9. Communication with PLC and PWS

Note：『The Register and Range of Relay Numbers』 in this document refers to the range of the setup in ADP. In practice, please also make sure not to exceed the maximum of the range defined by the PLC-CPU in use. Otherwise, it will cause communication error.

This chapter provides the current information on the settings of the supported PLCs as of this writing. As PLC vendors continue to release new models, the data capacity, the data range and the drivers of the PLCs are also often changed. For the latest information, user can contact HITECH.

Communication Format: To properly communicate between PLC snd PWS, the setting of [Communication Format], [Station], [Baud Speed],[Data Format] must be consistence. Before connection, please adjust the settting of PWS'and PLC's communication parameters and dip-switch.

9.1. AB Micrologic 1000/1500

1. The data setting and range of PLC which ADP can access : Word Decive

Register Type	Format	Range with the Register	Device Type / Aux. ddress		Data Size R/W	
Output file	O:0.n	n=0-3	0	0	Word	✓
Input file	I:1.n	n=0-3	1	0	Word	✓
Status file	S2:nn	nn=0-65	2	2	Word	✓
Bit file	B3:nnn	nnn=0-254	3	3	Word	✓
Timer flag	T4:nnn	nnn=0-254	4	4	Word	✓
Timer Preset Value	T4:nnn.pre	nnn=0-254	5	4	Word	✓
Timer Accumulator Value	T4:nnn.acc	nnn=0-254	6	4	Word	✓
Counter flag	C5:nnn	nnn=0-254	7	5	Word	✓
Counter Preset Value	C5:nnn.pre	nnn=0-254	8	5	Word	✓
Counter Accumulator Value	C5:nnn.acc	nnn=0-254	9	5	Word	✓
Control file	R6:nnn	nnn=0-254	10	6	Word	✓
Control Size of 位元 Array	R6:nnn.len	nnn=0-254	11	6	Word	✓
Control Reserved file	R6:nnn.pos	nnn=0-254	12	6	Word	✓
Integer file	N7:nnn	nnn=0-254	13	7	Word	✓
Floating point number	F8:nnn	nnn=0-254	14	8	Word	✓

**The HMI does not support block read for the registers in TIMER, COUNTER AND CONTROL FILES.
** One should open the files in PLC which the HMI will access.

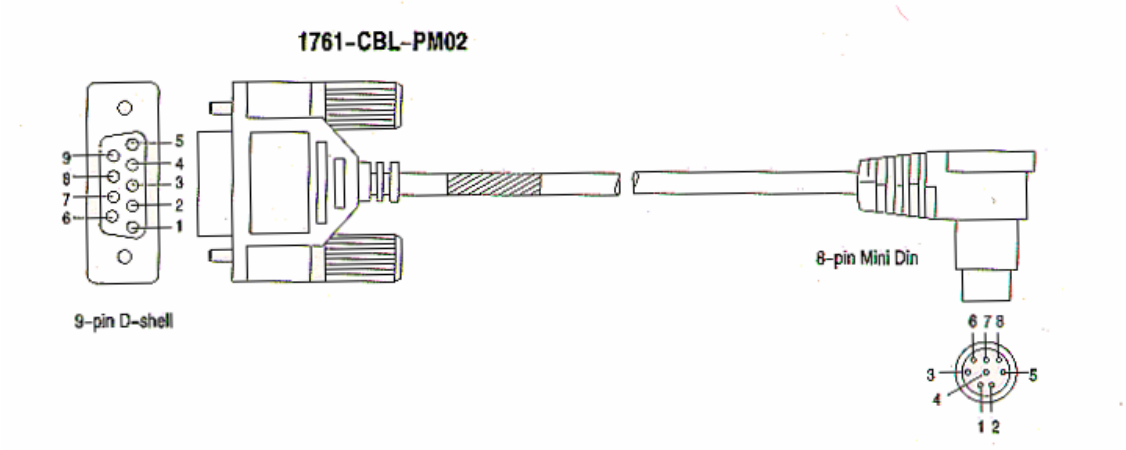
2. The data format and range of the PLC ON/OFF location which ADP can access : Dip Device.

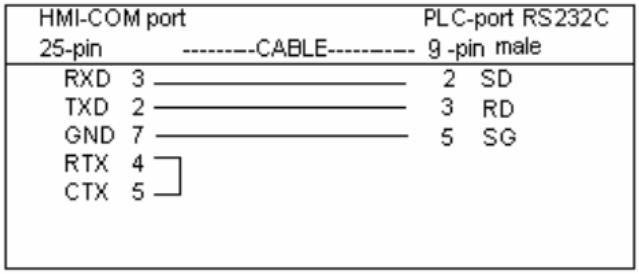
Relay Type	Format	Range with the Relay	Device Type / Aux. ddress		Data Size R/W	
Output	O:0.n/bb	n=0-3; bb=0-15	0xC0	0-15	Word	✓
Input	I:1.n/bb	n=0-3; bb=0-15	0xC1	0-15	Word	✓
Status	S2:nn/bb	nn=0-65; bb=0-15	0xC2	0-15	Word	✓
Bit	B3:nnn/bb	nnn=0-254; bb=0-15	0xC3	0-15	Word	✓

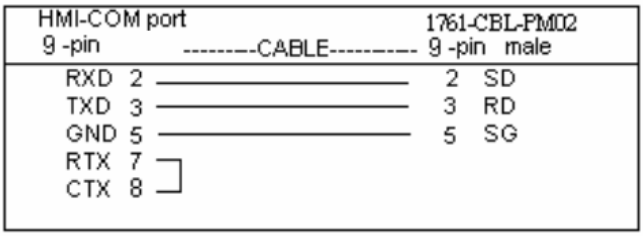
Relay Type	Format	Range with the Relay	Device Type / Aux. ddress		Data Size R/W	
Timer	T4:nnn/bb	nnn=0-254; bb=0-15	0xC4	0-15	Word	✓
Timer Preset Value	T4:nnn.pre/bb	nnn=0-254; bb=0-15	0xC5	0-15	Word	✓
Timer Accumulator Value	T4:nnn.acc/bb	nnn=0-254; bb=0-15	0xC6	0-15	Word	✓
Counter flag	C5:nnn/bb	nnn=0-254; bb=0-15	0xC7	0-15	Word	✓
Counter Preset Value	C5:nnn.pre/bb	nnn=0-254; bb=0-15	0xC8	0-15	Word	✓
Counter Accumulator Value	C5:nnn.acc/bb	nnn=0-254; bb=0-15	0xC9	0-15	Word	✓
Control	R6:nnn/bb	nnn=0-254; bb=0-15	0xCA	0-15	Word	✓
Control Size of Bit Array	R6:nnn.len/bb	nnn=0-254; bb=0-15	0xCB	0-15	Word	✓
Control Reserved	R6:nnn.pos/bb	nnn=0-254; bb=0-15	0xCC	0-15	Word	✓
Integer	N7:nnn/bb	nnn=0-254; bb=0-15	0xCD	0-15	Word	✓

** The Workstation does not support block read for the bits in TIMER, COUNTER and CONTROL FILES.

3. The illustration of the connection: PWS to RS232C of PLC 1761-CBL-PM02







4. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C	COM2=RS232/422/485 1. When use for RS422, set Dip switch SW10=OFF. 2. When use for RS485, set switch SW10=ON 2.
b. Node Address		1.Set PLC Station No. N in ADP
c. Transmission Speed	19200 bps	1. If Dip switch SW5=OFF, set it up in ADP. 2. If Dip switch SW5=ON, set it up in PWS.
d. Transmission Format	1．Size：8-bit	
	2．Parity：NONE	
	3．Stop bit：1-bit	
e. Com Port	FULL DUPLEX	
f. CRC ERROR Check	YES	

9.2. AB PLC-5

1. The data format and range of the PLC registers which the ADP can accress : Word Device.

Register Type	Format	Range With the Register	Data Size
Output file	O:nnn	nnn= 0-277	Word
Input file	I:nnn	nnn= 0-277	Word
Status file	S:nnn	nnn=0-127	Word
Bit file	Bfff:nnn B:nnn	fff= 3 or 9-999; default file is 3 if fff omitted; nnn=0-999	Word
Timer file	Tfff:nnn T:nnn Tfff:nnn.PRE T:nnn.PRE Tfff:nnn.ACC T:nnn.ACC	fff= 4 or 9-999; default file is 4 if fff omitted; nnn=0-999	Word
Counter file	Cfff:nnn C:nnn Cfff:nnn.PRE C:nnn.PRE Cfff:nnn.ACC C:nnn.ACC	fff=5 or 9-999; default file is 5 if fff omitted; nnn=0-999	Word
Control file	Rfff:nnn R:nnn Rfff:nnn.LEN R:nnn.LEN Rfff:nnn.POS R:nnn.POS	fff=6 or 9-999; default file is 6 if fff omitted; nnn=0-999	Word
Integer file	Nfff:nnn N:nnn	fff=7 or 9-999; default file is 7 if fff omitted; nnn=0-999	Word

** The HMI can read up to 30 words in one read command. The HMI does not support block read for the registers in TIMER, COUNTER AND CONTROL FILES. One should open the files in PLC which the HMI will access.

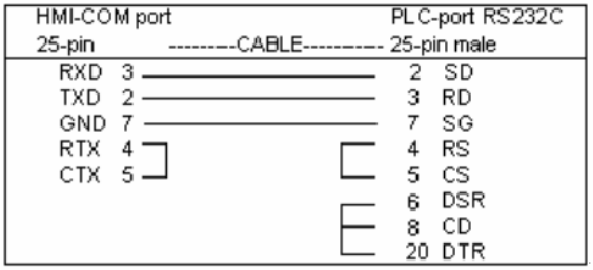
2. The data format and range of the PLC ON/OFF location which the ADP can accress : Bit Device.

Relay Typ	Format	Range
Output file	O:nnn/bb	nnn= 0-277; bb= 0-17
Input file	I:nnn/bb	nnn= 0-277; bb= 0-17
Status file	S:nnn/bb	nnn= 0-127; bb= 0-15
Bit file	Bfff:nnn/bb	fff= 3 or 9-999; default file is 3 if fff omitted;

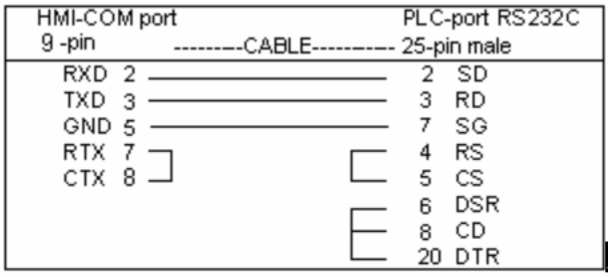
Relay Typ	Format	Range
		nnn=0-999; bb=0-15
Timer file	Tfff:nnn/bb Tfff:nnn.PRE/bb Tfff:nnn.ACC/bb Tfff:nnn/EN Tfff:nnn/TT Tfff:nnn/DN	fff= 4 or 9-999; default file is 4 if fff omitted; nnn=0-999; bb=0-15
Counter file	Cfff:nnn/bb Cfff:nnn.PRE/bb Cfff:nnn.ACC/bb Cfff:nnn/CC Cfff:nnn/CD Cfff:nnn/DN Cfff:nnn/OV Cfff:nnn/UN Cfff:nnn/UA	fff=5 or 9-999; default file is 5 if fff omitted; nnn=0-999; bb=0-15
Control file	Rfff:nnn/bb Rfff:nnn.LEN/bb Rfff:nnn.POS/bb Rfff:nnn/EN Rfff:nnn/EU Rfff:nnn/DN Rfff:nnn/EM Rfff:nnn/ER Rfff:nnn/UL Rfff:nnn/IN Rfff:nnn/FD	fff=6 or 9-999; default file is 6 if fff omitted; nnn=0-999; bb=0-15
Integer file	Nfff:nnn/bb	fff=7 or 9-999; default file is 7 if fff omitted; nnn=0-999; bb=0-15

** The HMI can read up to 480 bits in one read command. The HMI does not support block read for the bits in TIMER, COUNTER AND CONTROL FILES.

3. The illustration of the connection: PWS to RS232C of PLC PLC-5



9. Communication with PLC and PWS



4. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C PLC-5	COM2=RS232/422/485 1. When use for RS422, set Dip switch SW10=OFF 2. When use for RS485, set switch SW10=ON
b. Node Address	N	1. Set PLC Station No. N in ADP
c. Transmission Speed	9600/19200 bps	
d. Transmission Format	1.Size 8-bit 2.Parity NONE 3.Stop bit 1-bit	
e. SLC-503/504	FULL DUPLEX	
f. BCC ERROR Check	YES	

9.3. AB SLC-503/504

1. The data format and range of the PLC registers which the ADP can accress : Word Device.

Register Type	Format	Range	Data Size
Output file	O:nn	nn= 0-30	Word
Input file	I:nn	nn= 0-30	Word
Status file	S:nn	nn=0-31	Word
Bit file	Bfff:nnn B:nnn	fff= 3 or 10-255; default file is 3 if fff omitted; nnn=0-254	Word
Timer file	Tfff:nnn T:nnn Tfff:nnn.PRE T:nnn.PRE Tfff:nnn.ACC T:nnn.ACC	fff= 4 or 10-255; default file is 4 if fff omitted; nnn=0-254	Word
Counter file	Cfff:nnn C:nnn Cfff:nnn.PRE C:nnn.PRE Cfff:nnn.ACC C:nnn.ACC	fff=5 or 10-255; default file is 5 if fff omitted; nnn=0-254	Word
Control file	Rfff:nnn R:nnn Rfff:nnn.LEN R:nnn.LEN Rfff:nnn.POS R:nnn.POS	fff=6 or 10-255; default file is 6 if fff omitted; nnn=0-254	Word
Integer file	Nfff:nnn N:nnn	fff=7 or 10-255; default file is 7 if fff omitted; nnn=0-254	Word

** The HMI can read up to 30 words in one read command.

** The HMI does not support block read for the registers in TIMER, COUNTER AND CONTROL FILES.

** One should open the files in PLC which the HMI will access.

2. The data format and range of the PLC ON/OFF location which the ADP can accress : Bit Device.

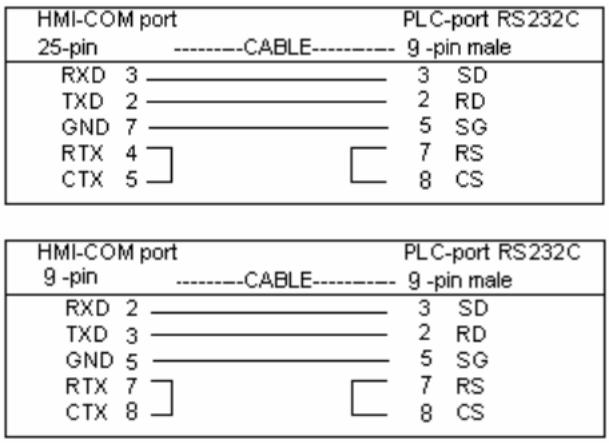
Relay Type	Format	Range
Output file	O:nn/bb	nn= 0-30; bb= 0-15
Input file	I:nn/bb	nn= 0-30; bb= 0-15
Status file	S:nn/bb	nn= 0-31; bb= 0-15

Relay Type	Format	Range
Bit file	Bfff:nnn/bb	fff= 3 or 10-255; default file is 3 if fff omitted; nnn=0-254; bb=0-15
Timer file	Tfff:nnn/bb Tfff:nnn.PRE/bb Tfff:nnn.ACC/bb Tfff:nnn/EN Tfff:nnn/TT Tfff:nnn/DN	fff= 4 or 10-255; default file is 4 if fff omitted; nnn=0-254; bb=0-15
Counter file	Cfff:nnn/bb Cfff:nnn.PRE/bb Cfff:nnn.ACC/bb Cfff:nnn/CU Cfff:nnn/CD Cfff:nnn/DN Cfff:nnn/OV Cfff:nnn/UN	fff=5 or 10-255; default file is 5 if fff omitted; nnn=0-254; bb=0-15
Control file	Rfff:nnn/bb Rfff:nnn.LEN/bb Rfff:nnn.POS/bb Rfff:nnn/EN Rfff:nnn/DN Rfff:nnn/ER Rfff:nnn/UL Rfff:nnn/IN Rfff:nnn/FD	fff=6 or 10-255; default file is 6 if fff omitted; nnn=0-254; bb=0-15
Integer file	Nfff:nnn/bb	fff=7 or 10-255; default file is 7 if fff omitted; nnn=0-254; bb=0-15

** The HMI can read up to 480 bits in one read command.

** The HMI does not support block read for the bits in TIMER, COUNTER AND CONTROL FILES.

3. The illustration of the connection: PWS to RS232C of PLC SLC-503/504



4. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C SLC-503/504	COM2=RS232/422/485
		1. When use for RS422, set Dip switch SW10=OFF 1.
		2. When use for RS485, set switch SW10=ON
b. Node Address	N	1. Set PLC Station No. N in ADP
c.Transmission Speed	9600/19200 bps	
d. Transmission Format	1.Size：8-bit	
	2.Parity：NONE	
	3.Stop Bit：1-bit	
e. SLC-503/504	FULL DUPLEX	
f. BCC ERROR Check	YES	

9.4. AB IQ Master Servo Controller

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

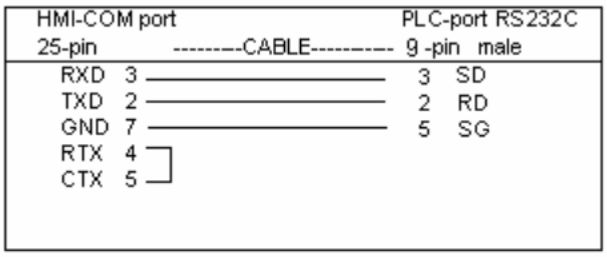
Register Type	Format	Range with the Register	Data Size
G type	Gnn	nn=1-64	Double Word(32 Bits)
V type	Vnn	nn=1-64	Double Word(32 Bits)
G type	WGnn	nn=1-64	Word(16 Bits)
V type	WVnn	nn=1-64	Word(16 Bits)

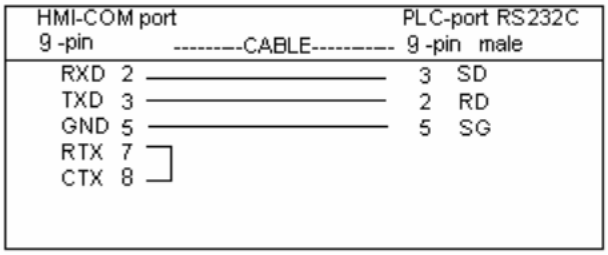
Relay Type	Format	Range With the Relay	Block
I type	Inn	nn=1-48	
O type	Onn	nn=1-24	
B type	Bn	n=1-8	
F type	Fnn	nn=1-64	

2. The illustration of the connection:

a. PWS-series to PLC

PWS-series to PLC RS232 PORT (9-pin male)





3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	COM1 or COM2=RS232

b.Station No	0	
c.Transmission Speed	9600 bps	
d. Transmission Format	8-bit, NONE, 1-bit	

9.5. ABB COMLI (SLAVE MODE)

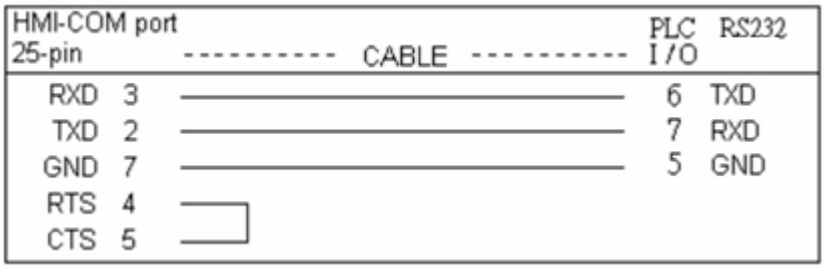
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Word IO	MWnnnnn	nnnnn=0 – 37760(must be a multiple of 8)	Word(16 Bits)
Word Register	RWnnnn	nnnn=0 - 3071	Word(16 Bits)

Relay Type	Format	Range with the Relay
Bit IO	Mnnnnn	nnnnn=0-37777(8 Bits)

2. The illustration of the connection:

a. PWS-series to PLC RS232 PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	RS232
b.Station No	01(PLC sets 2-197)	
c.Transmission Speed	9600 bps	
d.Transmission Format	8-Bits, ODD , 1-Bit	

9.6. Computer(as master or as slave or V2 or Null)/Modbus master

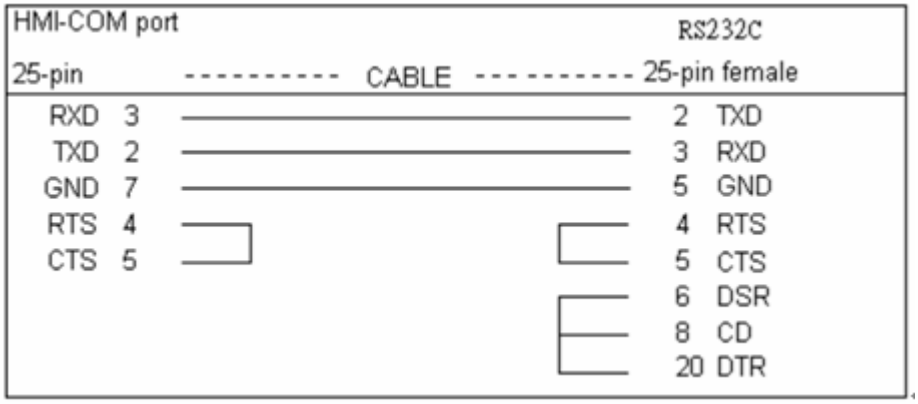
1. The data format and range of the PLC registers which the ADP can accress :Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Data Register	Wnnnn	nnnn=0~2047	Word(16 Bits)

Relat Type	Format	Range with the Relay	Block
Bit Relay	Bnnnn	nnnn=0~1023	

2. The illustration of the connection:

a. IPWS-series to PLC RS232 PORT



[Note]: This figure is PC's simulation but the hook up method depends on the actual controller pin position.

