S**tatus	**PS**n.b	**PS**0.0 – **PS**1.7	

NOTE

1) The read/write range of register Marker (Device MW) of PS4 Series must be set via PC programming software or PLC program before connecting to HMI; otherwise, the communication error may occur. The setting range of Marker (Device MW) of PS3 Series is fixed between 0 to 2172 except 126, the address MW126 cannot be used.

2) Marker MW register is an even address, but Marker M is not.

NIKKI DENSO NCS-FI/FS Series

HMI Factory Setting:

Baud rate: 9600, 8, Odd, 2

Controller Station Number: 1 (Valid 0 ~ 99)

Control Area / Status Area: None/None

Connection

a. RS-422 (DOP-A/AE Series)

DOP Series		Controller
9 pin D-sub male (RS-422)		14 pin special male (RS-422)
RXD- (1)	———	(9) TXD(B)
RXD+ (2)	———	(2) TXD(A)
TXD+ (3)	———	(4) RXD(A)
TXD- (4)	———	(11) RXD(B)
GND (5)	———	(14) GND

b. RS-422 (DOP-AS35/AS38/AS57 Series)

DOP Series		Controller
9 pin D-sub male (RS-422)		14 pin special male (RS-422)
R-	———	(9) TXD(B)
R+	———	(2) TXD(A)
T+	———	(4) RXD(A)
T-	———	(11) RXD(B)
GND	———	(14) GND

c. RS-422 (DOP-B Series)

DOP Series 9 pin D-sub male (RS-422)		Controller 14 pin special male (RS-422)
RXD- (1)	———	(9) TXD(B)
RXD+ (2)	———	(2) TXD(A)
TXD+ (3)	———	(4) RXD(A)
TXD- (4)	———	(11) RXD(B)
GND (5)	———	(14) GND

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
WORD_DEVICE_ RRegister	**RW**-n	**RW**-0 – **RW**-3999	Word	
WORD_DEVICE_ RRegister	**RW**-n	**RW**-8000 – **RW**-9999	Word	
WORD_DEVICE_ DStatus	**XW**-n	**XW**-0 – **XW**-8	Word	
WORD_DEVICE_ DStatus	**DW**-n	**DW**-0 – **DW**-129	Word	Read only
WORD_DEVICE_ RRegister	**RD**-n	**RD**-0 – **RD**-3999	Double Word	
WORD_DEVICE_ RRegister	**RD**-n	**RD**-8000 – **RD**-9999	Double Word	
WORD_DEVICE_ DStatus	**DD**-n	**DD**-0 – **DD**-129	Double Word	Read only

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
BIT_DEVICE_ RRegister	**RB**-nb	**RB**-00 – **RB**-3999F	
BIT_DEVICE_ RRegister	**RB**-nb	**RB**-80000 – **RB**-9999F	
BIT_DEVICE_ BitControl	**XB**-nb	**XB**-00 – **XB**-8F	

NOTE

1) The valid controller station number is in the range of 0~99, an input greater than this range would only count for the last two digits.

Omron C Series PLC

(This driver can support OMRON C/CPM series PLC simultaneously)

HMI Factory Setting:

Baud rate: 9600, 7, Even, 2

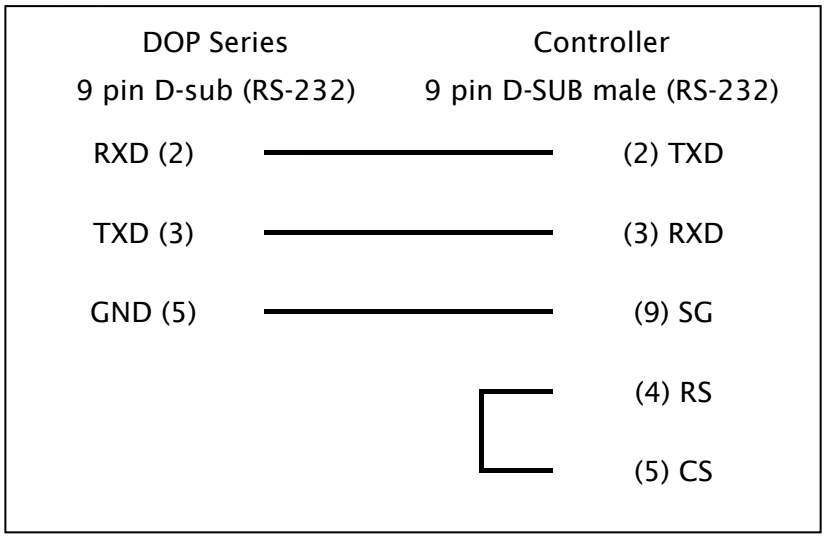
Controller Station Number: 0

Control Area / Status Area: DW0/DW10

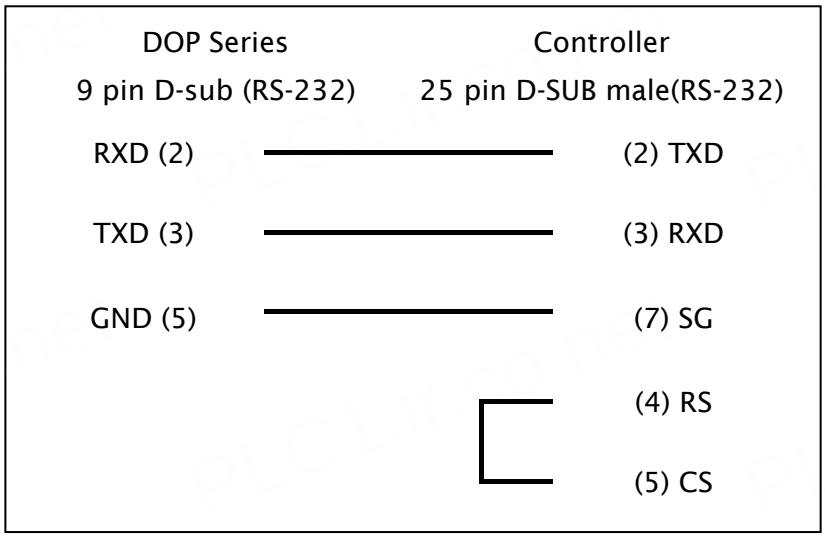
Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

1:1 Host Link via RS-232C converter



b. RS-232 (DOP-A/AE/AS, DOP-B Series)



c. RS-422 (DOP-A/AE Series)

DOP Series		Controller
9 pin D-SUB male (RS-422)		9 pin D-SUB male (RS-422)
RXD- (1)	———	(9) TXD-
RXD+ (2)	———	(5) TXD+
TXD+ (3)	———	(1) RXD+
TXD- (4)	———	(6) RXD-

d. RS-422 (DOP-AS35/AS38/AS57 Series)

DOP Series		Controller
9 pin D-SUB male (RS-422)		9 pin D-SUB male (RS-422)
R-	———	(9) TXD-
R+	———	(5) TXD+
T+	———	(1) RXD+
T-	———	(6) RXD-

e. RS-422 (DOP-B Series)

DOP Series		Controller
9 pin D-SUB male (RS-422)		9 pin D-SUB male (RS-422)
RXD- (9)	———	(9) TXD-
RXD+ (4)	———	(5) TXD+
TXD+ (1)	———	(1) RXD+
TXD- (6)	———	(6) RXD-

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
IR area	**IR**n	**IR**0 – **IR**511	Word	
HR area	**HR**n	**HR**0 – **HR**99	Word	
AR area	**AR**n	**AR**0 – **AR**27	Word	
LR area	**LR**n	**LR**0 – **LR**63	Word	
TC area	**TC**n	**TC**0 – **TC**511	Word	
DM area	**DM**n	**DM**0 – **DM**6655	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
IR area	**IR**nbb	**IR**000 – **IR**51115	
HR area	**HR**nbb	**HR**000 – **HR**9915	
AR area	**AR**nbb	**AR**000 – **AR**2715	
LR area	**LR**nbb	**LR**000 – **LR**6315	
TC area	**TC**b	**TC**0 – **TC**511	

Omron CJ1/CS1 Series PLC

(Supporting OMRON CS/CJ/CP1/CQM/CV/CVM Series of PLC)

HMI Factory Setting:

Baud rate: 9600, 7, Even, 2 (RS-232)

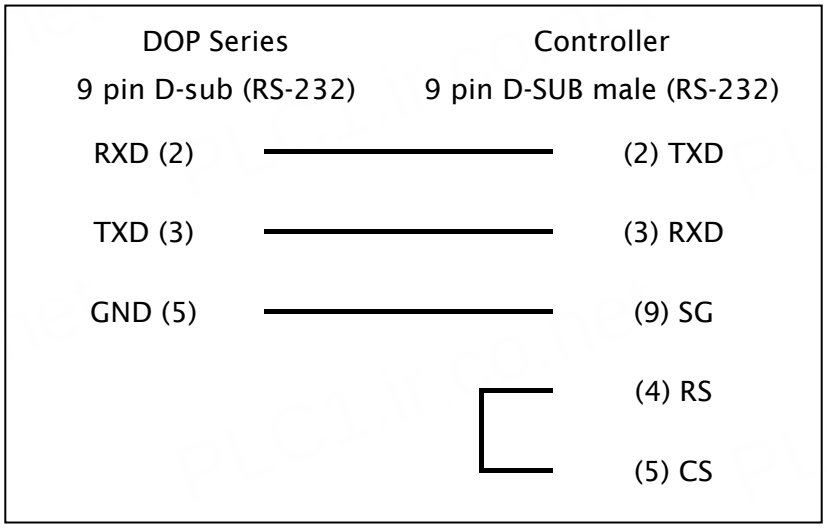
Controller Station Number: 0

Control Area / Status Area: D0 / D10

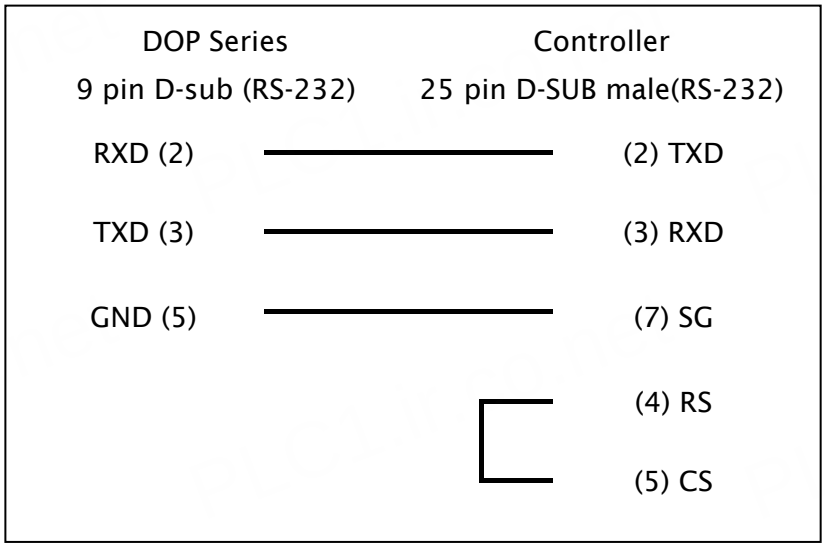
Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

CJIM CPU module (RS-232)



b. RS-232 (DOP-A/AE/AS, DOP-B Series)



c. RS-422 (DOP-A/AE Series)

DOP Series		Controller
9 pin D-SUB male (RS-422)		9 pin D-SUB male (RS-422)
RXD- (1)	———	(9) TXD-
RXD+ (2)	———	(5) TXD+
TXD+ (3)	———	(1) RXD+
TXD- (4)	———	(6) RXD-

d. RS-422 (DOP-AS35/AS38/AS57 Series)

DOP Series		Controller
9 pin D-SUB male (RS-422)		9 pin D-SUB male (RS-422)
R-	———	(9) TXD-
R+	———	(5) TXD+
T+	———	(1) RXD+
T-	———	(6) RXD-

e. RS-422 (DOP-B Series)

DOP Series		Controller
9 pin D-SUB male (RS-422)		9 pin D-SUB male (RS-422)
RXD- (9)	———	(9) TXD-
RXD+ (4)	———	(5) TXD+
TXD+ (1)	———	(1) RXD+
TXD- (6)	———	(6) RXD-

Definition of PLC Read/Write Address

a. Registers

Type	Format Bank No.(m) Word No.(n)	Read/Write Range	Data Length	Note
CIO area	**CIO**n	**CIO**0 – **CIO**9999	Word	
Hold area	**H**n	**H**0 – **H**999	Word	
Auxiliary area	**A**n	**A**0 – **A**999	Word	1
DM area	**D**n	**D**0 – **D**65535	Word	
EM area	**E**m.n	**E**0.0 – **E**12.65535	Word	
Timer PVs	**T**n	**T**0 – **T**9999	Word	
Counter PVs	**C**n	**C**0 – **C**9999	Word	
Work area	**W**n	**W**0 – **W**999	Word	
EM Current Bank area	**EM**n	**EM**0 – **EM**65535	Word	
Index Register	**IR**n	**IR**0 – **IR**99	Double Word	
DR area	**DR**n	**DR**0 – **DR**99	Word	
TK area	**TK**n	**TK**0 – **TK**1022	Byte	Read only, 3

b. Contacts

Type	Format Bank No.(m) Word No.(n) Bit No.(b)	Read/Write Range	Note
CIO area	**CIOB**nbb	**CIOB**000 – **CIOB**999915	
Hold area	**HB**nbb	**HB**000 – **HB**99915	
Auxiliary area	**AB**nbb	**AB**000 – **AB**99915	2
DM area	**DB**nbb	**DB**000 – **DB**6553515	
EM area	**EB**m.nbb	**EB**0.000 – **EB**12.6553515	
Timer area	**TB**b	**TB**0 – **TB**9999	Read only
Counter area	**CB**b	**CB**0 – **CB**9999	Read only
Work area	**WB**nbb	**WB**000 – **WB**99915	
EM Current Bank area	**EMB**nbb	**EMB**000 – **EMB**6553515	
Index Register	**IRB**nbb	**IRB**000 – **IRB**9931	
DR area	**DRB**nbb	**DRB**000 – **DRB**9915	
TK area	**TKB**nbb	**TKB**000 – **TKB**1022.15	Read only, 3

NOTE

1) **A**0 – **A**447 are read only.
2) **AB**000 – **AB**44715 are read only.
3) The address of register TK must be an even number.

Omron TPM1A PLC

(The same as Omron C Series PLC.)

