OMRON

PT

Programmable Terminal NP-Series

Host Connection Manual

NP3-MQ000☐
NP3-MQ001☐
NP5-MQ000☐
NP5-MQ001☐
NP5-SQ000☐
NP5-SQ001☐

Contents

Section 1 Overview

1-1 Supported Hosts

This table lists hosts supported by NP-series PTs.

Brand	Host
OMRON	Host link C/CPM/CQM PLC
	Host link CS/CJ/CP1/CV/CVM PLC
	NT link (1:N) (*)
	NT link (1:1)
	EJ1
Allen Bradley	MicroLogix
	SLC5
GE Fanuc	90 Series SNP
Keyence	KV/KZ Series
LG (LS)	Master-K120S/200S
	Glofa GM6 CNET
	Master-K CNET
	XGT CNET
Matsushita	FP Series
Mitsubishi	FX / FX2N CPU port
	FX3U CPU port
	FX Series Computer Link
	A Series Computer Link
	A2A/A2AS/A2USH A1SH/A3N/A2ASH CPU Port
	Q Series CPU Port
	Q Series Computer Link

Modbus	**984 RTU / ASCII (Master)**
	RTU / ASCII Hex Address (Master)
	RTU / ASCII nW, RTU 2W (Master)
	RTU / ASCII (Slave)
Modicon	**TSX Micro (Uni-Telway) (*)**
	NEZA (Uni-Telway) (*)
	TWIDO
Siemens	**S7 200**
	S7-300 (with PC Adaptor)
	S7-300 (without PC Adaptor) (*)
NULL	**Null driver**

* **Restrictions on simultaneous communications via 2 ports**

Any combination of the following hosts cannot simultaneously communicate via 2 ports.

1.Siemens S7-300 (without PC Adaptor)

2.Modicon TSX Micro (Uni-Telway)

3.Modicon NEZA (Uni-Telway)

4.OMRON NT Link 1:N

Example:

■ **Not Supported**

COM1: OMRON NT Link (1:N), COM2: OMRON NT Link (1:N)

(When the same protocols are used and are in the list above, communications cannot be performed.)

COM1: OMRON NT Link (1:N), COM2: Siemens S7-300 (without PC Adaptor)

(When two different protocols are used and are in the list above, communications cannot be performed.)

■ **Supported**

COM1: OMRON NT Link (1:1), COM2: OMRON NT Link (1:N)

(When one is in the above list and the other is not in the list above, communications can be performed.)

COM1: OMRON NT Link (1:N), COM2: OMRON EJ1

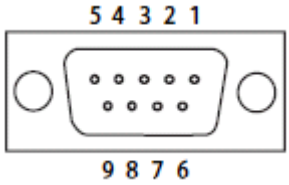
(When the protocols are within the restrictions, it is possible to connect to N units via COM1 and COM2.)

COM1: Allen-Bradley DH485, COM2: Siemens S7-200

(When the protocols are within the restrictions, communications can be performed.)

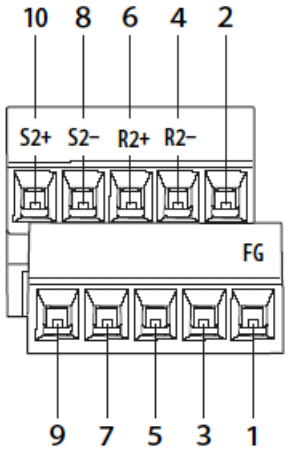
1-2 Connecter Pin Arrangement

■ **COM1**



PIN	Signal name	Name
1	NC	Not connected
2	SD	Send data
3	RD	Receive data
4	RS	Request to send
5	CS	Clear to send
6	5VDC	5VDC output (250 mA max.)
7	NC	Not connected
8	NC	Not connected
9	SG	Signal ground

■ **COM2**



PIN	Signal name	Name
1	FG	Functional ground
2	SG	Signal ground
3		Not Connected
4	RDA (-)	Receive data
5		Not Connected
6	RDB (+)	Receive data
7		Not Connected
8	SDA (-)	Send data
9		Not Connected
10	SDB (+)	Send data

Section 2 Supported Hosts

2-1 OMRON

2-1-1 Host link (C/CPM/CQM PLC)

A. NP-series PT Factory Settings

Baud rate: 9600, 7, EVEN, 2

Host Unit No.: 0 (0 to 31)

Control block/status block: DM0 / DM10

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Common I/O area (CIO)	CIOn n	n: 00000 to 06143	N/A	Word
Holding Relay (HR)	HRn	n: 00000 to 00511		
Auxiliary Relay (AR)	ARn	n: 00000 to 00959		
Link Relay (LR)	LRn	n: 00000 to 00199		
Timer (TIM)	TIMn	n: 00000 to 02047		
Counter (CNT)	CNTn	n: 00000 to 02047		
Data Memory (DM)	DMn	n: 00000 to 09999		
EM Bank (EM)	EMn	n: 00000 to 09999		
EM0 Bank (EM0)	EM0_n	n: 00000 to 09999		
EM1 Bank (EM1)	EM1_n	n: 00000 to 09999		
EM2 Bank (EM2)	EM2_n	n: 00000 to 09999		
EM3 Bank (EM3)	EM3_n	n: 00000 to 09999		
EM4 Bank (EM4)	EM4_n	n: 00000 to 09999		
EM5 Bank (EM5)	EM5_n	n: 00000 to 09999		

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
EM6 Bank (EM6)	EM6_n	n: 00000 to 09999	N/A	Word
EM7 Bank (EM7)	EM7_n	n: 00000 to 09999		
EM8 Bank (EM8)	EM8_n	n: 00000 to 09999		
EM9 Bank (EM9)	EM9_n	n: 00000 to 09999		
EMA Bank (EM10)	EMA_n	n: 00000 to 09999		
EMB Bank (EM11)	EMB_n	n: 00000 to 09999		
EMC Bank (EM12)	EMC_n	n: 00000 to 09999		

■ **Contacts**

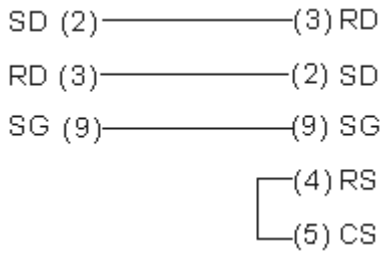
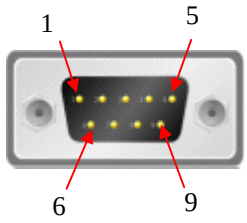
Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Common I/O area (CIO)	CIOn.b n.b	n: 00000 to 06143	b: 00 to 15
Holding Relay (HR)	HRn.b	n: 00000 to 00511	b: 00 to 15
Auxiliary Relay (AR)	ARn.b	n: 00000 to 00959	b: 00 to 15
Link Relay (LR)	LRn.b	n: 00000 to 00199	b: 00 to 15
Data Memory (DM)	DMn.b	n: 00000 to 09999	b: 00 to 15
EM Bank (EM)	EMn.b	n: 00000 to 09999	b: 00 to 15
EM0 Bank (EM0)	EM0_n.b	n: 00000 to 09999	b: 00 to 15
EM1 Bank (EM1)	EM1_n.b	n: 00000 to 09999	b: 00 to 15
EM2 Bank (EM2)	EM2_n.b	n: 00000 to 09999	b: 00 to 15
EM3 Bank (EM3)	EM3_n.b	n: 00000 to 09999	b: 00 to 15
EM4 Bank (EM4)	EM4_n.b	n: 00000 to 09999	b: 00 to 15
EM5 Bank (EM5)	EM5_n.b	n: 00000 to 09999	b: 00 to 15

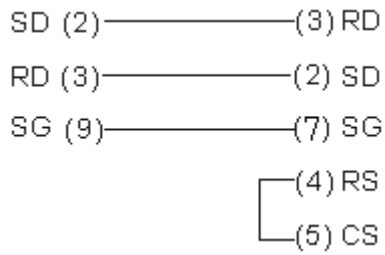
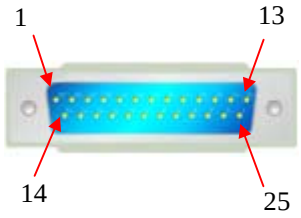
Contact type	Format	Read/Write Range	
		Word No.	Bit No.
EM6 Bank (EM6)	EM6_n.b	n: 00000 to 09999	b: 00 to 15
EM7 Bank (EM7)	EM7_n.b	n: 00000 to 09999	b: 00 to 15
EM8 Bank (EM8)	EM8_n.b	n: 00000 to 09999	b: 00 to 15
EM9 Bank (EM9)	EM9_n.b	n: 00000 to 09999	b: 00 to 15
EMA Bank (EMA)	EMA_n.b	n: 00000 to 09999	b: 00 to 15
EMB Bank (EMB)	EMB_n.b	n: 00000 to 09999	b: 00 to 15
EMC Bank (EMC)	EMC_n.b	n: 00000 to 09999	b: 00 to 15
Time Up Flag (TU)	TUn	n: 00000 to 02047	N/A
Count Up Flag (CU)	CUn	n: 00000 to 02047	

C. Connections (Connector Pinouts)

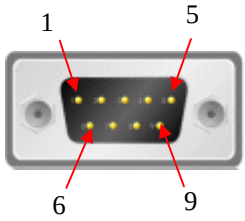
■ **RS-232**

1:1 Host Link via RS-232C

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)
		

NP-series PT 9 pin D-SUB male (RS-232)	Host 25 pin D-SUB male (RS-232)	Host 25 pin D-SUB male (RS-232)
		

■ **RS-422**

NP-series PT 5 pin connectors (RS-422)	Host 9 pin D-SUB male (RS-422)	Host 9 pin D-SUB male (RS-422)
		

2-1-2 Host link (CS/CJ/CP1/CV/CVM PLC)

A. NP-series PT Factory Settings

Baud rate: 9600, 7, EVEN, 2

Host Unit No.: 0 (0 to 31)

Control block/status block: D0 / D10

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Common I/O area (CIO)	CIOn n	n: 00000 to 09999	N/A	Word
Holding Relay (HR)	HRn	n: 00000 to 00999		
Auxiliary Relay (AR)	ARn	n: 00000 to 00999		
Link Relay (LR) LRn	n: 00000 to 00199			
Timer (TIM)	TIMn	n: 00000 to 09999		
Counter (CNT)	CNTn	n: 00000 to 09999		
Data Memory (DM)	DMn	n: 00000 to 65535		
EM Bank (EM)	EMn	n: 00000 to 65535		
EM0 Bank (EM0)	EM0_n	n: 00000 to 65535		
EM1 Bank (EM1)	EM1_n n: 00000 to 65535			
EM2 Bank (EM2)	EM2_n	n: 00000 to 65535		
EM3 Bank (EM3)	EM3_n	n: 00000 to 65535		
EM4 Bank (EM4)	EM4_n	n: 00000 to 65535		
EM5 Bank (EM5)	EM5_n	n: 00000 to 65535		
EM6 Bank (EM6)	EM6_n	n: 00000 to 65535		
EM7 Bank (EM7)	EM7_n	n: 00000 to 65535		
EM8 Bank (EM8)	EM8_n	n: 00000 to 65535		
EM9 Bank (EM9)	EM9_n	n: 00000 to 65535		
EMA Bank (EMA)	EMA_n	n: 00000 to 65535		

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
EMB Bank (EMB)	EMB_n	n: 00000 to 65535	N/A	Word
EMC Bank (EMC)	EMC_n	n: 00000 to 65535		
Work Area (WR)	WRn	n: 00000 to 00999		