3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C(RS422/RS485)	RS232C(RS422/RS485)
b.Station No	NONE	
c.Transmission Speed	9600 bps	
d.Transmission Format	8-Bits, NONE , 1-Bit	

** COMPUTER(AS MASTER) V2 is not only including the finction of COMPUTER(AS MASTER) but also can inform the slaves when the data is changed (e.g. value input). The Null function includes Macro,ladder and communication to controllers but communication to PLC.

9.7. DELTA DVP

1. The data format and range of the PLC registers which the ADP can accress :Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
S_Data	Snnnn	nnnn=0-1008(must be a multiple of 16)	Word(16 Bits)
X_Data	Xnnn	nnn= 0-360 (X0-X7, X10-X17, must be a multiple of 20)	Word(16 Bits)
Y_Data	Ynnn	nnn= 0-360 (Y0-Y7, Y10-Y17, must be a multiple of 20)	Word(16 Bits)
M_Data	Mnnnn	Nnnn=0-1264 (must be a multiple of 16)	Word(16 Bits)
T_Register	Tnnn	nnn= 0-255	Word(16 Bits)
C_Register	Cnnn	nnnn=0-127	Word(16 Bits)
D_Register	Dnnnn	nnnn=0-1279	Word(16 Bits)
C_Register	Cnnn	nnn= 232-255	Double Word

Relay Type	Format	Range with the Relay	Block
S_Data	Snnnn	nnn=0-1023	Multiple of 16
X_Data	Xnnn	nnn=0-377 (Oct. code)	Multiple of 16
Y_Data	Ynnn	nnn=0-377 (Oct. code)	Multiple of 16
M_Data	Mnnnn	nnnn=0-1279	Multiple of 16
T_Coil	Tnnn	nnn=0-254	Multiple of 16
C_Coil	Cnnn	nnn=0-254	Multiple of 16

[Note] X_Data and Y_Data are Oct.code such as X0~X7,X10~X17,X20~X27,X30~X37.

2. The illustration of the connection:

a. PWS-series to PLC RS232 PORT can use a DELTA with 8-pin male (PC ←→ DELTA DVP PLC).

3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C	COM1 or COM2=RS232
b.Station No	01	1. Set PLC Station No.=01 in ADP
c.Transmission speed	9600 bps	PLC station=01

d.Transmission Format	7-Bits, EVEN , 2-Bits	

9.8. ERO TFS/THS/LFS

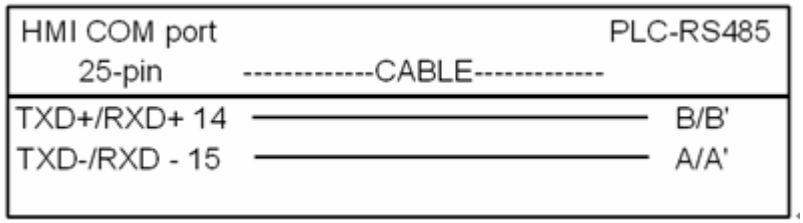
1. The data format and range of the PLC registers which the ADP can accress :

Register Type	Format	Range with the Register	Data Size
Word Register	mmm:Wnnn	mmm=0-255 ; nnn=0-529	Word(16 Bits)

Relay Type	Format	Range with the Relay
Relay	mmm:Bnnn	mmm=0-255 ; nnn=1-342

2. The illustration of the connection:

a. PWS-series to PLC RS485 PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS485	RS485
b.Station No	None	
c.Transmission Speed	9600 bps	
d.Transmission Format	8-Bits, EVEN , 1-Bit	

9.9. FACON FB

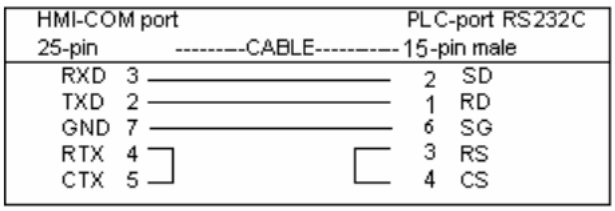
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

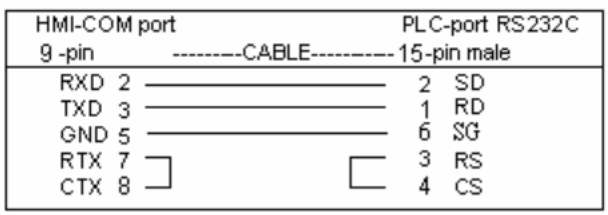
Register Type	Format	Range with the Register	Data Size
Input Relay	WXnnn	nnn=0-9984; (0 or Multiple of 8)	Word
Output Relay	WYnnn	nnn=0-9984; (0 or Multiple of 8)	Word
Internal Relay	WMnnnn	nnnn=0-9984; (0 or Multiple of 8)	Word
Special Relay	WMnnnn	nnnn=0-9984; (Multiple of 8)	Word
Step Relay	WSnnn	nnn=0-9984; (0 or Multiple of 8)	Word
Timer Present Value	RTnnnn	nnnn=0-9999	Word
Counter Present Value	RCnnnn	nnnn=0-9999	Word
Data Register	Rnnnnn	nnnn=0-65534	Word
32-bit Counter Present Value	DRCnnn	NNN=200-255	
Data Register	Dnnnnn	nnnn=0-65534	Word

** The HMI can read up to 32 words in one read command.

Relay Type	Format	Range of the Relay	Block
Input Relay	Xnnnn	nnn=0-9999	e.g. X32(0 or Multiple of 8)
Output Relay	Ynnnn	nnn=0-9999	e.g. Y8 (0 or Multiple of 8)
Internal Relay	Mnnnn	nnnn=0-9999	e.g. M0 (0 ot Multiple of 8)
Special Relay	Mnnnn	nnnn=0-9999	e.g. M0 (0 or Multiple of 8)
Step Relay	Snnnn	nnn=0-9999	e.g. S16 (0 or Multiple of 8)
Timer Flag	Tnnnn	nnn=0-9999	None
Counter Flag	Cnnnn	nnn=0-9999	None

2. The illustration of the connection: PWS to RS232C of FB-MC type





3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C	COM1 or COM2 ==> RS232
b.Station No	1	1. Set PLC station 01 in ADP
c.Transmission Speed	9600/19200 bps	1. Set SW5=OFF if parameters are set in ADP
d.Transmission Format	7-Bits, even,1-Bit	2. Parameters are set in PWS.

NOTE: Facon FB Series(RS232/RS485) for RS232 w/o RTS control (3-PIN cable) or RS485 Facon FB Series(RS232-RTS) for S232 with RTS control (5-PIN cable, RTS,CTS with connect), not for RS485

9.10. Festo FPC

1. The data format and range of the PLC registers which the ADP can accress :Word Device and Bit Device.

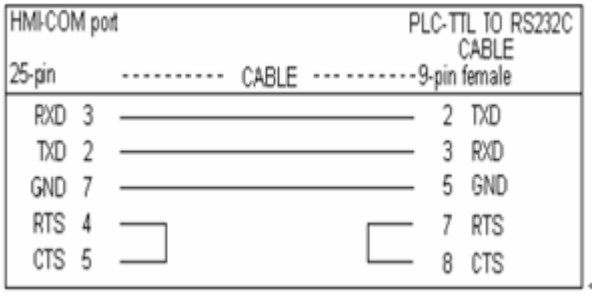
Register Type	Format	Range with the Register	Data Size
Input	IWnnn	nnn=0-255	Word(16 Bits)
Output	QWnnn	nnn=0-255	Word(16 Bits)
Flag	FWnnnn	nnnn=0-9999	Word(16 Bits)
Timer	TWnnn	nnn=0-255	Word(16 Bits)
Counter	CWnnn	nnn=0-255	Word(16 Bits)
Register	Rnnn	nnn=0-255	Word(16 Bits)
Timer_Preset	TPnnn	nnn=0-255	Word(16 Bits)
Counter_Preset	CPnnn	nnn=0-255	Word(16 Bits)

Relay Type	Format	Range with the Relay	Block
Input	Innn.bb	nnn=0-255; bb=0-15	b=0 e.g. I20.0
Output	Qnnn.bb	nnn=0-255; bb=0-15	b=0 e.g. Q20.0
Flag	Fnnnn.bb	nnnn=0-9999; bb=0-15	b=0 e.g. F20.0
Timer	Tnnn	nnn=0-255	None
Counter	Cnnn	nnn=0-255	None
Timer_on	TONnnn	nnn=0-255	None
Timer_off	TOFFnnn	nnn=0-255	None

2. The illustration of the connection:

a. PWS-series to (TTL to RS232C cable)

PWS-series need to use a FESTO to provide TTL to RS232C cable, a 6-pin telephone connector with PLC-port and a 9-pin male with 9-pin female as below.



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	COM1 or COM2=RS232
b.Station No	None	
c.Transmission Speed	9600 bps	
d.Transmission Format	8-Bits, NONE, 1-Bit	

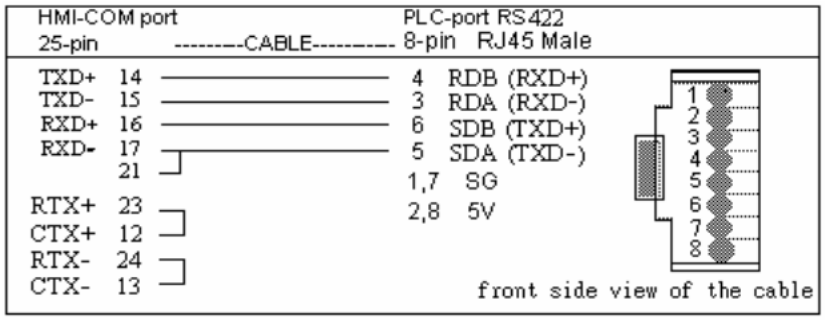
9.11. Fuji NB

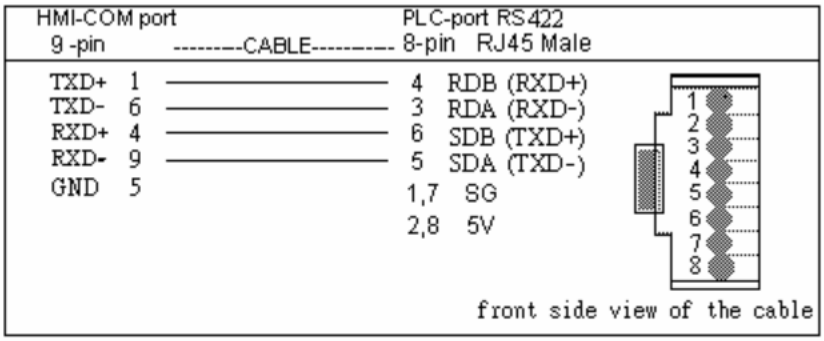
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Data Register	Dnnn	nnn=hex number 0-3ff	Word
Special Register	Dnnnn	nnnn=hex number 8000-80ff	Word
Timer Current Value	TNnnn	nnn=hex number 0-1ff	Word
Counter Current Value	CNnn	nn=hex number 0-ff	Word
Input Relay	WXnn	nn=hex number 0-1f	Word
Output Relay	WYnn	nn=hex number 0-1f	Word
Internal Relay	WMnn	nn=hex number 0-3f	Word
Latch Relay	WLnn	nn=hex number 0-3f	Word
Special Relay	WMnnn	nnn=hex nuumber 800-81f	Word
Step Relay	WSnnn	nnn=hex number 0-3f	Word

Relay Type	Format	Range with the Relay	Block
Timer output	Tnnn	nnn=hex number 0-1ff	End with 0
Counter output	Cnn	nn=hex number 0-ff	End with 0
Input Relay	Xnnn	nnn=hex number 0-1ff	End with 0
Output Relay	Ynnn	nnn=hex number 0-1ff	End with 0
Internal Relay	Mnnn	nnn=hex number 0-3ff	End with 0
Latch Relay	Lnnn	nnn=hex number 0-3ff	End with 0
Special Relay	Mnnnn	nnnn=hex number 8000-81ff	End with 0
Step Relay	Snnn	nnn=hex number 0-3ff	End with 0

2. The illustration of the connection: PWS to RS422 of NB/NS/NJ-CPU port





3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS- Setting
a.Communication Format	RS422	COM= Dip-switch RS422
b.Station No	None	
c.Transmissiion Speed	19200 bps	
d.Transmission Format	8-Bits,ODD,1-Bit	
e.PLC password	none or 0000-9999	0000 or 9999= ****

9.12. GE Series 90 CCM

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Discrete Input	%Innnnn	nnnnn=1-12288	Word(16 Bits)
Discrete Output	%Qnnnnn	nnnnn=1-12288	Word(16 Bits)
Register	%Rnnnnn	nnnnn=1-16384	Word(16 Bits)

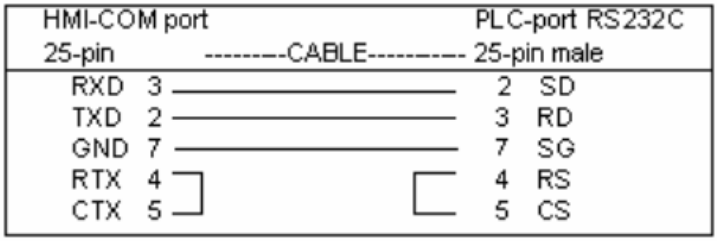
**Discrete Input (%Innnnn), Discrete Output (%Qnnnnn) Address must be 1 or multiple of 16 +1.

Relay Type	Format	Range with the Relay	Block
Discrete Input	%Innnnn	nnnnn=1-12288	1 or multiple of 16 +1
Discrete Output	%Qnnnnn	nnnnn=1-12288	1 or multiple of 16 +1

2. The illustration of the connection:

a. PWS-series to PLC

PWS-series to PLC RS232 PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	COM1 or COM2=RS232
b.Station No	0	
c.Transmission Speed	19200 bps	
d.Transmission Format	8-Bits, NONE, 1-Bit	

9.13. GE-Fanuc 90-SNP

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Ragister	Data Size
Discrete Inputs	%Innnnn	nnnnn=1-12288;1 or multiple of 16+1	Word
Discrete Outputs	%Qnnnnn	nnnnn=1-12288;1 or multiple of 16+1	Word
Discrete Temporaries	%Tnnn	nnn=1-256; 1 or multiple of 16+1	Word
Discrete Internals	%Mnnnnn	nnnnn=1-12288;1 or multiple of 16+1	Word
%SA Discretes	%SAnnn	nnn=1-128; 1 or multiple of 16+1	Word
%SB Discretes	%SBnnn	nnn=1-128; 1 or multiple of 16+1	Word
%SC Discretes	%SCnnn	nnn=1-128; 1 or multiple of 16+1	Word
%S Discretes	%Snnn	nnn=1-128; 1 or multiple of 16+1	Word
Genius Global Data	%Gnnnn	nnnn=1-7680; 1 or multiple of 16+1	Word
Registers	%Rnnnnn	nnnnn=2-16384	Word
Analog Inputs	%AInnnn	nnnn=1-8192	Word
Analog Outputs	%AQnnnn	nnnn=1-8192	Word

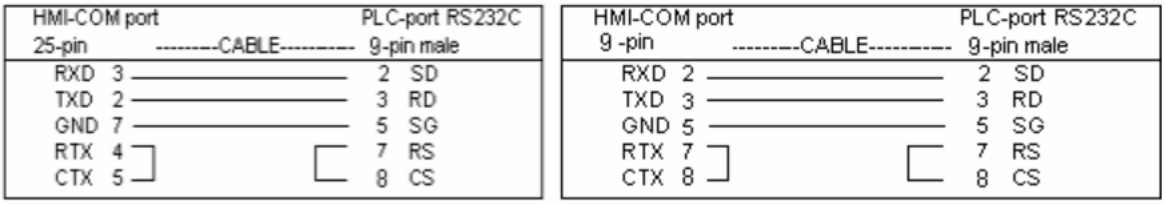
** The HMI can read up to 50 words in one read command.

Relay Type	Format	Range with the Relay	Block
Discrete Inputs	%Innnnn	nnnnn=1-12288	1 or Multiple of 16+1
Discrete Outputs	%Qnnnnn	nnnnn=1-12288	1 or Multiple of 16+1
Discrete Temporaries	%Tnnn	nnn=1-256	1 or Multiple of 16+1
Discrete Internals	%Mnnnnn	nnnnn=1-12288	1 or Multiple of 16+1
%SA Discretes	%SAnnn	nnn=1-128	1 or Multiple of 16+1
%SB Discretes	%SBnnn	nnn=1-128	1 or Multiple of 16+1
%SC Discretes	%SCnnn	nnn=1-128	1 or Multiple of 16+1
%S Discretes	%Snnn	nnn=1-128	1 or Multiple of 16+1
Genius Global Data	%Gnnnn	nnnn=1-7680	1 or Multople of 16+1

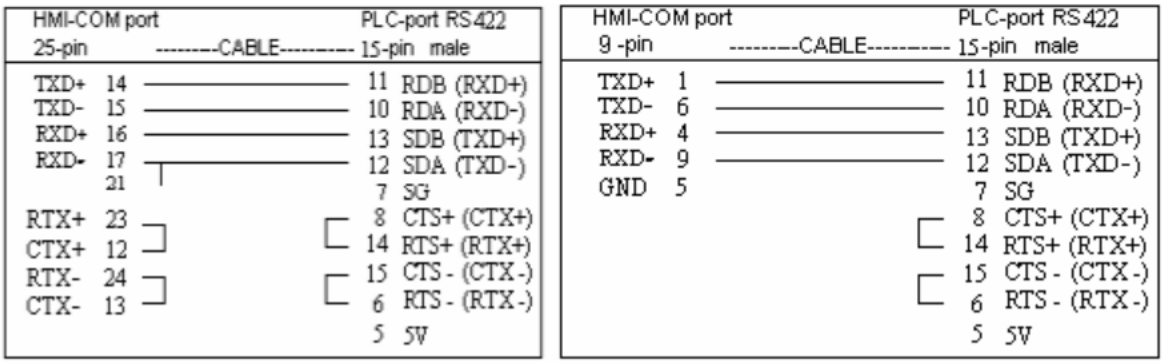
** The HMI can read up to 800 bits in one read command.

2. The illustration of the connection:

a. PWS and RS232 of PLC miniconverter kit



b. PWS and RS422 of PLC 9030 CPU port



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS Setting
a.Communication Format	RS422 CPU PORT	COM2=RS232/422/485
	Or RS232C	1. RS422: Set SW10=OFF
b.Station No	None	
c.Transmission Speed	19200/9600 bps	
d.Transmission Format	8-Bits;none,1-Bit	
e.PLC ID	blanks	
f. PLC password	none or ********	00000000 or ********

9.14. Hitachi EC

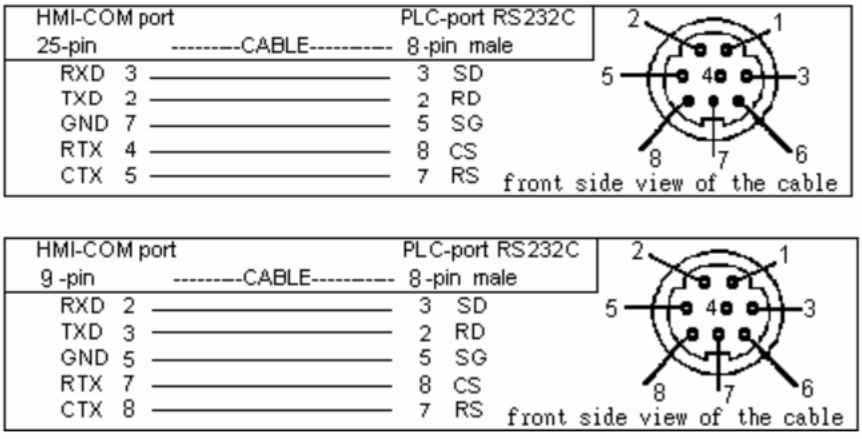
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Internal Register	WMnnn	nnn=400, 402, 404, ⋯, 654	Word
Internal Register	WMnnn	nnn=700, 702, 704, ⋯, 954	Word
Internal Register	WMnnn	nnn=960, 962, 964, ⋯, 990	Word
Timer/Counter Register	TCnnn	nnn=100-195	Word
Timer/Counter Register	TCnnn	nnn=200-295	Word

** The HMI can read up to 60Words in one read command.

Relay Type	Format	Range with the Relay	Block
Input Relay	Xnnn	nnn=0-15, 20-35, 40-55, 60-75, , 180-195	X0,X20,X40 …
Output Relay	Ynnn	nnn=200-215, 220-235, 240-255, , 380-395	Y200,Y220…
Auxiliary Relay	Mnnn	nnn=400-655, 700-955, 960-991	M400,M420 …
Timer/Counter Relay	TCnn	nn=0-95	TC0,TC1TC80

2. The illustration of the connection: PWS-series to PLC Program Console Port



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS設定
a.Communication Format	RS232C	COM1 or COM2 ==> RS232
b.Station No.	None	
c.Transmission Speed	9600 bps	1. Set SW5=OFF if parameters are set in the ADP

d.Transmission Format	7-Bits ,EVEN, 1- Bit	2. Set SW5=ON if parameters are set in the HMI
e. CTS Handshanking	Enabled	

** Using exclusive protocol must set PLC peripheral mode selector in COM2.

9.15. Hitachi H/EH1

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Ext. Input	WXnnnn	nnnn=0-4ff9	Word(16 Bits)
Ext. Output	WYnnnn	nnnn=0-4ff9	Word(16 Bits)
Int. Output	WRnnnn	nnnn=0-c3ff	Word(16 Bits)
Int. Output	WRnnnn	nnnn=f0000-f1ff	Word(16 Bits)
Int. Output	WMnnn	nnn=0-3ff	Word(16 Bits)
CPU Link	WLnnn	nnn=0-3ff	Word(16 Bits)
CPU Link	WLnnnn	nnnn=1000-13ff	Word(16 Bits)
T/C CV	TCnnn	nnn=0-511	Word(16 Bits)

**Hitachi H/EH1 Series must use procedure 1 protocol to communicate.
Hitachi EH2 Series must use procedure 2 protocol to communicate.
Ext. Input (WXnnnn) and Ext. Output (WYnnnn) registers cannot access the "Read Block" function.