Parker Compax3 Servo

HMI Factory Setting:

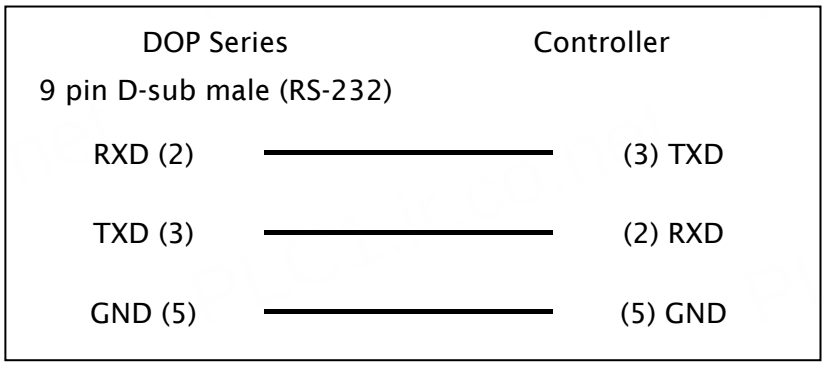
Baud rate: 115200, 8, None, 1

Controller Station Number: 0 (Note1)

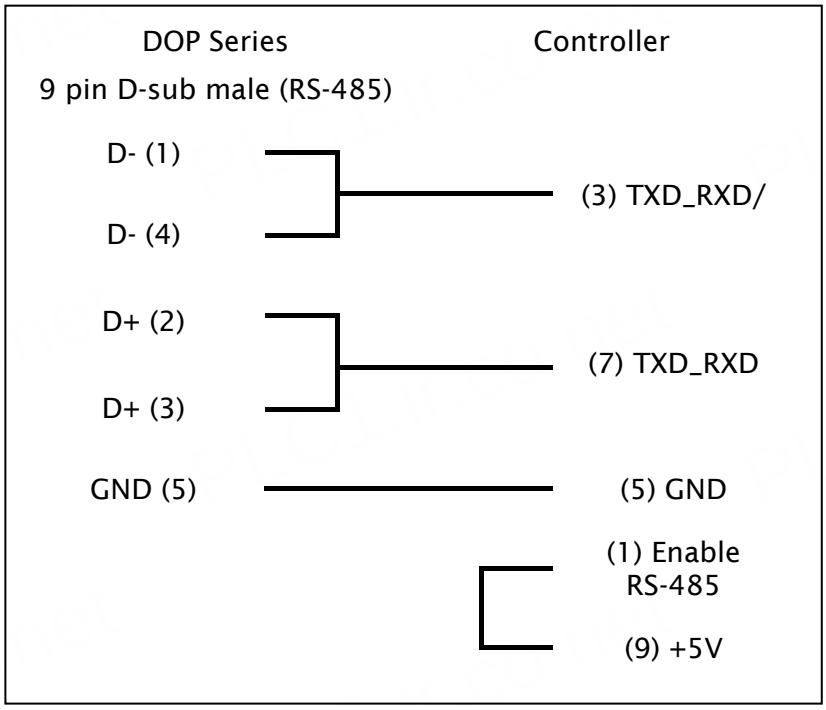
Control Area / Status Area: None/None

Connection

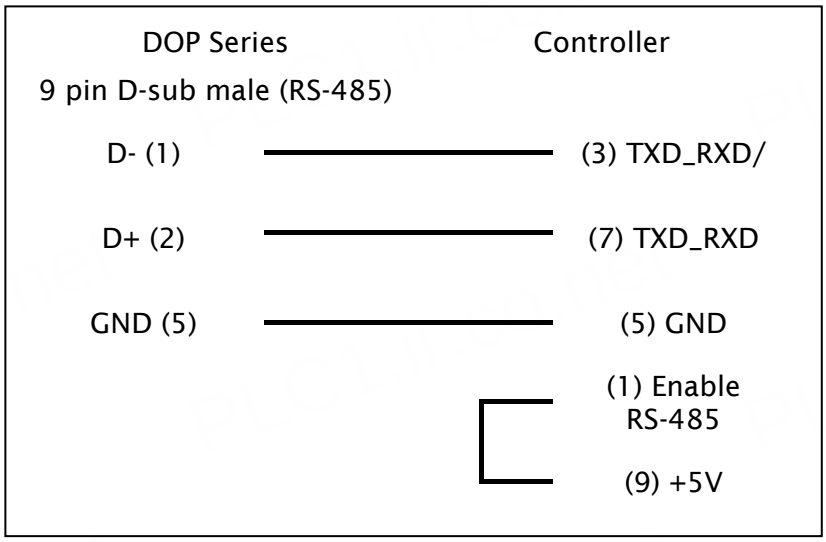
a. RS-232 (DOP-A/AE/AS, DOP-B Series)



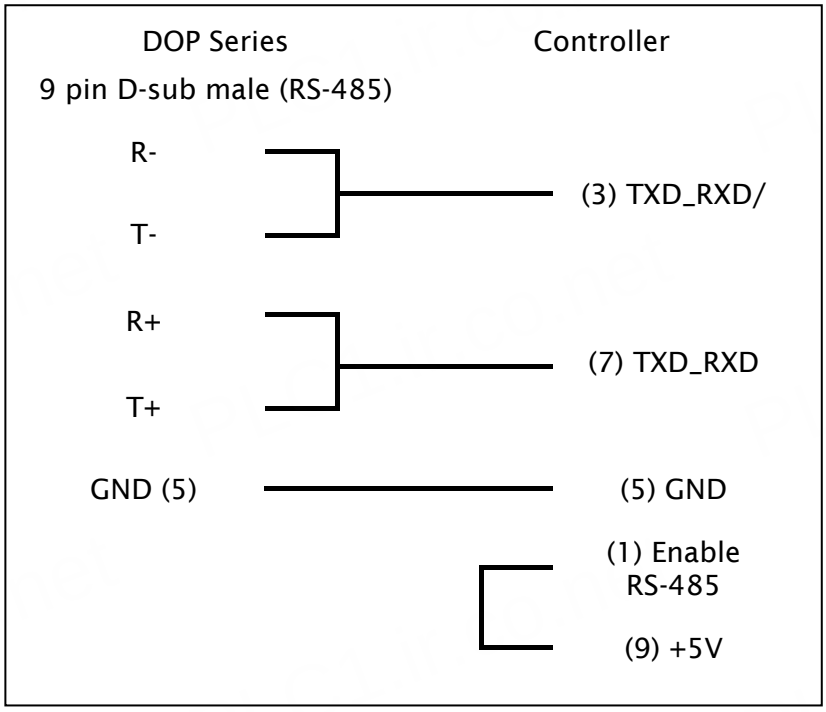
b. RS-485 (2-wire) (DOP-A/AE Series)



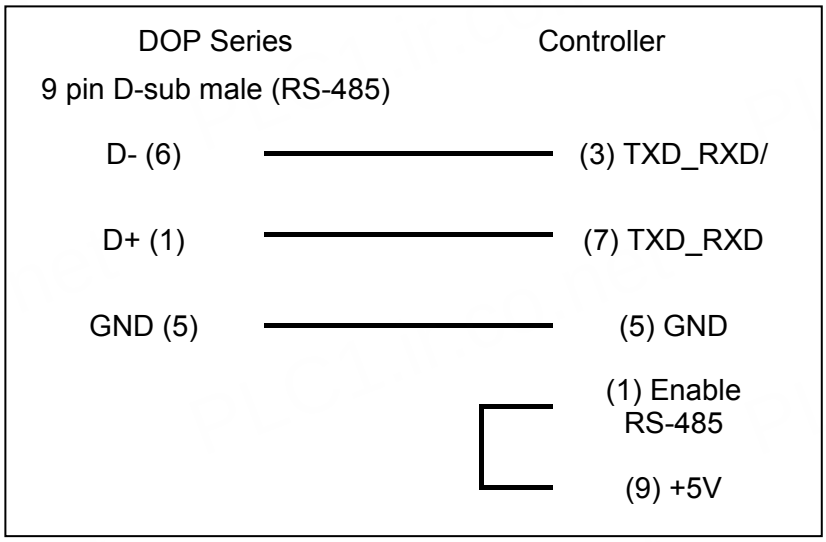
c. RS-485 (2-wire) (DOP-AS57 Series)



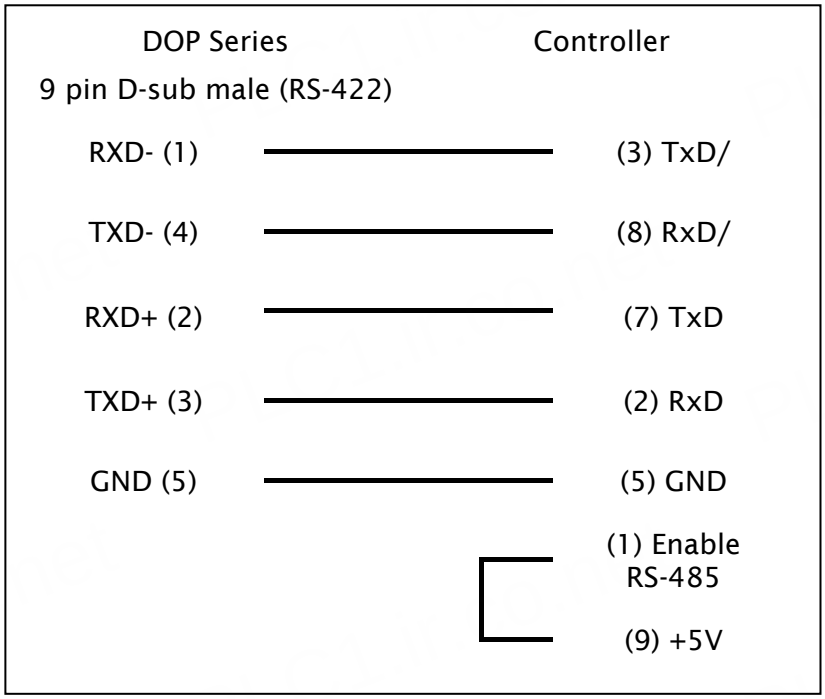
d. RS-485 (2-wire) (DOP-AS35/AS38 Series)



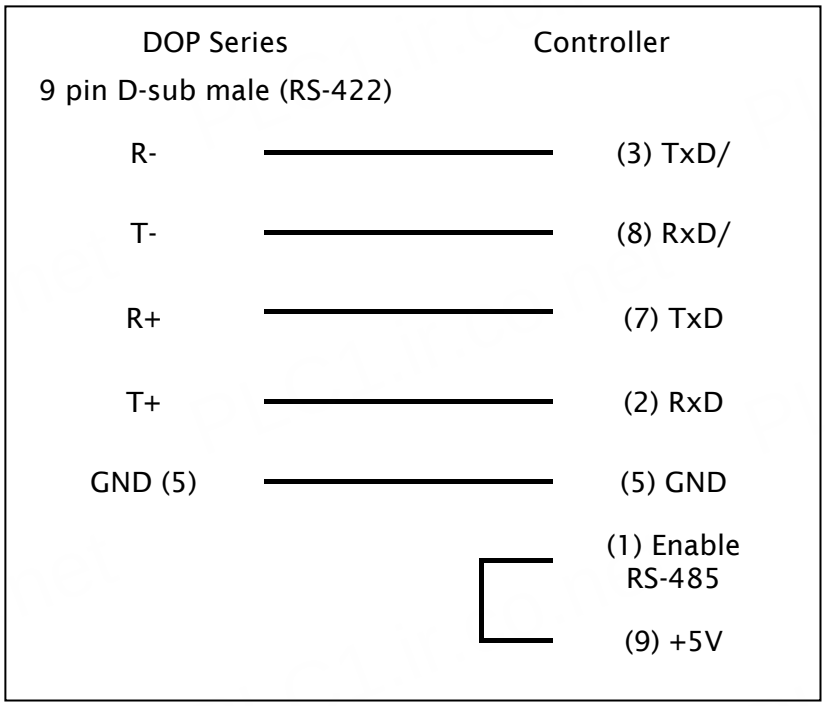
e. RS-485 (2-wire) (DOP-B Series)



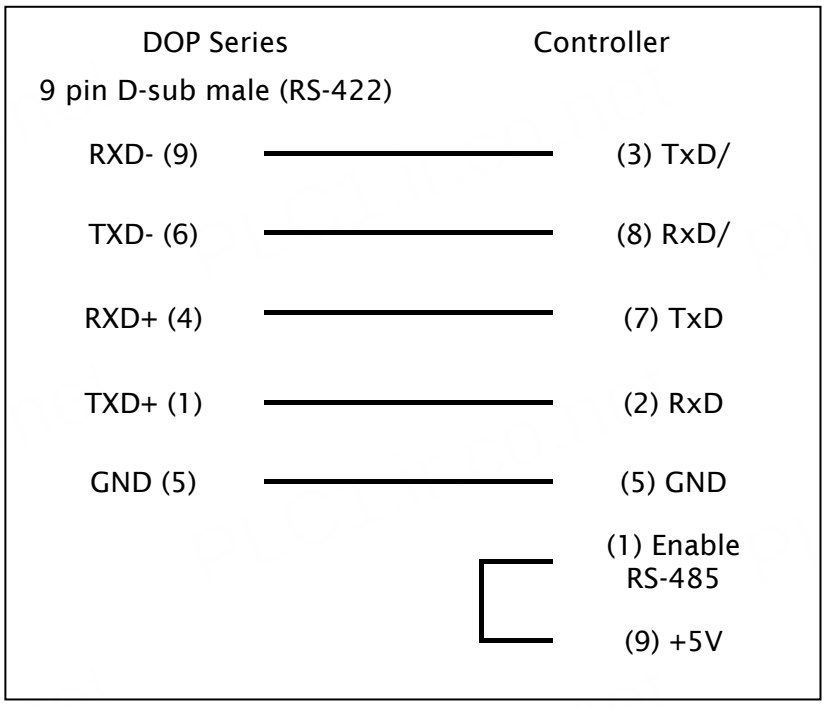
f. RS-422 (4-wire) (DOP-A/AE Series)



g. RS-422 (4-wire) (DOP-AS35/AS38/AS57 Series)



h. RS-422 (4-wire) (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format Index No.(n) Sub-Index No.(m)	Read/Write Range	Data Length	Note
Object	**OBJW**n.m	**OBJW**0.1 – **OBJW**65535.32	Word	
Object	**OBJD**n.m	**OBJD**0.1 – **OBJD**65535.32	Double word	3
Object	**OBJR**n.m	**OBJR**0.1 – **OBJR**65535.32	Floating point	3

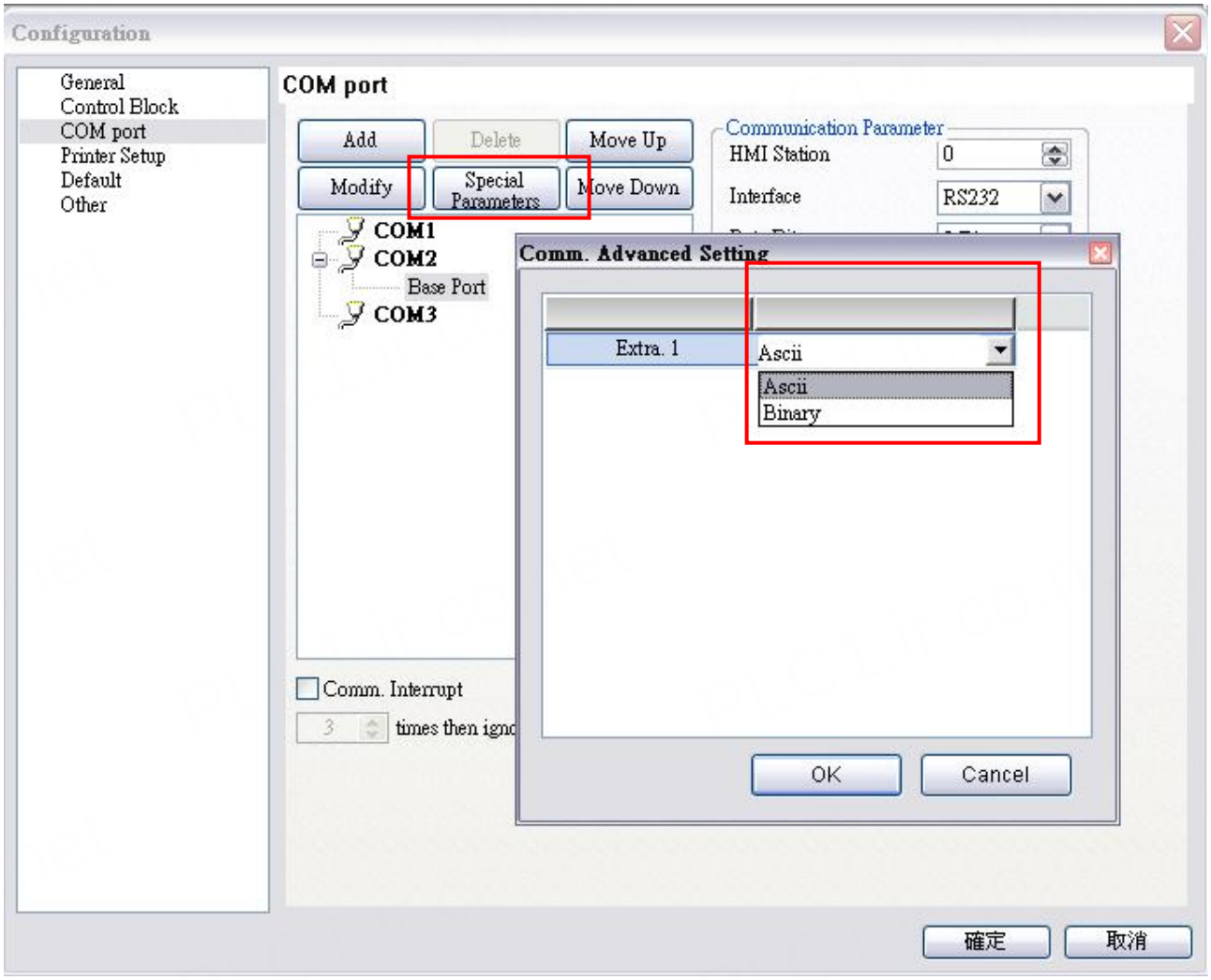
b. Contacts

Type	Format Index No.(n) Sub-Index No.(m) Bit No.(b)	Read/Write Range	Note
Object	**OBJWB**n.m/b	**OBJWB**0.1/0 – **OBJWB**65535.32/15	
Object	**OBJDB**n.m/b	**OBJDB**0.1/0 – **OBJDB**65535.32/31	

NOTE

1) The connection established by RS-232 does not require station number setting. But, if the connection is established by RS-485, station number must be set in a range of 0 ~99.