■ **Contacts**

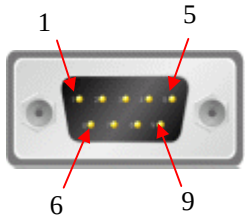
Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Common I/O area (CIO)	CIOn.b n.b	n: 00000 to 09999	bb: 00 to 15
Holding Relay (HR)	HRn.b	n: 00000 to 00999	bb: 00 to 15
Auxiliary Relay (AR)	ARn.b	n: 00000 to 00999	bb: 00 to 15
Link Relay (LR)	LRn.b	n: 00000 to 00199	bb: 00 to 15
Data Memory (DM)	DMn.b	n: 00000 to 65535	bb: 00 to 15
EM0 Bank (EM0)	EM0_n.b	n: 00000 to 65535	bb: 00 to 15
EM1 Bank (EM1)	EM1_n.b	n: 00000 to 65535	bb: 00 to 15
EM2 Bank (EM2)	EM2_n.b	n: 00000 to 65535	bb: 00 to 15
EM3 Bank (EM3)	EM3_n.b	n: 00000 to 65535	bb: 00 to 15
EM4 Bank (EM4)	EM4_n.b	n: 00000 to 65535	bb: 00 to 15
EM5 Bank (EM5)	EM5_n.b	n: 00000 to 65535	bb: 00 to 15
EM6 Bank (EM6)	EM6_n.b	n: 00000 to 65535	bb: 00 to 15
EM7 Bank (EM7)	EM7_n.b	n: 00000 to 65535	bb: 00 to 15
EM8 Bank (EM8)	EM8_n.b	n: 00000 to 65535	bb: 00 to 15
EM9 Bank (EM9)	EM9_n.b	n: 00000 to 65535	bb: 00 to 15
EMA Bank (EMA)	EMA_n.b	n: 00000 to 65535	bb: 00 to 15

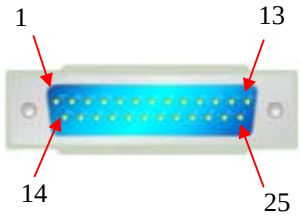
Contact type	Format	Read/Write Range	
		Word No.	Bit No.
EMB Bank (EMB)	EMB_n.b	n: 00000 to 65535	bb: 00 to 15
EMC Bank (EMC)	EMC_n.b	n: 00000 to 65535	bb: 00 to 15
Work Area (WR)	WRn.b	n: 00000 to 00999	bb: 00 to 15
Time Up Flag (TU)	TUn	n: 00000 to 09999	N/A
Count Up Flag (CU)	CUn	n: 00000 to 09999	N/A

C. Connections (Connector Pinouts)

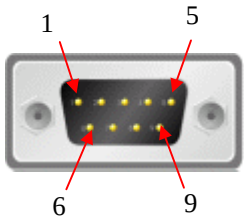
■ **RS-232**

1:1 Host Link via RS-232C

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)
SD (2) ——— (3) RD RD (3) ——— (2) SD SG (9) ——— (9) SG (4) RS (5) CS		

NP-series PT 9 pin D-SUB male (RS-232)	Host 25 pin D-SUB male (RS-232)	Host 25 pin D-SUB male (RS-232)
SD (2) ——— (3) RD RD (3) ——— (2) SD SG (9) ——— (7) SG (4) RS (5) CS		

■ **RS-422**

NP-series PT 5 pin connectors (RS-422)	Host 9 pin D-SUB male (RS-422)	Host 9 pin D-SUB male (RS-422)
R2- ——— (9)SD- R2+ ——— (5)SD+ S2+ ——— (1)RD+ S2- ——— (6)RD-		

2-1-3 NT link (1:N)

A. NP-series PT Factory Settings

Baud rate: 38400, 8, EVEN, 1

Host Unit No.: 0 (Not use for this protocol)

PT Unit No.: 0 (Maximun: 0 to 7)

Control block/status block: D0 / D10

B. Definition of Host Read/Write Address

■ **Addresses (for CS/CJ series PLC)**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Common I/O area (CIO)	CIOn n	n: 00000 to 06143	N/A	Word
Holding Relay (HR)	HRn	n: 00000 to 00511		
Auxiliary Relay (AR)	ARn	n: 00000 to 00959		
Link Relay (LR)	LRn	n: 00000 to 00199		
Timer (TIM)	TIMn	n: 00000 to 04095		
Counter (CNT)	CNTn	n: 00000 to 04095		

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Data Memory (DM)	DMn	n: 00000 to 32767	N/A	Word
EM Bank (EM)	EMn	n: 00000 to 32767		
EM0 Bank (EM0)	EM0_n	n: 00000 to 32767		
EM1 Bank (EM1)	EM1_n	n: 00000 to 32767		
EM2 Bank (EM2)	EM2_n	n: 00000 to 32767		
EM3 Bank (EM3)	EM3_n	n: 00000 to 32767		
EM4 Bank (EM4)	EM4_n	n: 00000 to 32767		
EM5 Bank (EM5)	EM5_n	n: 00000 to 32767		
EM6 Bank (EM6)	EM6_n	n: 00000 to 32767		
EM7 Bank (EM7)	EM7_n	n: 00000 to 32767		
EM8 Bank (EM8)	EM8_n	n: 00000 to 32767		
EM9 Bank (EM9)	EM9_n	n: 00000 to 32767		
EMA Bank (EMA)	EMA_n	n: 00000 to 32767		
EMB Bank (EMB)	EMB_n	n: 00000 to 32767		
EMC Bank (EMC)	EMC_n	n: 00000 to 32767		
Work Area (WR)	WRn	n: 00000 to 00511		

■ **Addresses (for CV series PLC)**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Common I/O area (CIO)	CIOn n	n: 00000 to 02555	N/A	Word
Auxiliary Relay (AR)	ARn	n: 00000 to 00511		
Link Relay (LR)	LRn	n: 00000 to 00199		
Timer (TIM)	TIMn	n: 00000 to 01023		
Counter (CNT)	CNTn	n: 00000 to 01023		
Data Memory (DM)	DMn	n: 00000 to 24575		
EM Bank (EM)	EMn	n: 00000 to 32767		

■ **Contacts (for CS/CJ series PLC)**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Common I/O area (CIO)	CIOn.b n.b	n: 00000 to 06143	bb: 00 to 15
Holding Relay (HR)	HRn.b	n: 00000 to 00511	bb: 00 to 15
Auxiliary Relay (AR)	ARn.b	n: 00000 to 00959	bb: 00 to 15
Link Relay (LR)	LRn.b	n: 00000 to 00199	bb: 00 to 15
Data Memory (DM)	DMn.b	n: 00000 to 32767	bb: 00 to 15
EM0 Bank (EM0)	EM0_n.b	n: 00000 to 32767	bb: 00 to 15
EM1 Bank (EM1)	EM1_n.b	n: 00000 to 32767	bb: 00 to 15
EM2 Bank (EM2)	EM2_n.b	n: 00000 to 32767	bb: 00 to 15
EM3 Bank (EM3)	EM3_n.b	n: 00000 to 32767	bb: 00 to 15
EM4 Bank (EM4)	EM4_n.b	n: 00000 to 32767	bb: 00 to 15

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
EM5 Bank (EM5)	EM5_n.b	n: 00000 to 32767	bb: 00 to 15
EM6 Bank (EM6)	EM6_n.b	n: 00000 to 32767	bb: 00 to 15
EM7 Bank (EM7)	EM7_n.b	n: 00000 to 32767	bb: 00 to 15
EM8 Bank (EM8)	EM8_n.b	n: 00000 to 32767	bb: 00 to 15
EM9 Bank (EM9)	EM9_n.b	n: 00000 to 32767	bb: 00 to 15
EMA Bank (EMA)	EMA_n.b n: 00000 to 32767	bb: 00 to 15	bb: 00 to 15
EMB Bank (EMB)	EMB_n.b	n: 00000 to 32767	bb: 00 to 15
EMC Bank (EMC)	EMC_n.b	n: 00000 to 32767	bb: 00 to 15
Work Area (WR)	WRn.b	n: 00000 to 00511	bb: 00 to 15
Time Up Flag (TU)	TUn	n: 00000 to 04095	N/A
Count Up Flag (CU)	CUn	n: 00000 to 04095	N/A

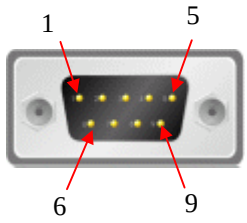
■ **Contacts (for CV series PLC)**

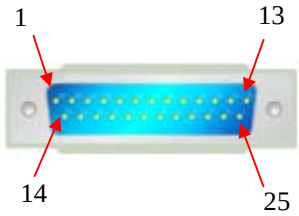
Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Common I/O area (CIO)	CIOn.b n.b	n: 00000 to 02555	bb: 00 to 15
Auxiliary Relay (AR)	ARn.b	n: 00000 to 00511	bb: 00 to 15
Link Relay (LR)	LRn.b	n: 00000 to 00199	bb: 00 to 15
Data Memory (DM)	DMn.b	n: 00000 to 24575	bb: 00 to 15
EM0 Bank (EM0)	EM0_n.b	n: 00000 to 32767	bb: 00 to 15

C. Connections (Connector Pinouts)

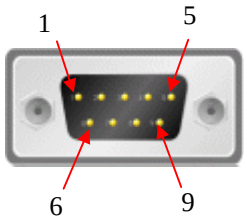
■ **RS-232**

1:1 NT Link via RS-232C

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)
SD (2) —— (3) RD RD (3) —— (2) SD SG (9) —— (9) SG (4) RS (5) CS		

NP-series PT 9 pin D-SUB male (RS-232)	Host 25 pin D-SUB male (RS-232)	Host 25 pin D-SUB male (RS-232)
SD (2) —— (3) RD RD (3) —— (2) SD SG (9) —— (7) SG (4) RS (5) CS		

■ **RS-422**

NP-series PT 5 pin connectors (RS-422)	Host 9 pin D-SUB male (RS-422)	Host 9 pin D-SUB male (RS-422)
R2- —— (9) SD- R2+ —— (5) SD+ S2+ —— (1) RD+ S2- —— (6) RD-		

2-1-4 NT link (1:1)

A. NP-series PT Factory Settings

Baud rate: 19200, 8, ODD, 1

Host Unit No.: 0 (Not use for this protocol.)

Control block/status block: D0 / D10

B. Definition of Host Read/Write Address

It is the same as *2-1-3 NT link (1:N)*.

C. Connections (Connector Pinouts)

It is the same as *2-1-3 NT link (1:N*).

2-1-5 EJ1

A. NP-series PT Factory Settings

Baud rate: 9600, 7, EVEN, 2

(OMRON EJ1, EDU Port A: 38400, 7 , EVEN, 2 (fixed)

Port B: 9600, 7, EVEN, 2)

(OMRON EJ1N-HFUA-NFLK Port C is used for NT link.)

Host Unit No.: 1 (00 to 63)

Control block/status block: None

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Variable DWord	C0_n	n: 00000 to 0x0FFFF	N/A	Double Word
Variable DWord	C1_n	n: 00000 to 0x0FFFF		

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Variable DWord	C4_n	n: 00000 to 0x0FFFF		
Variable DWord	C5_n	n: 00000 to 0x0FFFF		
Variable DWord	C9_n	n: 00000 to 0x0FFFF		
Variable DWord	D0_n	n: 00000 to 0x0FFFF		
Variable DWord	D1_n	n: 00000 to 0x0FFFF		
Variable DWord	D2_n	n: 00000 to 0x0FFFF		
Variable DWord	D3_n	n: 00000 to 0x0FFFF		
Variable DWord	D4_n	n: 00000 to 0x0FFFF		
Variable DWord	D5_n	n: 00000 to 0x0FFFF		
Variable DWord	D6_n	n: 00000 to 0x0FFFF	N/A	Double Word
Variable DWord	D7_n	n: 00000 to 0x0FFFF		
Variable DWord	D8_n	n: 00000 to 0x0FFFF		
Variable DWord	DA_n	n: 00000 to 0x0FFFF		
Variable DWord	E0_n	n: 00000 to 0x0FFFF		
Variable DWord	E1_n	n: 00000 to 0x0FFFF		
Variable DWord	E3_n	n: 00000 to 0x0FFFF		
Variable DWord	E4_n	n: 00000 to 0x0FFFF		
Variable DWord	E5_n	n: 00000 to 0x0FFFF		
Variable DWord	F0_n	n: 00000 to 0x0FFFF		
Variable DWord	F2_n	n: 00000 to 0x0FFFF		

■ **Contacts**

Contact type	Format	Read/Write Range		Note
		Word No.	Bit No.	
Variable DWord	C0_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	C1_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	C4_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	C5_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	C9_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	D0_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	D1_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	D2_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	D3_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	D4_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	D5_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	D6_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	D7_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	D8_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	DA_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	E0_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	E1_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	E3_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	E4_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	E5_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	F0_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	
Variable DWord	F2_n.b	n: 00000 to 0x0FFFF	bb: 00 to 31	