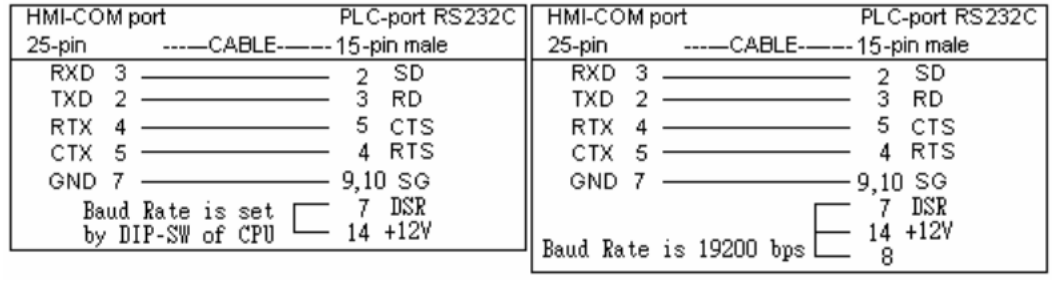
Relay Type	Format	Range with the Relay	Block
Ext. Input	Xmnnnn	m=0-4, nnnn=0-ff95	None
Ext. Output	Ymnnnn	m=0-4, nnnn=0-ff95	None
Int. Output	Rnnn	nnn=0-7ff	
Int. Output	Mnnnn	nnnn=0-3fff	
CPU Link	Lnnnn	nnnn=0-3fff	
CPU Link	Lnnnnn	nnnnn=10000-13fff	
On-delay timer bit	TDnnn	nnn=0-255	
Single-shot timer bit	SSnnn	nnn=0-255	
Up counter	CUnnn	nnn=0-511	
U/D counter up coil	CTUnnn	nnn=0-511	
U/D counter down coil	CTDnnn	nnn=0-511	
U/D counter contact	CTnnn	nnn=0-511	
T/C CV clear	CLnnn	nnn=0-511	
Rising edge	DIFnnn	nnn=0-511	
Fallling edge	DFNnnn	nnn=0-511	

**Ext. Input (WXnnnn) and Ext. Output (WYnnnn) cannot access the "Read Block" function.

2. The illustration of the connection:

a. PWS-series to PLC

PWS-series to PLC RS232 PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	COM1 or COM2=RS232
b.Statiion No.	None	
c.Transmission Speed	19200 bps	
d.Transmission Format	7-Bits, EVEN, 1-Bit	

9.16. HUST CNC Controller

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
16-bit Variable	Wnnnnn	nnnnn=0-65534	Word(16 Bits)
32-bit Variable	Dnnnnn	nnnnn=0-65534	Double Word(32 Bits)

**It is up to 28 Variable be read one time.
Only write a variable once, so the speed is low.
16-bit Variable (Wnnnnn) : Only used in word object.
Only used in Bit0-Bit15 of each variable.
If write, Bit16-Bit31 will clear as 0.
32-bit Variable (Dnnnnn) : Only used in double word object.
Only used in Bit0-Bit31 of each variable.

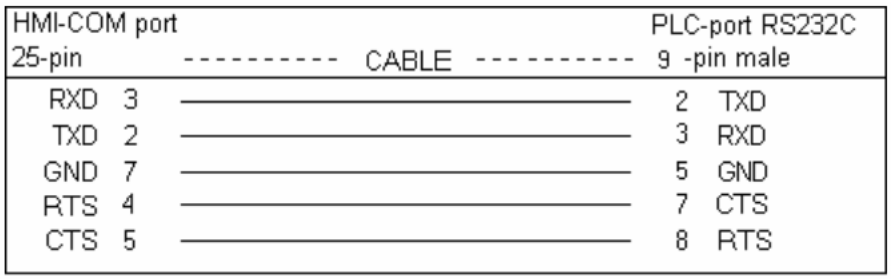
Relay Type	Format	Range with the Relay	Block
1-bit Variable	Bnnnnn.bb	nnnnn=0-65534, bb=0-31	bb must be 0
I - Bit Data	Innn	nnn=0-255	nnn must be 0 or multiple of 32.
O - Bit Data	Onnn	nnn=0-255	nnn must be 0 or multiple of 32.
C - Bit Data	Cnnn	nnn=0-255	nnn must be 0 or multiple of 32.
S - Bit Data	Snnn	nnn=0-255	nnn must be 0 or multiple of 32.
A - Bit Data	Annnn	nnn=0-1023	nnn must be 0 or multiple of 32.

**I - Bit Data, O - Bit Data, C - Bit Data, S - Bit Data, A - Bit Data are read only. If write, then the action will be invalid.(No error messages)

2. The illustration of the connection:

a. PWS-series to PLC

PWS-series to PLC RS232 PORT (9-pin male)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	**PLC** Setting	**PWS** Setting
a.Communication Format	RS232	COM1 or COM2=RS232
b.Station No.	None	
c.Transmission Speed	9600 (19200 /38400) bps	
d.Transmission Format	7-Bits, EVEN, 2-Bits	

9.17. IDEC MICRO-3

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

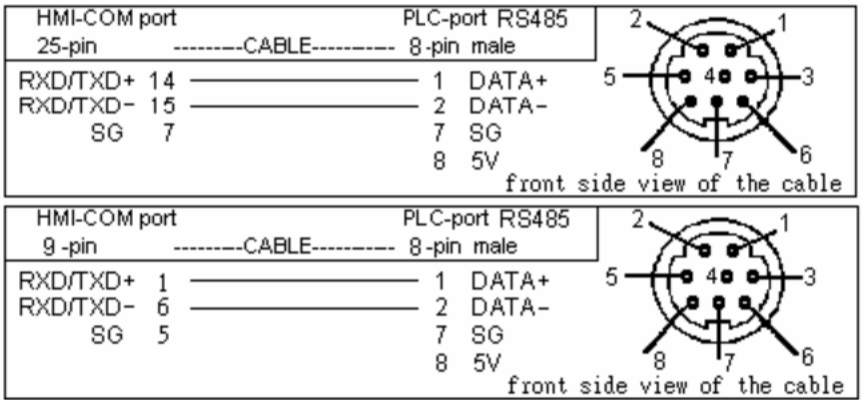
Register Type	Format	Range with the Register	Data Size
Input Relay	Xn	n=0-3	Byte
Output Relay	Yn	n=0-3	Byte
Internal Relay	Mnn	nn=0-31	Byte
Shift Register	Rnn	nn=0-48; must be 0 or multiple of 8	Bit
Timer Preset	TPnn	nn=0-31(read only)	Word
Timer Current	Tnn	nn=0-31	Word
Counter Preset	CPnn	nn=0-31(read only)	Word
Counter Current	Cnn	nn=0-31	Word
Data Register	Dnn	nn=0-99	Word
Calender/CLOCK	Wn	n=0-6	Word

** The HMI can read up to 50Words in one read command.
**Timer Preset and Counter Preset are read only. If the value of TP,CP exists in Data Register,then the value of Data Register will be read.

Relay Type	Format	Range with the Relay	Block
Input Relay	Xnb	n=0-3; b=0-7	b=0 e.g. X10
Output Relay	Ynb	n=0-3; b=0-7	b=0 e.g. Y00
Internal Relay	Mnnb	nn=0-31; b=0-7	b=0 e.g. M10
Shift Register	Rnn	nn=0-63	must be 0 or multiple of 8
Timer Status	Tnn	nn=0-31 read only	must be 0 or multiple of 8
Counter Status	Cnn	nn=0-31 read only	Must be 0 or multiple of 8.

** The HMI can read up to 800 bits in one read command.

2. The illustration of the connection: PWS-to PLC PROGRAM Loader RS485 PORT(MICRO3-CPU PORT)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS Setting
a.Communication Format	RS485	COM2=RS232/422/485
		1. RS485: Set SW10=ON
b.Station No.	0-31；255	1. Set PLC Sation 255 in ADP
c.Transmission Speed	9600bps	
d.Transmission Format	7-Bits;EVEN; 1-Bit	
e.CTS Handshaking	Disabled	

**If only one PLC in background program, set the Station No. as 255 or sets as Network Station No.

9.18. JETTER NANO_B

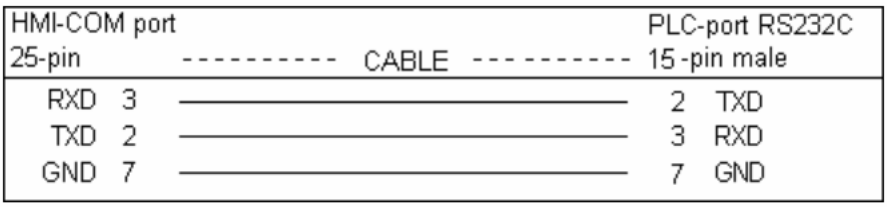
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
User Register	Rnnnnn	nnnnn=0-32767	DWord(32 Bits)
User Register	WRnnnnn	nnnnn=0-32767	Word(16 Bits)

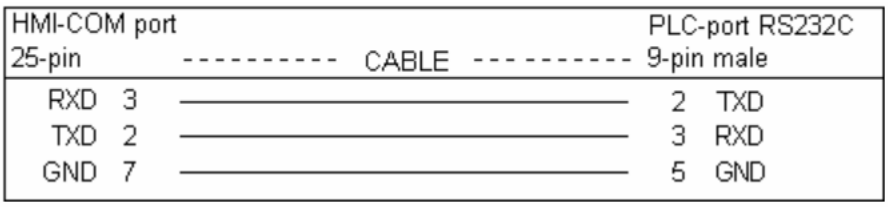
Relay Tupe	Format	Range with the Relay	Block
Input Relay	Innbb	nn=1-16,bb=01-08	bb=01
Out[ut Relay	Onnbb	nn=1-16,bb=01-08	bb=01
Flag Relay	Fnnnn	nnnn=0-2301	If nnn<256, must be 0 or multiple of 24. If nnn>255 and <2048, must be multiple of 24 +16. If nnn>2047, must be multiple of 24+8.

2. The illustration of the connection:

a. PWS-series to PLC RS232 PORT (15-pin male)



b. PWS-series to PLC RS232 PORT (9-pin male)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C	COM1 or COM2=RS232
b.Station No.	None	
c.Transmission Speed	9600 bps	

d.Transmission Format	8-Bits, EVEN , 1-Bit	

9.19. JETTER DELTA

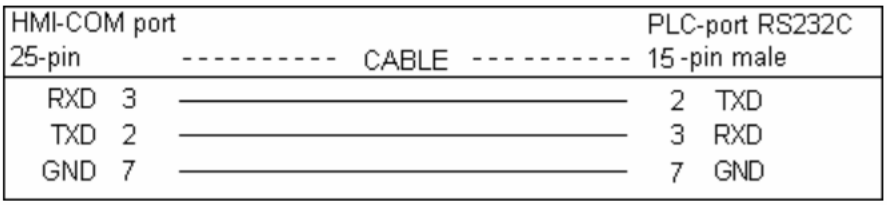
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
User Register	Rnnnnn	nnnn=0-20479 21000-24999 31000-34999 41000-44999 50200-59999 61440-64999	DWord(32 Bits)
User Register	WRnnnnn	nnnn=0-20479 21000-24999 31000-34999 41000-44999 50200-59999 61440-64999	Word(16 Bits)

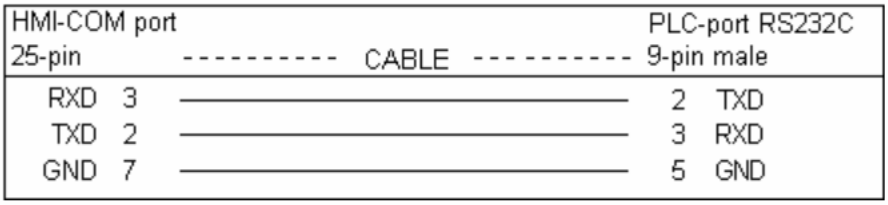
Relay Type	Format	Range with the Relay	Block
Input Relay	Inbb	n=1-8,bb=01-64	bb=01
Output Relay	Onbb	n=1-8,bb=01-64	bb=01
Flag Relay	Fnnnn	nnn=0-2047	must be >255, and multiple of 24+16.

2. The illustration of the connection:

a. PWS-series to PLC RS232 PORT (15-pin male)



b. PWS-series to PLC RS232 PORT (9-pin male)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C	COM1 or COM2=RS232
b.Station No.	None	
c.Transmission Speed	9600 bps	
d.Transmission Format	8-Bits, EVEN , 1-Bit	

9.20. Klockner Moeller PS

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

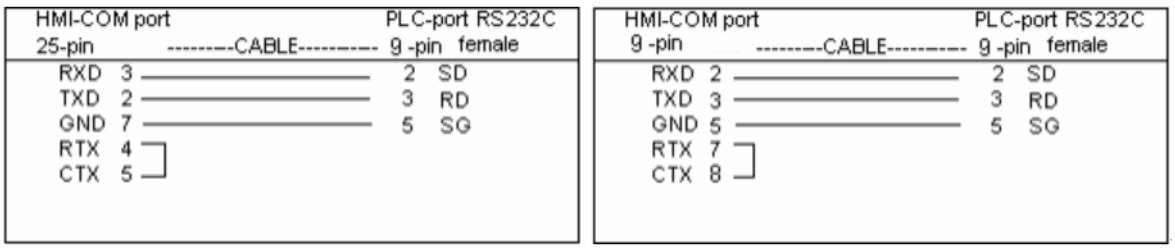
Register Type	Format	Range with the Register	Data Size
Word Marker	MWnnnnn	nnnnn=0-32766	Word

** The HMI can read up to 32Words in one read command.

Relay Type	Format	Range with the Relay	Block
Bit Marker0	Mnnnnn.b	nnnnn=0-32766；b=0-7	b=0 e.g. M10.0

** The HMI can read up to 512 Bits in one read command.

2. The illustration of the connection: PWS-series to PLC RS232 Programming PORT CPU ZB4-303-KB1



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	COM1or COM2=RS232
b.Station No.	0=PS4-201	1. Set PLC Station 0/1 in ADP
	1=PS316	
c.Transmission Format	9600bps	1.Set SW5=OFF if parameters are set in ADP
d.Transmission Speed	1.Size 8-Bits	
	2.Parity None	2.Set SW5=ON if parameters are set in the HMI
	3.Stop bit 1-Bit	

9.21. KOYO SA/TI 325/330

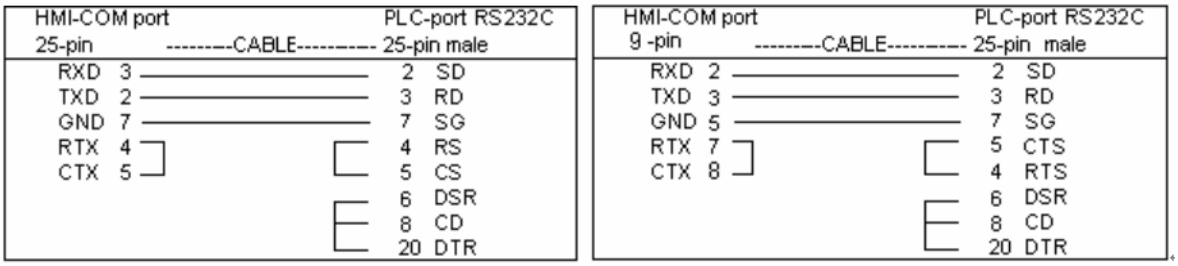
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
TMR/CTR Accumulater	nnn	nnn=octal number 600-677	Word
Register Values	mmm	mmm=octal number 400-576; mmm must be a multiple of 2	Even Bytes

Relay Type	Format	Range with the Relay	Block
Input/Output Bits	Bnnn	nnn=octal number 0-157	End with 0
Input/Output Bits	Bnnn	nnn=octal number 700-767	End with 0
Internal Relay Bits	Bnnn	nnn=octal number 160-377	End with 0
Shift Register Bits	Bnnn	nnn=octal number 400-577	End with 0
TMR/CTR Bits	Bnnn	nnn=octal number 600-677	End with 0

**When HMI changes a relay's state, the HMI must read 1 byte (8 relays). After change the corresponging bit , then the HMI will write the byte in PLC. These actions will take more than one PLC scan. PLC ladder cannot control other bit(relay) of byte before the HMI compeleted "Change the Relay";otherwise, these bit(relay) will retrun to initial value. In other words, the control action of PLC will be resumed. For example,if the HMI wants to change B3's state, it will read B0-B7. After the corresponding bit B3 is cahnged, the HMI will write the Byte to PLC. The PLC ladder's command will be canceled after the HMI writes the changes in.

2. The illustration of the connection:PWS-series to PLC RS232C PORT of SA21



KOYO SA21 series E02-DM and TI305-02DM have the same wiring.

3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS Setting
a.Communication Format	RS422 or RS232C	COM2=RS232/422/485
b.Station No.	None	
c.Tranmission Speed	9600/19200 bps	

d.Transmission Format	8-Bits, odd, 1-Bit	
e.Operation Mode	RUN Mode	
f.mm. Mode	ASCII mode.sw2-8=ON	

9.22. KOYO DIRECT DL /KOYO SU Series/TI435

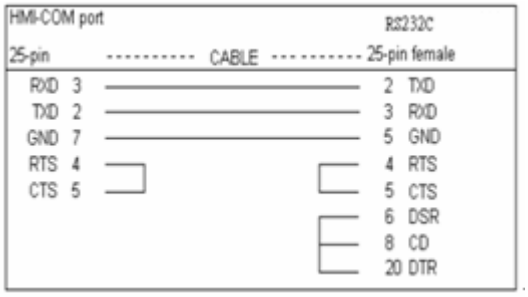
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Timer Accumulated	Vnnn	nnn=octal number 0-177	Word
Counter Accumulated	Vnnnn	nnnn=octal number 1000-1177	Word
V Memory	Vnnnn	nnnn=octal number 1400-7777	Word
Link Relays	Vnnnnn	nnnnn=octal number40000-40037	Word
Input Status	Vnnnnn	nnnnn=octal number40400-40423	Word
Output Status	Vnnnnn	nnnnn=octal number40500-40523	Word
Control Relays	Vnnnnn	nnnnn=octal number40600-40635	Word
Stage	Vnnnnn	nnnnn=octal number41000-41027	Word
Timer Status	Vnnnnn	nnnnn=octal number41100-41107	Word
Counter Status	Vnnnnn	nnnnn=octal number41140-41147	Word
Spec. Relay 1	Vnnnnn	nnnnn=octal number41200-41205	Word
Spec. Relay 2	Vnnnnn	nnnnn=octal number41216-41230	Word

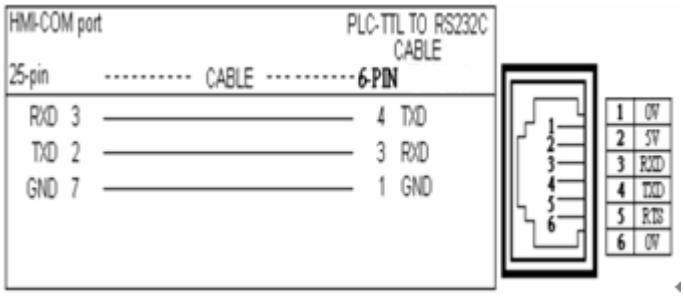
Relay Type	Format	Range with the Relay	Block
Input Status	Xnnn	nnn=octal number 0-477	End with 0
Outpuut Status	Ynnn	nnn=octal number 0-477	End with 0
Control Relays	Cnnn	nnn=octal number 0-737	End with 0
Stage	Snnn	nnn=octal number 0-577	End with 0
Timer Status	Tnnn	nnn=octal number 0-177	End with 0
Counter Status	CTnnn	nnn=octal number 0-177	End with 0
Spec. Relay 1	SPnnn	nnn=octal number 0-137	End with 0
Spec. Relay 2	SPnnn	nnn=octal number 320-617	End with 0
Linker Relays	GXnnn	nnn=octal number 0-777	End with 0

2. The illustration of the connection:PWS to PLC RS232C PORT

a. PWS to PLC RS232C PORT



b. PWS to PLC (cpu240) RS232C PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below.