2) This program supports both ASCII/BINARY RECORD mode, but the default setting is ASCII mode. Change can be made in “Screen Editor” → “Special Parameters” → “Extra”.



3) This protocol support access to the parameter of Compax3 and above only and is defined as OBJ. The data in different address are not the same type, therefore the character follows “OBJ” is to represent each type of data. OBJW is for 16bits date; OBJD is for 32 bits data, the data length must be Double Word format and numeric unit can not be Floating point; OBJR is for 32 bits data, data length must be Double Word type and numeric unit must be Floating point.

4) Pay special attention to the parameter characteristics, “read only” or “read/write”. Please refer to Parker Compax 3 user manual for more detail.

RKC Rex B Series

HMI Factory Setting:

Baud rate: 9600, 7, Even, 2 (RS-422)

Controller Station Number: 0

Control Area / Status Area: None/None

Connection

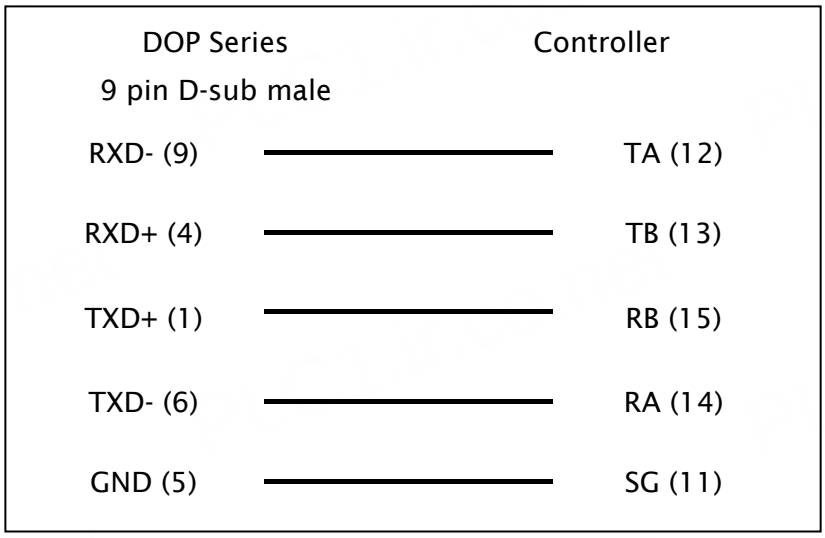
a. RS-422 (DOP-A/AE Series)

DOP Series 9 pin D-sub male		Controller
RXD- (1)	———	TA (12)
RXD+ (2)	———	TB (13)
TXD+ (3)	———	RB (15)
TXD- (4)	———	RA (14)
GND (5)	———	SG (11)

b. RS-422 (DOP-AS35/AS38/AS57 Series)

DOP Series 9 pin D-sub male		Controller
R-	———	TA (12)
R+	———	TB (13)
T+	———	RB (15)
T-	———	RA (14)
GND	———	SG (11)

c. RS-422 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Channel No.(n)			
Temperature measured-value (PV)	**M1:**n	**M1:**1 – **M1:**8	Word	Read only, 1
Control output status (Heating-side)	**O1:**n	**O1:**1 – **O1:**8	Word	Read only, 1
Control output status (Cooling-side)	**O2:**n	**O2:**1 – **O2:**8	Word	Read only, 1
Heater break alarm status	**AC:**n	**AC:**1 – **AC:**8	Byte	Read only
Current transformer input value	**M2:**n	**M2:**1 – **M2:**8	Word	Read only, 1
Error code	**ER:**n	**ER:**1	Word	Read only
Communication Error code	**EC:**n	**EC:**1	Word	Read only
PID/AT identification	**G1:**n	**G1:**1 – **G1:**8	Byte	
Temperature set-value (SV)	**S1:**n	**S1:**1 – **S1:**8	Word	1
Proportional band (Heating-side)	**P1:**n	**P1:**1 – **P1:**8	Word	1
Proportional band (Cooling-side)	**P2:**n	**P2:**1 – **P2:**8	Word	1
Integral time	**I1:**n	**I1:**1 – **I1:**8	Word	
Derivative time	**D1:**n	**D1:**1 – **D1:**8	Word	
Anti-reset windup	**W1:**n	**W1:**1 – **W1:**8	Word	
Deadband	**V1:**n	**V1:**1 – **V1:**8	Word	1

Type	Format	Read/Write Range	Data Length	Note
	Channel No.(n)			
Alarm 1 setting	**A1:**n	**A1:**1 – **A1:**8	Word	1
Alarm 2 setting	**A2:**n	**A2:**1 – **A2:**8	Word	1
Channel used/unused	**EI:**n	**EI:**1 – **EI:**8	Byte	
Proportional cycle (Heating-side)	**T0:**n	**T0:**1 – **T0:**8	Word	
Proportional cycle (Cooling-side)	**T1:**n	**T1:**1 – **T1:**8	Word	
PV bias	**PB:**n	**PB:**1 – **PB:**8	Word	1
Heater break alarm setting	**A3:**n	**A3:**1 – **A3:**8	Word	1
Memory area execution NO. setting	**ZA:**n	**ZA:**1	Byte	
Control response parameter	**CA:**n	**CA:**1 – **CA:**8	Byte	
Output Monitoring time	**TU:**n	**TU:**1	Word	
Event function selection	**XK:**n	**XK:**1	Byte	

b. Contacts

Type	Format	Read/Write Range	Note
	Channel No.(b)		
Alarm 1 status	**AA:**b	**AA:**1 – **AA:**8	Read only
Alarm 2 status	**AB:**b	**AB:**1 – **AB:**8	Read only
Burnout status	**B1:**b	**B1:**1 – **B1:**8	Read only
Control run/stop	**X1:**b	**X1:**1	
Alarm interlock release	**AR:**b	**AR:**1	Read only
Event input status	**L1:**b	**L1:**1	Read only

NOTE

1) The input value and display value of RKC Rex B Series must in one decimal place. Please refer to RKC user manual to ensure if the temperature controller supports one decimal place.

Siemens S7 200

HMI Factory Setting:

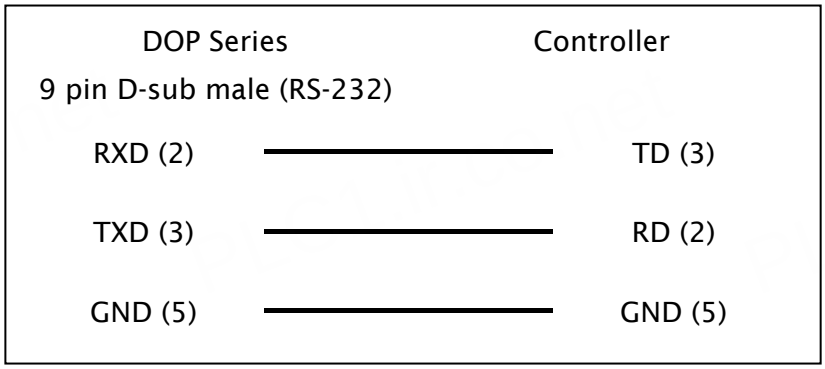
Baud rate: 9600, 7, Even, 1

Controller Station Number: 2

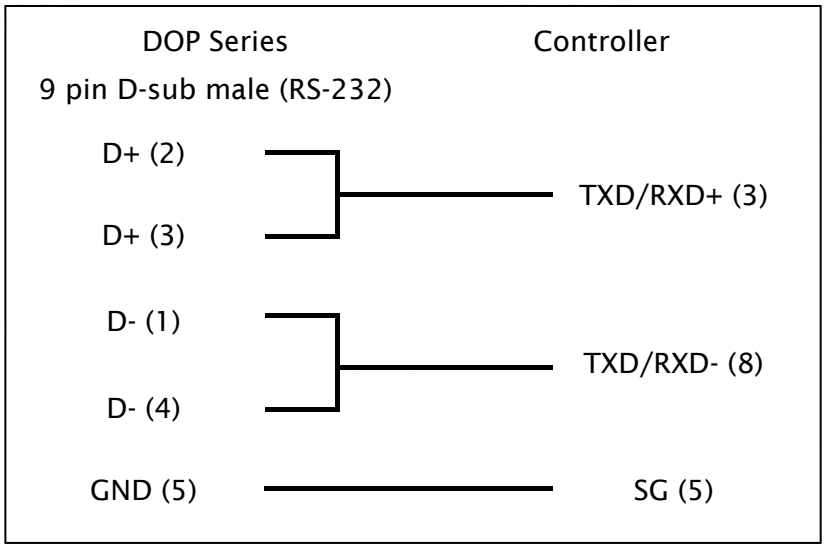
Control Area / Status Area: VW0/VW10

Connection

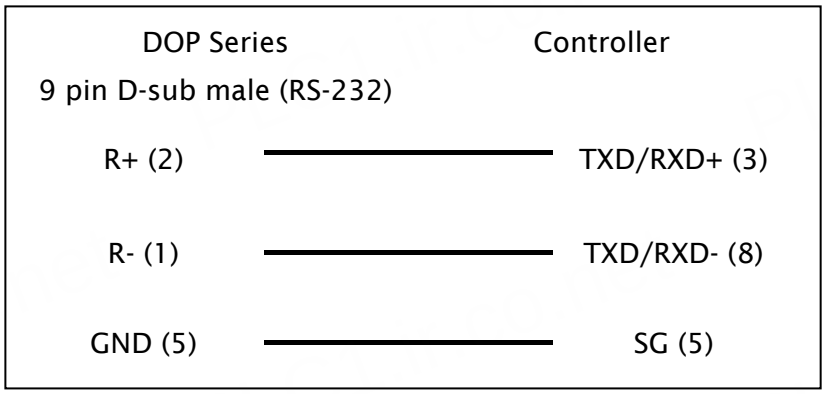
a. RS-232 (via PPI Multi-Master Cable) (DOP-A/AE/AS, DOP-B Series)



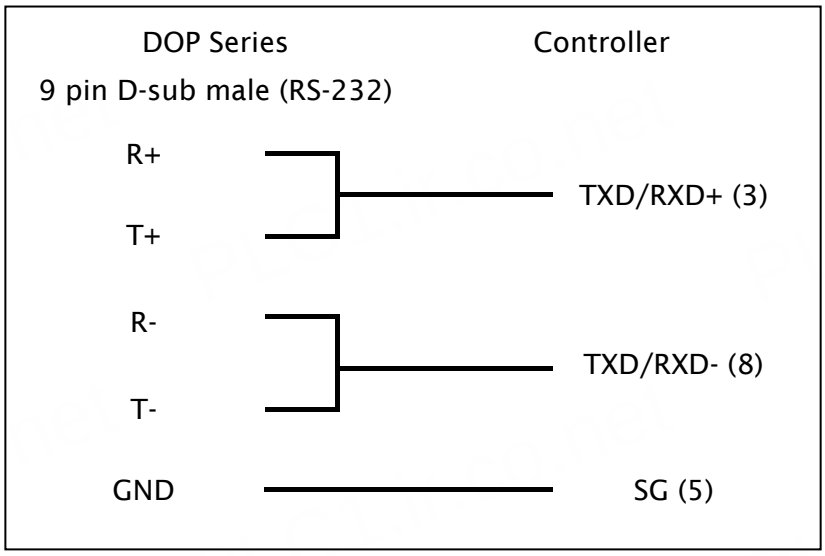
b. RS-485 (via PLC Program Port) (DOP-A/AE Series)



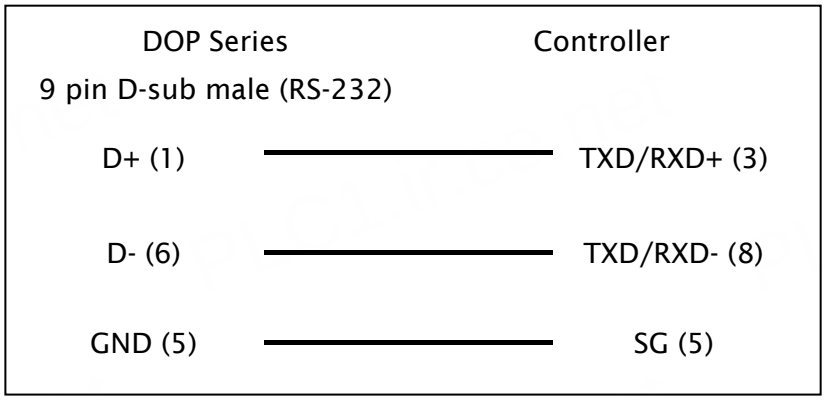
c. RS-485 (via PLC Program Port) (DOP-AS57 Series)



d. RS-485 (via PLC Program Port) (DOP-AS35/AS38 Series)



e. RS-485 (via PLC Program Port) (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

