

# MODBUS

Item	NA-9372
<b>Interface Specification</b>	
Programming	CoDeSys V3.5 Sp3 Patch1
Program Memory	4 MBytes
Data Memory	4 MBytes
	IO Input : %IW0 ~ %IW2047 (2048 words) IO Output : %QW0 ~ %QW2047 (2048 words) Memory : %MW0 ~ %MW8191 (8192 words)
Non-Volatile Memory	32 Kbytes (Retain : 16 KBytes, Flag : 16 Kbytes)
Run-Time System	Multiple PLC Tasks
Program Languages	IEC 61131-3 (LD, IL, ST, FBD, SFC)
OPC-Server	Supporting
Webvisualization	Not supporting
RTC	Retain Time : 6 day Accuracy : <2min/month
Max. Task	2
Max. Cycle Task	2
Max. Status Task	1
Process Time	7 usec (90 Instructions)
<b>Interface Specification</b>	
Adapter Type	Master & Slave Node (Modbus TCP)
Max. Expansion Module	63 Slots
Max. Input Size	126 Words (252 Bytes)
Max. Output Size	126 Words (252 Bytes)
Max. Nodes	Limited by Ethernet Specification
Baud rate	10/100Mbps, Auto-negotiation, Full Duplex
Ethernet Interface	RJ-45 socket x 2pcs
Ethernet Protocol	Modbus/TCP, Modbus/UDP, Modbus/RTU, HTTP(Webvisualization, Web-server), DHCP/BOOTP, SNMP, OPC-server
Max. Socket	24 (UDP:8, TCP:16, TCP_LISTEN:10)
Serial Interface	RS232/RS485 2port (Supporting Touch Panel)
Serial Protocol	Modbus/RTU Baud Rate : 2400~115200 bps (Default : 115200 bps)
Indicator	5 LEDs 1 Green/Red, Module Status (MOD) 1 Green/Red, Network Status (NET) 1 Green/Red, PLC Run/Stop Status (RUN) 1 Green/Red, FnBus Status (I/O) 1 Green, Field Power Status (Field Power)

# Network Adapter

General Specification	
System Power	Supply Voltage : 24Vdc nominal Supply Voltage Range : 11~28.8Vdc Protection : Output Current Limit (Min 1.5A) Reverse Polarity Protection
Power Dissipation	100mA Typical @24Vdc
Current for I/O Module	1.5A @5Vdc
Isolation	System power to internal logic : Non-isolation System power to I/O driver : Isolation
Field Power	Supply voltage : 24Vdc nominal Supply voltage range : 11~28.8Vdc
Max. Current Field Power Contact	DC 10A Max.
Weight	158g
Module Size	54mm x 99mm x 70mm
Environment Condition	Refer to " Environment Specification" (page : 1-191)

## Status LED Indicator

### MOD : Module Status LED

Status	LED is	To indicate
No Power	Off	No power is supplied to the unit.
Normal, Operational	Green	The unit is operating in normal condition.
Device in Standby	Blinking Green	The EEPROM parameter is not initialized yet. Serial Number is zero value (0x00000000)
LAP Mode	Toggling Green & Red	LAP Mode : Available for firmware download using FireFox.
Unrecoverable Fault	Red	The unit has occurred unrecoverable fault in self-testing. - Firmware fault

\* The IP Address to access LAP web-server during LAP Mode : 192.168.0.100 (Recommended to use FireFox)

### NET : Network Status LED

Status	LED is	To indicate
Off-line	Off	Network Offline.
On-line (Connect)	Green	On-line Mode and network is connected.
Error	Red	Network Error
Diagnostic	Blinking Red	Diagnostic Mode

\* Blinking Green MOD & NET LED : Bootp/DHCP is requesting for new IP address. (You can change the IP setting mode. Please refer to specification.)

### RUN : PLC Run/Stop Status LED

Status	LED is	To indicate
Not programmed	Off	The unit is not programmed or not powered.
Run	Green	PLC Run
Stop	Blinking Green	PLC Stop
Program Error	Blinking Red	PLC program error

### I/O LED : Expansion Status LED

Status	LED is	To indicate
Not Powered No Expansion Module	Off	Device has no expansion module or may not be powered
Fn-Bus On-line, Do not Exchanging I/O	Blinking Green	Fn-Bus is normal but does not exchanging I/O data (Passed the expansion module configuration).
Fn-Bus Connection, Run Exchanging I/O	Green	Exchanging I/O data
Fn-Bus Connection Fault during Exchanging I/O	Blinking Red	One or more expansion module occurred in fault state. - Changed expansion module configuration. - FnBus communication failure. - Overflowed Input/Output size.
Expansion Configuration Failed	Red	Failed to initialize expansion module. - Detect invalid expansion module ID. - Too many expansion module. - Initial protocol failure. - Mismatch vendor code between adapter and expansion module.

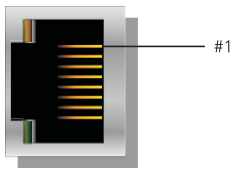
### Field Power : Field Power Status LED

Status	LED is :	To indicate :
Not Supplied Field Power	Off	Not Supplied 24V dc Field Power, 5Vdc system power.
Supplied Field Power	Green	Supplied 24V dc Field Power, 5Vdc system power.

### Indicator states and flash rates

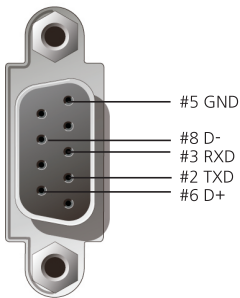
LED ON	Constantly ON
LED OFF	Constantly OFF
LED flickering	Equal ON and OFF times with a frequency of approximately 10Hz : ON for approximately 50ms and OFF for approximately 50ms
LED blinking	Equal ON and OFF times with a frequency of approximately 2, 5Hz : ON approximately 200ms followed by OFF for approximately 200ms.
LED single flash	One Short flash (approximately 200ms) followed by a long OFF phase (approximately 1000ms)
LED double flash	A sequence of two short flashes (approximately 200ms), separated by an OFF phase (Approximately 200ms) The Sequence is finished by a long OFF phase (approximately 1000ms)
LED triple flash	A sequence of three short flashes (approximately 200ms), separated by an OFF phase (approximately 200ms) The sequence si finished by a long OFF phase (approximately 1000ms)

### RJ-45 Socket



RJ-45	Signal Name	Description
1	TD+	Transmit +
2	TD-	Transmit -
3	RD+	Receive +
4	-	
5	-	
6	RD-	Receive -
7	-	
8	-	
Case	Shield	

### RS-232/RS-485 Port for MODBUS/RTU, Touch Panel or IO Guide



D-Sub 9pin		
Pin#	Signal Name	Description
1	-	
2	TXD	RS 232 TXD
3	RXD	RS 232 RXD
4	-	
5	GND	RS 232 GND
6	D+	RS 485 D+
7	-	
8	D-	RS 485 D-
9	-	

### Toggle Switch and Push Botton

Toggle Switch Status	Module is	Description
UP	RUN	PLC Run
DOWN	STOP	PLC Stop

Push Botton	Module is	Description
Push and detach	Reset	PLC Reset and Stop
Push for 5sec and Power Reset	PLC Reset	Erase PLC user program
Push hold and Power Reset	LAP mode	Firmware download via FireFox/Internet Explorer/Chrome.