Format	PLC Setting	PWS Setting
a.Transmission Format	RS232C	COM2=RS232/422/485
b. Station No.	01	
c.Transmission Speed	9600 bps	
d.Transmission Format	1.Size：8-Bits	
	2.Parity：not none;ODD	
	3.Stop Bit：1-Bit	
e.Comm. Protocol Mode	HEX. (TISOFT AUX26)	

9.23. LG GLOFA GM6

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Input Image	%IWn.m.b	n=0-1, m=0-7, b=0-3	Word(16 Bits)
Input Image	%IDn.m.b	n=0-1, m=0-7, b=0-1	Double Word(32 Bits)
Output Image	%QWn.m.b	n=0-1, m=0-7, b=0-3	Word(16 Bits)
Output Image	%QDn.m.b	n=0-1, m=0-7, b=0-1	Double Word(32 Bits)
Internal memory	%MWnnnn	nnnn=0-4095	Word(16 Bits)
Internal memory	%MDnnnn	nnnn=0-65534	Double Word(32 Bits)

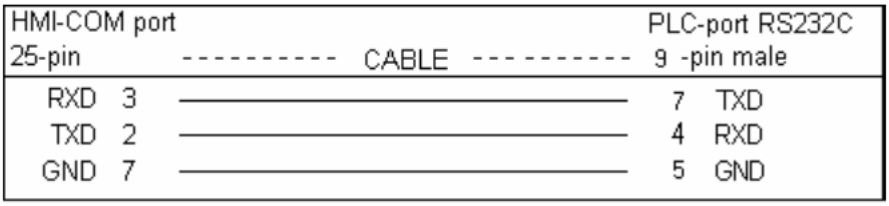
** The HMI can read up to 60 words(30 double words) in one read/write command and only support CPU module.

Relay Type	Format	Range with the Relay	Block
Input Image	%IXn.m.bb	n=0-1, m=0-7, bb=0-63	bb must be 0 or multiple of 16
Output Image	%QXn.m.bb	n=0-1, m=0-7, bb=0-63	bb must be 0 or multiple of 16
Internal memory	%MXnnnnn	nnnnn=0-2047	n. must be 0 or multiple of16

2. The illustration of the connection:

a. PWS-series to PLC

b. PWS-series to PLC RS232 PORT (9-pin male)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232 (RS422/RS485)	COM1 or COM2=RS232 (RS422/RS485)
b.Station No.	0	
c.Transmission Speed	19200 (9600 /38400) bps	
d.Transmission Format	8-Bits, NONE, 1-Bit	

9.24. LG K10/60H/200H

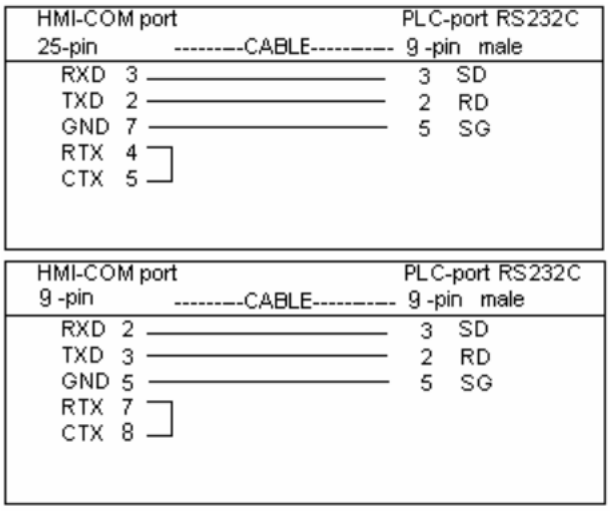
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Auxiliary Relay	Mnn	nn=0-63	Word
Input/Output Relay	Pnn	nn=0-15	Word
Keep Relay	Knn	nn=0-31	Word
Link Relay	Lnn	nn=0-31	Word
Special Relay	Fnn	nn=0-15	Word
Timer Current Value	Tnnn	nnn=0-255	Word
Counter Current Value	Cnnn	nnn=0-255	Word
Timer Set Value	TSnnn	nnn=0-255	Word
Counter Set Value	CSnnn	nnn=0-255	Word
Data Register	Dnnnn	nnnn=0-1023	Word

** The HMI can read up to 60 word in one read command

Relat Type	Format	Range with the Relay	Block
Auxiliary Relay	Mnnb	nn=0-63; b=hex number0-f	End with b=0
Input/Output Relay	Pnnb	nn=0-15; b=hex number0-f	End with b=0
Keep Relay	Knnb	nn=0-31; b=hex number0-f	End with b=0
Link Relay	Lnnb	nn=0-31; b=hex number0-f	End with b=0
Special Relay	Fnnb	nn=0-15; b=hex number0-f	End with b=0
Timer Relay	Tnnn	nnn=0-255	Must be 0 or multiple of 16.
Counter Relay	Cnnn	nnn=0-255	Must be 0 or multiple of 16.

2. The illustration of the connection:PWS-series to the RS-232 Port of K200H CPU



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	**PLC** Setting	**PWS** Setting
a.Communication Format	RS232C	COM1/COM2=RS232
b.Station No.	00	
c.Transmission Speed	9600 bps	1. Set the SW5=OFF if
		parameters are set in ADP
d.Transmission Format	8-Bits,NONE,1-Bit	2. Set the SW=ON if
		parameters are set in the HMI

9.25. LG K200S

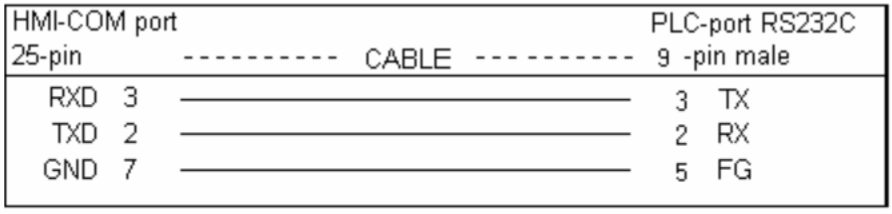
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
I/O RELAY	PWnn	nn=0-15	Word(16 Bits)
AUX RELAY	MWnnn	nnn=0-191	Word(16 Bits)
Keep RELAY	KWnn	nn=0-31	Word(16 Bits)
Link RELAY	LWnn	nn=0-63	Word(16 Bits)
Special RELAY	FWnn	nn=0-63	Word(16 Bits)
Timer	TWnnn	nnn=0-255	Word(16 Bits)
Counter	CWnnn	nnn=0-255	Word(16 Bits)
Data Register	DWnnnn	nnnn=0-9999	Word(16 Bits)

Relay Type	Format	Range with the Relay	Block
I/O RELAY	Pnnb	nn=0-15, b=0-f	b must be 0
AUX RELAY	Mnnnb	nnn=0-191, b=0-f	b must be 0
Keep RELAY	Knnb	nn=0-31, b=0-f	b must be 0
Link RELAY	Lnnb	nn=0-63, b=0-f	b must be 0
Special RELAY	Fnnb	nn=0-63, b=0-f	b must be 0
Timer	Tnnn	nnn=0-255	None
Counter	Cnnn	nnn=0-255	None

2. The illustration of the connection:

PWS-series to PLC RS232 PORT (9-pin male)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	COM1 or COM2=RS232
b.Station No.	None	
c.Transmission Speed	38400 bps	
d.Transmission Format	8-Bits, NONE, 1-But	

9.26. LG K300S

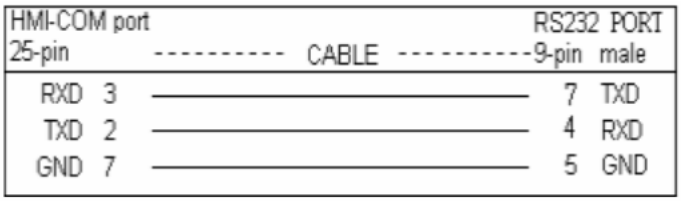
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
I/O Relay	PWnn	nn= 0-31	Word(16 Bits)
AUX Relay	MWnnn	nnn = 0-191	Word(16 Bits)
Keep Relay	KWnn	nn = 0-31	Word(16 Bits)
Link Relay	LWnn	nn = 0-63	Word(16 Bits)
Special Relay	FWnn	nn = 0-63	Word(16 Bits)
Timer	TWnnn	nnn = 0-255	Word(16 Bits)
Counter	CWnnn	nnn = 0-255	Word(16 Bits)
Step controller	SWnnnn	nnnn = 0-9999	Word(16 Bits)
Data Register	DWnnnn	nnnn = 0-9999	Word(16 Bits)

Relay Type	Foramt	Range with the Relay	Block
I/O Relay	PWnnb	nn= 0-31 b=0-f	
AUX Relay	MWnnnb	nnn = 0-191 b=0-f	
Keep Relay	KWnnb	nn = 0-31 b=0-f	
Link Relay	LWnnb	nn = 0-63 b=0-f	
Special Relay	FWnnb	nn = 0-63 b=0-f	

2. The illustration of the connection:

PWS-series to PLC RS232 PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Transmission Format	RS232C	
b.Station No.	RS232C=0	
c.Transmission Speed	RS232C=9600 bps	
d.Transmission Format	RS232C =8 Bits,none,1 Bit	

9.27. LG Master-K10S/K30S/60S/100S

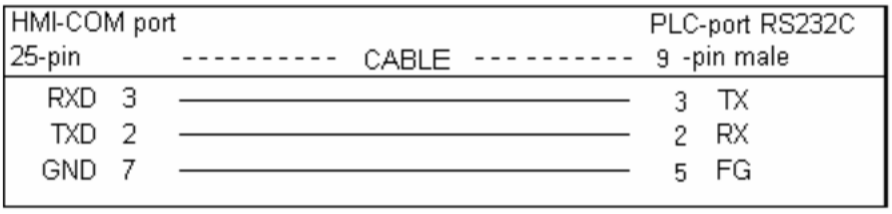
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
I/O RELAY	PWn	n=0-5	Word(16 Bits)
AUX RELAY	MWnn	nn=0-31	Word(16 Bits)
Keep RELAY	KWnn	nn=0-15	Word(16 Bits)
Link RELAY	LWnn	nn=0-15	Word(16 Bits)
Special RELAY	FWnn	nn=0-15	Word(16 Bits)
Timer	TWnnn	nnn=0-127	Word(16 Bits)
Counter	CWnnn	nnn=0-127	Word(16 Bits)
Data Register	DWnnn	nnnn=0-255	Word(16 Bits)

Relay Type	Format	Range with the Relay	Block
I/O RELAY	Pnb	n=0-5, b=0-f	b must be 0
AUX RELAY	Mnnb	nn=0-31, b=0-f	b must be 0
Keep RELAY	Knnb	nn=0-15, b=0-f	b must be 0
Link RELAY	Lnnb	nn=0-15, b=0-f	b must be 0
Special RELAY	Fnnb	nn=0-15, b=0-f	b must be 0
Timer	Tnnn	nnn=0-127	n.. must be 0 or multiple of 16
Counter	Cnnn	nnn=0-127	n.. must be 0 or multiple of 16

2. The illustration of the connection:

PWS-series to PLC RS232 PORT (9-pin male)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting

a.Transmission Format	RS232	COM1 or COM2=RS232
b.Station No.	None	
c.Transmission Speed	9600 bps	
d.Transmission Format	8-Bits, NONE, 1-Bit	

9.28. MATSUSHITA FP

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Device Type / Aux.Address		Block ead R/W	
Internal Relay	WRnn	nn=0-97(875)	0	0	Word	
Special Internal Relay	WRnnn	nnn=900-910	1	0	Word	
Link Relay	WLnnn	nnn=0-127(639)	2	0	Word	
External Input Relay	WXnnn	nnn=0-127(255)	3	0	Word	
External Output Relay	WYnnn	nnn=0-127(255)	4	0	Word	
Timer/Counter P.V.	EVnnn	nnn=0-254(2047)	5	0	Word	
Timer/Counter S.V.	SVnnn	nnn=0-254 (2047)	6	0	Word	
Data Register	DTnnnn	nnnn=0-2047 (32764)	7	0	Word	
Special Data Register	DTnnnn	nnnn=9000-9255	8	0	Word	
Link Data Register	LDnnn	nnn=0-127(8447)	9	0	Word	
File Register	FLnnnnn	nnnn=0-8191 (32764)**	10	0	Word	

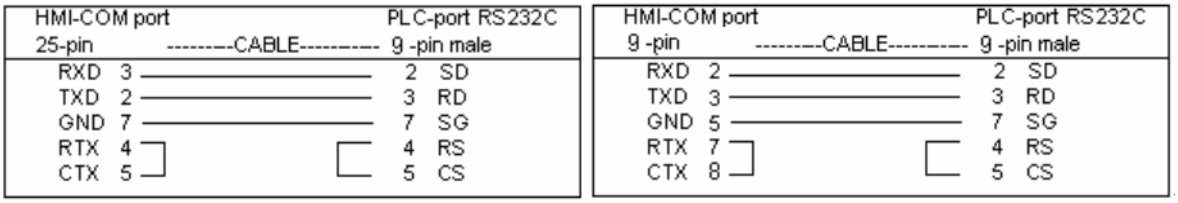
** The HMI can read up to 27 word in one read command.
**The Register setting range of FP10SH is nnnnn=0- 32764.

Relay Type	Format	Range with the Relay	Block
Internal Relay	Rnnnb	nn=0-97(875);b= 0-f	b=0 e.g. R1230
Special Internal Relay	Rnnnb	nnn=900-910;b= 0-f	b=0 e.g. R9100
Link Relay	Lnnnb	nnn=0-127(639);b=0-f	b=0 e.g.. L110
External Input Relay	Xnnnb	nnn=0-127(255);b=0-f	b=0 e.g. X00
External Output Relay	Ynnnb	nnn=0-127(255);b=0-f	b=0 e.g. Y00
Timer Flag Contact	Tnnn	nnn=0-254(2047)	must be 0 or multiple of16
Counter Flag Contact	Cnnn	nnn=0-254(2047)	must be 0 or multiplr of 16

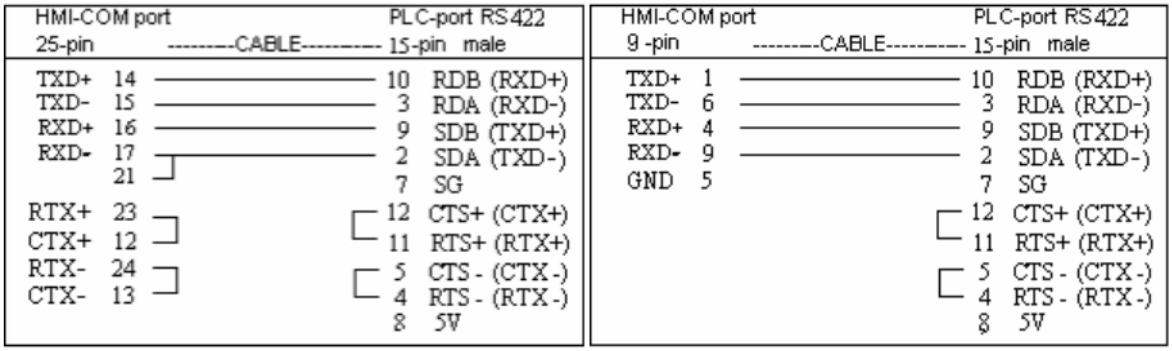
** The HMI can read up to 432 bits in one read command.
**The Relay setting range of FP10SH is nnnn=0-2047.

2. The illustration of the connection:

a. PWS-series to PLC RS232C LINK of FP3 CCU or FP1 LINK PORT



b. PWS-series to PLC RS422 of PROGRAM PORT (FP3 CPU PORT)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	**PLC** Setting	**PWS** Setting
a.Communication Format	RS422 or RS232C	COM2=RS232/422/485
b.Station No.	02-27	1. Set PLC Station 01 in ADP, CPU
	FP CPU PORT =238	PORT 238
	FP1: Set computer link	
c.Transmission Speed	19200/9600 bps	1. Set SW5=OFF if parameters are
	FP10SH –CPU: Set115.2K bps	set in ADP
d.Transmission Format	Size 8-Bits,odd, 1-Bit	2. Set SW=ON if parameters are
		set in the HMI

9.29. MIRLE DX

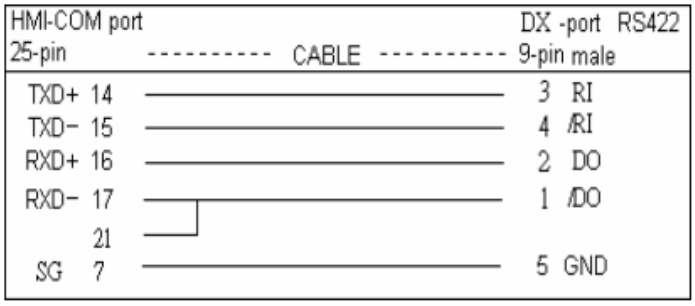
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
IR area	IRnnn	nnn=0-111	Word
DM area	DMnnnn	nnnn=0-2367	Word

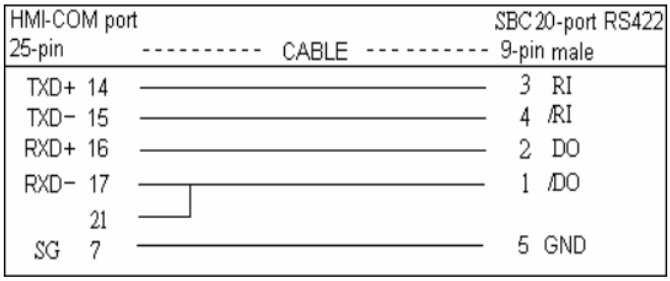
Relay Type	Format	Range with the Relay	Block
IR area	IRnnnbb	nnn=0-111,bb=00-15	bb=00

2. The illustration of the connection:

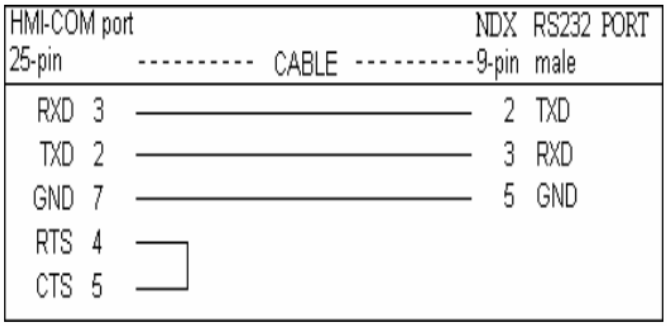
a. PWS to MIRLE DX RS422 PORT



b. PWS to MIRLE SBC 20 RS422 PORT



c. PWS to MIRLE NDX RS232



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C/ RS422	COM2=RS232/422
b.Station No.	0	1. Set PLC Station 00 in ADP
c.Transmission Speed	9600 bps	
d.Transmission Format	1.DX,SBC20—8 Bits,ODD,1 Stop Bit	1 Set SW5=ON if parameters are set in the HMI
	2.NDX —8 Bits,NONE,1 Stop Bit	

9.30. Mitsubishi FX

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Auxiliary Relay	Mnnnn	nnnn=0-3071; must be 0 or multiple of 8	Byte
Special Auxiliary Relay	Mnnnn	nnnn=8000-8255; must be 0 or multiple of 8	Byte
Status Relay	Snnn	nnn=0-999; must be 0 or multiple of 8	Byte
Input Relay	Xnnn	nnn=octal number 0-377; end with 0	Byte
Output Relay	Ynnn	nnn=octal number 0-377; end with 0	Byte
Timer PV	Tnnn	nnn=0-254	Word
16-位元 Counter PV	Cnnn	nnn=0-199	Word
32-位元 Counter PV	Cnnn	nnn=200-255	DWord
Data Register	Dnnn	nnn=0-1023(7999) D1000=FILE REGISTER	Word
Special Data Register	Dnnnn	nnnn=8000-8255	Word

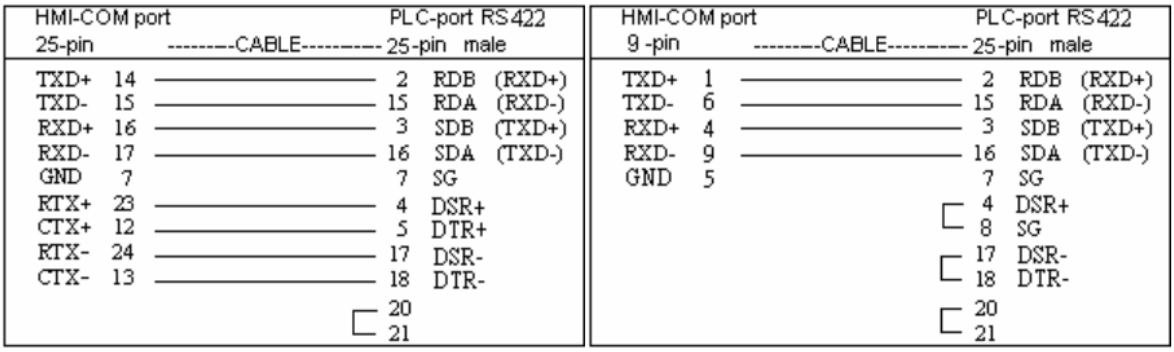
** The HMI can read up to 32Words in one read command.