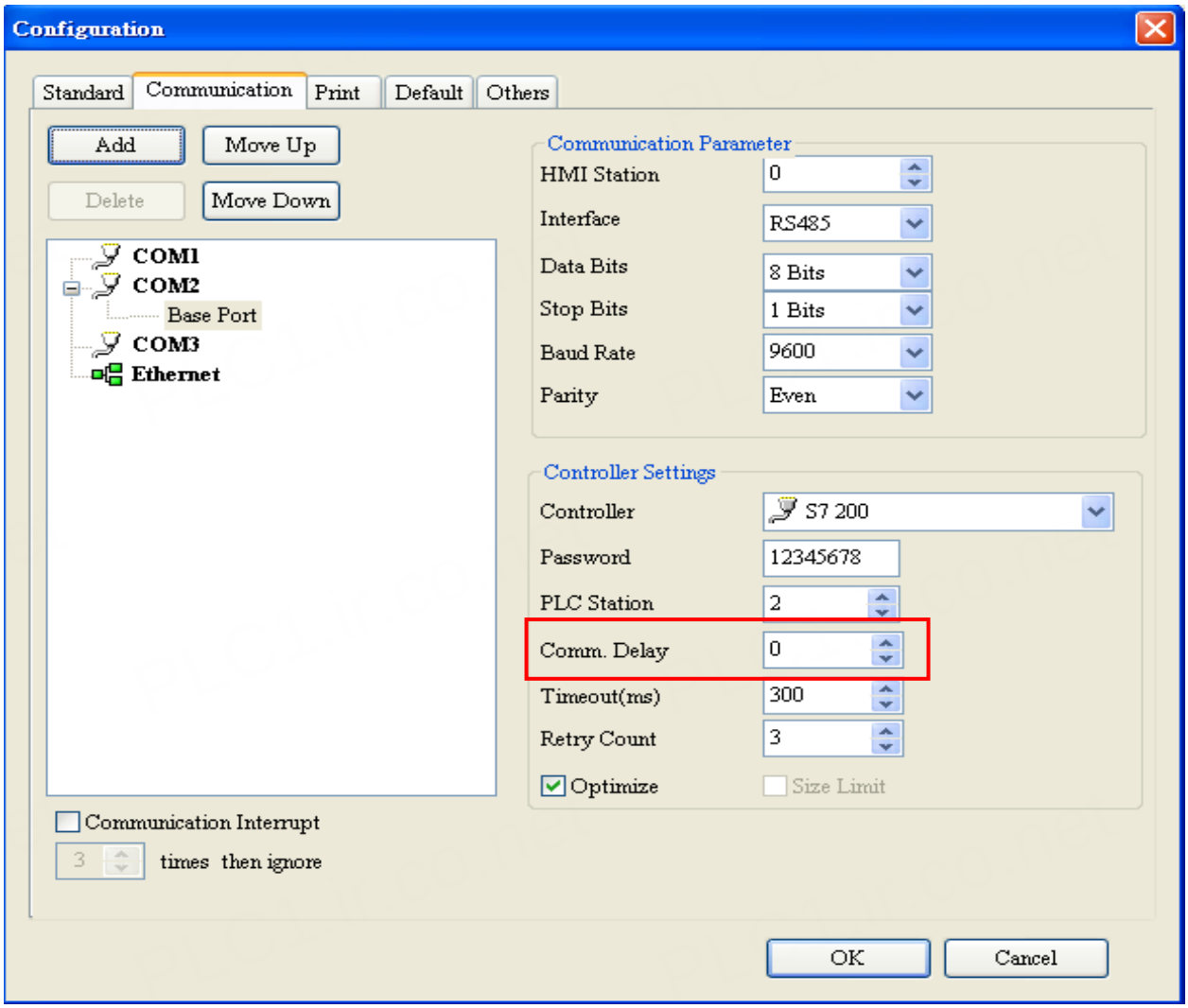
Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
Timer	**T**n	**T**0 – **T**255	Word	
Analog input word	**AIW**n	**AIW**0 – **AIW**30	Word	
Counter	**C**n	**C**0 – **C**255	Word	
Analog output word	**AQW**n	**AQW**0 – **AQW**30	Word	
Input Image	**IW**n	**IW**0 – **IW**14	Word	
Input Image	**ID**n	**ID**0 – **ID**12	Double Word	
Output Image	**QW**n	**QW**0 – **QW**14	Word	
Output Image	**QD**n	**QD**0 – **QD**12	Double Word	
Special Bits	**SMW**n	**SMW**0 – **SMW**199	Word	
Special Bits	**SMD**n	**SMD**0 – **SMD**197	Double Word	
Internal Bits	**MW**n	**MW**0 – **MW**98	Word	
Internal Bits	**MD**n	**MD**0 – **MD**96	Double Word	
Data Area	**VW**n	**VW**0 – **VW**9998	Word	
	DBWn	**DBW**0 – **DBW**9998		
Data Area	**VD**n	**VD**0 – **VD**9996	Double Word	
Special S	**SW**n	**SW**0 – **SW**99	Word	
Special S	**SD**n	**SD**0 – **SD**97	Double Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Word No. (n) Bit No. (b)		
Timer Bit	**T**b	**T**0 – **T**255	Read Only
Counter Bit	**C**b	**C**0 – **C**255	Read Only
Input Image	**I**n.b	**I**0.0 – **I**15.7	
Output Image	**Q**n.b	**Q**0.0 – **Q**15.7	
Special Bit	**SM**n.b	**SM**0.0 – **SM**200.7	
Internal Bit	**M**n.b	**M**0.0 – **M**99.7	
Data Area Bit	**V**n.b	**V**0.0 – **V**9999.7	
Special S Bit	**S**n.b	**S**0.0 – **S**100.7	

NOTE

1) S7-200 processes a longer period of internal program scanning or inputs an interruption command may slows down HMI response rate and cause “Must Retry” or “No Such Resource” error message. Communication Delay function is suggested to avoid this problem. The parameter setting unit is ms and suggested setting value is 10. The setting value should not be greater than 30.



Siemens S7 300 (Direct MPI)

HMI Factory Setting:

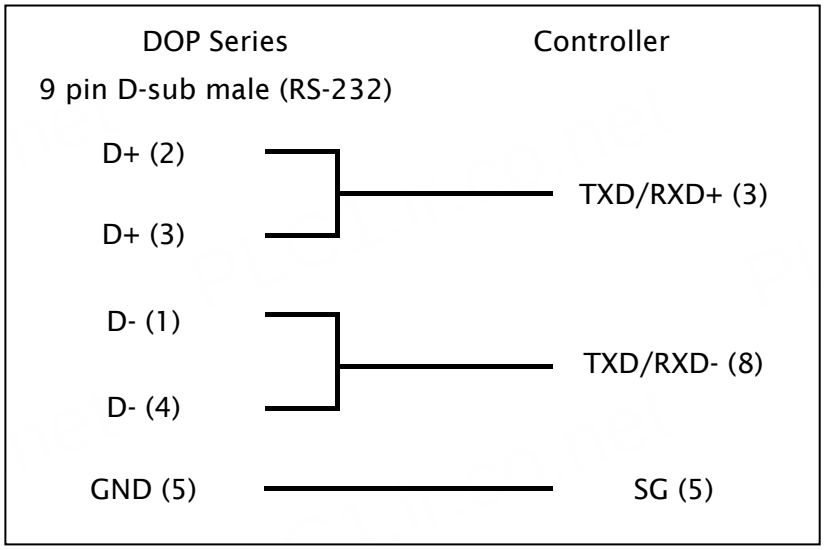
Baud rate: 187500, 8, Even, 1 (RS-485) (Note1)

Controller Station Number: 2(Note2, Note3, Note4)

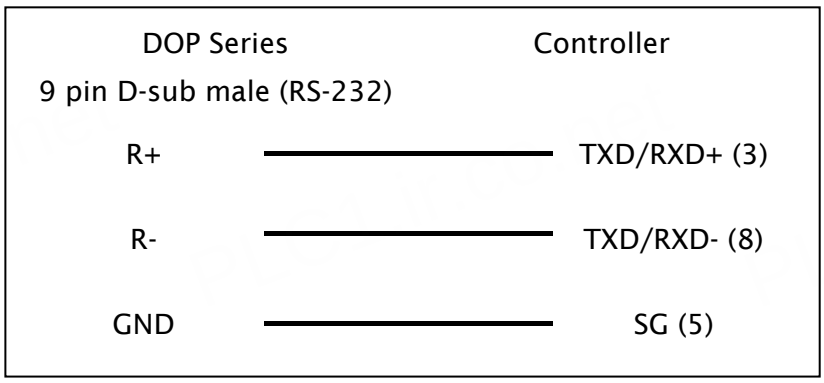
Control Area / Status Area: DBW0/DBW20

Connection

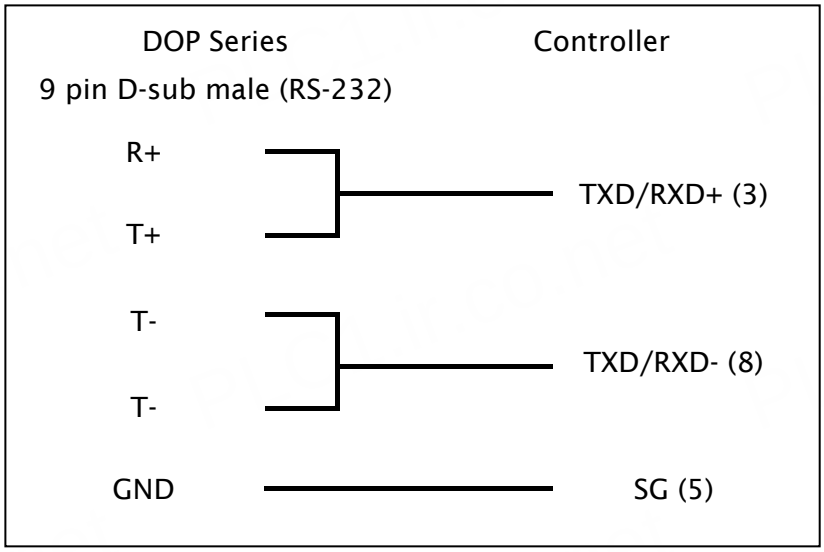
a. RS-485 (DOP-A/AE Series)



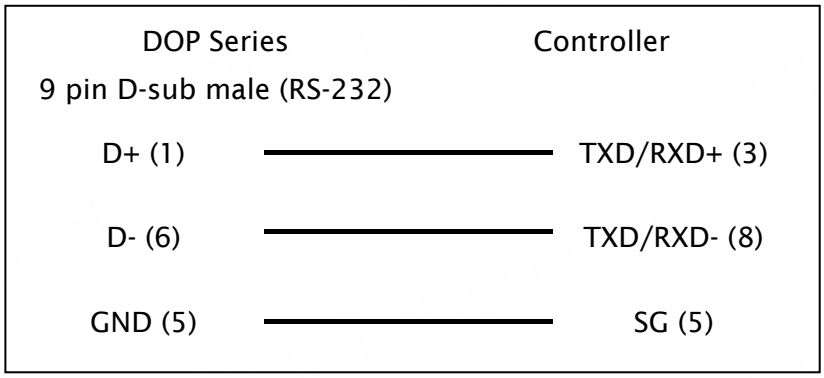
b. RS-485 (DOP-AS57 Series)



c. RS-485 (DOP-AS35/AS38 Series)



d. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n) Bank No.(m)			
Input Image	**IW**n	**IW**0 – **IW**65534	Word	
	IDn	**ID**0 – **ID**65532	Double Word	
Output Image	**QW**n	**QW**0 – **QW**65534	Word	
	QDn	**QD**0 – **QD**65532	Double Word	
Internal Bits	**MW**n	**MW**0 – **MW**65534	Word	
	MDn	**MD**0 – **MD**65532	Double Word	
Data Area	**DB**m.DBWn	**DB**1.DBW0 – **DB**255.DBW65534	Word	5
	DBm.DBDn	**DB**1.DBD0 – **DB**255.DBW65532	Double Word	5

Type	Format Word No.(n) Bank No.(m)	Read/Write Range	Data Length	Note
Data Area (DB10)	**DBW**n	**DBW**0 – **DBW**65534	Word	
	DBDn	**DBD**0 – **DBD**65532	Double Word	
	VWn	**VW**0 – **VW**65534	Word	
	VDn	**VD**0 – **VD**65532	Double Word	
Timer	**T**n	**T**0 – **T**65535	Word	6
Counter	**C**n	**C**0 – **C**65535	Double Word	6

b. Contacts

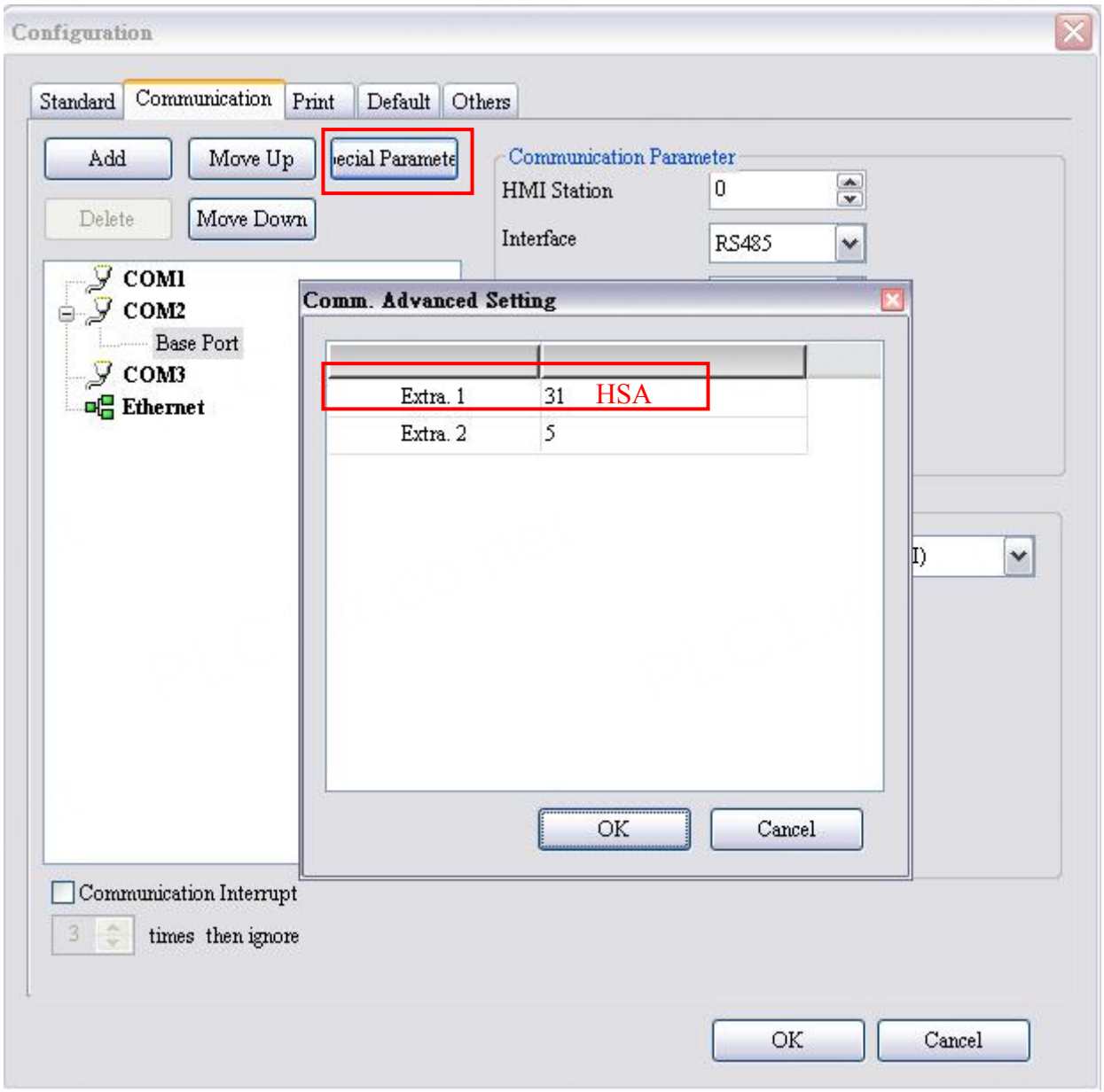
Type	Format Word No.(n)；Bank No.(m)；Bit No.(b)	Read/Write Range	Note
Input Image	**I**n.b	**I**0.0 – **I**65535.7	
Output Image	**Q**n.b	**Q**0.0 – **Q**65535.7	
Internal Bits	**M**n.b	**M**0.0 – **M**65535.7	
Data Area	**DB**m.DBXn.b	**DB**1.DBX0.0 – **DB**255.DBX65535.7	5
Data Area (DB10)	**DBX**n.b	**DBX**0.0 – **DBX**65535.7	
	Vn.b	**V**0.0 – **V**65535.7	