Contact type	Format	Read/Write Range		Note
		Word No.	Bit No.	
Write Mode	**WMode**n	N/A	n: 00000 to 00001	Operation Command
Software Reset	**SoReset**n		n: 00000	
Run	**Run**n		n: 00000 to 00003 or 0x000FF	
Stop	**Stop**n			
Manual	**Manual**n			
Auto	**Auto**n			
40% AT Execute	**AT40Exe**n			
100% AT Execute	**AT100Exe**n			
AT Cancel	**ATCanl**n			
Bank 0 Change	**B0Chg**n			
Bank 1 Change	**B1Chg**n			
Bank 2 Change	**B2Chg**n			
Bank 3 Change	**B3Chg**n			
Local SP Change	**LocSP**n			
Remote SP Change	**RemSP**n			
Reset Error	**ResetErr**n		n: 00000	
Alarm 1 Latch Cancel	**Alm1Canl**n		n: 00000 to 00003 or 0x000FF	
Alarm 2 Latch Cancel	**Alm2Canl**n			
Alarm 3 Latch Cancel	**Alm3Canl**n			
All Alarm Latch Cancel	**AlmsCanl**n			
Save RAM Data	**RAMS**n		n: 0x000FF	
Parameter Initialization	**PIni**n		n: 00000	
Save RAM Data 2	**RAM2S**n		n: 0x000FF	

Contact type	Format	Read/Write Range		Note
		Word No.	Bit No.	
Register Unit Configuration	**RUConf**n	N/A	n: 0000to00001	Operation Command

C. Connections (Connector Pinouts)

■ **RS-485**

NP-series PT 5 pin connectors (RS-485)	OMRON EJ1 EDU A port (RS-485)
R2- ——— (2)A- R2+ ——— (1)B+	

NP-series PT 5 pin connectors (RS-485)	OMRON EJ1 EDU B port (RS-485)
R2- ——— (7)A- R2+ ——— (6)B+	

2-2 AllenBradley

2-2-1 MicroLogix

A. NP-series PT Factory Settings

Baud rate: 19200, 8, None, 1

Host Unit No.: 1

Control block/status block: B3:0 / B3:10

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		
		Word No.	Bit No.	
			Low Byte	High Byte File No.
Output File	O:n	n: 0 to 3	N/A	0
Input File	I:n	n: 0 to 3		1
Status File	S2:n	n: 0 to 65		2
Bit File	B3:n	n: 0 to 255		3
Timer Flag	T4:n	n: 0 to 255		4
Timer Preset Value	T4:n.PRE	n: 0 to 255		4
Timer Accumulator Value	T4:n.ACC	n: 0 to 255		4
Counter Flag	C5:n	n: 0 to 255		5
Counter Preset Value	C5:n.PRE	n: 0 to 255		5
Counter Accumulator Value	C5:n.ACC	n: 0 to 255		5
Control File	R6:n	n: 0 to 255		6
Control Size of Bit Array	R6:n.LEN	n: 0 to 255		6
Control Reserved File	R6:n.POS	n: 0 to 255		6

Address Type	Format	Read/Write Range		
		Word No.	Bit No.	
			Low Byte	High Byte File No.
Integer File	N7:n	n: 0 to 255	N/A	7

- Bit No : Low byte is not used, so the value is 0. High byte stores file number.
- Data Size : Word.
- T4, C5 and R6 only read 1 word once.
- If reading multiple words once, the communication speed of PLC will be slow.

MEMO

1) After last communication data has been memorized by PLC (PLC will send 0x10 0x05 consecutively), communication may fail. At this time, power off and power up the PT or power off and power up PLC once.

■ **Contacts**

Contact Type	Format	Read/Write Range		
		Word No.	Bit No.	
			Low Byte	High Byte
			Bits	File No.
Output	O:n/b	n: 0 to 3	b: 0 to 15	0
Input	I:n/b	n: 0 to 3	b: 0 to 15	1
Status	S2:n/b	n: 0 to 65	b: 0 to 15	2
Bit	B3:n/b	n: 0 to 255	b: 0 to 15	3
Timer	T4:n/b T4:n/EN T4:n/TT T4:n/DN	n: 0 to 255 n: 0 to 255 n: 0 to 255 n: 0 to 255	b: 0 to 15 15 14 13	4
Timer Preset Value	T4:n.PRE/b	n: 0 to 255	b: 0 to 15	4
Timer Accumulator Value	T4:n.ACC/b	n: 0 to 255	b: 0 to 15	4

Contact Type	Format	Read/Write Range		
		Word No.	Bit No.	
			Low Byte	High Byte
			Bits	File No.
Counter flag	C5:n/b	n: 0 to 255	b: 0 to 15	5
	C5:n/CU	n: 0 to 255	15	
	C5:n/CD	n: 0 to 255	14	
	C5:n/DN	n: 0 to 255	13	
	C5:n/OV	n: 0 to 255	12	
	C5:n/UN	n: 0 to 255	11	
	C5:n/UA	n: 0 to 255	10	
Counter Preset Value	C5:n.PRE/b	n: 0 to 255	b: 0 to 15	5
Counter Accumulator Value	C5:n.ACC/b	n: 0 to 255	b: 0 to 15	5
Control	R6:n/b	n: 0 to 255	b: 0 to 15	6
	R6:n/EN	n: 0 to 255	15	
	R6:n/DN	n: 0 to 255	13	
	R6:n/ER	n: 0 to 255	11	
	R6:n/UL	n: 0 to 255	10	
	R6:n/IN	n: 0 to 255	9	
	R6:n/FD	n: 0 to 255	8	
Control Size of Bit Array	R6:n.LEN/b	n: 0 to 255	b: 0 to 15	6
Control Reserved	R6:n.POS/b	n: 0 to 255	b: 0 to 15	6
Integer	N7:n/b	n: 0 to 255	b: 0 to 15	7

-Bit No : Low byte stores bit address. High byte stores file number.

C. Connections (Connector Pinouts)

■ **RS-232 Connection**

NP-series PT 9 pin D-SUB male (RS-232)	Host 8 pin Mini DIN male (RS-232)	Host 8 pin Mini DIN male (RS-232)
RD (3) ——— (7) TXD SD (2) ——— (4) RXD SG (9) ——— (2) GND (3) RTS (6) CTS		

2-2-2 SLC5

A. NP-series PT Factory Settings

Baud rate: 19200, 8, None, 1

Host Unit No.: 1

Control block/status block: B3:0 / B3:10

MEMO

1) Error Check uses CRC (Cyclical Redundancy Check).

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		
		Word No.	Bit No.	
		Element No.	Low Byte	High Byte
				Slot or File No.
Output File	O:n O:s.n	n: 0 to 30	N/A	Slot No. s = 0 s: 0 to 255 File No. = 0
Input File	I:n I:s.n	n: 0 to 30		Slot No. s = 0 s: 0 to 255 File No. = 1
Status File	S2:n	n: 0 to 255		File No. = 2
Bit File	Bf:n	n: 0 to 255		f: 10 to 255 If f is ignored, file no. will be default setting 3.
Timer Flag	Tf:n	n: 0 to 255		f: 10 to 255 If f is ignored, file no. will be default setting 4.
Timer Preset Value	Tf:n.PRE	n: 0 to 255		f: 10 to 255 If f is ignored, file no. will be default setting 4.
Timer Accumulator Value	Tf:n.ACC	n: 0 to 255		f: 10 to 255 If f is ignored, file no. will be default setting 4.
Counter Flag	Cf:n	n: 0 to 255		f: 10 to 255 If f is ignored, file no. will be default setting 5.

Address Type	Format	Read/Write Range		
		Word No.	Bit No.	
		Element No.	Low Byte	High Byte
				Slot or File No.
Counter Preset Value	Cf:n.PRE	n: 0 to 255	N/A	f: 10 to 255 If f is ignored, file no. will be default setting 5.
Counter Accumulator Value	Cf:n.ACC	n: 0 to 255		f: 10 to 255 If f is ignored, file no. will be default setting 5.
Control File	Rf:n	n: 0 to 255		f: 10 to 255 If f is ignored, file no. will be default setting 6.
Control Size of Bit Array	Rf:n.LEN	n: 0 to 255		f: 10 to 255 If f is ignored, file no. will be default setting 6.
Control Reserved File	Rf:n.POS	n: 0 to 255		f: 10 to 255 If f is ignored, file no. will be default setting 6.
Integer File	Nf:n	n: 0 to 255		f: 10 to 255 If f is ignored, file no. will be default setting 7.

-Bit No : Low byte is not used, so the value is 0. High byte stores file number.

■ **Contacts**

Contact Type	Format	Read/Write Range		
		Word No.	Bit No.	
		Element No.	Low Byte	High Byte
			Bits	Slot or File No.
Output	O:n/b O:s.n/b	n: 0 to 30	b: 0 to 15	Slot No. s = 0 s: 0 to 255 File No. = 0
Input	I:n/b I:s.n/b	n: 0 to 30	b: 0 to 15	Slot No. s = 0 s: 0 to 255 File No. = 1
Status	S2:n/b	n: 0 to 31	b: 0 to 15	2
Bit	Bf:n/b	n: 0 to 255	b: 0 to 15	f: 10 to 255 If f is ignored, file no. will be default setting 3.
Timer	Tf:n/b Tf:n/EN Tf:n/TT Tf:n/DN	n: 0 to 255 n: 0 to 255 n: 0 to 255 n: 0 to 255	b: 0 to 15 15 14 13	f: 10 to 255 If f is ignored, file no. will be default setting 4.
Timer Preset Value	Tf:n.PRE/b	n: 0 to 255	b: 0 to 15	f: 10 to 255 If f is ignored, file no. will be default setting 4.
Timer Accumulator Value	Tf:n.ACC/b	n: 0 to 255	b: 0 to 15	f: 10 to 255 If f is ignored, file no. will be default setting 4.

Contact Type	Format	Read/Write Range		
		Word No.	Bit No.	
		Element No.	Low Byte	High Byte
			Bits	Slot or File No.
Counter Flag	Cf:n/b Cf:n/CU Cf:n/CD Cf:n/DN Cf:n/OV Cf:n/UN Cf:n/UA	n: 0 to 255 n: 0 to 255 n: 0 to 255 n: 0 to 255 n: 0 to 255 n: 0 to 255 n: 0 to 255	b: 0 to 15 15 14 13 12 11 10	f: 10 to 255 If f is ignored, file no. will be default setting 5.
Counter Preset Value	Cf:n.PRE/b	n: 0 to 255	b: 0 to 15	f: 10 to 255 If f is ignored, file no. will be default setting 5.
Counter Accumulator Value	Cf:n.ACC/b	n: 0 to 255	b: 0 to 15	f: 10 to 255 If f is ignored, file no. will be default setting 5.
Control	Rf:n/b Rf:n/EN Rf:n/DN Rf:n/ER Rf:n/UL Rf:n/IN Rf:n/FD	n: 0 to 255 n: 0 to 255 n: 0 to 255 n: 0 to 255 n: 0 to 255 n: 0 to 255 n: 0 to 255	b: 0 to 15 15 13 11 10 9 8	f: 10 to 255 If f is ignored, file no. will be default setting 6.
Control Size of Bit Array	Rf:n.LEN/b	n: 0 to 255	b: 0 to 15	f: 10 to 255 If f is ignored, file no. will be default setting 6.

Contact Type	Format	Read/Write Range		
		Word No.	Bit No.	
		Element No.	Low Byte	High Byte
			Bits	Slot or File No.
Control Reserved	Rf:n.POS/b	n: 0 to 255	b: 0 to 15	f: 10 to 255 If f is ignored, file no. will be default setting 6.
Integer	Nf:n/b	n: 0 to 255	b: 0 to 15	f: 10 to 255 If f is ignored, file no. will be default setting 7.

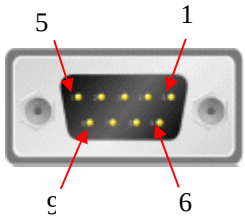
- Bit No : Low byte stores bit address. High byte stores file number.

MEMO

1) Device O and I need to assign Slot No. (s). If not assign Slot No., it will use default setting 0.

C. Connections (Connector Pinouts)

■ **RS-232**

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB female (RS-232)	Host 9 pin D-SUB female (RS-232)
RD (3) ——— (3) TXD SD (2) ——— (2) RXD SG (9) ——— (5) SG (7) RTS (8) CTS		

2-3 GE Fanuc

2-3-1 90 Series SNP

A. NP-series PT Factory Settings

Baud rate: 19200, 8, ODD, 1

Host Unit No.: 0 (1:1 communication)

Control block/status block: %R1 / %R10

MEMO

1) If the PLC enabled "Check Password" function, the password must be set by clicking ***PT*** Menu - ***PT Setting*** – ***Comm.*** Tab. The protocol and the PLC password can be set on ***Comm.*** Tab in the ***PT Setting*** Dialog Box. Please enter a 4-digit password (If entering a password that exceeds 4-digit number, only the first 4-digit number is valid).