Relay Type	Format	Range with the Type	Block
Auxiliary Relay	Mnnnn	0-3071	Must be 0 or multiple of 8
Special Auxiliary Relay	Mnnnn	8000-8255	Must be 0 or multiple of 8
Status Relay	Snnn	0-999	Must be 0 or multiple of 8
Input Relay	Xnnn	Octal number 0-377	End with 0
Output Relay	Ynnn	Octal number 0-377	End with 0
Timer Flag	Tnnn	0-255	Must be 0 or multiple of 8
Counter Flag	Cnnn	0-255	Must be 0 or multiple of 8

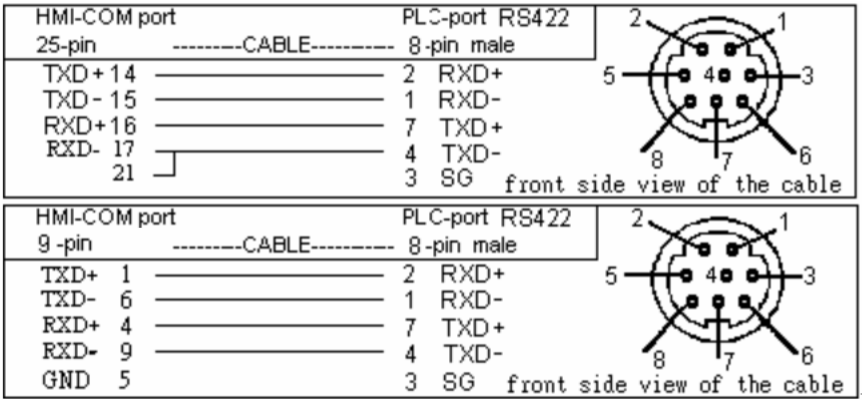
** The HMI can read up to 512 bits in one read command.

2. The illustration of the connection:

a. PWS to RS422 of PLC-FX2 CPU



b. PWS- to PLC PROGRAM Loader PORT (Mitsubishi FX2n/FX0n CPU PORT)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS422	
b.Transmission Speed	9600 bps	
c.Transmission Format	7-Bits,EVEN,1-Bit	

9.31. Mitsubishi A

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Input Relay	Xnnn	nnn=hex number 0-7ff; end with 0	Word
Output Relay	Ynnn	nnn=hex number 0-7ff; end with 0	Word
Link Relay	Bnnn	nnn=hex number 0-fff; end with 0	Word
Internal Relay	Mnnnn	nnnn=0-8191; must be 0 or multiple of 16	Word
Special Relay	Mnnnn	nnnn=9000-9255;-9000 must be multiple of 16	Word
Latch Relay	Lnnnn	nnnn=0-2047; must be 0 or multiple of 16	Word
Annunciator	Fnnnn	nnnn=0-2047; must be 0 or multiple of 16	Word
Timer PV	TNnnn	nnn=0-999	Word
Counter PV	CNnnn	nnn=0-999	Word
Data Register	Dnnnn	nnnn=0-8191	Word
Special Register	Dnnnn	nnnn=9000-9255	Word
File Register	Rnnnn	nnnn=0-8191	Word
Link Register	Wnnn	nnn=hex number 0-fff	Word
Peripherial Input Relay	PXnnn	nnn=0-7ff must be 0 or multiple of 16	Word

** The HMI can read up to 64Words in one read command.

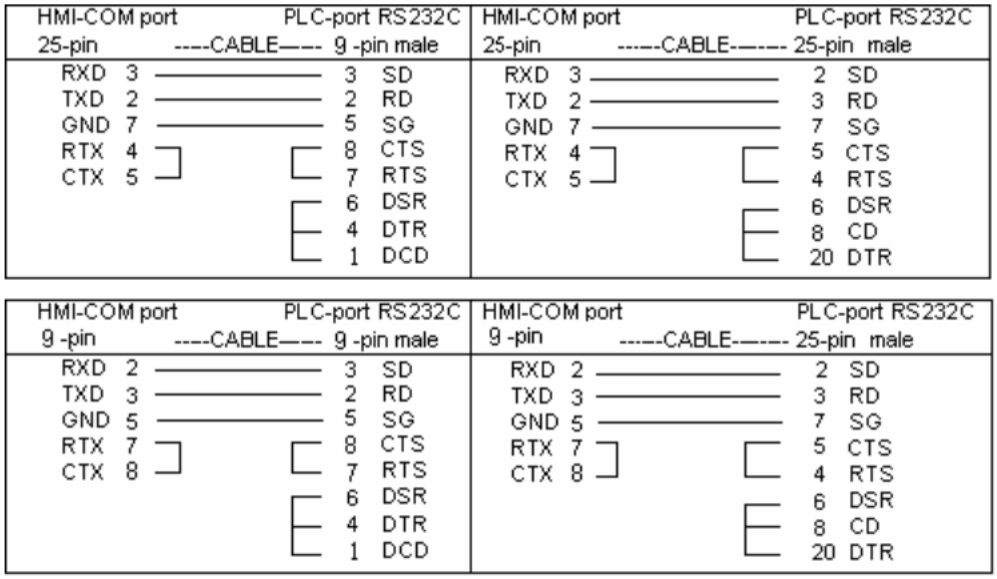
Relay Type	Format	Range with the Relay	Block
Input Relay	Xnnn	hex number 0-7ff	End with 0
Output Relay	Ynnn	hex number 0-7ff	End with 0
Link Relay	Bnnn	hex number 0-fff	End with 0
Internal Relay	Mnnnn	0-8191	Must be 0 or multiple of 16
Special Relay	Mnnnn	9000-9255	The last 3 digits must be multiple of 16.
Latch Relay	Lnnnn	0-2047	Must be 0 or multiple of 16.
Annunciator	Fnnnn	0-2047	Must be 0 or multiple of 16.
Timer Contact	TSnnn	0-999	Must be 0 or multiple of 16.
Timer Coil	TCnnn	0-999	Must be 0 or multiple of 16.

Counter Contact	CSnnn	0-999	Must be 0 or multiple of 16.
Counter Coil	CCnnn	0-999	Must be 0 ot multiple Of 16.
Peripherial Input Relay	PXnnn	0-7ff	Must be 0 or multiple of 16.

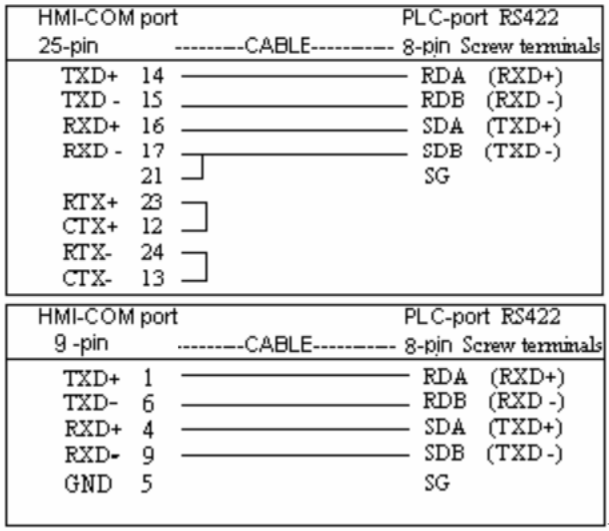
** The HMI can read up to512 bits in one read command.

2. The illustration of the connection:

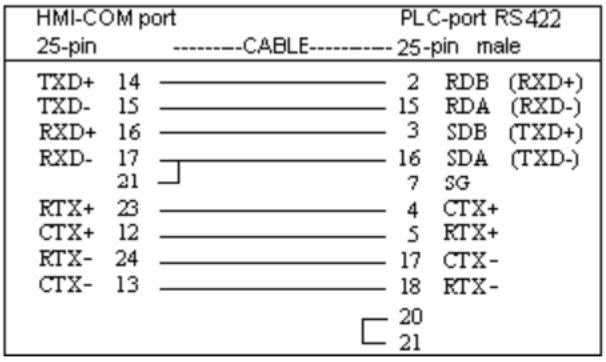
a. PWS and PLC AJ71UC24-R2/S8



b. PWS and PLC AJ71UC24 RS422



c. PWS,PLC AnA and AnA/AnS/AnU CPU port RS422



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS422 or RS232C	COM2=RS232/422/485
AJ71UC24 sw1=ON	RS422	1. RS422: Set SW10=OFF
sw1=Off	RS232	
b.Station No.	00(CPU PORT)	1. Set PLC station 00
	00(AISJ71C24-S3)	Set PWS station 255
	00-31(AJ71UC24)	
c.Transmission Speed	9600/19200 bps	
	CPU PORT=9600bps	
d.Transmission Format	8-Bits,ODD,1-Bit	
e.Comm. Protocol	Format 1;5;A	
f.Check Sum	YES	
g.Write during Run	Allowed	

**For AISJ71C24 or AJ71c24, set the HMI staion no. as 255 and PLC station no. as 0 and connect with PLC CPU port. To communicate in COM2, please set the DIP switch = off and communication parameters as 9600,8,0DD,1.

9.32. Mitsubishi QnA

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

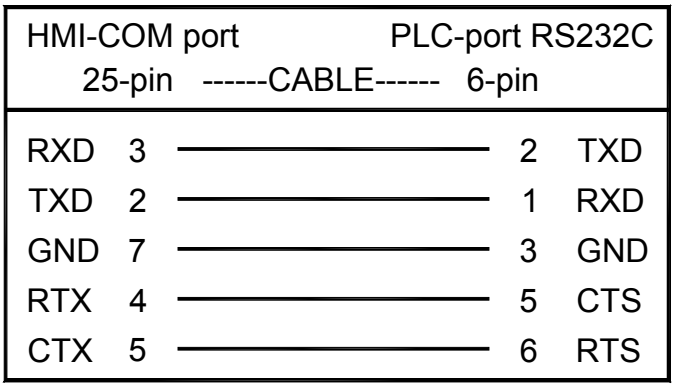
Register Type	Format	Range with the Register	Data Size
Link Relay	Bn	n=hex number 0-1fff ; end with 0	Word
Counter Coil	CCn	n=0-1023; must be 0 and multiple of 16.	Word
Counter Current Value	CNn	n=0-1023	Word
Counter Contact	CSn	n=0-1023; must be 0 or multiple of 16.	Word
Data Register	Dn	n=0-12287	Word
Direct Input	DXn	n=hex number 0-1fff ; end with 0	Word
Direct Output	DYn	n=hex number 0-1fff ; end with 0	Word
Annunciator	Fn	n=0-2047; must be 0 or multiple of 16	Word
Latch Relay	Ln	n=0-8191; must be 0 or multiple of 16	Word
Internal Relay	Mn	n=0-8191; must be 0 or multiple of 16	Word
File Register	Rn	n=0-32767	Word
Step Relay	Sn	n=0-8191; must be 0 or multiple of 16	Word
Special Link Relay	SBn	n=hex number 0-7ff ; end with 0	Word
Retentive Timer Coil	SCn	n=0-2047; must be 0 or multiple of 16	Word
Special Register	SDn	n=0-2047	Word
Special Relay	SMn	n=0-2047; must be 0 or multiple of 16	Word
Retentive Timer Current Value	SNn	n=0-2047	Word
Retentive Timer Contact	SSn	n=0-2047; must be 0 or multiple of 16	Word
Special Link Register	SWn	n=hex number 0-7ff	Word
Timer Coil	TCn	n=0-2047; must be 0 or multiple of 16	Word
Timer Current Value	TNn	n=0-2047	Word
Timer Contact	TSn	n=0-2047; must be 0 or multiple of 16	Word
Edge Relay	Vn	n=0-2047; must be 0 or multiple of 16	Word
Link Register	Wn	n=hex number 0-1fff	Word
Input Relay	Xn	n=hex number 0-1fff ; end with 0	Word

Output Relay	Yn	n=hex number 0-1fff ; end with 0	Word
Index Register	Zn	n=0-15	Word
File Register	ZRn	n=hex number 0-fe7f	Word

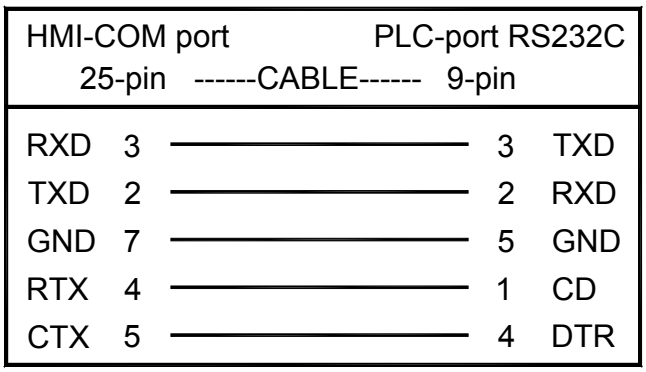
Relay Type	Format	Range with the Relay	Block
Link Relay	Bn	hex number 0-1ffff	
Counter Coil	CCn	0-1023	
Counter Contact	CSn	0-1023	
Direct Input	DXn	n=hex number 0-1fff	
Direct Output	DYn	n=hex number 0-1fff	
Annunciator	Fn	0-2047	
Latch Relay	Ln	0-8191	
Internal Relay	Mn	0-8191	
Step Relay	Sn	0-8191	
Special Link Relay	SBn	n=hex number 0-7ff	
Retentive Timer Coil	SCn	0-2047	
Special Relay	SMn	0-2047	
Retentive Timer Contact	SSn	0-2047	
Timer Contact	TSn	0-2047	
Timer Coil	TCn	0-2047	
Edge Relay	Vn	0-2047	
Input Relay	Xn	hex number 0-1fff	
Output Relay	Yn	hex number 0-1fff	

2. The illustration of the connection:

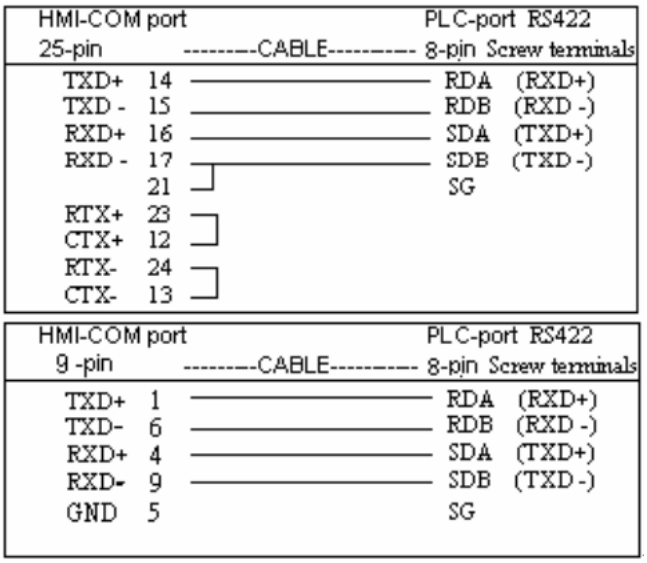
a. PWS and QnA CPU port (RS232)



b. PWS and Q Series C24 (RS232)



c. PWS and Q Series C24 (RS422)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS422 or RS232C	COM2=RS232/422/485
b.Station No.	00(CPU PORT)	
	00(Q Series C24)	Set PLC Station 00
c.Transmission Speed	19200 bps	
d.Transmission Format	8-Bits,ODD,1-Bit (CPU PORT)	
	7-Bits,EVEN,2-Bits (Q Series C24)	

9.33. Modbus slave

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

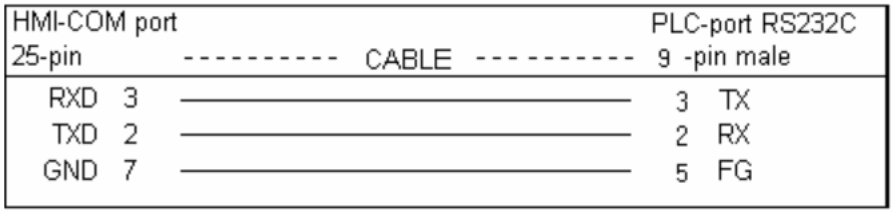
Register Type	Format	Range with the Register	Data Size
REGISTER	Wnnnnn	nnnnn=0-65535	Word(16 Bits)

Relay Type	Format	Range with the Relay	Block
RELAY	Bn	n=0-65535	

2. The illustration of the connection:

a. PWS-series to PLC

b. PWS-series to PLC RS232 PORT (9-pin male)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	B. PWS Setting
a.Communication Format	RS232 (RS422/RS485)	COM1 or COM2=RS232 (RS422/RS485)
b.Station No.		
c.Transmission Speed	9600 bps (9600-115200)	
d.Transmission Format	8-bits, NONE, 1-bit	
	(7), (EVEN/NONE), (2)	

9.34. Modicon PC984 or Modbus(Ascii)or TSX Quantum

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

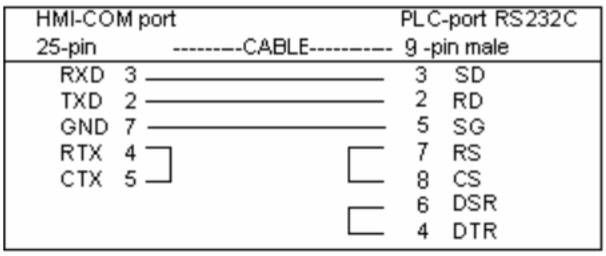
Register Type	Format	Range with the Register	Data Size
Input Registers (Modicon PC 984/Modbus (Ascii))	nnnnn	nnnnn=30001-39999(slave) 30001-31024(master)	Word
Output Registers (Modicon PC 984/Modbus (Ascii))	nnnnn	nnnnn=40001-49999(as slave) 40001-41024(as master)	Word
Input Registers (TSX Quantum)	nnnnnn	nnnnn=300001-365535	Word
Output Registers (TSX Quantum)	nnnnnn	nnnnn=400001-465535	Word

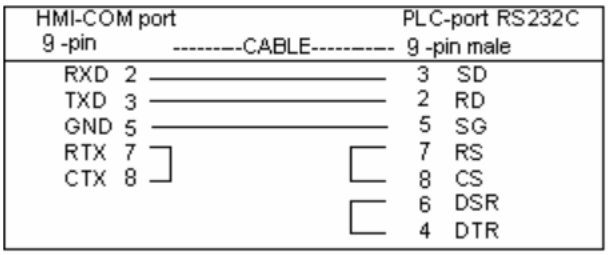
** The HMI can read up to 125Words in one read command.

Relay Type	Format	Range with the Relay
Discrete Outputs (Modicon PC 984/Modbus (Ascii))	Nnnnn	nnnnn=1-4999(slave) 1-1024(master)
Discrete Inputs (Modicon PC 984/Modbus (Ascii))	Nnnnn	nnnnn=10001-19999(slave) 10001-11024(master)
Discrete Outputs(TSX Quantum)	Nnnnn	nnnnn=000001-065535
Discrete Inputs (TSX Quantum)	Nnnnn	nnnnn=100001-165535

** The HMI can read up to 2000bits in one read command.
**Modubus (Ascii) master – V2 as Modubus (Ascii) master. In functional way,it will inform the connected controller automatically when the HMI data is changed.