NOTE

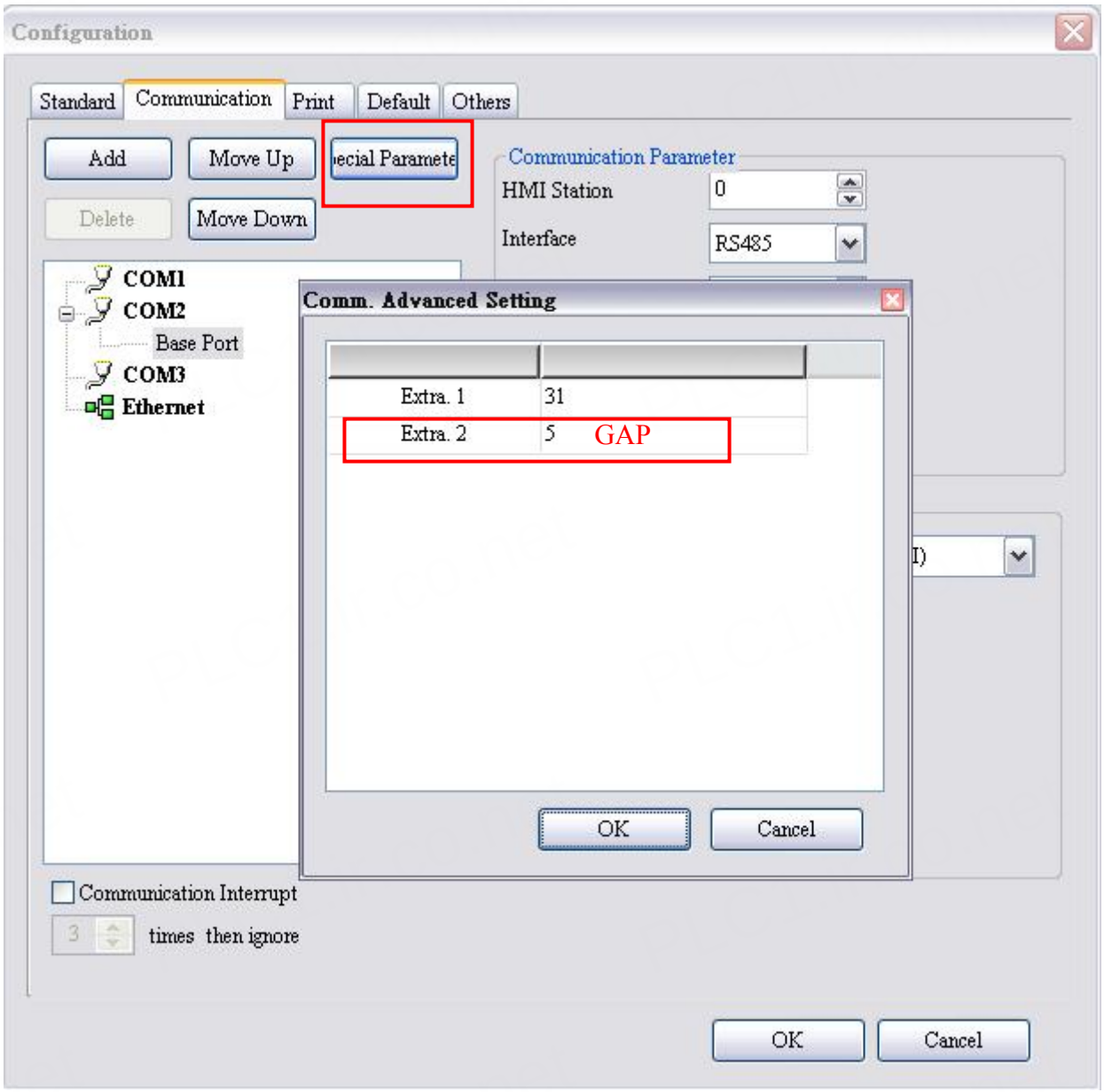
1) This communication protocol only supports 187500 bps. Only one COM port can use this communication protocol for one project (it supports COM2 and COM3 ports, but it does not support COM1 port).

2) This communication protocol supports multiple HMI to multiple PLC connection. However, it is still recommend connecting a maximum of two HMI to a PLC at a time. A connection of more than two HMI would cause low baud rate and time out error may occur.

3) In order to set Highest Station Address(HSA) click Option > Configuration > Special Parameter > Extra. The default setting for HSA is 31, max. value is 126 and Min. value is 2. The setting for HSA must be in consistent with PLC setting.



4) In “Communication” section, click on “Extra” setting, and update GUF coefficient of GAP in setting 2. The GUF coefficient is the frequency of the HMI checking the existence of controller within the communication network. If coefficient is larger, the frequency of update will be low, in another word, it takes longer waiting time for other devices to join the network. The default setting of GUF is 5, maximum value is 31 and minimum value is 1. If multiple HMI connections are required, it is recommended to lower GUF coefficient in order to shorten the waiting time of newly joined HMI and to prevent the error of “network can not be joined”.



5) PLC needs to enable DB memory (**DB**m.DBWn、**DB**m.DBDn、**DB**m.DBXn.b) before DB data can be read.

6) The valid digit of value for Timer is only up to 3 digits. If a value input is more than 3 digits, the Timer will regards the highest 3 (decimal) and replace the rest by 0. For example, a value 12345 will be written as 12300 in PLC.

7) The valid digit of value for Counter is to 3 digits. If a value input is more than 3 digits, the Counter will regards the first 3 digits and leave out the rest. For example, a value 12345 will be written as 123 in PLC.

Siemens S7 300 (ISO TCP)

HMI Factory Setting:

IP Address: 192.168.0.1

COM Port: 102

Control Area / Status Area: DBW0 / DBW20

Connection

Standard Jumper Cable / Network Cable without jumper (Auto-detected by HMI)

Definition of PLC Read/Write Address

a. Registers

Type	Format Word No.(n) Bank No.(m)	Read/Write Range	Data Length	Note
Input Image	**IW**n	**IW**0 – **IW**65534	Word	
	IDn	**ID**0 – **ID**65532	Double Word	
Output Image	**QW**n	**QW**0 – **QW**65534	Word	
	QDn	**QD**0 – **QD**65532	Double Word	
Internal Bits	**MW**n	**MW**0 – **MW**65534	Word	
	MDn	**MD**0 – **MD**65532	Double Word	
Data Area	**DB**m.DBWn	**DB**1.DBW0 – **DB**255.DBW65534	Word	1
	DBm.DBDn	**DB**1.DBD0 – **DB**255.DBW65532	Double Word	1
Data Area (DB10)	**DBW**n	**DBW**0 – **DBW**65534	Word	
	DBDn	**DBD**0 – **DBD**65532	Double Word	
	VWn	**VW**0 – **VW**65534	Word	
	VDn	**VD**0 – **VD**65532	Double Word	
Timer	**T**n	**T**0 – **T**65535	Word	2
Counter	**C**n	**C**0 – **C**65535	Double Word	3

b. Contacts

Type	Format	Read/Write Range	Note
	Word No.(n) Bank No.(m) Bit No.(b)		
Input Image	**I**n.b	**I**0.0 - **I**65535.7	
Output Image	**Q**n.b	**Q**0.0 - **Q**65535.7	
Internal Bits	**M**n.b	**M**0.0 - **M**65535.7	
Data Area	**DB**m.DBXn.b	**DB**1.DBX0.0 – **DB**255.DBX65535.7	
Data Area (DB10)	**DBX**n.b	**DBX**0.0 – **DBX**65535.7	
	Vn.b	**V**0.0 – **V**65535.7	

NOTE

1) PLC needs to enable DB memory (**DB**m.DBWn、**DB**m.DBDn、**DB**m.DBXn.b) before DB data can be read.

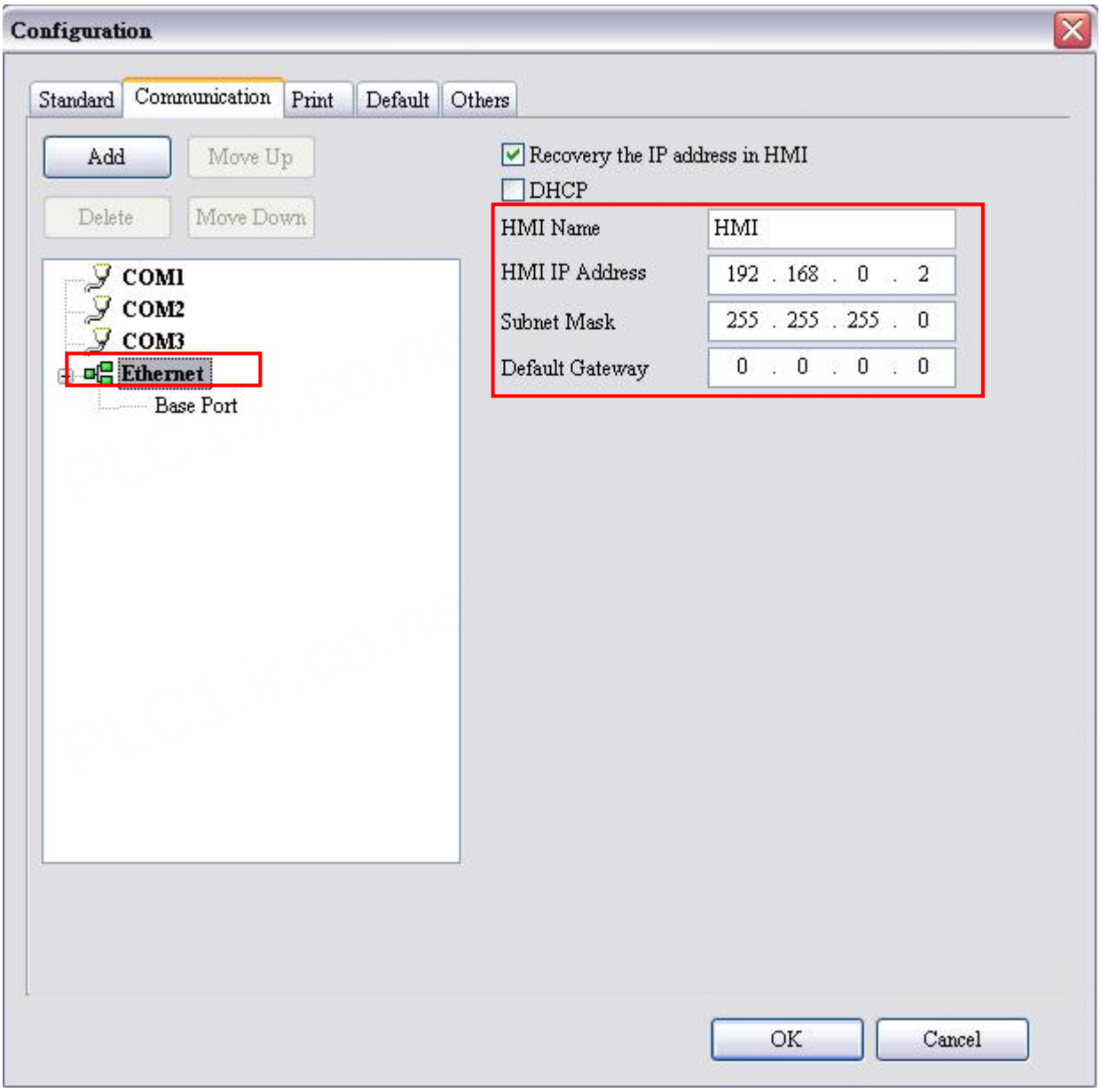
2) Timer reads only up to 3 digits. If a value input is more than 3 digits, the Timer will regards the highest 3 (decimal) and replace the rest by 0. For example, a value 12345 will be written as 12300 in PLC.

3) Counter reads only up to 3 digits. If a value input is more than 3 digits, the Counter will regards the first 3 digits and leave out the rest. For example, a value 12345 will be written as 123 in PLC.

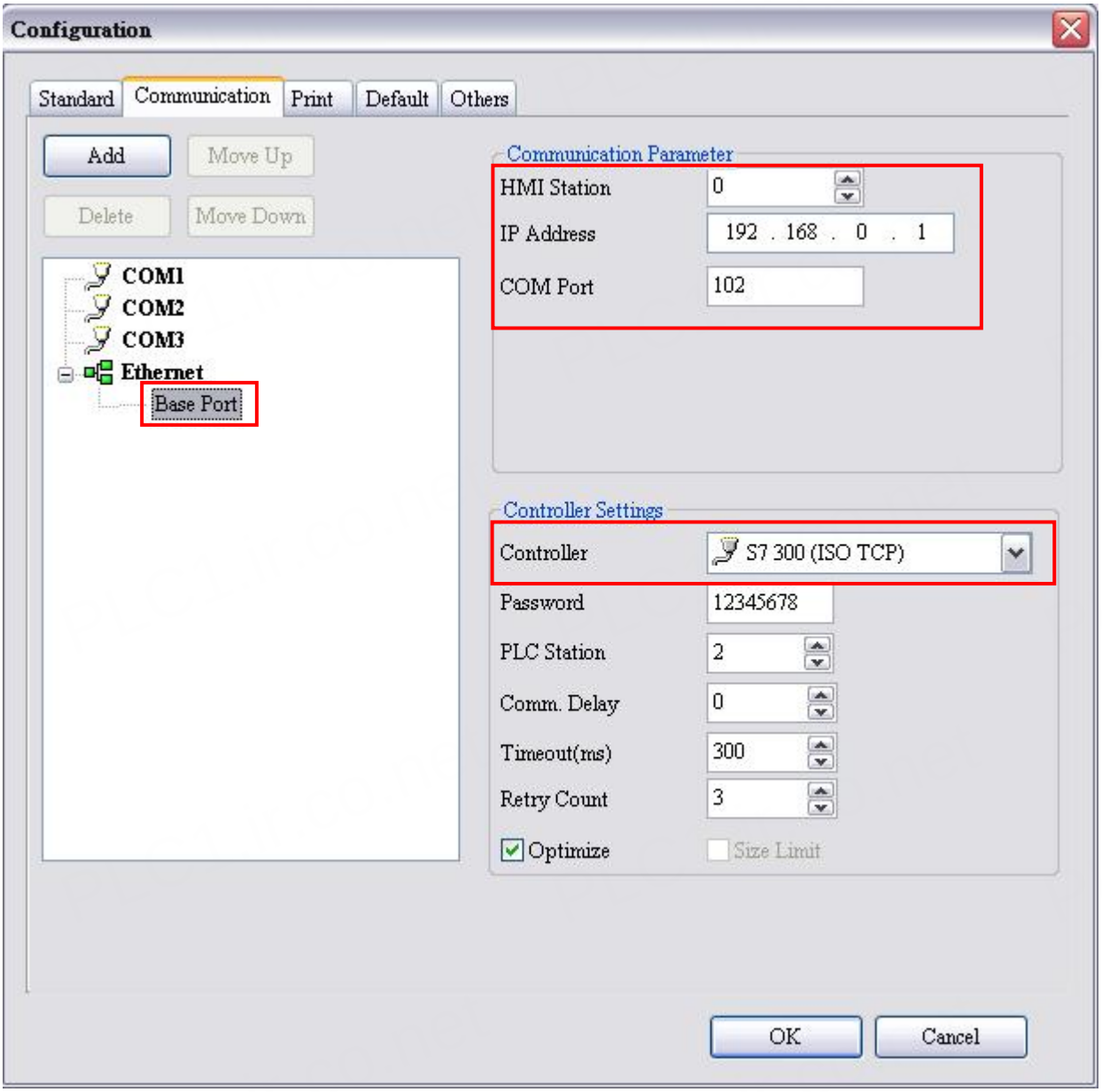
Settings

Screen Editor :