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write range		Data Length
		Word No.	Bit No.	
Discrete Inputs	%In	n: 1 to 12288	N/A	Word (the multiple of 16 + 1)
Discrete Outputs	%Qn	n: 1 to 12288		
Discrete Temporaries	%Tn	n: 1 to 256		
Discrete Internals	%Mn	n: 1 to 12288		
%SA Discretes	%SAn	n: 1 to 128		
%SB Discretes	%SBn	n: 1 to 128		
%SC Discretes	%SCn	n: 1 to 128		
%S Discretes	%S-n	n: 1 to 128		
Genius Global Data	%Gn	n: 1 to 7680		
Registers	%Rn	n: 1 to 16384		Word
Analog Inputs	%AIn	n: 1 to 8192		

Address Type	Format	Read/Write range		Data Length
		Word No.	Bit No.	
Analog Outputs	%AQn	n: 1 to 8192	N/A	Word

■ **Contacts**

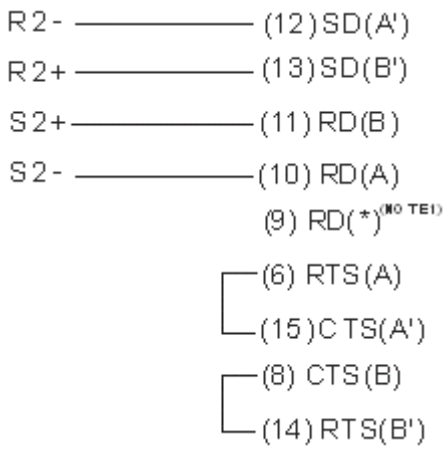
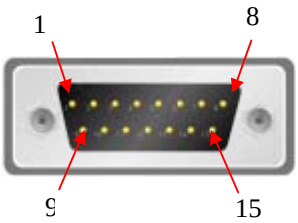
Contact Type	Format	Read/Write range	
		Word No.	Bit No.
Discrete Inputs	%In	N/A	n: 1 to 12288
Discrete Outputs	%Qn		n: 1 to 12288
Discrete Temporaries	%Tn		n: 1 to 256
Discrete Internals	%Mn		n: 1 to 12288
%SA Discretes	%SAn		n: 1 to 128
%SB Discretes	%SBn		n: 1 to 128
%SC Discretes	%SCn		n: 1 to 128
%S Discretes	%-Sn		n: 1 to 128
Genius Global Data	%Gn		n: 1 to 7680

C. Connections (Connector Pinouts)

■ **RS-232**

NP-series PT 9 pin D-SUB male (RS-232)	Host RJ-45 cable connector (RS-232)	Host RJ-45 cable connector (RS-232)
RD (3) ——— (5) TXD SD (2) ——— (6) RXD SG (9) ——— (4) GND		

■ **RS-422**

NP-series PT 5 pin connectors (RS-422)	Host 15 pin male (RS-422)	Host 15 pin male (RS-422)
		

MEMO

1) (9) RD(*) should be connected to 10(RD)(A) in serial. But if connecting PLC model is Series 90-70 PLC IC697CPU731 and IC697CPU771, (9) RD(*) needs to be connected to 11(RD)(B).

2-4 Keyence

2-4-1 KV/KZ Series

A. NP-series PT Factory Settings

Baud rate: 9600, 8, EVEN, 1

Host Unit No.: 0 (1:1 communication)

Control block/status block: DM-0 / DM-10

MEMO

1) Only 1 bit or 1 word can be transferred for each communication. (Communication speed is slow.)

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data Length
		Word No.	Bit No.	
Counter	C-nnn	nnn: 0 to 199	N/A	Word
High-speed Counter	CTH-n	n: 0 to 1		
Data Memory	DM-nnnn	nnnn: 0 to 1999		
Temporary Data Memory	TM-nn	nn: 0 to 31		
Counter Preset Value	PC-nnn	nnn: 0 to 199		
CTC Preset Value	PCTC-n	n: 0 to 3		

■ **Contacts**

Contact type	**Format**	Read/Write Range	
		Word No.	Bit No.
Relay	R-nnnbb	nnn: 0 to 69	bb: 00 to 15
Counter	C-nnn	N/A	nnn: 0 to 199
High-speed counter comparator	CTC-n	N/A	n: 0 to 3

MEMO

1) When using the protocol format of KV series and connecting to KZ-80T PLC, some errors occur. Please refer to the following description:

- Counter cannot be read. For example,

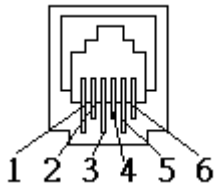
Addresses: C- (Counter), CTH- (High-speed counter), PC- (Counter preset value), PCTC- (CTC preset value) they all cannot be read.

Contacts: C- (Counter), CTC- (High-speed counter comparator) they all cannot be read also.

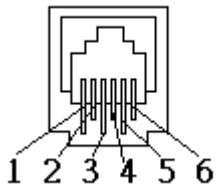
C. Connections (Connector Pinouts)

■ **RS-232**

KV Series

NP-series PT 9 pin D-SUB male (RS-232)	Host RJ-11 cable connector (RS-232)	Host RJ-11 cable connector (RS-232)
RD (3) —— (5) SD SD (2) —— (3) RD SG (9) —— (4) SG		  PLC side (Comm. Port)

KZ Series

NP-series PT 9 pin D-SUB male (RS-232)	Host RJ-11 cable connector (RS-232)	Host RJ-11 cable connector (RS-232)
RD (3) —— (5) SD SD (2) —— (3) RD SG (9) —— (4) SG		  PLC side (Comm. Port)

2-5 LG (LS)

2-5-1 Master K120S/200S

A. NP-series PT Factory Settings

Baud rate: 38400, 8, None, 1

Host Unit No.: 0 (1:1 communication)

Control block/status block: DW0 / DW10

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Word No.	Bit No.	Data Size
WORD_DEVICE_PW	PWn	n: 0 to 15	N/A	Word
WORD_DEVICE_MW	MWn	n: 0 to 191		
WORD_DEVICE_KW	KWn	n: 0 to 31		
WORD_DEVICE_LW	LWn	n: 0 to 63		
WORD_DEVICE_FW	FWn	n: 0 to 63		
WORD_DEVICE_TW	TWn	n: 0 to 255		
WORD_DEVICE_CW	CWn	n: 0 to 255		
WORD_DEVICE_DW	DWn	n: 0 to 9999		

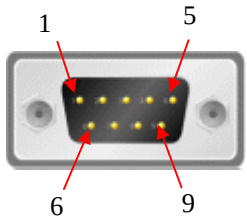
■ **Contacts**

Contact type	Format	Word No.	Bit No.
BIT_DEVICE_P	Pnb	n: 0 to 15	b: 0 to f
BIT_DEVICE_M	Mnb	n: 0 to 191	b: 0 to f
BIT_DEVICE_K	Knb	n: 0 to 31	b: 0 to f
BIT_DEVICE_L	Lnb	n: 0 to 63	b: 0 to f
BIT_DEVICE_F	Fnb	n: 0 to 63	b: 0 to f

Contact type	Format	Word No.	Bit No.
BIT_DEVICE_T	Tn	N/A	n: 0 to 255
BIT_DEVICE_C	Cn	N/A	n: 0 to 255

C. Connections (Connector Pinouts)

■ **RS-232**

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232 for LG K120S/200S)	Host 9 pin D-SUB male (RS-232 for LG K120S/200S)
RD (3) ——— (3) TXD SD (2) ——— (2) RXD SG (9) ——— (5) GND		

MEMO

1) If connecting to Pin 4 (RXD), Pin 7 (TXD) and Pin5 (SG), it indicates that CNet protocol is used (Please refer to *2-5-3 LG Master-K CNET*. 120S/200S protocol and CNet protocol cannot be used simultaneously. The users only can select either 120S/200S protocol or CNet protocol.

2-5-2 Glofa GM6 CNET

A. NP-series PT Factory Settings

Baud rate: 19200, 8, None, 1

Host Unit No.: 0

Control block/status block: %MW0 / %MW10

MEMO

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

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Word No.	Bit No.	Data Size
Input Image	IWb.s.w	w(word):0 to 3 s(slot): 0 to 7	b(base): 0 to 1	Word
Input Image	IDb.s.w	w(word):0 to 1 s(slot): 0 to 7	b(base): 0 to 1	DWord
Output Image	QWb.s.w	w(word):0 to 3 s(slot): 0 to 7	b(base): 0 to 1	Word
Output Image	QDb.s.w	w(word):0 to 1 s(slot): 0 to 7	b(base): 0 to 1	DWord
Internal Memory	MWn	n: 0 to 4095	N/A	Word
Internal Memory	MDn	n: 0 to 2047	N/A	DWord

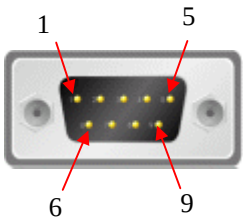
■ **Contacts**

Contact type	Format	Word No.	Bit No.
Input Image	IXb.s.n	s(slot): 0 to 7	n(bit): 0 to 63 b(base): 0 to 1
Output Image	QXb.s.n	s(slot): 0 to 7	n(bit): 0 to 63 b(base): 0 to 1
Internal Memory	MXn	N/A	n: 0 to 65535

C. Connections (Connector Pinouts)

■ **RS-232**

via CPU Port

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)
RD (3) ——— (7) TXD SD (2) ——— (4) RXD SG (9) ——— (5) GND		

■ **RS-422**

via G6L-CUEC CNET communication module

NP-series PT 5 pin connectors (RS-422)	Host Cable Connector (RS-422)
R2+ ——— SDA R2- ——— SDB S2+ ——— RDA S2- ——— RDB	

2-5-3 Master-K CNET

A. NP-series PT Factory Settings

Baud rate: 38400, 8, None, 1

Host Unit No.: 0

Control block/status block: DW0 / DW10

MEMO

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

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Word No.	Bit No.	Data Size
I/O Relay	PWn	n: 0 to 31	N/A	Word
Auxiliary Relay	MWn	n: 0 to 191		
Keep Relay	KWn	n: 0 to 31		
Link Relay	LWn	n: 0 to 63		
Special Relay	FWn	n: 0 to 63		Word (Read Only)
Timer Elapsed Value	TWn	n: 0 to 255		Word
Counter Elapsed Value	CWn	n: 0 to 255		
Data Register	DWn	n: 0 to 9999		

■ **Contacts**

Contact type	Format	Word No.	Bit No.
I/O Relay	PXnb	n: 0 to 31	b: 0 to F
Auxiliary Relay	MXnb	n: 0 to 191	b: 0 to F
Keep Relay	KXnb	n: 0 to 31	b: 0 to F
Link Relay	LXnb	n: 0 to 63	b: 0 to F
Special Relay	FXnb	n: 0 to 63	b: 0 to F
Timer Contact Relay	TXb	N/A	b: 0 to 255
Counter Contact Relay	CXb	N/A	b: 0 to 255

C. Connections (Connector Pinouts)

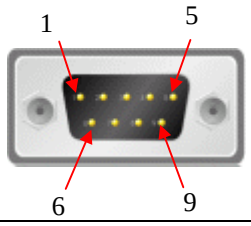
■ **RS-422**

via G6L-CUEC CNET communication module

NP-series PT 5 pin connectors (RS-422)	Host Cable Connector (RS-422)
R2+ ——— SDA R2- ——— SDB S2+ ——— RDA S2- ——— RDB	

■ **RS-232**

via LG-120S PLC (Master K)

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)
RD (3) ——— (7) TXD SD (2) ——— (4) RXD SG (9) ——— (5) GND		

2-5-4 XGT CNET

A. NP-series PT Factory Settings

Baud rate: 9600, 8, None, 1

Host Unit No.: 0

Control block/status block: DW0 / DW10

MEMO

1) PT default setting is predefined for XGL-CH2A CNET communication module.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Word No.	Bit No.	Data Size
I/O Relay	PWn	n: 0 to 2047	N/A	Word
Auxiliary Relay	MWn	n: 0 to 2047		
Keep Relay	KWn	n: 0 to 2047		
Link Relay	LWn	n: 0 to 11263		
Special Relay	FWn	n: 0 to 2047		Word (Read Only)
Timer Elapsed Value	TWn	n: 0 to 2047		Word
Counter Elapsed Value	CWn	n: 0 to 2047		
Data Register	DWn	n: 0 to 32767		