2. The illustration of the connection:PWS series to RS232 of PLC CPU port





3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

9. Communication with PLC and PWS

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C	COM1/COM2=RS232
b.Station No.	1	1. Set PLC Station 01 in ADP
	01—247 (mem setup)	
c.Transmission Speed	19200/9600 bps	
d.Transmission Format	8, EVEN ,1	
	(7,O,1);(7,E,1);(7,E,2)	
RTU MODE	(8,E,1);(8,O,1);(8,N,1)	

9.35. OMRON C

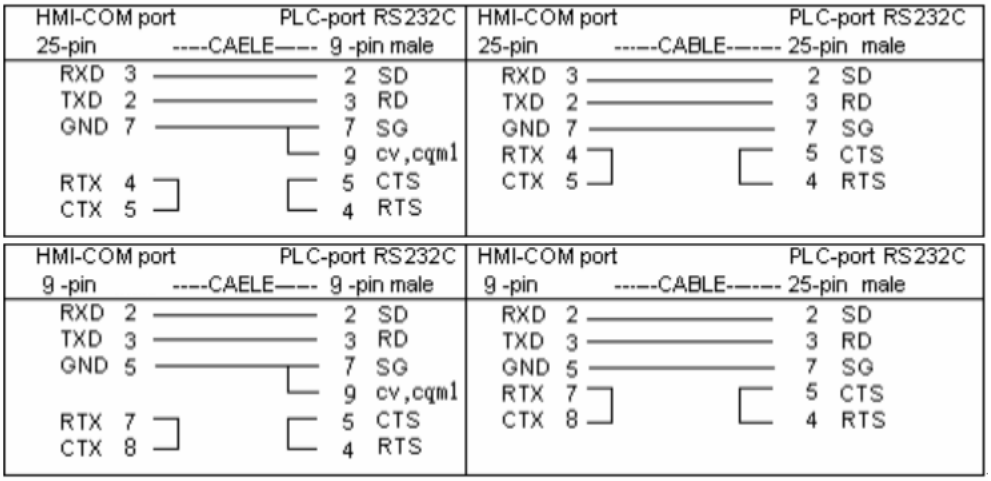
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Block read	
IR area	IRnnn	nnn=0-511	Word(16 Bits)	Max. 28
HR area	HRnn	nn=0-99	Word(16 Bits)	Max. 28
AR area	ARnn	nn=0-27	Word(16 Bits)	Max. 28
LR area	LRnn	nn=0-63	Word(16 Bits)	Max. 28
TC area	TCnnn	nnn=0-511	Word(16 Bits)	Max. 28
DM area	DMnnnn	nnnn=0-6655	Word(16 Bits)	Max. 28

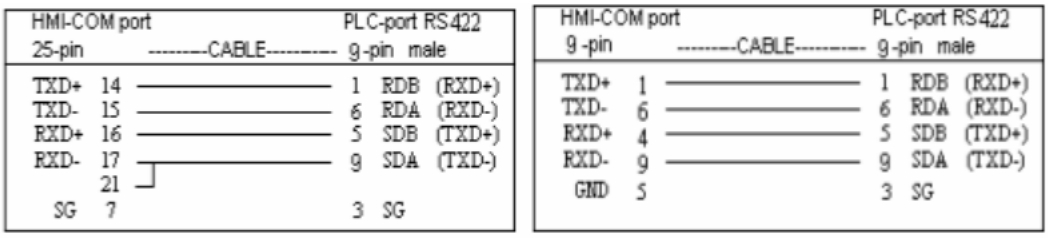
Relay Type	Format	Range with the Relay	Block
IR area	IRnnnbb	nnn=0-511; bb=00-15	bb=00 e.g. IR12300
HR area	HRnnbb	nn=0-99 ; bb=00-15	bb=00 e. g.HR2300
AR area	ARnnbb	nn=0-27 ; bb=00-15	bb=00 e.g. AR100
LR area	LRnnbb	nn=0-63 ; bb=00-15	bb=00 e.g. LR2300
TC area	TCnnn	nnn=0-511	Multiple of 16 e.g. TC16

2. The illustration of the connection:

a. PWS-series to PLC RS232C HOST LINK of LK201/ C200HS/C28H/C40H/CQM1



b. PWS-series to PLC RS422 HOST LINK of C200H-LK202



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C/ RS422/ RS485	COM2=RS232/422/485
b.Station No.	00(00-31)	1. Set PLC station 00 in ADP
1.CQM1-CPU21	DM6648=0000	
c.Transmission Speed	19200/9600 bps	
1.CQM1-CPU21	DIP-sw5=OFF	
d.Tranmission Format	Initial value 7-bits, ENEN, 2	
e.Operation Mode	Monitor Mode	
f.PROTOCOL	Multiple-Link	

9.36. Omron CS1

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

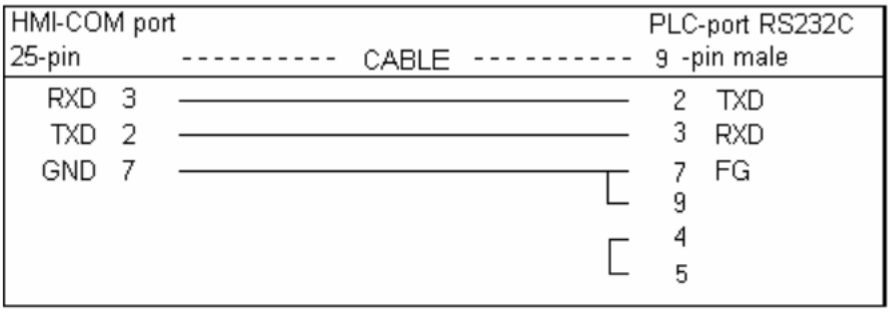
Register Type	Format	Range with the Register	Data Size
IR Area (CIO Area)	IRnnnn	nnnn=0-6143	Word(16 Bits)
HR Area	HRnnn	nnn=0-511	Word(16 Bits)
AR Area	ARnnn	nnn=0-959	Word(16 Bits)
LR Area	LRnnn	nnn=0-199	Word(16 Bits)
TC Area	TCnnnn	nnnn=0-4095	Word(16 Bits)
DM Area	DMnnnn	nnnn=0-9999	Word(16 Bits)
EM Area	EMm.nnnnn	m=0-c, nnnn=0-9999	Word(16 Bits)

Relay Type	Format	Range with the Relay	Block
IR Area (CIO Area)	IRnnnnb	nnnn=0-6143, b=00-15	bb must be 00
HR Area	HRnnnb	nnn=0-511, b=00-15	bb must be 00
LR Area	LRnnnb	nnn=0-199, b=00-15	bb must be 00
Timer Area	Tnnnn	nnnn=0-2047	
Counter Area	Cnnnn	nnnn=0-2047	

2. The illustration of the connection:

a. PWS-series to PLC

PWS-series to PLC RS232 PORT (9-pin male)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Seting
a.Communication Format	RS232 (RS422/RS485)	COM1 or COM2=RS232 (RS422/RS485)
b.Station No.	0 (0-31)	
c.Transmission Speed	9600 bps	
d.Transmission Format	7-Bits, EVEN, 2-Bits	

9.37. Omron CV

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

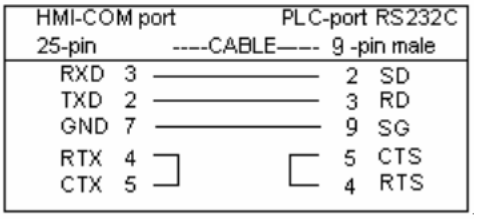
Register Type	Format	Range with the Register	Data Size
CIO Area	CIOnnnn	nnnn=0-2555	Word(16 Bits)
TC Area	TCnnnn	nnnn=0-1023	Word(16 Bits)
TC Area	TCnnnn	nnnn=2048-3071	Word(16 Bits)
AR Area	ARnnn	nnn=0-511	Word(16 Bits)
DM Area	DMnnnn	nnnn=0-9999	Word(16 Bits)

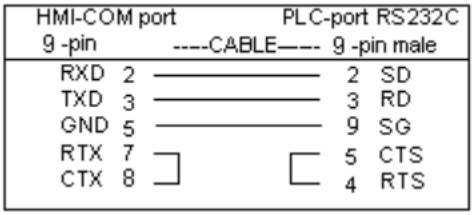
Relay Type	Format	Range with the Relay	Block
CIO Area	CIOnnnnbb	nnnn=0-2555, bb=00-15	bb must be 00
TC Area	TCnnnn	nnnn=0-1023	
TC Area	TCnnnn	nnnn=2048-3071	

2. The illustration of the connection:

a. PWS-series to PLC

PWS-series to PLC RS232 PORT





3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	B. PWS Setting
a.Communication Format	RS232	COM1 or COM2=RS232
b.Station No.	0	
c.Transmission Speed	9600 bps	
d.Transmission Format	7-Bits, EVEN, 2-Bits	

9.38. Parker 6K

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Command	Format	Range with the Register	Data Size	Data Range
Input	!nTIN	In	n = 0 ~ 8	**Double Word**	
Output	!nTOUT	On	n = 0 ~ 8	Double Word	
Alarm Status	!INTHW	Asn	n = 1	Double Word	
Axis Status	!nTAS	AXSn	n = 1 ~ 8	Double Word	
System Status	!TSS	SYSn	n = 1	Double Word	
User Status	!TUS	USSn	n = 1	Word	
Binary	!VARBnnn	**VARBnnn**	nnn = 001~125	Double Word	
Numeric	!VARnnn	VARnnn	nnn = 001~225	Double Word	+-999,999,999
Integer	!VARInnn	VARInnn	nnn = 001~225	Double Word	+-2,147,483,647
String	!VARSnn	VARSnn	nn = 01 ~ 50	10 Words	0 ~ 20 Characters
Motor Position	!nTPC	MOPn	n = 1 ~ 8	**Double Word**	**+-2,147,483,647**
Motor Velocity	!nTVEL	MOVn	n = 1 ~ 8	Double Word	
Encoder Position	!nTPE	ENPn	n = 1 ~ 8	Double Word	
TIMER	!TTIM	Tn	n = 1	Double Word	0 ~ 999999999
Nnn	Run Program	Nnn	nn = 1 ~ 50	10 Words	0 ~ 20 Characters

**If Paker 6K still excute, it will cause communication Time Out .
**Parker 6K needs to write internal program in order to accept the command with initial code '!', or it may cause communication error.

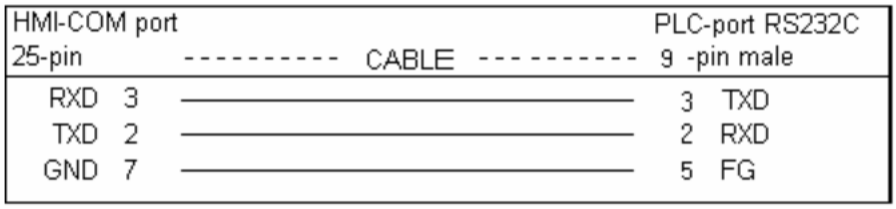
Register Type	Command	Format	Range with the Register		Data Range
Input	!nTIN	In.bb	n = 0 ~ 8	bb =1~32	Bit
Output	!nTOUT	On.bb	n = 0 ~ 8	bb =1~32	Bit
Alarm Status	!INTHW	ASn.bb	n = 1	bb =1~32	Bit
Axis Status	!nTAS	AXSn.bb	n = 1 ~ 8	bb =1~32	Bit
System Status	!TSS	SYSn.bb	n = 1	bb =1~32	Bit
User Status	!TUS	USSn.bb	n = 1	bb =1~16	Bit
Binary	!VARBnnn	**VARBnnn.bb**	nnn = 001~125	bb =1~32	Bit

Register Type	Command	Format	Range with the Register		Data Range
Error Status	TERn.bb	TERn.bb	n = 1	bb =1~32	Bit
RUN	Run Program	RUNnn	nn = 1 ~50		Bit

2. The illustration of the connection:

a. PWS-series to PLC

PWS-series to PLC RS232 PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	COM1 or COM2=RS232
b.Station No.	None	
c.Transmission Speed	9600 bps	
d.Transmission Foramt	8-Bits, NONE, 1-Bit	

9.39. SIDE MIDA 20/20D

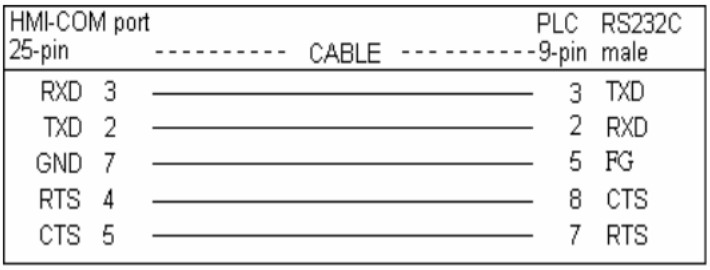
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Register	Wnnnnn	nnnn= 0-10499	Word(16 Bits)
Display	Dispn	n=0-4	10 Words
Date	Daten	N=0-6	Word

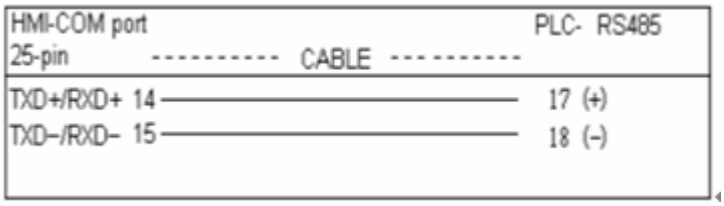
Relay Type	Format	Range with the Relay	Block
I/O Relay	Bnnn	nnn= 0-1599	Must be 0 or multiple of16
Hardware Reset	HardRn	n= 0	
Software Reset	SoftRn	n= 0	
Clear RAM,EEPROM	Clr0-n	n= 0	
Clear database	Clr1-n	n= 0	
Clear RAM,EEPROM, database	Clr2-n	n= 0	
Clear RAM,EEPROM, database and default setup	Clr3-n	n= 0	

2. The illustration of the connection:

a. PWS-series to PLC RS232 PORT



b. PWS-series to PLC RS485 PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C RS485	RS232C: use SIDE MIDA 20/20D driver RS485 :use MODBUS SLAVE driver
b.Station No.	RS232C=153 RS485=1	RS232C=153 RS485 =1
c.Transmission Speed	RS232C=9600 bps RS485 =9600 bps	
d.Transmission Format	RS232C =7 bits,none,1 bit RS485 =8 bits,even,1 bit	
e.Mode	RS232C=stop mode RS485 =running mode	

9.40. Simatic S5

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

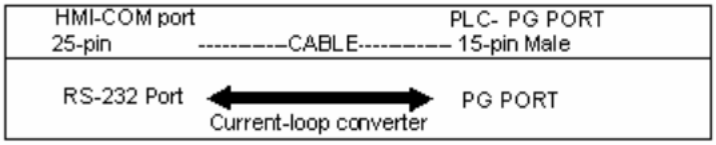
Register Type	Format	Range of the Register	Data Size	
Input Image	IBnnn	nnn=0-127	Byte	Max. 30
Output Image	QBnnn	nnn=0-127	Byte	Max. 30
Extended I/O	OBnnn	nnn=0-8191	Byte	Max. 30
Flag 位元s	FBnnn	nnn=0-8191	Byte	Max. 30
Peripheral I/O	PBnnn	nnn=0-8191	Byte	Max. 30
System Data Area	RSnnn	nnn=0-255	Word	Max. 30
System Data Area	RInnn	nnn=0-255	Word	Max. 30
System Data Area	RJnnn	nnn=0-255	Word	Max. 30
System Data Area	RTnnn	nnn=0-255	Word	Max. 30
Timer Current	Tnnn	nnn=0-255	Word	Max. 30
Counter Current	Cnnn	nnn=0-255	Word	Max. 30
Data Block	DBmmm/nnn DBnnn	mmm=0-255; mmm is Block number nnn=0-65535; nnn is the numbers which defines block. If the mmm not set the numbers, the numbers of mmm is 3= DB3/nnn		Max. 30
Data Block	DWmmm/nnn DWnnn	mmm=0-255; mmm is Block number nnn=0-32767; nnn is the numbers which defines block. If the mmm not set the numbers, the numbers of mmm is 3= DW3/nnn		Max. 30

** The HMI can read up to 30Words in one read command.

Relay Type	Format	Range of the Relay	Block
Input Image	IBnnn.b	nnn=0-127; b=0-7	b=0 e.g. IB30.0
Output Image	QBnnn.b	nnn=0-127; b=0-7	b=0 e.g. QB2.0
Extended I/O	OBnnn.b	nnn=0-255; b=0-7	b=0 e.g. OB0.0
Flag 位元s	FBnnn.b	nnn=0-255; b=0-7	b=0 e.g. FB23.0
Peripheral I/O	PBnnn.b	nnn=0-255; b=0-7	b=0 e.g. PB23.0

2. The illustration of connection: You must useRS-232/Current-loop convert cable.

PWS-30XX(OLD MODEL) provides 20mA current-loop to connect.PWS-12xx, PWS-17xx,PWS700, PWS-31xx and PWS-37Xx do not provide 20mA current-loop.



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	20mA CURRENT LOOP	PWS-30xx/PWS-21xx
	RS-232/Current-loop converter	COM1 or COM2=>RS232
b.Station No.	None	
c.Transmission Speed	9600 bps	PLC. MODE CODE 0: 90U 1: 95U 2:100U 3:102U 4:103U 5:115U 6:135U/921 7:135U/922 8:135U/928
d.Transmission Format	8-bits, EVEN ,1-bit	
e.PLC Mode Code	PLC's Data Block n=3～255 must OPEN	
f. Command Delay		PWS Command Delay

9.41. Simatic S5 3964R

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

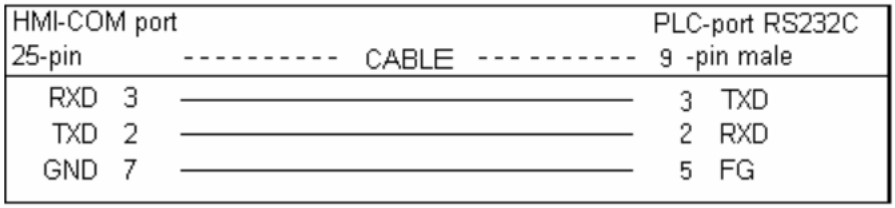
Register Type	Format	Range with the Register	Data Size
Register	nnn	nnn=0-255, data block: set 3	Word(16 Bits)
Register	mmm/nnn	mmm=0-255, nnn=0-255	Word(16 Bits)

Register Type	Format	Range with the Relay	Block
Relay	nnn.b	nnn=0-255, b=0-f, data block: set 3	b must be 0
Relay	mmm/nnn.b	mmm=0-255, nnn=0-255, b=0-f	b must be 0

2. The illustration of the connection:

a. PWS-series to PLC

PWS-series to PLC RS232 PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	COM1 or COM2=RS232
b.Station No.	None	
c.Transmission Speed	9600 bps	
d.Transmission Format	8-Bits, EVEN, 1-Bit	

9.42. Simatic S7-200 PPI

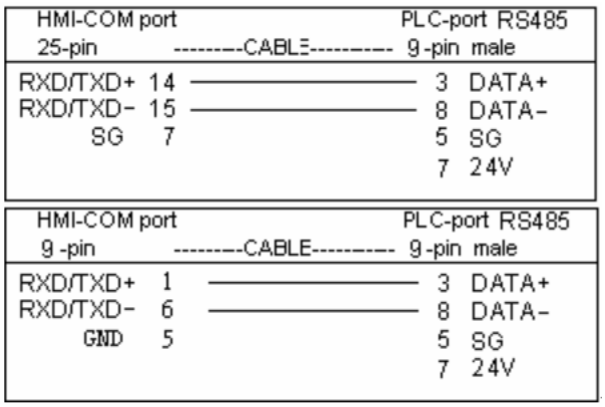
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Input Image	IWn	n=0-14	Word
Input Image	IDn	n=0-12	Double Word
Output Image	QWn	n=0-14	Word
Output Image	QDn	n=0-12	Double Word
Internal Bits	MWnn	nn=0-99	Word
Internal Bits	MDnn	nn=0-97	Double Word
Timer	Tnnn	nnn=0-255	Word
Counter	Cnnn	nnn=0-255	Word
Special S	SWnn	nn=0-99	Word
Special S	SDnn	nn=0-97	Double Word
Special Bits	SMWnnn	nnn=0-27	Word* read only
Special Bits	SMWnnn	nnn=28-199	Word
Special Bits	SMDnnn	nnn=0-197	Double Word
Analog input word	AIWnn	nn=0-30	Word* read only
Analogoutputword	AQWnn	nn=0-30	Word* read only
Data Area	VWnnnn	nnnn=0-9998	Word
Data Area	VDnnnn	nnnn=0-9996	Double Word
Data Area	DBWnnnn	nnnn=0-9998	Word

**AQW; SW;SD can’t used in CPU212,214

Relay Type	Format	Range with the Relay	Block
Input Image	In.b	n=0-15; b=0-7	b=0 e.g. I3.0
Output Image	Qn.b	n=0-15; b=0-7	b=0 e.g. Q2.0
Internal Bit	Mnn.b	nn=0-100;b=0-7	b=0 e.g. M0.0
Timer Bit	Tnnn	nnn=0-255	b=0 e.g.T0 *read only
Counter Bit	Cnnn	nnn=0-255	b=0 e.g.C0 *read only
Special Bit	SMnnn.b	nnn=0-200 ;b=0-7	b=0 e.g. SM23.0
Data Area Bit	Vnnnn.b	nnnn=0-999 ;b=0-7	b=0 e.g. V2323.0
Special M	Snn.b	nn=0-100; b=0-7	b=0 e.g. S25.0

2. The illustration of the connection:PWS-series to PLC PROGRAM PORT of (RS485 mode).



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS485	COM2=RS232/422/485
b.Station No.	02(02-27)	1. RS485: Sets SW10=ON
c.Transmission Speed	9600 /19200bps	
d.Transmission Format	8-Bits, EVEN, 1-Bit	
e.Command Delay		PWS Command Delay

**The communication mode of Simatic S7-200 Network is Token Ring structure and can exists in several majors. Under on-line,PC can download,upload to PLC.

