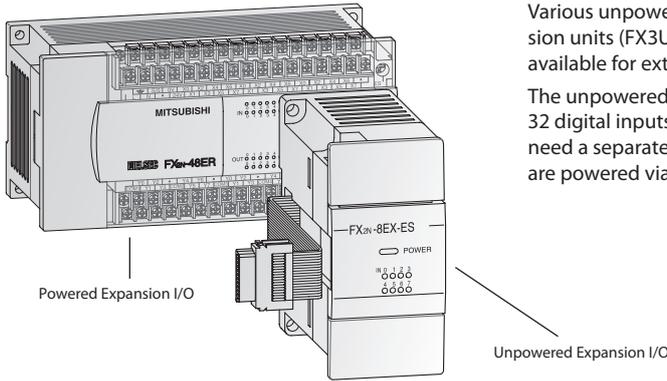


## Expandability and functionality

Additional special function and expansion modules are available that make it possible to extend the capacity of the PLC system. There are three basic categories of modules:

- Modules that occupy digital I/Os (connected on the right hand side of the base unit). These are the digital unpowered and powered extension units, as well as the special function modules.
- Communication and adapter modules that are connected to the left hand side of the base unit, for example FX3U-4AD-ADP and FX2NC-485ADP.
- Internal adapter boards for the FX1S, FX3G, FX3GE and the FX3U series. These expansion units are installed directly in the base unit and do not occupy any digital I/O.

Note: To connect special function modules or extension units of the FX0N/ FX2N/FX3U series to an FX3UC series base unit, an adapter FX2NC-CNV-IF or the power supply FX3UC-1PS-5V is required.



Various unpowered and powered extension units (FX3UC unpowered only) are available for extending the base units. The unpowered units contain 16 or 32 digital inputs/outputs max. and do not need a separate power supply, since they are powered via the system bus.

The powered extension units contain a larger number of inputs/outputs and an integrated power supply unit, to power the system bus and the digital inputs.

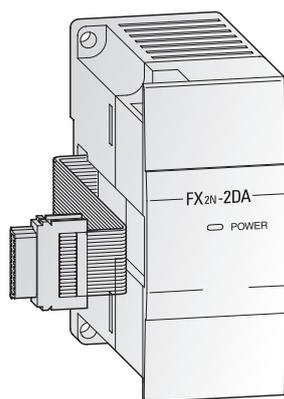
Specifications	POWERED					UNPOWERED			
	FX2N-32 ER-ES/UL	FX2N-48 ER-ES/UL	FX2N-8 ER-ES/UL	FX2N-8 EX-ES/UL	FX2N-8 EYR-ES/UL	FX2N-8 EYT-ESS/UL	FX2N-16 EX-ES/UL	FX2N-16 EYR-ES/UL	FX2N-16 EYT-ESS/UL
Integrated inputs/outputs	32	48	8	8	8	8	16	16	16
Application	FX3G and FX3U/FX3UC series base units								
Power supply AC range (+10%, -15%)	100–240 V	100–240 V	All modular extension blocks are supplied by the base unit.						
Integrated inputs	16	24	4	8	—	—	16	—	—
Integrated outputs	16	24	4	—	8	8	—	16	16
Output type	Relay	Relay	Relay	—	Relay	Transistor (source)**	—	Relay	Transistor (source)**
Switching voltage (max.)	Generally for relay version: <240 V AC, <30 V DC; for transistor version: 5–30 V DC								
Max. output current per output	A 2	2	2	—	2	0.5	—	2	0.5
per group *	A 8	8	8	—	8	0.8	—	8	1.6
Related I/O points	32	48	16	8	8	8	16	16	16
Dimensions (WxHxD)	mm 150x90x87	182x90x87	43x90x87	43x90x87	43x90x87	43x90x87	40x90x87	40x90x87	40x90x87
Order information	Art. no. 65568	65571	166285	166284	166286	166287	65776	65580	65581

\* This limitation applies only per reference terminal for each group. Please observe the terminal assignments for the group identification. \*\* Units with sink type transistor outputs on request.

Specifications	FX2NC-16 EX-T-DS	FX2NC-16 EYR-T-DS	FX2NC-16 EX-DS	FX2NC-16 EYT-DSS	FX2NC-32 EX-DS	FX2NC-32 EYT-DSS
	Integrated inputs/outputs	16	16	16	16	32
Application	All FX3UC series base units					
Power supply	All modular extension units are supplied by the base unit.					
Integrated inputs	16	—	16	—	32	—
Integrated outputs	—	16	—	16	—	32
Output type	—	Relay	—	Transistor (source)**	—	Transistor (source)**
Switching voltage (max.)	V Generally for relay version: <240 V AC, <30 V DC; for transistor version: 5–30 V DC					
Max. output current per output	A —	2	—	0.1/0.3 ①	—	0.1/0.3 ①
per group *	A —	4/8	—	0.8	—	0.8
Max. switching power inductive load	VA —	80	—	2.4/7.2 ②	—	2.4/7.2 ②
lamp load	W —	100	—	0.3/0.9 ③	—	0.3/0.9 ③
Connection type	Removable screw terminal blocks		Ribbon cable connector		Ribbon cable connector	
Related I/O points	16	16	16	16	32	32
Dimensions (WxHxD)	mm 20.2x90x89	24.2x90x89	14.6x90x87	14.6x90x87	26.2x90x87	26.2x90x87
Order information	Art. no. 128152	128153	104503	104504	104505	104506

① for Y0 and Y1 = 0.3 A; all others 0.1 A ② 7.2 W for Y0 to Y3; all others 2.4 W ③ 0.9 W for Y0 to Y3; all others 0.3 W

\* This limitation applies only per reference terminal for each group. Please observe the terminal assignments for the group identification. \*\* Units with sink type transistor outputs on request.