1. HMI Ethernet Setting



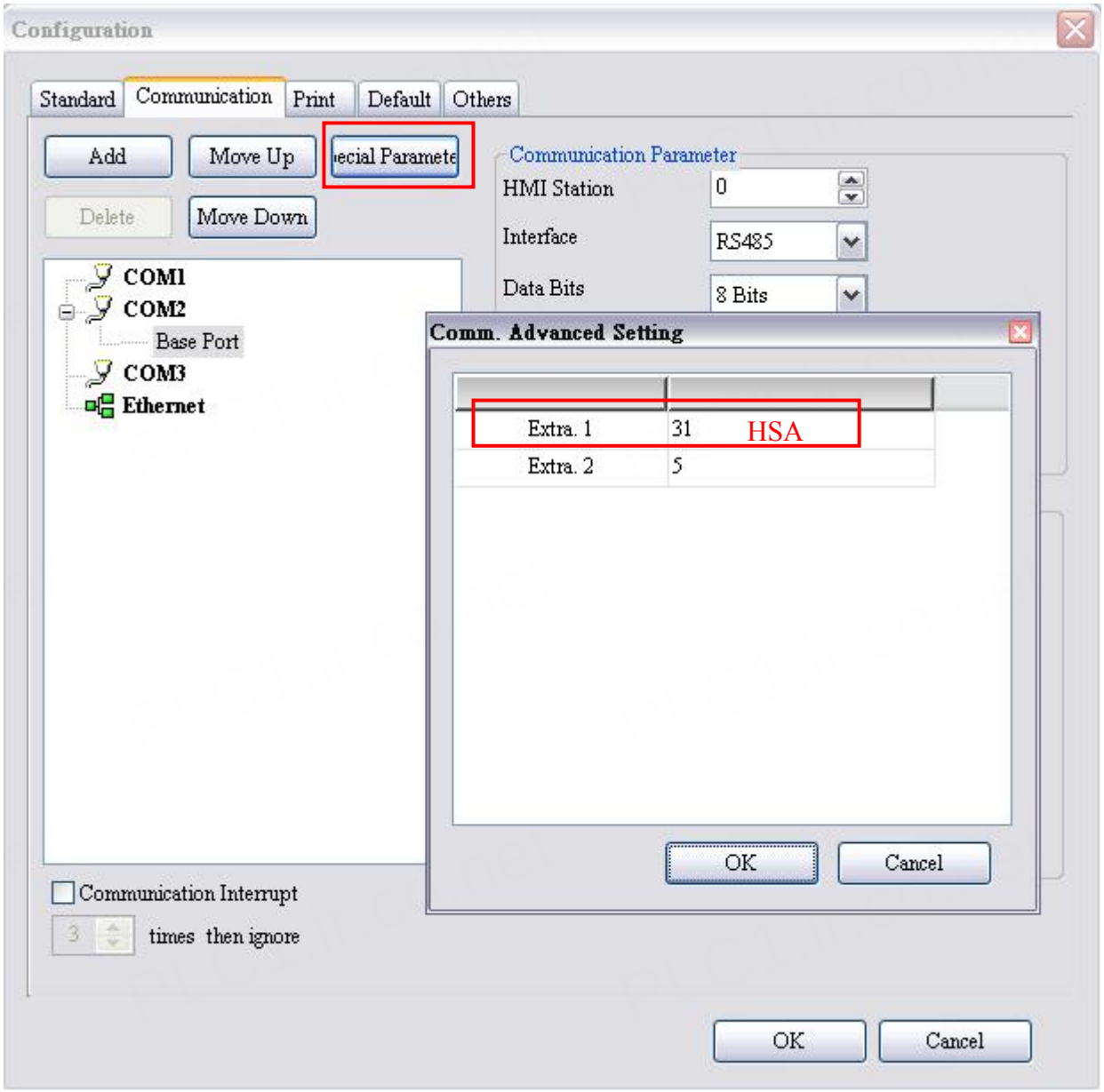
2. PLC Ethernet Setting



Simatic (V5.4) :

1. Right click on “CP343-1 Lean” module and select "Object Properties", on this page set up “IP address” and “Subnet mask” for CP343-1 Lean Module. Please be aware that the “IP address” setting must be the same as PLC Ethernet setting in Screen Editor and the “Subnet mask” setting must be the same as the HMI Ethernet setting in Screen Editor.
2. To add a new "Other station", right click on “Object Properties", add a new Interface and set the “Type” as “Industrial Ethernet”. To set up HMI “IP address” and “Subnet mask”, go to “Ethernet interface" > "Properties", please be aware that this setting must be the same as the HMI Ethernet setting in Screen Editor. As the setting is completed, left click on the green box above “Other station” and drag to link with the green line above.

3. Right click on the CPU module and select "Insert New Connection", for “Connection Partner” select “Unspecified” and for “Type” select “TCP connection”. Then go to "Properties - TCP connection" >"Options", and set “Mode” to “Fetch passive”; please follows the restriction for “Address” setting, set “Address” to Local Port No. must be the same as PLC Ethernet setting in Screen Editor, to Partner’s IP must be the same as HMI Ethernet setting in Screen Editor, but Port No. can be any Port No. depending on the structure of network connection.
4. Right click on another CPU to add a new “TCP connection” and repeats setting 3, except the “Mode”, go to “Options” > “Mode” and select “Write passive”.
5. After setting 1~4 is done, you will see two “TCP connection” at the bottom of PLC Ethernet setting page. PLC Ethernet setting is completed.
6. For detail on parameter setting, please refer to Siemens PLC user manual.



Siemens S7 300 (with PC adapter)

HMI Factory Setting:

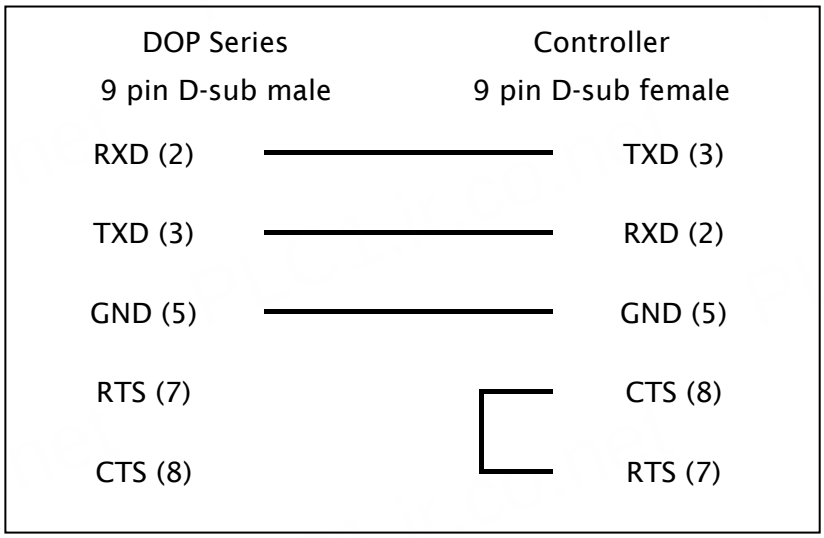
Baud rate: 19200, 8, Even, 1

Controller Station Number: 2(Note1, Note2, Note3)

Control Area / Status Area: DBW0/DBW20

Connection

a. RS-232 (via PC adapter) (DOP-A/AE/AS, DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n) Bank No.(m)			
Input Image	**IW**n	**IW**0 – **IW**65534	Word	
	IDn	**ID**0 – **ID**65532	Double Word	
Output Image	**QW**n	**QW**0 – **QW**65534	Word	
	QDn	**QD**0 – **QD**65532	Double Word	
Internal Bits	**MW**n	**MW**0 – **MW**65534	Word	
	MDn	**MD**0 – **MD**65532	Double Word	
Data Area	**DB**m.DBWn	**DB**1.DBW0 – **DB**255.DBW65534	Word	4

b. Contacts

Type	Format Word No.(n) Bank No.(m) Bit No.(b)	Read/Write Range	Note
Input Image	**I**n.b	**I**0.0 - **I**65535.7	
Output Image	**Q**n.b	**Q**0.0 - **Q**65535.7	
Internal Bits	**M**n.b	**M**0.0 - **M**65535.7	
Data Area	**DB**m.DBXn.b	**DB**1.DBX0.0 – **DB**255.DBX65535.7	4
Data Area (DB10)	**DBX**n.b	**DBX**0.0 – **DBX**65535.7	
	Vn.b	**V**0.0 – **V**65535.7	

NOTE

1) Communication via PC adapter, PLC station will not be used, therefore, only 1(HMI) to 1 (PLC) communication is allowed.

2) Baud rate setting of PLC must be 187.5kps or above (but not 19.2kps). For HMI, the baud rate can only be 19.2kbps or 28.4kbps (by the Switch setting of PC adapter).

3) Set up both ends of PC adapter for PLC connection and HMI connection (one end to one connection). Once PLC is connected, the Power LED signal will be on instantly and the LED signal would blink only during the communication. If communication failure occurs, the LED signal will remain off.

4) PLC needs to enable DB memory (**DB**m.DBWn、**DB**m.DBDn、**DB**m.DBXn.b) before DB data can be read.

5) Timer reads only up to 3 digits. If a value input is more than 3 digits, the Timer will regards the highest 3 (decimal) and replace the rest by 0. For example, a value 12345 will be written as 12300 in PLC.

6) Counter reads only up to 3 digits. If a value input is more than 3 digits, the Counter will regards the first 3 digits and leave out the rest. For example, a value 12345 will be written as 123 in PLC.

Siemens S7 300 (without PC adapter)

HMI Factory Setting:

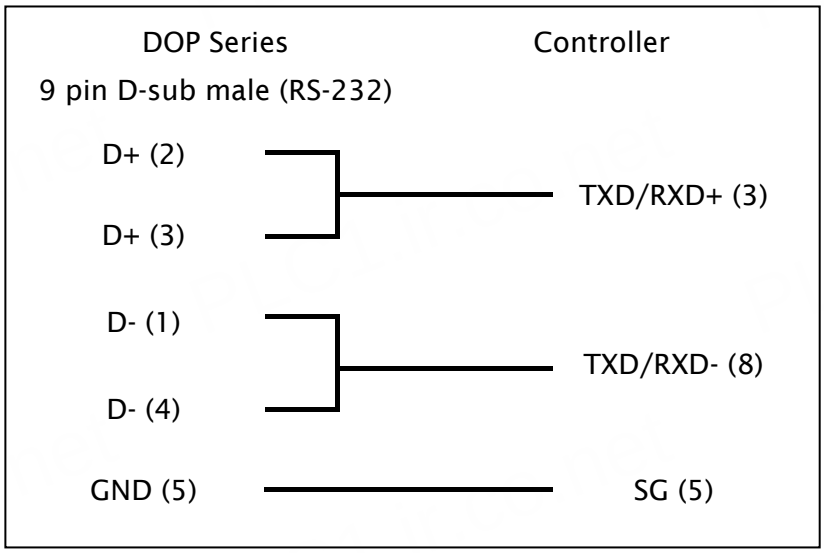
Baud rate: 19200, 8, Even, 1 (RS-485) (Note1)

Controller Station Number: 2(Note2, Note3, Note4)

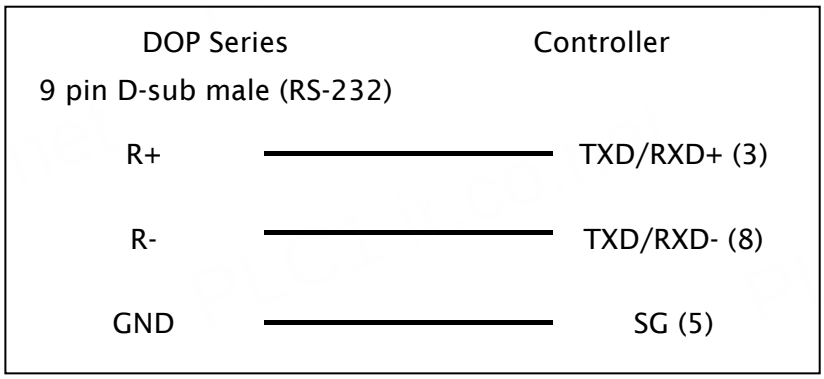
Control Area / Status Area: DBW0/DBW20

Connection

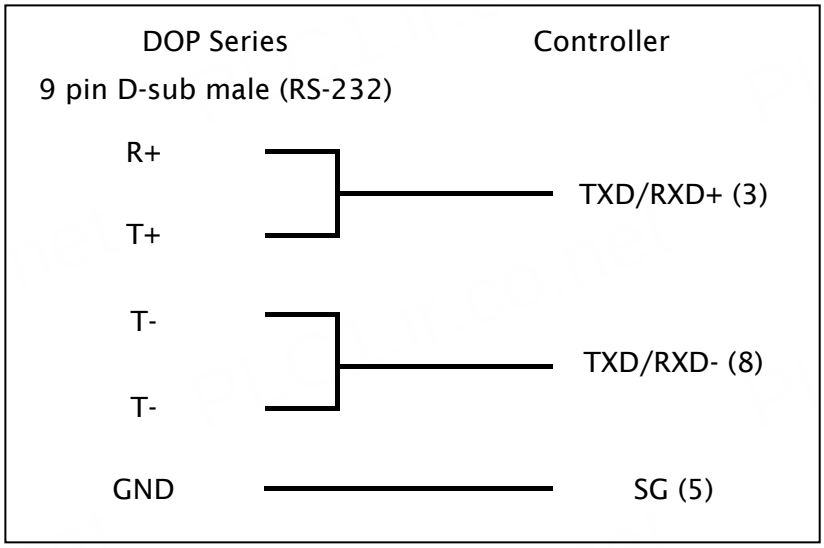
a. RS-485 (DOP-A/AE Series)



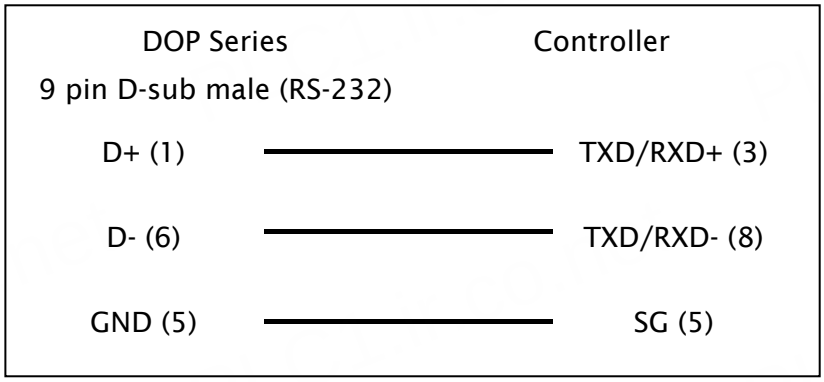
b. RS-485 (DOP-AS57 Series)



c. RS-485 (DOP-AS35/AS38 Series)



d. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n) Bank No.(m)			
Input Image	**IW**n	**IW**0 – **IW**65534	Word	
	IDn	**ID**0 – **ID**65532	Double Word	
Output Image	**QW**n	**QW**0 – **QW**65534	Word	
	QDn	**QD**0 – **QD**65532	Double Word	
Internal Bits	**MW**n	**MW**0 – **MW**65534	Word	
	MDn	**MD**0 – **MD**65532	Double Word	
Data Area	**DB**m.DBWn	**DB**1.DBW0 – **DB**255.DBW65534	Word	5
	DBm.DBDn	**DB**1.DBD0 – **DB**255.DBW65532	Double Word	5