9.43. Simatic S7-300 CP340

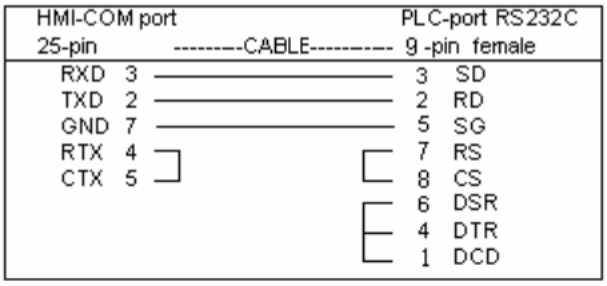
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

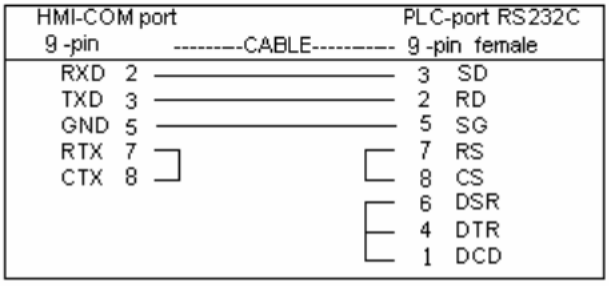
Register Type	Format	Range with the Register	Data Size
DBmmm.DBWnnnn	mmm=1-255 nnnn=0-8190	DBmmm.DBWnnnn is the address of a word locates at byte #nnnn and the byte following #nnnn of data block #3	Word
DBmmm.DBDnnnn	mmm=1-255 nnnn=0-8188	DBmmm.DBDnnnn is the address of a double-word locates at byte #nnnn and the three bytes following #nnnn of data block #mmm	Double Word

** The HMI can read up to 32Words in one read command.

Relay Type	Format	Range with the Relay	Block
DBmmm.DBXnnnn.b	mmm=1-255 nnnn=0-8191 b=0-7	DBmmm.DBXnnnn.b is the address of Bit #b of the word locates at byte #nnnn of data block #mmm	b=0

2. The illustration of the connection: a. PWS-series to PLC CP340 RS232C PORT





3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232=CP340	COM2=RS232/RS422/RS485

	RS422=CP340	1. RS422: Set SW10=OFF
	RS485=CP340	2. RS485: Set SW10=ON
b.Station No.	None	1. Set SW5=OFF if parameters are
c.Transmission Speed	9600 /19200bps	set in ADP
d.Transmission Format	8-Bits, EVEN, 1-Bit	2. Set SW5=ON if parameters are
e.FUNCTION BLOCK	FB40,FB2,FB3,DB2,DB3 for CP	set in the HMI

9.44. Simatic S7-300 (via MPI port)

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Device Type /Aux. Address		Data Size R/W	
Input Image	IWnnnnn	nnnnn=0-65534	0	0	Word	✓
Input Image	IDnnnnn	nnnnn=0-65532	1	0	DWord	✓
Output Image	QWnnnnn	nnnnn=0-65534	2	0	Word	✓
Output Image	QDnnnnn	nnnnn=0-65532	3	0	DWord	✓
Bits	MWnnn	nnnnn=0-254	4	0	Word	✓
Bits	MDnnn	nnnnn=0-252	5	0	DWord	✓
Data Area (DB10)	VWnnnnn	nnnnn=0-65534	6	0	Word	✓
Data Area (DB10)	VDnnnnn	nnnnn=0-65532	7	0	DWord	✓
Data Area (DB10)	DBWnnnnn	nnnnn=0-65534; the Byte nnnnn & nnnnn+1 make DBWnnnnn	6	0	Word	✓
Data Area (DB10)	DBDnnnnn	nnnnn=0-65532; a double word address, the DBWnnnn & DBWnnnn+1 make DBDnnnn	7	0	DWord	✓
Data Area	DBmmm.DBWnnnnn	mmm=1-255 nnnnn=0-65534	8	0	Word	✓
Data Area	DBmmm.DBDnnnnn	mmm=1-255 nnnnn=0-65532	9	0	DWord	✓
Timer	Tnnnnn	nnnnn=0-65534	10	0	Word	✓
Counter	Cnnnnn	nnnnn=0-65534	11	0	Word	✓

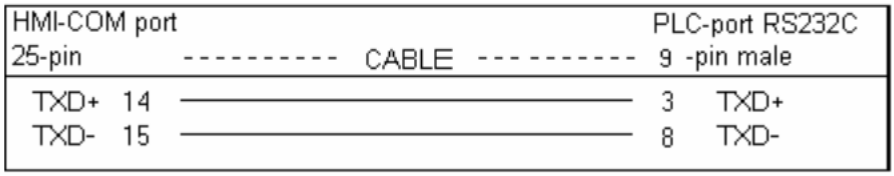
**Timer, Counter are read-only.

Relay Type	Foramt	Range with the Relay	Device Type /Aux.Address		BlockR/W	
Input Image	Innnnn.b	nnnnn=0-65535; b=0-7	0xC0	0-7	Bit	✓
Output Image	Qnnnnn.b	nnnnn=0-65535; b=0-7	0xC1	0-7	Bit	✓
Bit	Mnnn.b	nnn=0-255; b=0-7	0xC2	0-7	Bit	✓

Relay Type	Foramt	Range with the Relay	Device Type /Aux.Address		BlockR/W	
Data Area Bit (=DB10)	Vnnnnn.b	nnnn=0-65535; b=0-7	0xC3	0-7	Bit	✓
Data Area Bit (=DB10)	DBXnnnn.b	nnnnn=0-65535; b=0-7	0xC4	0-7	Bit	✓
	DB10.DBXnnnnn.b is a bit address, It is in #b bit of #nnnnn word with DB10					
Data Area Bit	DBmm.DBXnnnn.b	mm=1-31 nnnnn=0-65535; b=0-7	0xC5	0-7	Bit	✓

2. The illustration of the connection:

PWS-series to PLC MPI port (RS 485)



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS485	COM1 or COM2=RS485
b.Station No.	2	
c.Transmission Speed	19200 bps	
d.Transmission Format	8-Bits, EVEN, 1-Bis	

**Notes :

1. Cable is the same as Siemens S7 200 .
2. The HMI and PLC station are between 0 and 15. The HMI station is less than the PLC station.
3. When use the Macro, the SIZE of block move is limited within 10 words.
4. Because of the token ring protocol, there is no error message when remove the cable.

9.45. Simatic S7-300 MPI-Cable

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

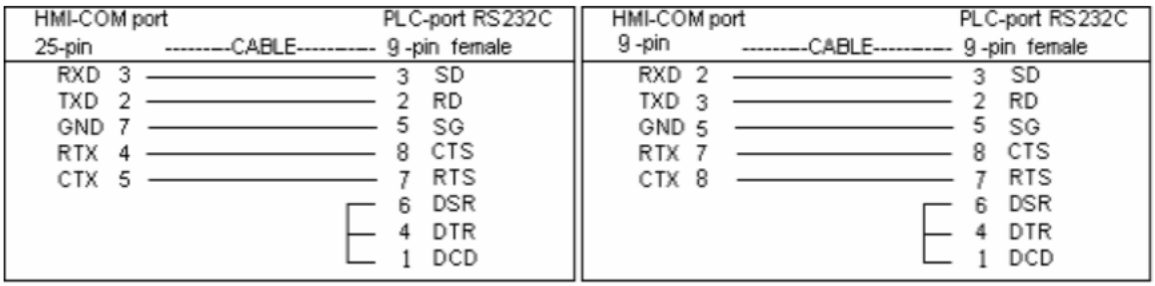
Register Type	Format	Range with the Register	Device Type /Aux. Address		Data Size R/W	
Input Image	IWnnnnn	nnnnn=0-65534	0	0	Word	✓
Input Image	IDnnnnn	nnnnn=0-65532	1	0	DWord	✓
Output Image	QWnnnnn	nnnnn=0-65534	2	0	Word	✓
Output Image	QDnnnnn	nnnnn=0-65532	3	0	DWord	✓
Bits	MWnnn	nnnnn=0-65534	4	0	Word	✓
Bits	MDnnn	nnnnn=0-65532	5	0	DWord	✓
Data Area (DB10)	VWnnnnn	nnnnn=0-65534	6	0	Word	✓
Data Area (DB10)	VDnnnnn	nnnnn=0-65532	7	0	DWord	✓
Data Area (DB10)	DBWnnnnn	nnnnn=0-65534; the Byte nnnnn & nnnnn+1 make DBWnnnnn	6	0	Word	✓
Data Area (DB10)	DBDnnnnn	nnnnn=0-65532; a double word address, the DBWnnnn & DBWnnnn+1 make DBDnnnn	7	0	DWord	✓
Data Area	DBmmm.DBWnnnnn	mmm=2-205 nnnnn=0-65534	8	0	Word	✓
Data Area	DBmmm.DBDnnnnn	mmm=2-205 nnnnn=0-65532	9	0	DWord	✓

Relay Type	Format	Range with the Register	Device Type /Aux. Address		Block R/W	
Input Image	Innnnn.b	nnnnn=0-65535; b=0-7	0xC0	0-7	Bit	✓
Output Image	Qnnnnn.b	nnnnn=0-65535; b=0-7	0xC1	0-7	Bit	✓
Bit	Mnnn.b	nnn=0-65535; b=0-7	0xC2	0-7	Bit	✓
Data Area Bit (=DB10)	Vnnnnn.b	nnnn=0-65535; b=0-7	0xC3	0-7	Bit	✓
Data Area Bit (=DB10)	DBXnnnn.b	nnnnn=0-65535; b=0-7	0xC4	0-7	Bit	✓

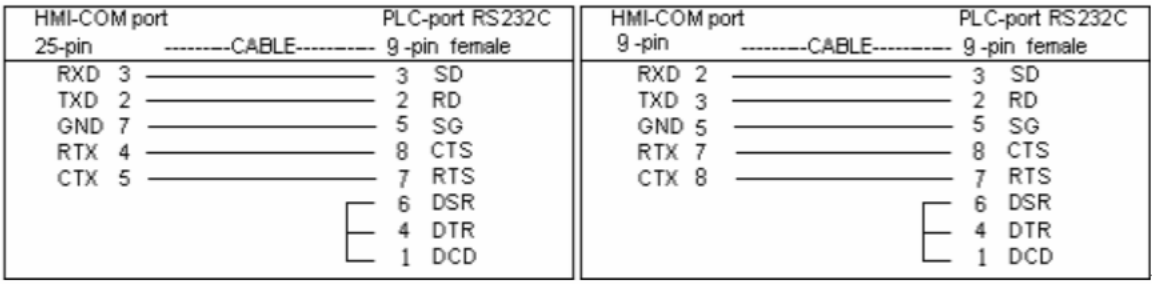
	DB10.DBXnnnnn.b is a bit address, It is in #b bit of #nnnnn word with DB10					
Data Area Bit	DBmm.DBX nnnn.b	mm=2-26 nnnnn=0-65535; b=0-7	0xC5	0-7	Bit	✓

2. The illustration of the connection:

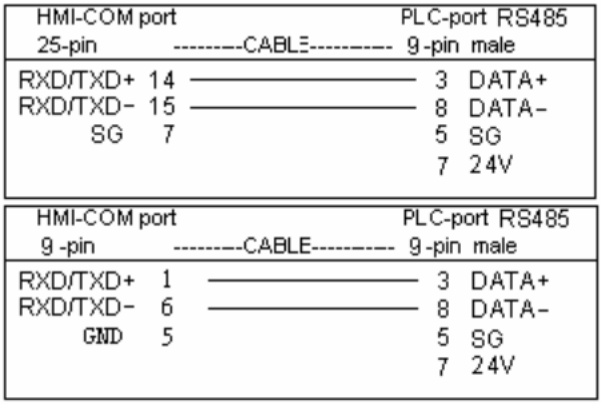
a. PWS-series to PLC MPI CABLE RS232C PORT MPI 6ES7-972-0CA21-0XA0



b. PWS-series to PLC MPI CABLE RS232C PORT HMI 6ES7-972-0CA10-0XA0



c. Example of the connections between PWS & S7-300/400 CPU MPI port:



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	MPI CABLE RS232	COM1 or COM2=RS232
b.Station No.	02	1. Set PLC Station = 02 in ADP
c.Tansmission Speed	19200/38400 bps	1. Set SW5 =OFF if parameters are set in
d.Tranmission Format	8-Bits, ODD, 1-Bit	ADP
e. Command Delay		2. Set SW5=ON if parameters are set in the
f. DATA BLOCK	DB10 for S7-300-CPU	HMI
		Set PWS Command Delay

9.46. Simatic S7-300 HMI-Cable

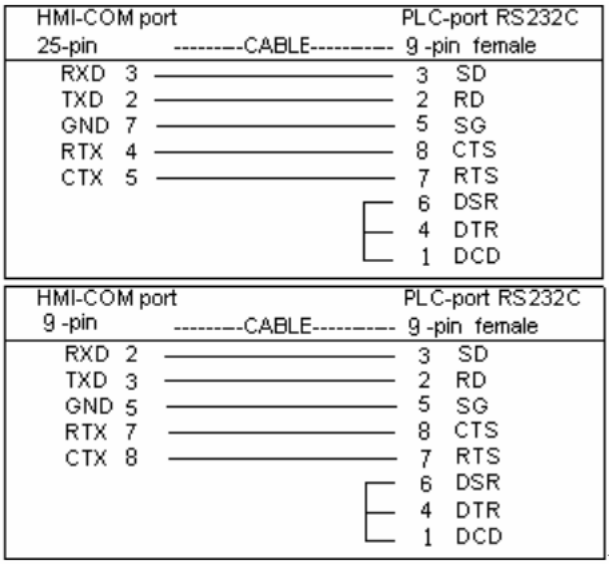
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Input Image	IWnnnnn	nnnnn=0-65534 length=2-523	Word
Input Image	IDnnnnn	nnnnn=0-65532 length=2-523	Double Word
Output Image	QWnnnnn	nnnnn=0-65534 length=2-523	Word
Output Image	QDnnnnn	nnnnn=0-65532 length=2-523	Double Word
Bits	MWnnn	nnnnn=0-65534 length=2-78	Word
Bits	MDnnn	nnnnn=0-65532 length=2-78	Double Word
Timer Image	Tnnnnn.10ms	nnnnn=0-65534 length=2-523	Word
Timer Image	Tnnnnn.100ms	nnnnn=0-65534 length=2-523	Word
Timer Image	Tnnnnn.1s	nnnnn=0-65534 length=2-523	Word
Timer Image	Tnnnnn.10s	nnnnn=0-65534 length=2-523	Word
Counter Image	Cnnnnn	nnnnn=0-65534 length=2-523	Word
DBmmm.DBWnnnn	mmm=2-205 nnnn=0-65534	nnnn=0-65534; DBWnnnn is a word address, the Byte nnnn & nnnn+1 make DBWnnnn	Word
DBmmm.DBDnnnn	mmm=2-205 nnnn=0-65532	nnnnn=0-65532;DBDnnnn is a double word address, the DBWnnnn & DBWnnnn+1 make DBDnnnn	Double Word
Data Area (DB10)	DBWnnnnn	nnnnn=0-65534; DBWnnnnn is a word address, the Byte nnnnn & nnnnn+1 make DBWnnnnn	Word
Data Area (DB10)	DBDnnnnn	nnnnn=0-65532; DBDnnnnn is a double word address, the DBWnnnn & DBWnnnn+1 make DBDnnnn	Double Word
Data Area (DB10)	VWnnnnn	nnnnn=0-65534; VWnnnnn is a word address, the Byte nnnnn & nnnnn+1 make DBWnnnnn	Word
Data Area (DB10)	VDnnnnnn	nnnnn=0-65532; VDnnnnn is a double word address, the DBWnnnn & DBWnnnn+1 make DBDnnnn	Double Word

Relay Type	Format	Range with the Relay	Block
Input Image	Innnnn.b	nnnnn=0-65535; b=0-7	b=0 e.g. I3.0
Output Image	Qnnnnn.b	nnnnn=0-65535; b=0-	b=0 e.g. Q2.0

Relay Type	Format	Range with the Relay	Block
		7	
Bit	Mnnnnn.b	nnnnn=0-65535; b=0-7	b=0 e.g. M0.0
Data Area Bit	DBmm.DBXnnnnn.b	mmm=2-26 nnnnn=0-65535 ;b=0-7	b=0 e.g. DB22.DBX20.0
Data Area Bit (=DB10)	DBXnnnnn.b	nnnnn=0-65535 ;b=0-7	b=0 e.g. DBX23.0 DBX23.0=DB10.DBX23.0
Data Area Bit	Vnnnnn.b	nnnnn=0-65535; b=0-7	b=0 e.g. V23.0
(=DB10)	DB10.DBXnnnnn.b is a Bit address, It is in #b Bit of #nnnnn word with DB10		V23.0=DB10.DBX23.0

2. The illustration of the connection: PWS and HMI 6ES7-972-0CA10-0XA0 RS232.



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	HMI CABLE RS232	COM2=RS232
b.Node Address	02	
c.Transmission Speed	9600/19200/38400 bps	
d.Transmission Format	8-Bits, ODD, 1-Bit	Set PWS Command Delay
e. OPEN DATA BLOCK	DB block for S7-300-CPU	

9.47. Taian TP01

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

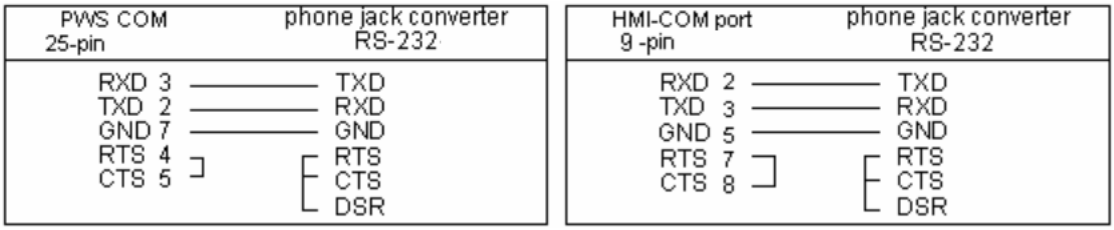
Register Type	Format	Range with the Register	Data Size
Input Register	WXnn	nn=1-24	Word(16 Bits)
Output Register	WYnn	nn=1-27	Word(16 Bits)
Special Register	WSnn	nn=1-40	Word(16 Bits)
Constant Register	WCnnn	nnn=1-512	Word(16 Bits)
Data Register	Vnnnn	nnnn=1-1024	Word(16 Bits)

Relay Type	Format	Range with the Relay	Block
Input Relay	Xnnn	nnn=1-384	Must be multiple of16 +1
Output Relay	Ynnn	nnn=1-384	Must be multiple of 16+1
Auxiliary Relay	Cnnnn	nnnn=1-1024	Must be multiple of 16+1

2. The illustration of the connection:

a. PWS-series to PLC

PWS-series to PLC RS232 PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	COM1 or COM2=RS232
b.Station No.	0	
c.Transmission Speed	9600 bps	
d.Transmission Format	8-Bits, ODD, 1-Bit	

9.48. TAIAN TP02

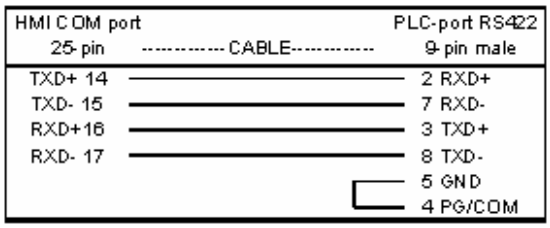
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

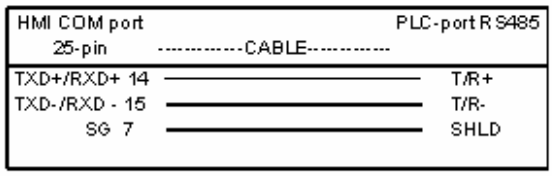
Register Type	Format	Range with the Register	Data Size
Input	Xnnn	nnn=1-369(must be 1 or multiple of 16+1)	Word
Output	Ynnn	nnn=1-369(must be 1 or multiple of 16+1)	Word
Auxiliary Register	Vnnnn	nnnn=1-1024	Word
Auxiliary Register	Dnnnn	nnnn=1-1024	Word
System Register	WSnnn	nnn=1-128	Word
Auxiliary Relay Register	Cnnnn	nnnn=1-2048(must be 1 or multiple of 16+1)	Word
Constant Register	WCnnn	nnn=1-912	Word

Relay Type	Format	Range with the Relay
Input	Xnnn	nnn=1-384
Output	Ynnn	nnn=1-384
Auxiliary Relay	Cnnnn	nnnn=1-2048
Special Relay	SCnnn	nnn=1-128

2. The illustration of the connection:

a. PWS-series to PLC RS422 PORT of TP02 b.PWS-series to PLC RS485 PORT of TP02





3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS422/485	
b.Station No.	01	1. PLC Station =01
c.Transmission Speed	19200 bps	
d.Transmission Format	7-Bits, EVEN , 2-Bits	

[Note] : The above-mentioned “PLC Setting” is ADP default, please refer to PLC manul.
To set up WS041,WS042,WS044,WS045.
WS041---SET RS422 BAUD RATE,DATA bit，PARRITY,STOP bit

WS042---SET RS422 STATION NUMBER
WS044---SET RS485 BAUD RATE,DATA bit,PARRITY,STOP bit
WS045---SET RS485 STATION NUMBER

If TP02 PLC RS422 Port station no.=01→ WS042 sets 01(decimal), transmission speed (19200 bps) and tansmission format (7bits,EVEN,2 bits) → WS041 sets 0120(decimal).