■ **Contacts**

Contact type	Format	Word No.	Bit No.
I/O Relay	PXnb	n: 0 to 2047	b: 0 to F
Auxiliary Relay	MXnb	n: 0 to 2047	b: 0 to F
Keep Relay	KXnb	n: 0 to 2047	b: 0 to F
Link Relay	LXnb	n: 0 to 11263	b: 0 to F
Special Relay	FXnb	n: 0 to 2047	b: 0 to F
Timer Contact Relay	TXb	N/A	b: 0 to 2047
Counter Contact Relay	CXb	N/A	b: 0 to 2047
Data Relay	DXn.b	n: 0 to 32767	b: 0 to F

C. Connections (Connector Pinouts)

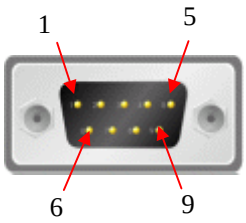
■ **RS-422**

via XGL-CH2A CNET communication module (Channel 2)

NP-series PT 5 pin connectors (RS-422)	Host Cable Connector (RS-422)
R2+ ——— TX+ R2- ——— TX- S2- ——— RX- S2+ ——— RX+	

■ **RS-232**

via XGL-CH2A CNET communication module (Channel 1)

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)
RD(3) ——— (3) TXD SD(2) ——— (2) RXD SG(9) ——— (5) GND		

2-6 Matsushita

2-6-1 FP series

A. NP-series PT Factory Settings

Baud rate: 9600, 8, ODD, 1

Host Unit No.: 238

Control block/status block: DT0 / DT10

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Internal Relay Special Internal Relay	WRn	n: 0 to 886, 900 to 910	N/A	Word
Link Relay	WLn	n: 0 to 639		
External Input Relay	WXn	n: 0 to 511		
External Output Relay	WYn	n: 0 to 511		
Timer/Counter P.V.	EVn	n: 0 to 3071		
Timer/Counter S.V.	SVn	n: 0 to 3071		
Data Register	DTn	n: 0 to 32764		
Link Data Register	LDn	n: 0 to 8447		
File Register	FLn	n: 0 to 32764		
Special Data Register	DT9_n	n: 0 to 511		

- DT9_0 to DT9_511 are applicable for FP0 T32C, FP2, FP2SH, FP10SH controllers. (Special data registers are all within the range of DT90000 to DT9XXXX).
- The actual transmitted address of DT9_n is 90000 + n (for DT). For example, the actual transmitted address of DT9_1 is 90001 (for DT), the actual transmitted address of DT9_2 is 90002 (for DT) and vise versa.

■ **Contacts**

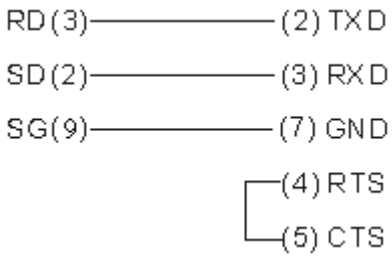
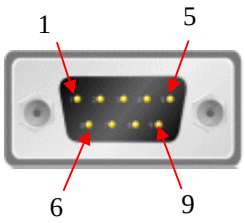
Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Internal Relay Special Internal Relay	Rnb	n: 0 to 886 n: 900 to 910	b: 0 to f b: 0 to f
Link Relay	Lnb	n: 0 to 639	b: 0 to f
External Input Relay	Xnb	n: 0 to 511	b: 0 to f
External Output Relay	Ynb	n: 0 to 511	b: 0 to f
Timer Flag Contact	Tn	N/A	n: 0 to 3071
Counter Flag Contact	Cn	N/A	n: 0 to 3071

C. Connections (Connector Pinouts)

■ **RS-232**

NP-series PT 9 pin D-SUB male (RS-232)	Host 5 pin Mini DIN male (RS-232 for FP0)	Host 5 pin Mini DIN male (RS-232 for FP0)
RD(3) ——— (2)TXD SD(2) ——— (3)RXD SG(9) ——— (1)SG		

■ **RS-232**

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232 for FP1)	Host 9 pin D-SUB male (RS-232 for FP1)
		

2-7 Mitsubishi

2-7-1 FX/FX2N CPU port

A. NP-series PT Factory Settings

Baud rate: 9600, 7, EVEN, 1

Host Unit No.: 0 (1:1)

Control block/status block: D0 / D10

MEMO

1) If connecting to Mitsubishi FXxN series PLC, the user can use both FX2N and FX series communication protocol.
2) If connecting to Mitsubishi FX series PLC, the user can only use FX series communication protocol.
3) Some addresses of Mitsubishi PLCs are “read only”, however, when you write these “read only” registers, PLCs will not report any communication error to PT and this will cause PT errors. Please be aware of this when editing PLC program (this normally occurs when using FX series protocol when connecting to a FXxN series PLC).
4) If connecting to Mitsubishi FXxN series PLC, it is recommended for the user to use FX2N protocol.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Auxiliary Relay	Mn	n: 0 to 3064	N/A	Byte
Special Auxiliary Relay	Mn	n: 8000 to 8248		
Status Relay	Sn	n: 0 to 992		
Input Relay	Xn	n: 0 to 360(octal)		
Output Relay	Yn	n: 0 to 360(octal)		
Timer PV	Tn	n: 0 to 255		Word
16-bit Counter PV	Cn	n: 0 to 199		
32-bit Counter PV	Cn	n: 200 to 255		Double Word

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Data Register	Dn	n: 0 to 7999	N/A	Word
Special Data Register	Dn	n: 8000 to 8255		

- Auxiliary Relay/ Special Auxiliary Relay/ Status Relay/ Input Relay /Output Relay: Address must be the multiple of 8.

■ **Contacts**

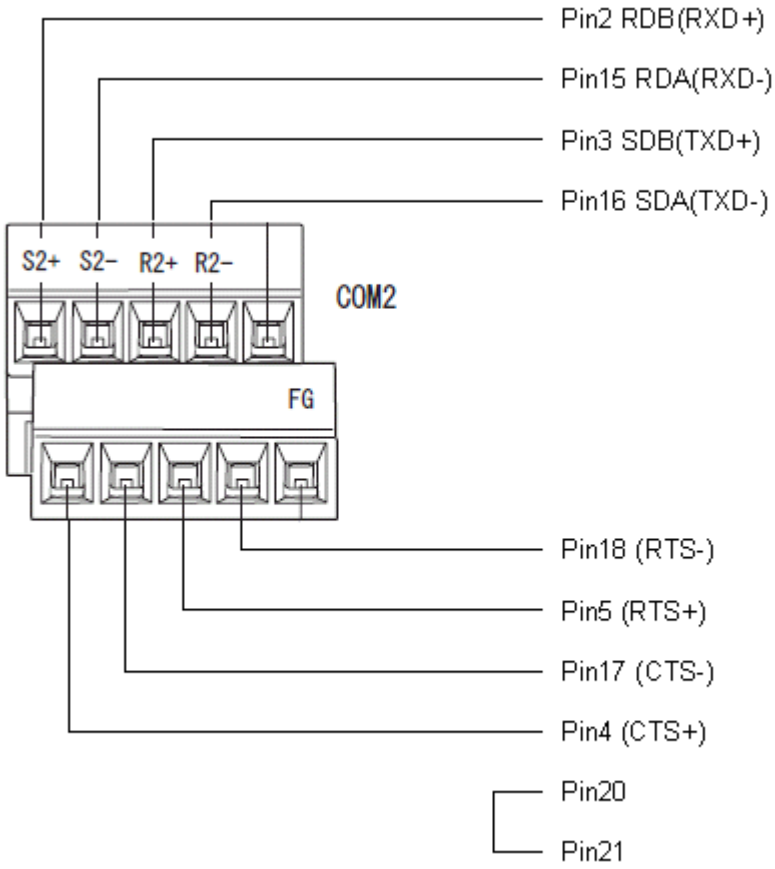
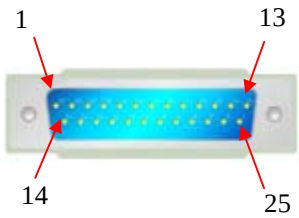
Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Auxiliary Relay	Mn	N/A	n: 0 to 3071
Special Auxiliary Relay	Mn		n: 8000 to 8255
Status Relay	Sn		n: 0 to 999
Input Relay	Xn		n: 0 to 377(octal)
Output Relay	Yn		n: 0 to 377(octal)
Timer Flag	Tn		n: 0 to 255
Counter Flag	Cn		n: 0 to 255

C. Connections (Connector Pinouts)

■ **RS-422**

NP-series PT 5 pin connectors (RS-422)	Host 8pin Mini DIN male (RS-422)	Host 8pin Mini DIN male (RS-422)
R2+ ——— (7)TXD+ R2- ——— (4)TXD- S2+ ——— (2)RXD+ S2- ——— (1)RXD-		

■ **RS-422**

NP-series PT 5 pin connectors (RS-422)	Host 25 pin D-SUB male (RS-422)	Host 25 pin D-SUB male (RS-422)
		

2-7-2 FX3U CPU Port

A. NP-series PT Factory Settings

Baud rate: 9600, 7, EVEN, 1

Host Unit No.: 0. (1:1 communication)

Control block/status block: D0 / D10

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Auxiliary Relay	Mn	n: 0 to 7679	N/A	Word
Special Auxiliary Relay	Mn	n: 8000 to 8511		
Status Relay	Sn	n: 0 to 4095		
Input Relay	Xn	n: 0 to 377(octal)		
Output Relay	Yn	n: 0 to 377(octal)		
Timer PV	Tn	n: 0 to 255		
16-bit Counter PV	Cn	n: 0 to 199		
32-bit Counter PV	Cn	n: 200 to 255		Double Word
Data Register	Dn	n: 0 to 7999		Word
Special Data Register	Dn	n: 8000 to 8511		

- Auxiliary Relay/ Special Auxiliary Relay/ Status Relay/ Input Relay /Output Relay: Address must be the multiple of 16.

■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Auxiliary Relay	Mn	N/A	n: 0 to 7679
Special Auxiliary Relay	Mn		n: 8000 to 8511
Status Relay	Sn		n: 0 to 4095
Input Relay	Xn		n: 0 to 377(octal)
Output Relay	Yn		n: 0 to 377(octal)
Timer Flag	Tn		n: 0 to 255
Counter Flag	Cn		n: 0 to 255

C. Connections (Connector Pinouts)

■ **RS-422**

NP-series PT 5 pin connectors (RS-422)	Host 8pin Mini DIN male (RS-422)	Host 8pin Mini DIN male (RS-422)
R2+ ——— (7) TXD+ R2- ——— (4) TXD- S2+ ——— (2) RXD+ S2- ——— (1) RXD-		

2-7-3 FX Series Computer Link

A. NP-series PT Factory Settings

Baud rate: 9600, 7, EVEN, 1

Host Unit No.: 0

Control block/status block: D0 / D10

MEMO

1) This communication protocol supports FX series RS485 and RS232 communication module.
2) The default setting of this communication protocol is to support RS485 communication module. If the user needs to use RS232 communication module, the user must change the communication setting from RS485 to RS232 manually.
3) For more detailed information regarding the communication setting method, please refer to the Mitsubishi manual.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Auxiliary Relay	Mn	n: 0-7679	N/A	Word
Special Auxiliary Relay	Mn	n: 8000-8511		
Status Relay	Sn	n: 0-4095		
Input Relay	Xn	n: 0-377(octal)		
Output Relay	Yn	n: 0-377(octal)		
Timer PV	Tn	n: 0-255		
16-bit Counter PV	Cn	n: 0-199		
32-bit Counter PV	Cn	n: 200-255		Double Word
Data Register	Dn	n: 0-7999		Word
Special Data Register	Dn	n: 8000-8511		

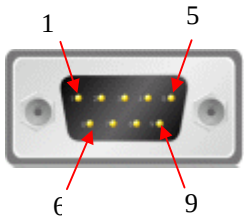
- Auxiliary Relay / Special Auxiliary Relay / Status Relay / Input Relay / Output Relay: Address must be the multiple of 16.

