General Specifications

GX90NW
Network Module

SMARTDAC+™

GS 04L53B51-01EN

■ OVERVIEW

A network module is a module that is mounted on the GX10/GX20, GP10/GP20, or GM main unit.

It enables the use of various industrial communications protocols.

- Its modular structure allows you to add various protocol modules to easily carry out communication.

■ NETWORK MODULE SPECIFICATIONS

Type: PROFINET (Model: GX90NW-02-PN)

■ FUNCTIONAL SPECIFICATIONS

Communication Specifications

- **PROFINET Specifications**
  - Type: PROFINET IO - Device
  - Conformance Class: B
  - Support for cyclic and acyclic communication
  - PROFINET communication settings are entered using a configurator and DCP protocol-enabled free tools (such as PRONETA).

    The settings include the following.
    - Device name
    - IP address, subnet mask, and default gateway

Communication Functions

PROFINET supports cyclic and acyclic communications.

With cyclic communication, after PROFINET is configured, data is exchanged automatically.

With acyclic communication, data can be accessed and controlled by using a ladder program.

- **Cyclic Communication**
  - Data update intervals: 100 ms, 200 ms, 500 ms, 1 s, 2 s, 5 s, 10 s
  - Available channels:

Channel type	Model	Available channels
Input/Output	GX10/GP10	0001 to 0010, 0101 to 0110
	GX20/GP20/GM10	0001 to 0010, 0101 to 0110, 0201 to 0210, 0301 to 0310, 0401 to 0410
Math [1]	GX10/GP10 GX20/GP20/GM10	A001 to A050
Communication [2]	GX10/GP10	C001 to C020
	GX20/GP20/GM10	C001 to C050

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1 With the Mathematical (/MT) option.
2 With the Communication Channel (/MC) option.

- Readable data: Measured values on input/output and computation channels.
  Status of each communication channel.
- Writable data: Communication channel measurements.

- **Acyclic Communication**
  - Available channels: All I/O channels except those on expansion units, all computation channels (/MT), and all communication channels (/MC)
  - Readable data: Measurements and statuses from all channel types
  - Writable data: Measurements from communication channels, and output values from AO and DO channels
  - Control: The following control operations are available:
    - Record start/stop
    - Perform computation
    - Write messages
    - Read/Write batch information
    - Read/write alarm settings
    - Alarm ACK

  Note The following are not available: Read control alarm status, read/write control alarm settings, and output control alarm ACK.

■ HARDWARE SPECIFICATIONS

Communication Port

Ethernet port:

- Baud rate: 10BASE-T/100BASE-TX (Auto)
- Number of ports: 2 ports
- MDI: MDI/MDI-X (Auto)
- Connection cable: STP cable, CAT5 or greater
- Maximum communication distance: 100 m
- Connector: RJ-45

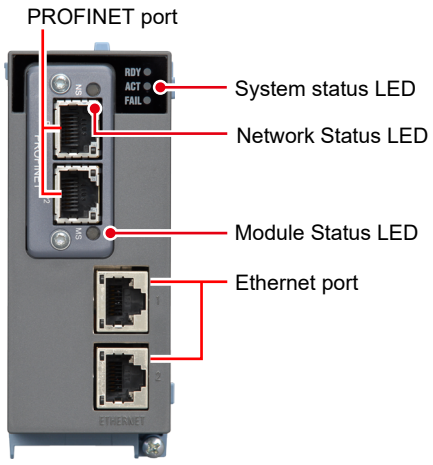
PROFINET port:

- Baud rate: 100BASE-TX full duplex
- Number of ports: 2 ports
- MDI: MDI/MDI-X (Auto)
- Connection cable: PROFINET compatible cable*

  * For details, see the PROFINET cable guidelines published by “PROFIBUS and PROFINET International”.
- Maximum communication distance: 100 m
- Connector: RJ-45

Display Functions

- System status LEDs:
  RDY (green): CPU normal
  ACT (green): PROFINET normal
  FAIL (red): System abnormal
- Ethernet status LEDs:
  Upper side (orange): SPEED (ON = 100 Mbps, OFF = 10 Mbps)
  Lower (green) : ON = Link, Flashing = Communication
- PROFINET status LEDs:
  Network Status LED (green, red):
  Green = communicating with controller, Flashing red = PROFINET communication settings not entered
  Module Status LEDs (green, red):
  Green = Normal, Red = Abnormal
  Port1, Port2 Link/Activity LED (green):
  ON = Link, Flashing = Communication



Module Installation

Mount modules on the GX/GP or GM main unit.

* The GX90NW cannot be used for the GX60, GM sub unit.

To enable Modbus communication, use an Ethernet cable to connect the GX/GP or GM10 general-purpose Ethernet port to the network module's Ethernet port.

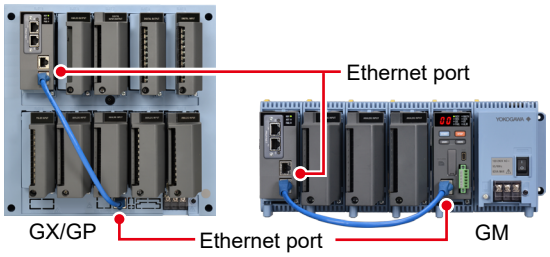
Data is transferred to the GX/GP main unit or GM10 via the network module.

Mounting position:

Model	Mounting position
GX10/GP10	SLOT 2
GX20/GP20	SLOT 9
GM10	Leftmost position when facing the front of the main unit.

Connections: Connect an Ethernet cable from the GX/GP or GM10 general-purpose Ethernet port to the network module's Ethernet port.