Type	Format Word No.(n) Bank No.(m)	Read/Write Range	Data Length	Note
Data Area (DB10)	**DBW**n	**DBW**0 – **DBW**65534	Word	
	DBDn	**DBD**0 – **DBD**65532	Double Word	
	VWn	**VW**0 – **VW**65534	Word	
	VDn	**VD**0 – **VD**65532	Double Word	
Timer	**T**n	**T**0 – **T**65535	Word	6
Counter	**C**n	**C**0 – **C**65535	Double Word	6

b. Contacts

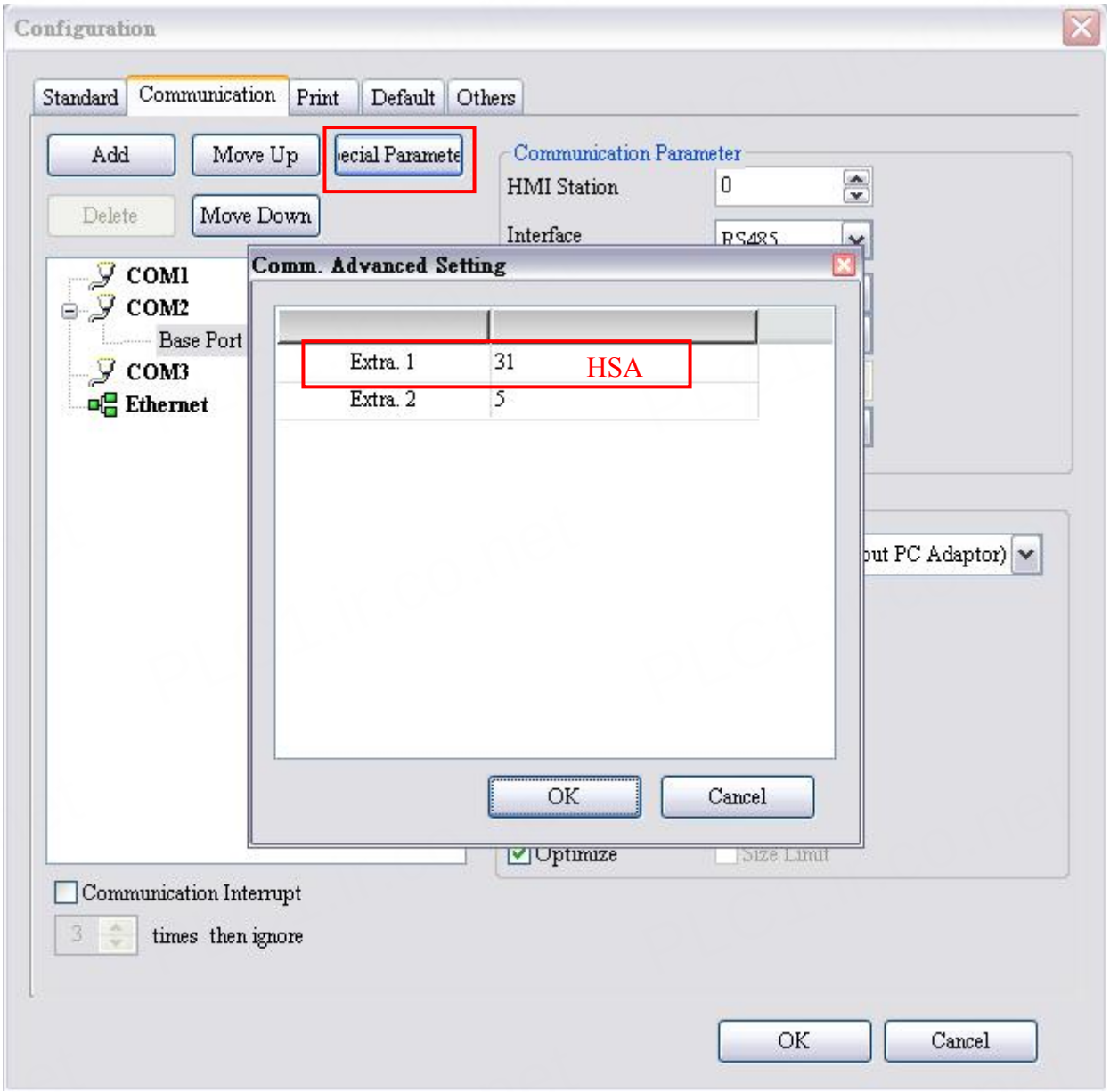
Type	Format Word No.(n) Bank No.(m) Bit No.(b)	Read/Write Range	Note
Input Image	**I**n.b	**I**0.0 – **I**65535.7	
Output Image	**Q**n.b	**Q**0.0 – **Q**65535.7	
Internal Bits	**M**n.b	**M**0.0 – **M**65535.7	
Data Area	**DB**m.DBXn.b	**DB**1.DBX0.0 – **DB**255.DBX65535.7	5
Data Area (DB10)	**DBX**n.b	**DBX**0.0 – **DBX**65535.7	
	Vn.b	**V**0.0 – **V**65535.7	

NOTE

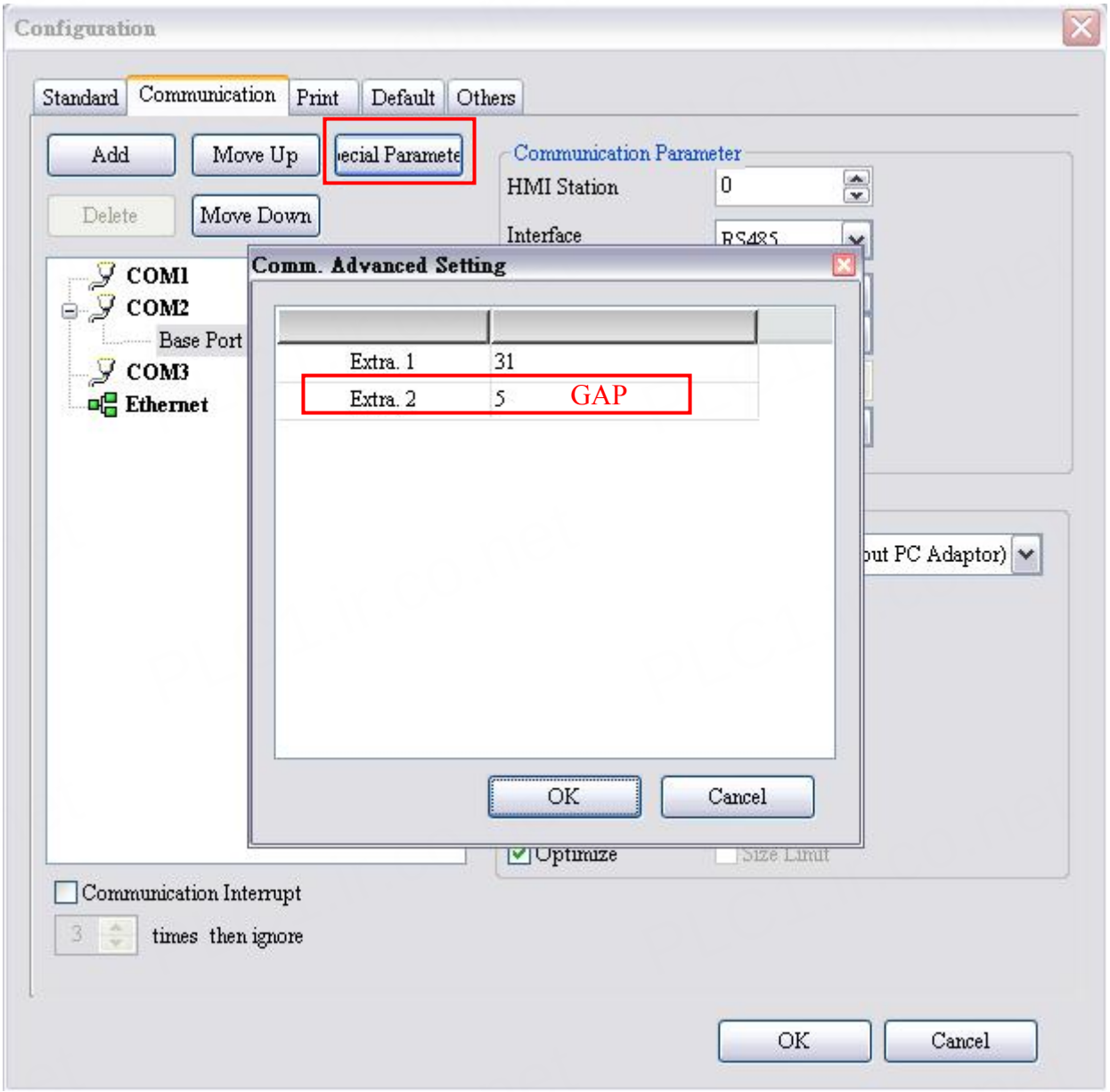
1) This communication protocol only supports 19200 bps. Only one COM port can use this communication protocol for one project (it supports COM2 and COM3 ports, but it does not support COM1 port).

2) This communication protocol supports multiple HMI to multiple PLC connection. However, it is still recommend connecting a maximum of four HMI to a PLC at a time. A connection of more than four HMI would cause low baud rate and time out error may occur.

3) In order to set Highest Station Address(HSA) click Option > Configuration > Communication > Special Parameters> Extra. The default setting for HSA is 31, max. value is 126 and Min. value is 2. The setting for HSA must be in consistent with PLC setting.



4) In “Special Parameter”, click on “Extra” to update GUF coefficient of GAP in setting 2. The GUF coefficient is the frequency of the HMI checking the existence of controller within the communication network. If coefficient is larger, the frequency of update will be low, in another word, it takes longer waiting time for other devices to join the network. The default setting of GUF is 5, maximum value is 31 and minimum value is 1. If multiple HMI connections are required, it is recommended to lower GUF coefficient in order to shorten the waiting time of newly joined HMI and to prevent the error of “network can not be joined”.



5) PLC needs to enable DB memory (**DB**m.DBWn、**DB**m.DBDn、**DB**m.DBXn.b) before DB data can be read.

6) The valid digit of value for Timer is only up to 3 digits. If a value input is more than 3 digits, the Timer will regards the highest 3 (decimal) and replace the rest by 0. For example, a value 12345 will be written as 12300 in PLC.

7) The valid digit of value for Counter is to 3 digits. If a value input is more than 3 digits, the Counter will regards the first 3 digits and leave out the rest. For example, a value 12345 will be written as 123 in PLC.

Taian TP02 PLC

HMI Factory Setting:

Baud rate: 19200, 7, None, 1

Controller Station Number: 1

Control Area / Status Area: V1 / V10

Connection

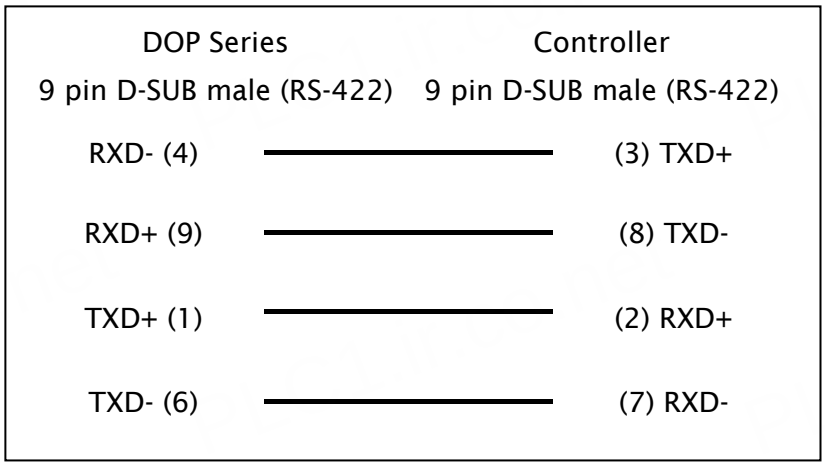
a. RS-422 (DOP-A/AE Series)

DOP Series		Controller
9 pin D-SUB male (RS-422)		9 pin D-SUB male (RS-422)
RXD+ (2)	———	(3) TXD+
RXD- (1)	———	(8) TXD-
TXD+ (3)	———	(2) RXD+
TXD- (4)	———	(7) RXD-

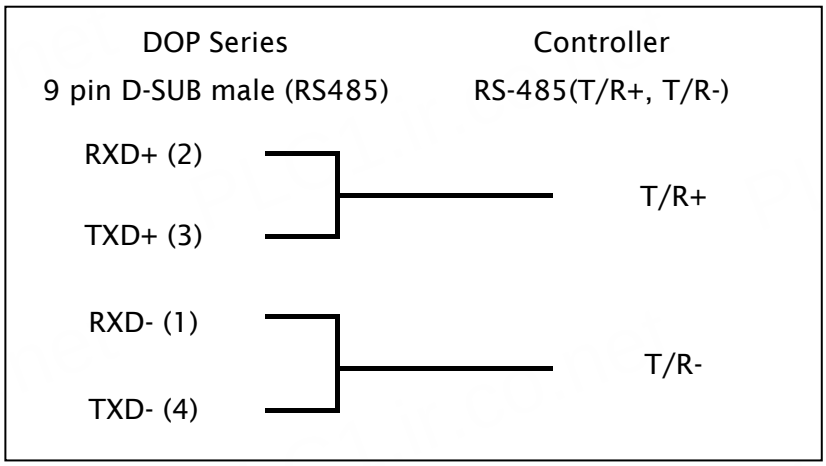
b. RS-422 (DOP-AS35/AS38/AS57 Series)

DOP Series		Controller
Terminal Block(RS-422)		9 pin D-SUB male (RS-422)
R+	———	(3) TXD+
R-	———	(8) TXD-
T+	———	(2) RXD+
T-	———	(7) RXD-

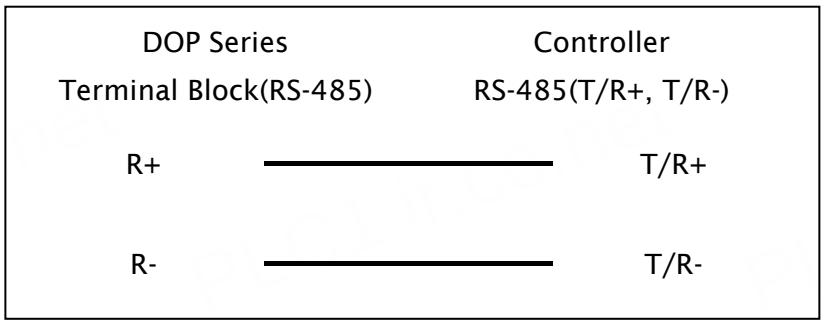
c. RS-422 (DOP-B Series)