■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Auxiliary Relay	Mn	N/A	n: 0-7679
Special Auxiliary Relay	Mn		n: 8000-8511
Status Relay	Sn		n: 0-4095
Input Relay	Xn		n: 0-377(octal)
Output Relay	Yn		n: 0-377(octal)
Timer Flag	Tn		n: 0-255
Counter Flag	Cn		n: 0-255

C. Connections (Connector Pinouts)

■ **RS-232**

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)
RD(3) ——— TXD (3) SD(2) ——— RXD (2) SG(9) ——— GND (5)		

■ **RS-485**

NP-series PT 5 pin connectors (RS-485)	Host Communication Module
R2- ——— SDB S2- ——— RDB R2+ ——— SDA S2+ ——— RDA	

2-7-4 A Series Computer Link

A. NP-series PT Factory Settings

Baud rate: 9600, 8, ODD, 1

Host Unit No.: 0

Control block/status block: D0 / D10

MEMO

1) This driver utilizes CheckSum.
2) Please set “PLC Mode” switch to position 5.
3) If OUTPUT Relay (Y) and Special Data Relay (SM) are set to 1, PLC will stop communication and the communication will not recover automatically. PLC will need to be manually reset.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Input	Xn	n: 0 to 7FF	N/A	Word (multiple of 16)
Output	Yn	n: 0 to 7FF		
Link Relay	Bn	n: 0 to FFF		
Internal Relay	Mn	n: 0 to 8191		
Special Internal Relay	SMn	n: 9000 to 9255		Word (9000 + multiple of 16)
Latch Relay	Ln	n: 0 to 2047		Word (multiple of 16)
Annunciator	Fn	n: 0 to 2047		
Timer Value	TNn	n: 0 to 999		Word
Counter Value	CNn	n: 0 to 999		
Data Register	Dn	n: 0 to 8191		
Special Data Register	SDn	n: 9000 to 9255		
File Register	Rn	n: 0 to 8191		
Link Register	Wn	n: 0 to FFF		

■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Input	Xn	N/A	n: 0 to 7FF
Output	Yn		n: 0 to 7FF
Link Relay	Bn		n: 0 to FFF
Internal Relay	Mn		n: 0 to 8191
Special Internal Relay	SMn		n: 9000 to 9255

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Latch Relay	Ln	N/A	n: 0 to 2047
Annunciator	Fn		n: 0 to 2047
Timer Contact	TSn		n: 0 to 999
Timer Coil	TCn		n: 0 to 999
Counter Contact	CSn		n: 0 to 999
Counter Coil	CCn		n: 0 to 999

C. Connections (Connector Pinouts)

■ **RS-422**

NP-series PT 5 pin connectors (RS-422)	Host Cable Connector (RS-422)
R2+ ——— SDA R2- ——— SDB S2+ ——— RDA S2- ——— RDB	

2-7-5 A2A/A2AS/A2USH A1SH/A3N/A2ASH CPU Port

A. NP-series PT Factory Settings

Baud rate: 9600, 8, ODD, 1

Host Unit No.: 0 (1:1 communication)

Control block/status block: D0 / D10

MEMO

1) This driver supports all Mitsubishi A series CPU port. Mitsubishi A series CPU port can be divided into the following five categories according the used CPU code (used during communication):

-A0J2…
-A1N…
-A1S (/ A2S / A2N …)
-A3N (/ A1SH / A2SH …)
-A2A (/ A2AS / A2USH …)

NP-series PT can support A2USH CPU port (same as A2A, A2AS CPU port.) and A1SH CPU port (same as A3N, A2ASH CPU port.).

2) L and M: The communication address of L is the same as communication address of M.

3) PX and X:

In Mitsubishi A2A PLC, the communication address of PX and X are the same.

In other Mitsubishi A series PLCs, X is from odd address and PX is from even address. That is one place where PX and X differ.

4) X, Y, B, M, SM, L, F, PX ----(Word),

X, Y, B, M, SM, L, F, PX ----(Bit),

When Host Unit No. is set to 255, only the value of even addresses will be read/written.

When Host Unit No. is set to other number (not 255), all value of all addresses will be read/written.

5) R address: R address will be different according to the size of File Register responded from PLC.

For example, A2USH: 1K: 3800 to 4000H
2K: 3000 to 4000H
3K: 2800 to 4000H
4K: 2000 to 4000H
5K: 4000 to 6800H**(cy)**
6K: 4000 to 7000H**(cy)**

File Register: PLC must be started correctly or the read / write value will be incorrect.

6) Max. read/write addresses & relays for communication once

128 Words (256 bytes) Addresses
64 Words (128 bytes) Relays

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Input	Xn	n: 0 to 7FF	N/A	Word (multiple of 16)
Output	Yn	n: 0 to 7FF		
Link Relay	Bn	n: 0 to FFF		
Internal Relay	Mn	n: 0 to 8191		
Special Internal Relay	SMn	n: 9000 to 9255		Word (9000 + multiple of 16)
Latch Relay	Ln	n: 0 to 8191		Word (multiple of 16)
Annunciator	Fn	n: 0 to 2047		
Timer Value	TNn	n: 0 to 2047		Word
Counter Value	CNn	n: 0 to 1023		
Data Register	Dn	n: 0 to 8191		
Special Data Register	SDn	n: 9000 to 9255		
File Register	Rn	n: 0 to 8191		
Link Register	Wn	n: 0 to FFF		
Input Card Register	PXn	n: 0 to 7FF		Word (multiple of 16)

■ **Contacts**

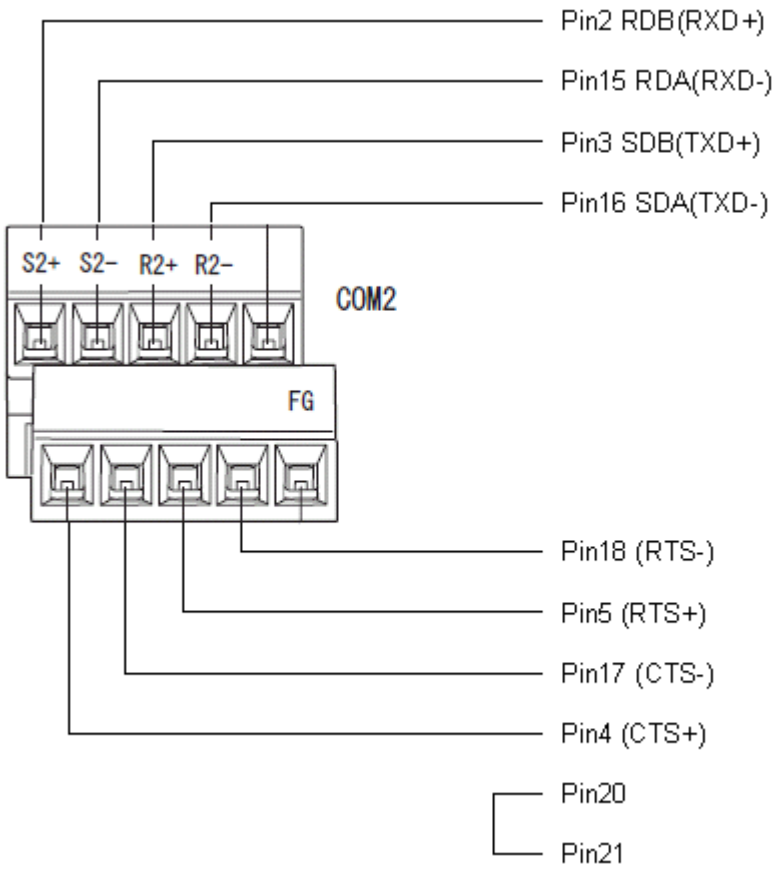
Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Input	Xn	N/A	n: 0 to 7FF
Output	Yn		n: 0 to 7FF
Link Relay	Bn		n: 0 to FFF
Internal Relay	Mn		n: 0 to 8191
Special Internal Relay	SMn		n: 9000 to 9255

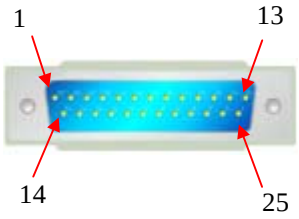
Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Latch Relay	Ln	N/A	n: 0 to 2047
Annunciator	Fn	N/A	n: 0 to 2047
Timer Contact	TSn	N/A	n: 0 to 2047
Timer Coil	TCn	N/A	n: 0 to 2047
Counter Contact	CSn	N/A	n: 0 to 1023
Counter Coil	CCn	N/A	n: 0 to 1023
Input Card Register	PXn	N/A	n: 0 to 7FF

C. Connections (Connector Pinouts)

■ **RS-422**

NP-series PT 5 pin connectors (RS-422)	Host 25 pin D-SUB male (RS-422)	Host 25 pin D-SUB male(RS-422)





2-7-6 Q Series CPU Port

A. NP-series PT Factory Settings

Baud rate: 19200, 8, ODD, 1

Host Unit No.: 0 (1:1 communication)

Control block/status block: D-0 / D-10

MEMO

1) If communication baud rate is not correct, PT will set PLC baud rate as PT baud rate automatically.

2) This driver support Mitsubishi Q00 and Q00J series with password protection models.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Input	X-n	n: 0 to 1FFF	N/A	Word (multiple of 16)
Output	Y-n	n: 0 to 1FFF		
Direct Input	DX-n	n: 0 to 1FFF		
Direct Output	DY-n	n: 0 to 15		
Latch Relay	L-n	n: 0 to 8191		
Annunciator	F-n	n: 0 to 2047		
Edge Relay	V-n	n: 0 to 2047		
Step Relay	S-n	n: 0 to 8191		
Link Relay	B-n	n: 0 to 1FFF		
Special Link Relay	SB-n	n: 0 to 7FF		
Internal Relay	M-n	n: 0 to 8191		
Special Internal Relay	SM-n	n: 0 to 2047		
Timer Value	TN-n	n: 0 to 2047		Word
Retentive Timer Value	SN-n	n: 0 to 2047		
Counter Value	CN-n	n: 0 to 1023		
Data Register	D-n	n: 0 to 12287		
Special Data Register	SD-n	n: 0 to 2047		
Index Register	Z-n	n: 0 to 15		
File Register	R-n	n: 0 to 32767		

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
File Register	ZR-n	n: 0 to 32767	N/A	Word
Link Register	W-n	n: 0 to 1FFF		
Special Link Register	SW-n	n: 0 to 7FF		

- Xn, Yn, DXn, Bn, SBn, Wn, SWn : n is in hexadecimal.

■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Input	X-n	N/A	n: 0 to 1FFF
Output	Y-n		n: 0 to 1FFF
Direct input	DX-n		n: 0 to 1FFF
Direct output	DY-n		n: 0 to 15
Latch Relay	L-n		n: 0 to 8191
Annunciator	F-n		n: 0 to 2047
Edge Relay	V-n		n: 0 to 2047
Step Relay	S-n		n: 0 to 8191
Link Relay	B-n		n: 0 to 1FFF
Special Link Relay	SB-n		n: 0 to 7FF
Internal Relay	M-n		n: 0 to 8191
Special Internal Relay	SM-n		n: 0 to 2047
Timer Contact	TS-n		n: 0 to 2047
Timer Coil	TC-n		n: 0 to 2047
Retentive timer Contact	SS-n		n: 0 to 2047
Retentive timer Coil	SC-n		n: 0 to 2047

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Counter Contact	CS-n	N/A	n: 0 to 1023
Counter Coil	CC-n		n: 0 to 1023

- Xn, Yn, DXn, Bn, SBn : n is in hexadecimal.

C. Connections (Connector Pinouts)

■ **RS-232**

NP-series PT 9 pin D-SUB male (RS-232)	Host 6 pin Mini DIN male (RS-232)	Host 6 pin Mini DIN male (RS-232)
RD(3) ——— (2) SD (TXD) SD(2) ——— (1) RD (RXD) SG(9) ——— (3) GND (5) DSR (DR) (6) DTR (ER)		

2-7-7 Q Series Computer Link

A. NP-series PT Factory Settings

Baud rate: 19200, 8, None, 1

Host Unit No.: 0

Control block/status block: D0 / D10

MEMO

1) This communication protocol supports Q series RS232 communication module (QJ71C24-R2) and RS422 communication protocol (QJ71C24N).
2) Before using this communication protocol, the user needs to set communication module via PC software , GX Developer. For more detailed information regarding the setting method, please refer to Mitsubishi User Manual named “User’s Manual (Basic) - Q Corresponding Series Communication Module”.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Input	Xn	n: 0-1FFF	N/A	Word (multiple of 16)
Output	Yn	n: 0-1FFF		
Internal Relay	Mn	n: 0-8191		
Special Internal Relay	Mn	n: 9000-9255		Word (9000 + multiple of 16)
Link Relay	Bn	n: 0-1FFF		Word (multiple of 16)
Annunciator	Fn	n: 0-2047		
Timer Value	TNn	n: 0-2047		Word
Counter Value	CNn	n: 0-2047		
Data Register	Dn	n: 0-8191		
Special Data Register	Dn	n: 9000-9255		
Link Register	Wn	n: 0-1FFF		

- Xn, Yn, Bn, Wn : n is in hexadecimal.