9.49. TAIAN N2

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Function	Fnnn	nnn = 0-125	Word(16 Bits)

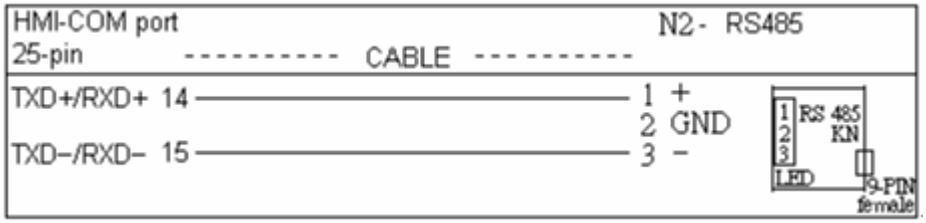
2. The illustration of the connection:

a. PWS-series to N2 (RS232)

Must use TAIAN's "**FA-RS-232-N2**" cable

b. PWS-series to N2 (RS485)

Must use TAIAN's "**FA-RS-485-KN**" canble ,and the connection as below.



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C	
	RS485	
b.Station No.	RS232C=1	
	RS485=1	
c.Transmission Speed	RS232C=9600 bps	
d.Transmission Format	RS232C =7 Bits,odd,1 Bits	

4. Notes:

1. Must use unsigned binary object.
2. Even though the F125 can be choosed but it can't be used. (Display 33333)
3. F0， F21， F42， F63， F84， F105 are quick read/write start position.

(BLOCK SIZE are 21, 21, 21, 21, 21, 23.)

4. " 33333 " represents the Function is reserve.
5. In Function table and the Format, the Function value with "*" can not be changed.
6. If edit a double word object, its value is composed of nearby two functions.(Don't use)

7. Please adjust the value of PWS : Command Delay (block read displays 0020 error message)

8. Object's integer,decimal,digit must correspond with practical conditionObject,integer,decimal,digit must correspond with reality(unsigned binary object)(refer to the user manual)

9.50. Telemecanique TSX MICRO

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Internal Word	Wnnnn	nnnn=0-9999	Word

** The HMI can read up to 60Words in one read command. PLC Denotation: %MWnnnn.

Relay Type	Format	Range with the Relay	Block
Bit of Internal Word	Wnnnn:bb	nnnn=0-9999; bb=0-15	bb=00 e.g. W0:0

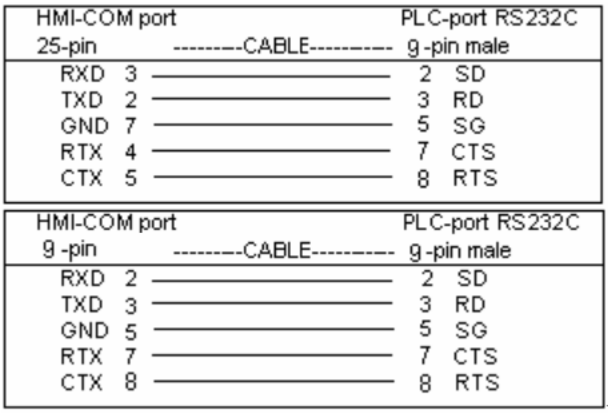
Note: The writing unit for single point bit is 16 bits.

Note: When HMI changes a relay's state, the HMI must read 1 word (16 bits). After change the corresponging bit , then the HMI will write the word in PLC. These actions will take more than one PLC scan. PLC ladder cannot control other bit(Word) before the HMI compeleted "Change the Relay";otherwise, these bit(word) will retrun to initial value. In other words, the control action of PLC will be resumed.

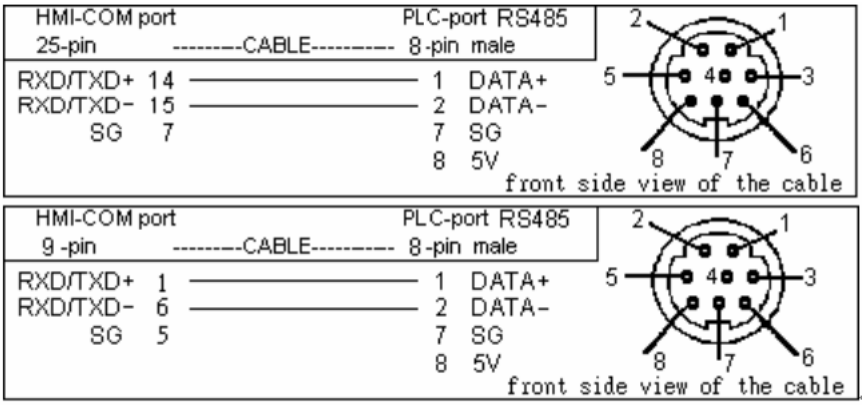
For example: When the HMI changes W1234:7,the HMI must read the word from W1234:0 toW1234:15. After cahne the bit7, then the HMI will write the word in PLC. If the HMI does not write in PLC, PLC ladder has changed W1234:0-W1234:6 or W1234:8-W1234-15. The HMI's write action will cause the control action of PLC resumed.

The illustration of the connection:
Ex:

a. COM Port to the RS-232 Port



b. COM Port to TER Port RS485



2. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232/ RS485	COM2=RS232/422/485
b.Station No.	0—8; MASTER	1. RS485:Set SW10=ON
c.Transmission Speed	9600bps/19200bps	1. Set PWS Station:1—8
d.Transmission Format	8-Bits,ODD,1-Bit	SLAVE in ADP

9.51. Toshiba M20/M40

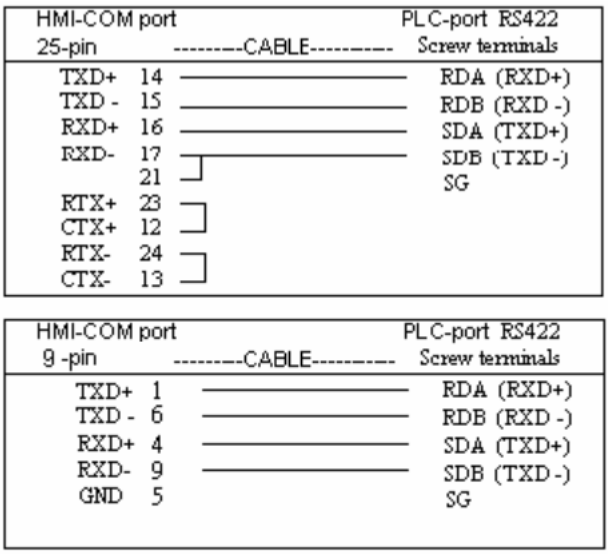
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
Input Relay Register	XWnn	nn=0-63	Word
Output Relay Register	YWnn	nn=0-63	Word
Internal Relay Register	RWnn	nn=0-63	Word
Link Register	ZWnn	nn=0-31	Word
Timer Register	Tnnn	nnn=0-127	Word
Counter Register	Cnn	nn=0-95	Word
Data Register	Dnnnn	nnnn=0-1535	Word

** The HMI can read up to 32Words in one read command.

Relay Type	Format	Range with the Relay	Block
Input Relay	Xnnb	nn=0-31；b=0-f	b=0 e.g. X10
Output Relay	Ynnb	nn=0-31；b=0-f	b=0 e.g. Y00
Internal Relay	Rnnb	nn=0-63；b=0-f	b=0 e.g. R100
Link Relay	Znnb	nn=0-31；b=0-f	b=0 e.g. Z310

2. The illustration of the connection: PWS-series to PLC RS422 Computer Link PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS422	COM2=RS232/422/485
Programmer/computer link	Computer link can be used	1. RS422: Set SW10=OFF 2. RS485: Set SW10=ON
b.Station No.	0	
c.Transmission Speed	9600bps	
d.Transmission Format	(8,E,1);(8,O,1); (8,N,1)	

9.52. Toshiba T1/T2

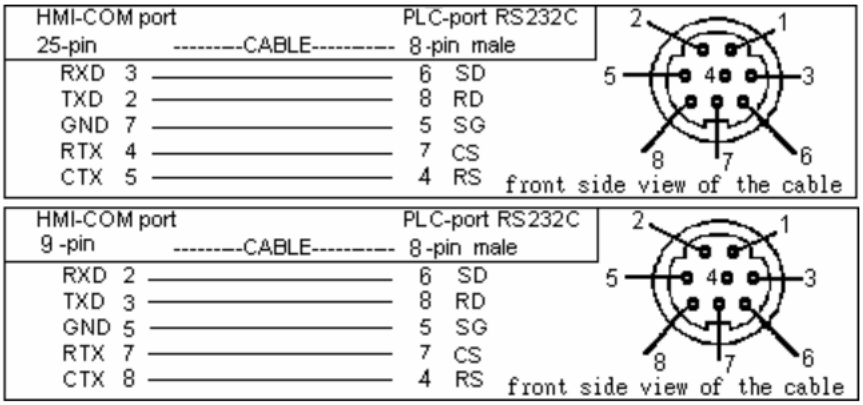
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Format	Range with the Register	Data Size
External input register	XWnn	nn=0-63	Word
Output relay register	YWnn	nn=0-63	Word
Direct input register	IWnn	nn=0-63	Word
Direct output register	OWnn	nn=0-63	Word
Auxiliary relay register	RWnnn	nnn=0-127	Word
Special register	SWnnn	nnn=0-255	Word
Timer register	Tnnn	nnn=0-255	Word
Counter register	Cnnn	nnn=0-255	Word
Data register	Dnnnn	nnnn=0-4095	Word
Link register	Wnnnn	nnnn=0-1023	Word
Link relay register	LWnnn	nnn=0-255	Word
File register	Fnnnn	nnnn=0-1023	Word

** The HMI can read up to 32Words in one read command.

Relay Type	Format	Range with the Relay	Block
External input device	Xnnb	nn=0-63; b= hex number 0-f	b=0 e.g. X10
External output device	Ynnb	nn=0-63; b= 0-f	b=0 e.g. Y00
Direct input device	Innb	nn=0-63; b= 0-f	b=0
Direct output device	Onnb	nn=0-63; b= 0-f	b=0
Auxiliary relay device	Rnnnb	nnn=0-127; b= 0-f	b=0 e.g. R100
Special device	Snnnb	nnn=0-255; b= 0-f	b=0 e.g. S230
Timer device	T.nnn	nnn=0-255	
Counter device	C.nnn	nnn=0-255	
Link device	Znnnb	nnn=0-511; b= 0-f	b=0 e.g. Z30
Link relay	Lnnnb	nnn=0-255; b= 0-f	b=0 e.g. L2550

2. The illustration of the connection:PWS COM Port to T1 CPU Serial Port



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232	COM1/COM2=RS232
b.Station No.	0 ==T1	1. Set PLC station 00 in ADP
c.Transmission Speed	9600bps	1. Set SW5=OFF if parameters are
d.Tranmission Format	8-Bits,ODD,1-Bit	set in ADP
		2. Set SW5=ON if parameters are
		set in ADP

9.53. Unidriver UD70

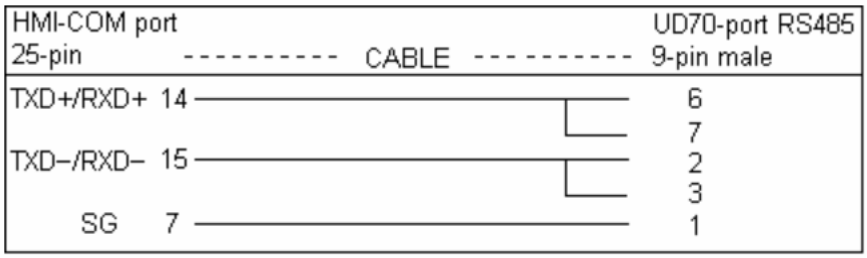
1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device

Register Type	Format	Range with the Register	Data Size
Data Register	#70.00~#70.99	W 0 ~ W 198	Word(32 Bits)
	#71.00~#71.99	W 200 ~ W 398	Word(32 Bits)
	#72.00~#72.99	W 400 ~ W 598	Word(32 Bits)
	#73.00~#73.99	W 600 ~ W 798	Word(32 Bits)
	#18.01~#18.30	W 800 ~ W 858	Word(32 Bits)
	#19.01~#19.30	W 860 ~ W 918	Word(32 Bits)
	#20.01~#20.50	W 920 ~ W1018	Word(32 Bits)
	#91.01~#91.10	W1020 ~ W1029	Word(16 Bits)

Relay Type	Fotrmat	Range with the Relay	Block
Bit Relay	#18.31~#18.50	B0 ~ B19	
	#19.31~#19.50	B20 ~ B39	

2. The illustration of the connection:

a. PWS-series to PLC RS232 PORT



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS485	RS485
b.Station No.	Set the parameter of	1. Set PLC Station =11 in ADP
	UD70 address#14.01 to 11	

c.Transmission Speed	9600 bps	
d.Transmission Format	7-Bits, Even , 1-Bit	
e.Mode	Set the parameter of	
	UD70 address#14.02 to 06	

9.54. VIGOR M

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

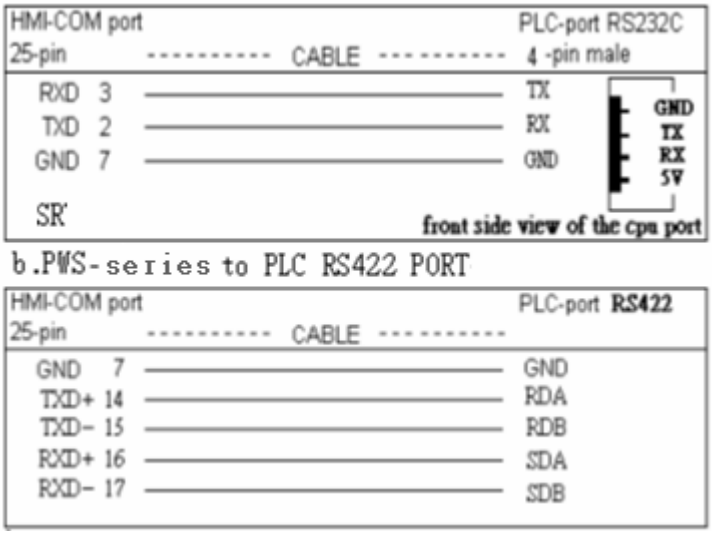
Register Type	Format	Range with the Register	Data Size
Input Relay	Xnnn	nnn=0-777,oct, 0 or multiple of 8	Byte
Output Relay	Ynnn	nnn=0-777,oct, 0 or multiple of 8	Byte
Auxiliary Relay	Mnnnn	nnnn=0-5119 0 or multiple of 8	Byte
Step Relay	Snnn	nnn=0-999 0 or multiple of 8	Byte
Special Relay	Mnnnn	Nnnn=9000-9255 0 or multiple of 8	Byte
Data	Dnnnn	nnn= 0-8191	Word(16 Bits)
Special Data	Dnnnn	nnnn= 9000-9255	Word(16 Bits)
Timer Register	Tnnn	nnn= 0-255	Word(16 Bits)
Counter Register	Cnnn	nnn= 0-199	Word(16 Bits)
Counter Register	Cnnn	nnn= 200-255	Word(32 Bits)

Relay Type	Format	Range with the Relay	Block
Input Relay	Xnnn	nnn= 0-777, Oct	Must be 0 or multiple of 8
Output Relay	Ynnn	nnn= 0-777, Oct	Must be 0 or multiple of 8
Auxiliary Relay	Mnnnn	nnnn=0-5119	Must be 0 or multiple of 8
ST1 Status	Snnn	nnn= 0-999	Must be 0 or multiple of 8
Special Relay	Mnnnn	nnnn=9000-9255	Must be 0 or multiple of 8
Timer Relay	Tnnn	nnn= 0-255	Must be 0 or multiple of 8
Counter Relay	Cnnn	nnnn=0-255	Must be 0 or multiple of 8
Timer Coil	TCnnn	nnn= 0-255	Must be 0 or multiple of 8
Counter Coil	CCnnn	nnn= 0-255	Must be 0 or multiple of 8

2. The illustration of the connection:

a. PWS-series to PLC RS422 PORT

Use a VIGOR with 4-pin male



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C,RS422	
b.Station No.	RS232C=0 RS422=1	RS232C=0 RS422=1
c.Transmission Speed	19200 bps	
d.Transmission Format	7-Bits, EVEN , 1-Bit	

9.55. YOKOGAWA FA-M3

1. The data format and range of the PLC registers which the ADP can accress : Word Device and Bit Device.

Register Type	Foramt	Range with the Register	Data Size	Example
Input Relay	Xnnnnn	nnnnn= 201-65499(not continue)	Word(16 Bits)	X00201
Output Relay	Ynnnnn	nnnnn= 201-65499(not continue)	Word(16 Bits)	Y00201
Intern Relay	Innnnn	nnnnn= 1-16384	Word(16 Bits)	I00001
Common Relay	Ennnn	nnnn= 1-4096	Word(16 Bits)	E0001
Link Relay	Lnnnnn	nnnnn= 1-65499(not continue)	Word(16 Bits)	L00001
Special Relay	Mnnnn	nnnn= 1-9984	Word(16 Bits)	M0001
Preset Timer	TPnnnn	nnnn= 1-3072	Word(16 Bits)	TP0001
Set Timer	TSnnnn	nnnn= 1-3072	Word(16 Bits)	TS0001
Preset Counter	CPnnnn	nnnn= 1-3072	Word(16 Bits)	CP0001
Set Counter	CSnnnn	nnnn= 1-3072	Word(16 Bits)	CS0001
Data Register	Dnnnn	nnnn= 1-8192	Word(16 Bits)	D0001
File Register	Bnnnnn	nnnnn= 1-32768	Word(16 Bits)	B00001
Link Register	Wnnnn	nnnnn= 1-65499(not continue)	Word(16 Bits)	W00001
Special Register	Znnn	nnn= 1-512	Word(16 Bits)	Z001
Index Register	Vnn	nn= 1-64	Word(16 Bits)	V01
Common Register	Rnnnn	nnnn= 1-4096	Word(16 Bits)	R0001

[Note 1] The last two digits of X and Y addresses must be multiple of 16 +1.
I,E,L,M addresses must be multiple of 16 +1.
[Note 2] One communication is up to READ/WRITE 60 words.

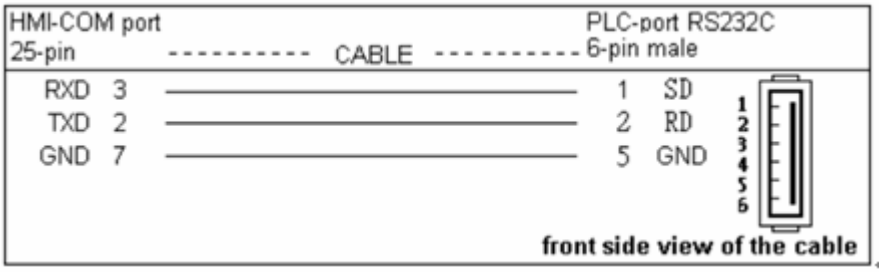
Relay Type	Foramt	Range with the Relay	Data Size
Iuput Relay	Xnnnnn	nnnnn= 201-65499(not continue)	Bit
Output Relay	Ynnnnn	nnnnn= 201-65499(not continue)	Bit
Intern RELAY	Innnnn	nnnn= 1-16384	Bit
Common RELAY	Ennnn	nnnn= 1-4096	Bit
Link RELAY	Lnnnnn	nnnn= 1-65499	Bit
Special RELAY	Mnnnn	nnnn= 1-9984	Bit
Timer	TUnnnn	nnnn= 1-3072	Bit

Counter	CUnnnn	nnnn= 1-3072	Bit

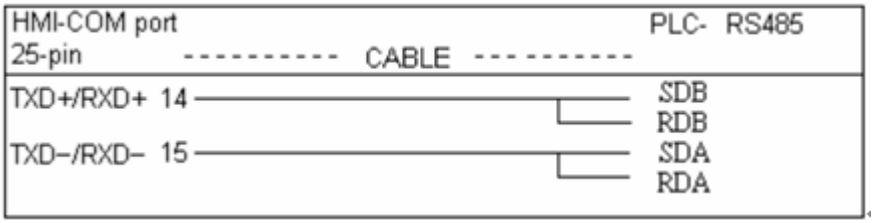
[Note 1] The last two digits of X,Y,L addresses must be multiple of 16 +1.
I,E,M addresses must be multiple of 16 +1.

2. The illustration of the connection:

a. PWS-series to PLC RS232 PORT must use YOKOGAWA's CABLE. See below.



b. PWS-series to PLC RS485 communication mode



3. Communication Format: Before connection, please set up the communication parameters and the dip-switch as below:

Format	PLC Setting	PWS Setting
a.Communication Format	RS232C/ RS485	
b.Station No.	RS232C=1 RS485=1	RS232C=1(based on cpu slot 1-4) RS485 =1
c.Transmission Speed	RS232C=9600 bps	
d.Transmission Format	8 Bits,even,1 Bit	

[Note1] PWS station no. must match YOKOGAWA PLC CPU slot no. If CPU plugs in the 1st slot , the PWS station no. must set "1".