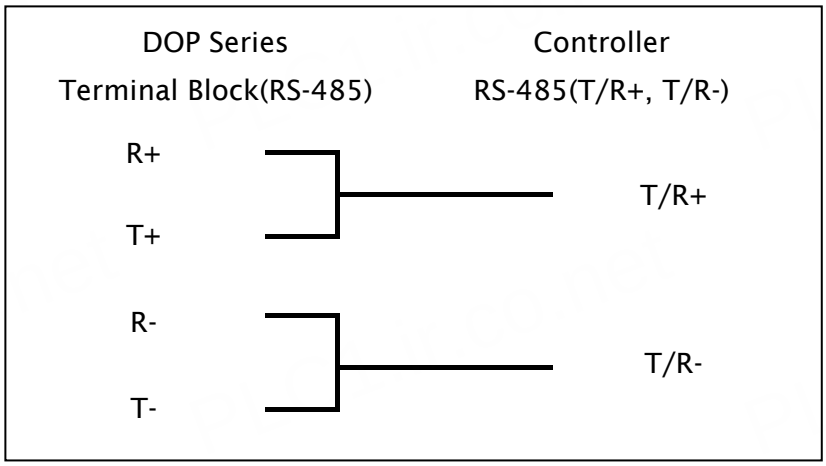
d. RS-485 (DOP-A/AE Series)



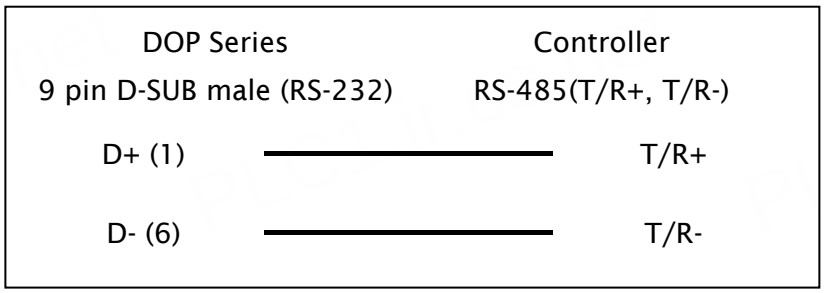
e. RS-485 (DOP-AS57 Series)



f. RS-485 (DOP-AS35/AS38 Series)



g. RS-485 (DOP-B Series)



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n)			
WORD_DEVICE_X	**X**n	**X**1 – **X**384	Word	1
WORD_DEVICE_Y	**Y**n	**Y**1 – **Y**384	Word	1
WORD_DEVICE_C	**C**n	**C**1 – **C**2048	Word	1
WORD_DEVICE_V	**V**n	**V**1 – **V**1024	Word	
WORD_DEVICE_D	**D**n	**D**1 – **D**2048	Word	
WORD_DEVICE_WS	**WS**n	**WS**1 – **WS**128	Word	
WORD_DEVICE_WC	**WC**n	**WC**1 – **WC**912	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No.(b)		
BIT_DEVICE_X	**X**b	**X**1 – **X**384	
BIT_DEVICE_Y	**Y**b	**Y**1 – **Y**384	
BIT_DEVICE_C	**C**b	**C**1 – **C**2048	
BIT_DEVICE_SC	**SC**b	**SC**1 – **SC**128	

NOTE

1) The device address must be the multiple of 16 plus 1.

Toshiba V Series Computer Link

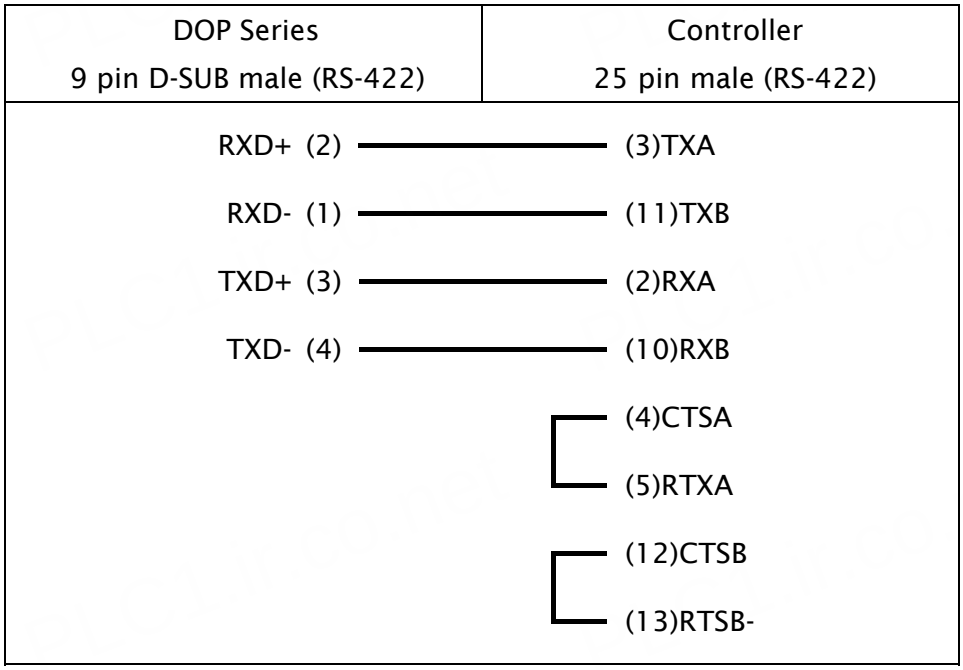
HMI Factory Setting:

Baud rate: 9600, 8, Odd, 1

Controller Station Number: 1 (Note1)

Control Area / Status Area: D0 / D10

Connection



Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No. (n)			
External Input Register	**XW**n	**XW**0 – **XW**8191	Word	
External Output Register	**YW**n	**YW**0 – **YW**8191	Word	
Special Register	**SW**n	**SW**0 – **SW**511	Word	
Auxiliary Register	**RW**n	**RW**0 – **RW**4095	Word	
Data Register	**D**n	**D**0 – **D**4095	Word	
File Register	**F**n	**F**0 – **F**32767	Word	2, 3

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No. (b)		
External Input Device	**X**n**b**	**X**00000 – **X**8191**F**	
External Output Device	**Y**n**b**	**Y**00000 – **Y**8191**F**	
Special Device	**S**n**b**	**S**000**0** – **X**511**F**	
Auxiliary Device	**R**n**b**	**R**00000 – **R**4095**F**	

NOTE

1) The valid controller station number is in the range of 1~32.

2) V2000- S2PU22/ S2PU32/ S2PU72 series do not support File Register.

3) V2000- S2PU82, V3000 series support File Register.

Vigor M Series

HMI Factory Setting:

Baud rate: 19200, 7, Even, 1
Controller Station Number: 0 (Note1)
Control Area / Status Area: D0 / D10

Connection

a. RS-232 (DOP-A/AE/AS, DOP-B Series)

PROGRAMMER PORT

DOP Series 9 pin D-SUB (RS-232)		Controller USB TAPE A Connector
RXD (2)	———	(3) TXD
TXD (3)	———	(2) RXD
GND (5)	———	(4) GND

COM PORT

DOP Series 9 pin D-SUB (RS-232)		Controller 9 pin D-SUB female (RS-232)
RXD (2)	———	(3) TXD
TXD (3)	———	(2) RXD
GND (5)	———	(5) GND

Definition of PLC Read/Write Address

a. Registers

Type	Format Word No.(n)	Read/Write Range	Data Length	Note
Input Relay	**X**n	**X**0 – **X**770	Word	Multiple of 8, 2
Output Relay	**Y**n	**Y**0 – **Y**770	Word	Multiple of 8, 2
Auxiliary Relay	**M**n	**M**0 – **M**5112	Word	2

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n)			
Special Relay	**M**n	**M**9000 – **M**9248	Word	3
Step Relay	**S**n	**S**0 – **S**992	Word	2
Timer Present Value	**T**n	**T**0 – **T**255	Word	
16-bit Counter Present Value	**C**n	**C**0 – **C**199	Word	
32-bit Counter Present Value	**C**n	**C**200 – **C**255	Word	
Data Register	**D**n	**D**0 – **D**8191	Word	
Special Data Register	**D**n	**D**9000 – **D**9248	Word	

b. Contacts

Type	Format	Read/Write Range	Note
	Bit No.(b)		
Input Relay	**X**b	**X**0 – **X**777	Octal
Output Relay	**Y**b	**Y**0 – **Y**777	Octal
Auxiliary Relay	**M**b	**M**0 – **M**5119	
Special Relay	**M**b	**M**9000 – **M**9255	
Step Relay	**S**b	**S**0 – **S**999	
Timer Contact	**T**b	**T**0 – **T**255	
Counter Contact	**C**b	**C**0 – **C**255	
Timer Coil	**TC**b	**TC**0 – **TC**255	
Counter Coil	**CC**b	**CC**0 – **CC**255	

NOTE

1) Controller Station Number :
   0: PROGRAMMER PORT, 1: COM PORT
2) The device address must be the multiple of 8.
3) The device address must be 9000 plus the multiple of 8.
4) VB Series is suitable for this driver.

VIPA PLC

(Same as Siemens S7 300 PLC (with PC Adaptor))

YOKOGAWA ACE PLC

HMI Factory Setting:

Baud rate: 9600, 8, Even, 1 (ASCII mode)

Controller Station Number: 1

CPU No (HMI Station Number) : 0 (Note2)

Control Area / Status Area: D1 / D10

Connection

a. **RS-232 (DOP-A/AE/AS, DOP-B Series)**

It requires specific cable of YOKOGAWA ACE PLC

DOP Series 9 pin D-SUB (RS-232)		Controller (RS-232 for YOKOGAWA)
RXD (2)	———	TXD (1)
TXD (3)	———	RXD (2)
GND (5)	———	GND (5)

Definition of PLC Read/Write Address

a. Registers

Type	Format Word No.(n)	Read/Write Range	Data Length	Note
WORD_DEVICE_X	**X**n	**X**201 – **X**65464	Word	3
WORD_DEVICE_Y	**Y**n	**Y**201 – **Y**65464	Word	3
WORD_DEVICE_I	**I**n	**I**1 – **I**16384	Word	4
WORD_DEVICE_E	**E**n	**E**1 – **E**4096	Word	4
WORD_DEVICE_L	**L**n	**L**1 – **L**65488	Word	4
WORD_DEVICE_M	**M**n	**M**1 – **M**9984	Word	4
WORD_DEVICE_TP	**TP**n	**TP**1 – **TP**3072	Word	
WORD_DEVICE_CP	**CP**n	**CP**1 – **CP**3072	Word	
WORD_DEVICE_D	**D**n	**D**1 – **D**8192	Word	
WORD_DEVICE_B	**B**n	**B**1 – **B**32768	Word	
WORD_DEVICE_W	**W**n	**W**1 – **W**65499	Word	
WORD_DEVICE_Z	**Z**n	**Z**1 – **Z**512	Word	
WORD_DEVICE_V	**V**n	**V**1 – **V**64	Word	

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n)			
WORD_DEVICE_R	**R**n	**R**1 – **R**4096	Word	
WORD_DEVICE_TS	**TS**n	**TS**1 – **TS**3072	Word	
WORD_DEVICE_CS	**CS**n	**CS**1 – **CS**3072	Word	

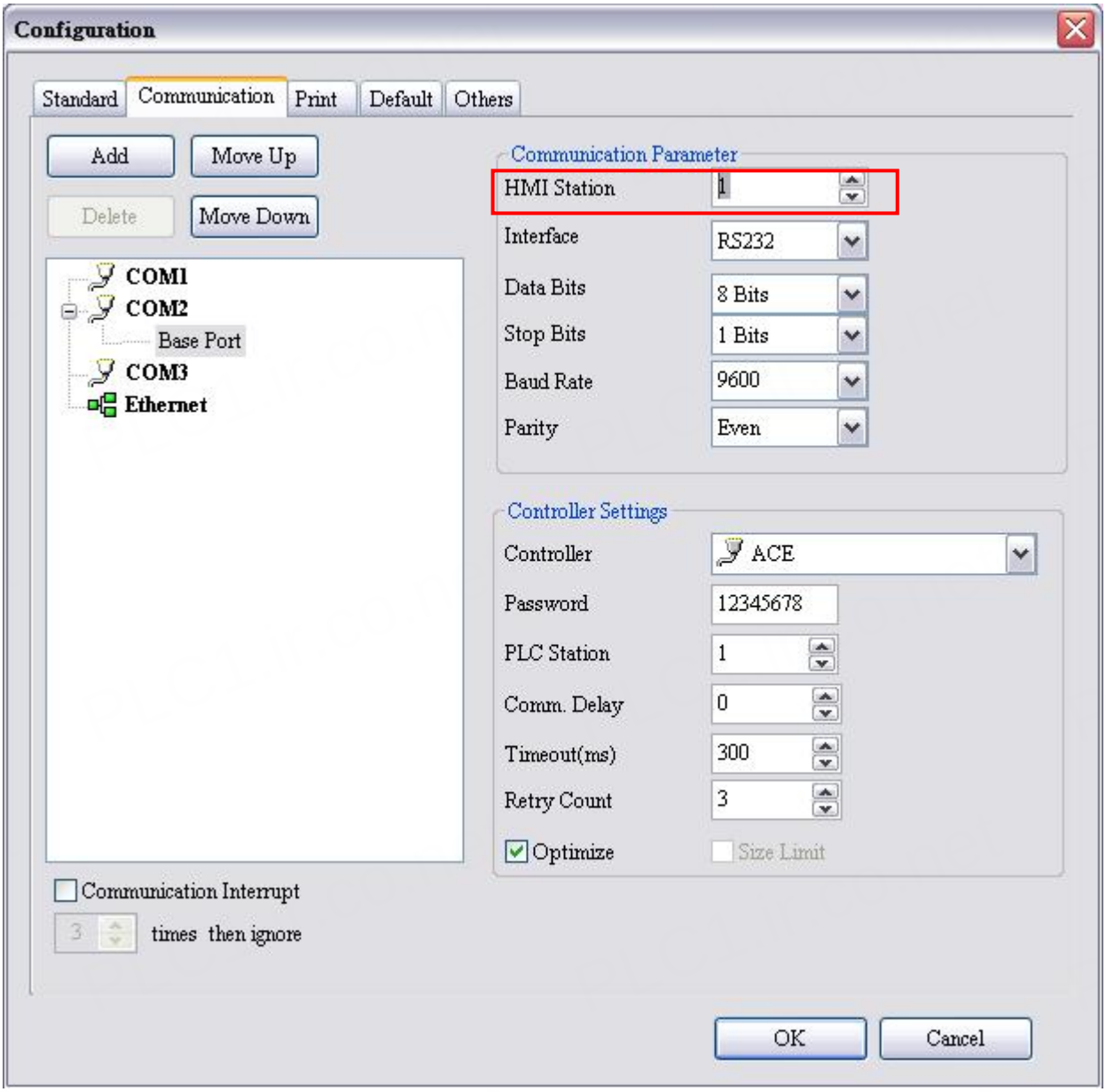
b. Contacts

Type	Format	Read/Write Range	Note
	Bit No.(b)		
Input Relay	**X**b	**X**0 – **X**777	Octal
Output Relay	**Y**b	**Y**0 – **Y**777	Octal
BIT_DEVICE_X	**X**b	**X**201 – **X**65464	3
BIT_DEVICE_Y	**Y**b	**Y**201 – **Y**65464	3
BIT_DEVICE_I	**I**b	**I**1 – **I**16384	
BIT_DEVICE_E	**E**b	**E**1 – **E**4096	
BIT_DEVICE_L	**L**b	**L**1 – **L**65488	
BIT_DEVICE_M	**M**b	**M**1 – **M**9984	
BIT_DEVICE_TU	**TU**b	**TU**1 – **TU**3072	
BIT_DEVICE_CU	**CU**b	**CU**1 – **CU**3072	

NOTE

1) Set the PLC to “not using Checksum” and “not using End character”.

2) CPU number in this communication protocol represents HMI Station Number, the setting of CPU number must be greater than 1.



3) The last two digits of the device address must be the multiple of 16 + 1 but less than 65.

4) The device address must be the multiple of 16 + 1.