■ **Contacts**

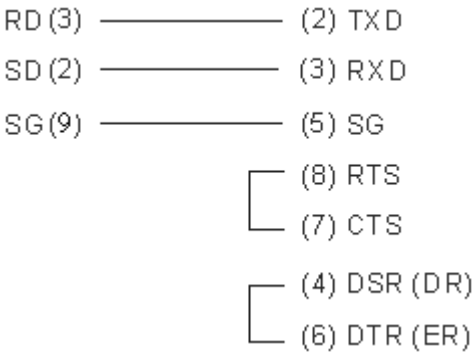
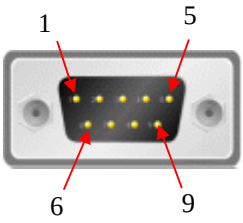
Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Input	Xn	N/A	n: 0-1FFF
Output	Yn	N/A	n: 0-1FFF
Internal Relay	Mn	N/A	n: 0-8191
Special Internal Relay	Mn	N/A	n: 9000-9255
Link Relay	Bn	N/A	n: 0-1FFF
Annunciator	Fn	N/A	n: 0-2047
Timer Contact	TSn	N/A	n: 0-2047
Timer Coil	TCn	N/A	n: 0-2047
Counter Contact	CS-n	N/A	n: 0-2047

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Counter Coil	CC-n	N/A	n: 0-2047

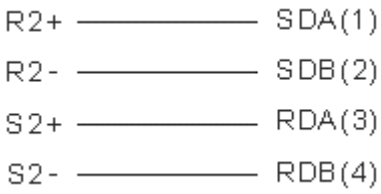
- Xn, Yn, Bn : n is in hexadecimal.

C. Connections (Connector Pinouts)

■ **RS-232**

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)
		

■ **RS-422**

NP-series PT 5 pin connectors (RS-422)	Host Cable Connector (RS-422)
	

2-8 Modbus

2-8-1 984 RTU / ASCII (Master)

A. NP-series PT Factory Settings

Baud rate: 9600, 7, EVEN, 1 (ASCII)

9600, 8, EVEN, 1 (RTU)

Host Unit No.: 0

Control block/status block: W40100 / W40200

MEMO

1) Only 0x06 write command is used.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Output Registers	Wn	n: 40001 to 50000	N/A	Word
Input Registers	Wn	n: 30001 to 40000		

- Input Registers is “read only”.

■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Discrete Outputs	Bn	N/A	n: 1 to 10000
Discrete Inputs	Bn		n: 10001 to 20000

- Discrete Inputs is “read only”.

C. Connections (Connector Pinouts)

Please refer to *Section 1 Pin Definition of Serial Communication*.

2-8-2 RTU / ASCII Hex Address (Master)

A. NP-series PT Factory Settings

Baud rate: 9600, 7, EVEN, 1 (ASCII)

9600, 8, EVEN, 1 (RTU)

Host Unit No.: 0

Control block/status block: RW-0 / RW-10

MEMO

1) The valid communication address starts from 0 and the format is hexadecimal. So the settable range are 0 to 65535 (i.e. 0 to FFFF in hexadecimal format).

1) Only 0x06 write command is used.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Output Registers	RW-n	n: 0 to FFFF	N/A	Word
Input Registers	R-n	n: 0 to FFFF		

- RW- : can Read and Write.
  Converting the address to decimal format and plus 40001, it will immediately become the corresponding Modbus 984 communication address.
- R- (Input Registers) : Read only.
  Converting the address to decimal format and plus 30001, it will immediately become the corresponding Modbus 984 communication address.

■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Discrete Outputs	RWB-n	N/A	n: 0 to FFFF
Discrete Inputs	RB-n		n: 0 to FFFF

- RWB- : can Read and Write.
  Converting the address to decimal format and plus 1, it will immediately become the corresponding Modbus 984 communication address.
- RB- (Discrete Inputs) : Read only.
  Converting the address to decimal format and plus 10001, it will immediately become the corresponding Modbus 984 communication address.

MEMO

1) Only first 10000 addresses can be converted to ”Standard Modbus” communication address.

2-8-3 RTU / ASCII nW, RTU 2W (Master)

A. NP-series PT Factory Settings

Baud rate: 9600, 7, EVEN, 1 (ASCII)

9600, 8, EVEN, 1 (RTU)

Host Unit No.: 1

Control block/status block: W40100 / W40200

MEMO

1) This driver can read consecutive communication address on the screen via one Modbus command to improve the communication efficiency. For example, if there are 6 devices on the screen, and read the data of the addresses W40100, W40101, W40102, W40200, W40201, W40300. It will read three times. It will read W40100 3 Words at the first time, read W40200 2 Words at the second time and read W40300 1 Word at the third time.
2) Ensure to check the box next to ***Optimize*** (Optimization for reading) selection in ***Comm.*** Tab in the ***PT Setting*** Dialog Box in ***PT*** Menu (***PT*** Menu→ ***PT Setting*** → ***Comm.***). If ***Optimize*** selection is unchecked, do not select ***Size Limit***.
3) Only the 0x10 write command is used in RTU/ASCII nW, and both 0x06 and 0x10 write commands are used in RTU 2W. For details, refer to ***Reference*** at the end of 2-8-3.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Output Registers	Wn	n: 40001 to 50000	N/A	Word
Input Registers	Wn	n: 30001 to 40000		

- Input Addresses is “read only”.

■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Discrete Outputs	Bn	N/A	n: 1 to 10000
Discrete Inputs	Bn		n: 10001 to 20000

- Discrete Inputs is “read only”.

C. Connections (Connector Pinouts)

Please refer to *Section 1 Pin Definition of Serial Communication*.

Reference

Modbus RTU 2W supports two write commands.

0x06 command is used when a value is written to one address, and 0x10 command is used when a value is written to multiple addresses.

-Command for writing a value to an address (0x06)
Command format: 0x06[address][value]
(Example)
When one word value (0x1234) is written to W40100 (set as one word), the command format is 0x06[W40100][0x1234].

-Command for writing a value to multiple addresses (0x10)
Command format: 0x10[Starting address][No. of data][value 1][value 2][[…]
(Example)
When double word value (0x12345678) is written to W40100 (set as double word), the command format is 0x10[W40100][2][0x5678][0x1234].

2-8-4 RTU / ASCII (Slave)

A. NP-series PT Factory Settings

Baud rate: 9600, 7, EVEN, 1 (ASCII)

9600, 8, EVEN, 1 (RTU)

Host Unit No.: 0 (Host Unit No. is not used in the protocol.)

Control block/status block: W40100 / 40200

MEMO

1) PT Unit No. is Slave station number. (default setting is 0)

2) The relation between Modbus address and PT internal addreses.

Modbus address		Data definition in PT	
W40001 to W41024	→	$0 to $1023	Internal address
W42001 to W43024	→	$M0 to $M1023	Non-volatile internal address
W44001	→	RCPNO	Receipt number address
W45001 and more ...	→	RCP0 to RCPn	Receipt address
B00001 to B01024	→	$2000.0 to $2063.15	Internal address (Bit)
B01025 to B02048	→	$M200.0 to $M263.15	Non-volatile internal address (Bit)

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range		Data length
		Word No.	Bit No.	
Output Registers	Wn	n: 40001 to 50000	N/A	Word

■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Discrete Outputs	Bn	N/A	n: 1 to 2048

C. Connections (Connector Pinouts)

Please refer to *Section 1 Pin Definition of Serial Communication*.

Cross Reference Table (Inter Memory of NP-series PT and Modbus Reference Address)

Inter Memory of NP-series PT	Modbus Reference Address	Supporting Modbus Function	Address of Function
$0	40001	03H, 06H, 10H	0000H
$1	40002	03H, 06H, 10H	0001H
to			
$1023	41024	03H, 06H, 10H	03FFH
$M0	42001	03H, 06H, 10H	07D0H
$M1	42002	03H, 06H, 10H	07D1H
to			
$M1023	43024	03H, 06H, 10H	0BCFH
RCPNO	44001	03H, 06H	0FA0H
RCP0	45001	03H, 06H, 10H	1388H
RCP1	45002	03H, 06H, 10H	1389H
to			
$2000.0	00001	01H, 05H, 0FH	0000H
$2000.1	00002	01H, 05H, 0FH	0001H
to			
$2000.15	00016	01H, 05H, 0FH	000FH
$2001.0	00017	01H, 05H, 0FH	0010H

Inter Memory of NP-series PT	Modbus Reference Address	Supporting Modbus Function	Address of Function
to			
$2063.0	01009	01H, 05H, 0FH	03F0H
to			
$2063.15	01024	01H, 05H, 0FH	03FFH

$M200.0	01025	01H, 05H, 0FH	0400H
$M200.1	01026	01H, 05H, 0FH	0401H
to			
$M200.15	01040	01H, 05H, 0FH	040FH
$M201.0	01041	01H, 05H, 0FH	0410H
to			
$M263.0	02033	01H, 05H, 0FH	07F0H
to			
$M263.15	02048	01H, 05H, 0FH	07FFH

For example:

1. Read internal memory **$100** of NP-series PT (PT Unit No.: 1)

   : 01 **03 00 64** 00 01 97 CR LF

   Write the value of **1000** into internal memory **$100** of NP-series PT (PT Unit No.: 1)

   : 01 **06 00 64** 03 E8 AA CR LF

2. Read internal memory **$M100** of NP-series PT (PT Unit No.: 1)

   : 01 **03 08 34** 00 01 BF CR LF

   Write the value of **888** into internal memory **$M100** of NP-series PT (PT Unit No.: 1)

   : 01 **06 08 34** 03 78 42 CR LF

3. Read internal memory **$2000.15** of NP-series PT (PT Unit No.: 1)

   : 01 **01 00 0F** 00 01 EE CR LF

Set internal memory **$2000.15** of NP-series PT to **ON** (PT Unit No.: 1)

: 01 **05 00 0F** FF 00 EC CR LF

Set internal memory **$2000.15** of NP-series PT to **OFF** (PT Unit No.: 1)

: 01 **05 00 0F** 00 00 EB CR LF

4. Read internal memory **$M201.0** of NP-series PT (PT Unit No.: 1)

: 01 **01 04 10** 00 01 E9 CR LF

Set internal memory **$M201.0** of NP-series PT to **ON** (PT Unit No.: 1)

: 01 **05 04 10** FF 00 E7 CR LF

Set internal memory **$M201.0** of NP-series PT to **OFF** (PT Unit No.: 1)

: 01 **05 04 10** 00 00 E6 CR LF

2-9 Modicon

2-9-1 TSX Micro (Uni-Telway)

A. NP-series PT Factory Settings

Baud rate: 9600, 8, ODD, 1

Host Unit No.: 2

Control block/status block: %MW0 / %MW10

MEMO

1) The PT unit number needs to be adjusted to 1 to 8.
2) Host unit number and PT unit number can be the same.
3) The internal memory and relative parameters in the host should be set properly first. Otherwise, it cannot communicate except %S.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Word No.	Bit No.	Data Size
WORD_DEVICE_ Internal	%MWn	n: 0 to 65534	N/A	Word
WORD_DEVICE_ System	%SWn	n: 0 to 127		
WORD_DEVICE_ Input	%KWn	n: 0 to 65534		

- %KWn is “read only”.

■ **Contacts**

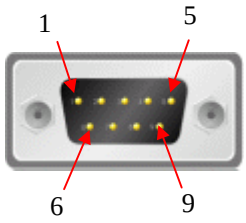
Contact type	Format	Word No.	Bit No.
BIT_DEVICE_ Internal	%Mn:b	n:0 to 65534	b:0 to 15
BIT_DEVICE_ System	%Sn	-	n:0 to 127
BIT_DEVICE_ Internal1	%Mn	-	n:0 to 65534

- %Mn: b is Bit address that corresponds to WORD_DEVICE_ Internal (%MWn).
- %Mn is PLC internal relay address.
- The read/write range of WORD_DEVICE_ Internal / BIT_DEVICE_ Internal depends on PLC used memory.