A cable of 1 m or shorter is recommended.



Restrictions when mounting modules

When the GX90NW is mounted, there are restrictions for GX90NW and other modules.

For restrictions, see the specifications of the unit (GX/GP or GM) on which the module is installed.

GX10/GX20 General Spcifications:
GS 04L51B01-01EN
GP10/GP20 General Spcifications:
GS 04L52B01-01EN
GM General Spcifications:
GS 04L55B01-01EN

Safety and EMC Standards

- CSA:
  CSA C22.2 No. 61010-1,
  Overvoltage Category II or I *1, Pollution Degree 2 *2
- UL:
  UL 61010-1 (CSA NRTL/C), Overvoltage Category II or I *1, Pollution Degree 2 *2
- CE, UKCA *3:
  EMC directive:
  EN 61326-1 Class A Table 2 (For use in industrial locations) compliant
  EN 61000-3-2 compliant
  EN IEC 61000-3-2 compliant
  EN 61000-3-3 compliant
  Low voltage directive:
  EN 61010-1 compliant, Overvoltage Category II or I *1, Pollution Degree 2 *2
  EU RoHS directive: EN IEC 63000
- WEEE directive: Compliant
- EMC Regulatory Arrangement in Australia and New Zealand (RCM): EN 55011 Class A Group 1 compliant
- KC marking: KS C9811, KS C9610-6-2 compliant
- PROFINET: IEC 61158, IEC 61784

*1 Overvoltage Category: Describes a number which defines a transient overvoltage condition. Implies the regulation for impulse withstand voltage. Applies to electrical equipment which is supplied from the fixed installation like a distribution board. II or I depends on the power supply specification of the main unit.

*2 Pollution Degree 2:
Describes the degree to which a solid, liquid, or gas which deteriorates dielectric strength or surface resistivity is adhering.
"2" applies to normal indoor atmosphere.
Normally, only non-conductive pollution occurs.

*3 The CE, UKCA standards for modules represent standards that are met when the module is installed in the main unit.

Construction

- Front panel (terminal): Water and dust-proof, Complies with IEC529-IP20
- Material: Polycarbonate
- Color;
  Front: Charcoal grey light (Munsell 10B3.6/0.3 equivalent)
  Bezel: Smoke blue (Munsell 4.1PB6.0/4.5 equivalent)
- Dimensions: 45.2 mm (W) x 111 mm (H) x 110.4 mm(D)
- Weight: Approx. 0.3 kg

Power Supply

Suppy from GX/GP or GM90PS power supply module.

- Power consumption: 3.3 W or less

Isolation

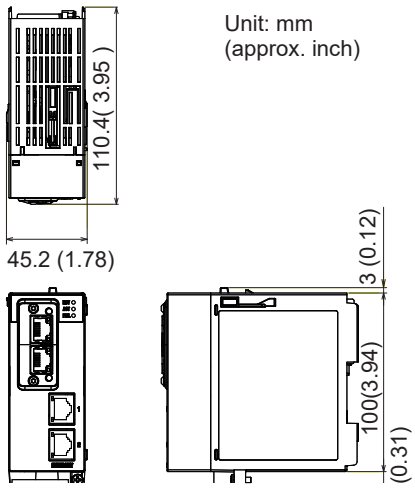
Insulation resistance: 500 VDC 20 MΩ or greater between RJ-45 connector and grounding terminal*

* Grounding terminals are connected to the GX/GP or GM system

RJ-45 connector (Ethernet port 1)	Internal circuit
RJ-45 connector (Ethernetport 2)	
RJ-45 connector (PROFINET port 1)	
RJ-45 connector (PROFINET port 2)	

——— Functional insulation

External Dimensions



Unit: mm
(approx. inch)

Normal Operating Conditions

For normal operating conditions of this module, please refer to the General Specifications of the device (GX/GP or GM) that this module is mounted.
GX General Specifications: GS 04L51B01-01EN
GP General Specifications; GS 04L52B01-01EN
GM General Specifications: GS 04L55B01-01EN

Transport and Storage Conditions

- Ambient temperature: –25 to 70°C
- Ambient humidity: 5 to 95 %RH (no condensation)
- Vibration: 10 to 60 Hz, 4.9 m/s^2 maximum
- Shock: 392 m/s^2 maximum (in packaged condition)

Effects of Operating Conditions

Nothing

■ MODEL AND SUFFIX CODES

MODEL and SUFFIX Code (GX90NW)

Model	Suffix Code					Description
GX90NW [1]						Network Module
Number of ports	**-02**					2 ports
Type		**-PN**				PROFINET
-			**N**			Always N
Terminal form				**-R**		RJ-45 connector
Area					**N**	General

1 The GX90NW cannot be used for the GP10 12 VDC power supply model (power supply voltage suffix code: 2).

Test certificate (QIC, sold separately)
When ordering network modules, each type gets its own QIC (one QIC per module type).

User's Manual
Product user's manuals can be downloaded or viewed at the following URL. To view the user's manual, you need to use Adobe Reader 7 or later by Adobe Systems.

URL: www.smartdacplus.com/manual/en/

■ Basic Conditions and Individual Contracts at the Time of Purchase

The warranty for this product is defined in the basic conditions and individual contracts at the time of purchase.

The individual conditions are as follows.

- **Validation**
  Yokogawa does not guarantee the final outcome of validation work even if there is a defect in the product.
  For the warranty of validation services, please contact the company that performed the validation work.
- **Warranty period of the firmware**
  The firmware warranty period is one year.
  Please refer to the following URL for the procedure to update the firmware and the method to download the firmware.
  https://myportal.yokogawa.com/

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