C. Connections (Connector Pinouts)

■ **RS-232**

It needs to use specific cable of Modicon Uni-Telway. (RS-232) --- TSX PCX 1031

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)
RD (3) ——— (2) SD SD (2) ——— (3) RD SG (9) ——— (5) SG		

■ **RS-485**

NP-series PT 5 pin connectors (RS-485)	Host 8 pin Mini DIN male (RS-485)	Host 8 pin Mini DIN male (RS-485)
R2+ ——— (1) D+ R2- ——— (2) D-		

2-9-2 NEZA (Uni-Telway)

Its function is the same as Modicon TSX Micro UniTelway. Please refer to *2-9-1* TSX Micro (Uni-Telway).

2-9-3 TWIDO

Its function is the same as Modbus (Master) --- 984 RTU. Please refer to *2-8-1 984 RTU / ASCII (Master)*.

2-10 Siemens

2-10-1 S7 200

A. NP-series PT Factory Settings

Baud rate: 9600, 8, EVEN, 1

Host Unit No.: 2 (0 to 126)

Control block/status block: VW0 / VW10

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range	
		Word No.	Bit No.
Timer	Tn	n: 0 to 255	N/A
Analog Input Word	AIWn	n: 0 to 30	
Counter	Cn	n: 0 to 255	
Analog Output Word	AQWn	n: 0 to 30	
Input Image	IWn	n: 0 to 14	
Input Image	IDn	n: 0 to 12	
Output Image	QWn	n: 0 to 14	
Output Image	QDn	n: 0 to 12	
Special Bits	SMWn	n: 0 to 199	
Special Bits	SMDn	n: 0 to 197	
Internal Bits	MWn	n: 0 to 98	
Internal Bits	MDn	n: 0 to 96	
Data Area	VWn (DBWn)	n: 0 to 9998 (n: 0 to 9998)	

Address Type	Format	Read/Write Range	
		Word No.	Bit No.
Data Area	VDn	n: 0 to 9996	N/A
Special S	SWn	n: 0 to 99	
Special S	SDn	n: 0 to 97	

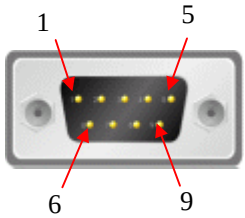
■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Timer Bit	Tn	N/A	n: 0 to 255
Counter Bit	Cn	N/A	n: 0 to 255
Input Image	In.b	n: 0 to 15	b: 0 to 7
Output Image	Qn.b	n: 0 to 15	b: 0 to 7
Special Bit	SMn.b	n: 0 to 200	b: 0 to 7
Internal Bit	Mn.b	n: 0 to 99	b: 0 to 7
Data Area Bit	Vn.b	n: 0 to 9999	b: 0 to 7
Special S Bit	Sn.b	n: 0 to 100	b: 0 to 7

C. Connections (Connector Pinouts)

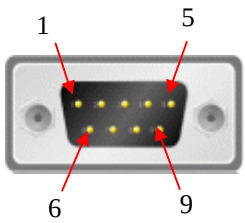
■ **RS-232**

via RS-232 / PPI Multi-Master Cable (Connecting NP series PT and PPI cable)

NP-series PT 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)	Host 9 pin D-SUB male (RS-232)
SD (2) ——— (2) RD RD (3) ——— (3) TD SG (9) ——— (5) GND		

■ **RS-485**

via PLC Program Port (RS-485)

NP-series PT 5 pin connectors (RS-485)	Host 9 pin D-SUB male (RS-485)	Host 9 pin D-SUB male (RS-485)
R2+ ——— (3)TXD/RXD+ R2- ——— (8)TXD/RXD-		

2-10-2 S7 300 (with PC Adapter)

A. NP-series PT Factory Settings

Baud rate: 38400, 8, ODD, 1 (RS-232)

Host Unit No.: 2

Control block/status block: DBW0 / DBW20

MEMO

1) PLC DB memory (DBm.DBWn, DBm.DBDn, DBm.DBXn.b) must be open so that PT can read/write.
2) The reason for using PC adapter:
   -SIMATIC S7 PC Adapter 6ES7 972-0CA22-0XA0 is supported.
   -When communicating via PC adapter, it is profibus with 187.5 K baudrate at PLC side. Therefore, the network structure is faster and steadier.
   -When PT communicates with PLC without PC adapter directly, the protocol will be complicated and it needs to lower PLC baud rate to 19200 due to PT baudrate limit.
   -Regardless of whether PC adapter is used or not, communication will be slow because the PT needs to communicate with PT several times in order to execute one command.
3) Baud rate setting
   -It needs to set PLC baud rate to 187.5 K and higher. (it cannot use 19.2K)
   -It needs to set baud rate of two sides when using PC Adapter
   1. PLC side: It needs to set same baudrate as PLC side (as previous item it needs to set PLC baud rate to 187.5 K and higher and cannot use 19.2K)
   2. PT side: it can select 38.4K or 19.2K by using switch on the cable. (only these two choices)
   3. PT baud rate: it needs to set the baud rate of PT side of PC adapter as previous item to 38.4K or 19.2K)

(protocol setting is still 8, ODD, 1)

4. There is no setting for PLC and PT unit, so it will not have the communication problem with error unit setting.
5. PC Adapter :

The power LED will be lit once connect to PLC. (power supply of PC adapter is from PLC)
If communication is OK, the communication LED will be blink. Otherwise, it will be dark.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range	
		Word No.	Bit No.
Input Image	IWn	n: 0 to 65534	N/A
Input Image	IDn	n: 0 to 65532	
Output Image	QWn	n: 0 to 65534	
Output Image	QDn	n: 0 to 65532	
Internal Bits	MWn	n: 0 to 65534	
Internal Bits	MDn	n: 0 to 65532	
Data Area	DBm.DBWn	n: 0 to 65534	m: 1 to 255
	DBm.DBDn	n: 0 to 65532	m: 1 to 255
Data Area (DB10)	DBWn	n: 0 to 65534	N/A
	DBDn	n: 0 to 65532	
	VWn	n: 0 to 65534	
	VDn	n: 0 to 65532	
Timer	Tn	n: 0-65535	
Counter	Cn	n: 0-65535	

MEMO

1) The valid digit number of the value for the T(Timer) and C(Counter) is 3-digits only. Therefore, please enter a 3-digit number. If entering a number that exceeds 3 digits, only the first 3 digits are valid (decimal format). The other digits of the value for the T(Timer) will be replaced as 0 and the other digits of the value for the C(Counter) will be abandoned. For example, assume that the users enter the value “12345”, the actual write value for the T(Timer) will be “12300” and the actual write value for the C(Counter) will be “123”.

■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Input Image	In.b	n: 0 to 65535	b: 0 to 7
Output Image	Qn.b	n: 0 to 65535	b: 0 to 7
Internal Bit	Mn.b	n: 0 to 65535	b: 0 to 7
Data Area Bit	DBm.DBXn.b	n: 0 to 65535	b: 0 to 7 m = 1 to 255
Data Area Bit (10 DB)	DBXn.b	n: 0 to 65535	b: 0 to 7
	Vn.b	n: 0 to 65535	b: 0 to 7

MEMO

1) For all contacts when performing ***Multiple Duplicate*** function:

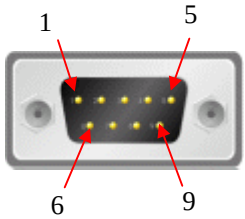
2) If it exceeds 65535 when increasing, it will be regarded as 0.

3) If it is less than 0, it will be regarded as 655XX.

C. Connections (Connector Pinouts)

■ **RS-232**

PT connects to PC Adaptor

NP-series PT 9 pin D-SUB male	Host 9 pin D-SUB female	Host
RD (3) —— (3) TXD SD (2) —— (2) RXD SG (9) —— (5) GND RS (4) —— (8) CTS CS (5) —— (7) RTS		

2-10-3 S7 300 (without PC Adaptor)

A. NP-series PT Factory Settings

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

Host Unit No.: 2 (0 to 126)

Control block/status block: DBW0 / DBW20

MEMO

1) Please notice that many PTs(>1) to many PLCs(>1) communication is allowed.
2) PLC baud rate should be changed to 19200 (8, EVEN, 1.).
3) DB must be open, otherwise the related addresses can not be read and write.
(The related addresses are: DB.DBW, DB.DBD, DBW, DBD, VW, VD, DB.DBX, DBX, V)
4) PT Unit No. must be set to 0 to 15. If it is out of this range, it will be changed to 15 automatically. Host Unit No. must be set to 0 to 15.
5) The communication cable is the same as S7 200 series (RS-485).
6) If not connecting to communication cable after 5 seconds, PT will show error message on the screen. If connecting to communication cable, it is needed to power on PT again, and then the communication can be found.
7) After power in connected to PT, PT must accept the notification from PLC and then connection will be established. The first time connection will take about 5 seconds.

B. Definition of Host Read/Write Address

■ **Addresses**

Address Type	Format	Read/Write Range	
		Word No.	Bit No.
Input Image	IWn	n: 0 to 65534	N/A
Input Image	IDn	n: 0 to 65532	
Output Image	QWn	n: 0 to 65534	
Output Image	QDn	n: 0 to 65532	
Internal Bits	MWn	n: 0 to 65534	
Internal Bits	MDn	n: 0 to 65532	

Address Type	Format	Read/Write Range	
		Word No.	Bit No.
Data Area	DBm.DBWn	n: 0 to 65534	m: 1 to 255 (See Memo 1)
	DBm.DBDn	n: 0 to 65532	m: 1 to 255 (See Memo 1)
Data Area (DB10)	DBWn DBDn VWn VDn	n: 0 to 65534 n: 0 to 65532 n: 0 to 65534 n: 0 to 65532	N/A
Timer	Tn	n: 0 to 65535	
Counter	Cn	n: 0 to 65535	

MEMO

1) High Byte of Bit No.

The valid digit number of the value for the T(Timer) and C(Counter) is 3-digits only. Therefore, please enter a 3-digit number. If entering a number that exceeds 3 digits, only the first 3 digits are valid (decimal format). The other digits of the value for the T(Timer) will be replaced as 0 and the other digits of the value for the C(Counter) will be abandoned. For example, assume that the users enter the value “12345”, the actual write value for the T(Timer) will be “12300” and the actual write value for the C(Counter) will be “123”.

■ **Contacts**

Contact type	Format	Read/Write Range	
		Word No.	Bit No.
Input Image	In.b	n: 0 to 65535	b: 0 to 7 (See Memo 2)
Output Image	Qn.b	n: 0 to 65535	b: 0 to 7 (See Memo 2)
Internal Bit	Mn.b	n: 0 to 65535	b: 0 to 7 (See Memo 2)
Data Area Bit	DBm.DBXn.b	n: 0 to 65535	b: 0 to 7 (See Memo 2) m = 1 to 255 (See Memo 3)
Data Area Bit (DB 10)	DBXn.b Vn.b	n: 0 to 65535 n: 0 to 65535	b: 0 to 7 (See Memo 2) b: 0 to 7 (See Memo 2)

MEMO

2) Low Byte of Bit No.

3) High Byte of Bit No.

4) For all timers, counters and contacts when performing “Multiple Duplicate” function:

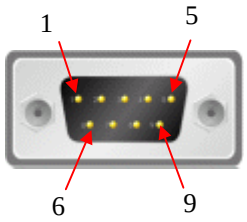
- If it exceeds 65535 when increasing, it will be regarded as 0.
- If it is less than 0, it will be regarded as 655XX.

C. Connections (Connector Pinouts)

The communication cable is the same as S7 200 series (RS-485). Please refer to the Connections of S7 200 series (RS-485).

■ **RS-485**

via PLC MPI Port (RS-485)

NP-series PT 5 pin connectors (RS-485)	Host 9 pin D-SUB male (RS-485)	Host 9 pin D-SUB male (RS-485)
R2+ ——— (3)TXD/RXD+ R2- ——— (8)TXD/RXD-		

2-11 NULL driver

The driver does not have any communication parameters.

If you want to communicate with the host that NP-Designer has not the ***Protocol*** item, you can select the ***NULL*** driver and use the Macro commands to communicate.