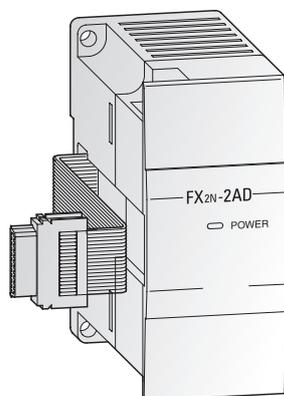
### Analog output modules

The analog output modules provide the user with 2 to 4 analog outputs. The modules convert digital values from the FX3G, FX3GE, FX3U and FX3UC controller to the

analog signals required by the process. The modules can output both current and voltage signals.

Specifications	FX2N-2DA	FX2N-4DA	FX3U-4DA*
Analog channels	—	—	—
inputs	—	—	—
outputs	2	4	4
Analog output range	0—+10 V DC/0—+5 V DC/ 4—+20 mA	-10—+10 V DC/0—+20 mA/ 4—+20 mA	-10—+10 V DC/0—+20 mA/ 4—+20 mA
Resolution	2.5 mV/4 $\mu$ A (12 bit)	5 mV (10 bit)/20 $\mu$ A (11 bit + sign)	0.32 mV (15 bit + sign) 0.6 $\mu$ A (15 bit)
Fullscale overall accuracy	$\pm$ 1 %	$\pm$ 1 %	$\pm$ 0.3–0.5 %**
Power supply	5 V DC 24 V DC	30 mA (from base unit) 85 mA	30 mA (from base unit) 200 mA
120 mA (from base unit) 160 mA			
Related I/O points	8	8	8
Dimensions (WxHxD)	mm 43x90x87	55x90x87	55x90x87
Order information	Art. no. 102868	65586	169509

\* for FX3G/FX3U/FX3UC only \*\*Dependent on the ambient temperature



### Analog input modules

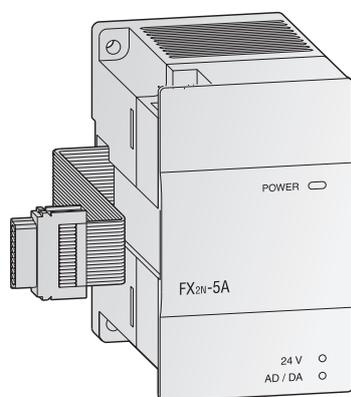
The analog input modules provide the user with 2 to 8 analog inputs. The module converts analog process signals into digital values which are further processed

by the MELSEC FX3G, FX3GC, FX3GE, FX3U and FX3UC controller. The actual values or mean values over several measurements may be output.

Specifications	FX2N-2AD	FX2N-4AD	FX3U-4AD/FX3UC-4AD*	FX2N-8AD
Analog channels	2	4	4	8
inputs	—	—	—	—
outputs	—	—	—	—
Analog input range	0—+10 V DC/ 0—+5 V DC/ 0/4—+20 mA	-10—+10 V DC / -20—+20 mA/ 4—+20 mA	-10—+10 V DC/ -20—+20 mA/ 4—+20 mA	-10—+10 V DC/ -20—+20 mA/ 4—+20 mA
Resolution	voltage current	2.5 mV, 1.25 mV, 4 $\mu$ A (12 bits)	5 mV (11 bit + sign) 20 $\mu$ A (10 bit + sign)	0.32 mV (15 bit + sign) 2.5 $\mu$ A (13 bit + sign)
Fullscale overall accuracy	$\pm$ 1 %	$\pm$ 1 %	$\pm$ 0.3–1 %	$\pm$ 0.3–0.5 %**
Power supply	5 V DC 24 V DC	20 mA (from base unit) 50 mA (from base unit)	30 mA (from base unit) 55 mA	110 / 100 mA (from base unit) 90 mA/80 mA
50 mA (from base unit) 80 mA				
Related I/O points	8	8	8	8
Dimensions (WxHxD)	mm 43x90x87	55x90x87	20.2x90x89	75x105x75
Order information	Art. no. 102869	65585	169508/210090	129195

Note: The FX2N-8AD can be configured to accept standard analog inputs as well as selected temperature inputs such as K, T or J type thermocouples.

\* for FX3G/FX3U/FX3UC only \*\*Dependent on the ambient temperature

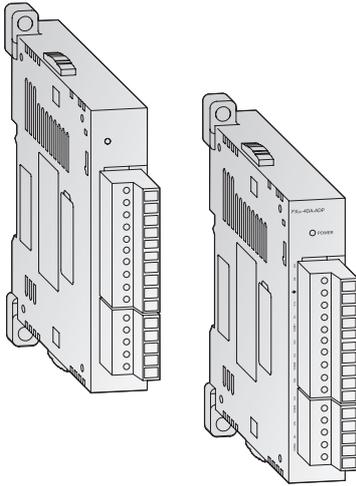


### Combined analog I/O modules

The analog input/output modules are available in two different models. They provide the user with 2 or 4 analog inputs and 1 analog output. They serve for conversion of analog process signals into digital values, and vice versa.

As of the FX2N-5A module the analog inputs can be selected between current or voltage input signals.

Specifications	FX0N-3A	FX2N-5A	FX3U-3A-ADP
Analog channels	2	4	2
inputs	—	—	—
outputs	1	1	1
Resolution (input)	voltage current	0—+10 V (8 bit), 0—+5 V (8 bit)	-10—+10 V (15 bit + sign), -100—+100 mV (11 bit + sign)
0—+10 V (2.5 mV/12 bit)			
Resolution (output)	voltage current	0/4—+20 mA (8 bit)	-20—+20 mA (14 bit + sign), 0/4—+20 mA (14 bit)
4—+20 mA (5 $\mu$ A/12 bit)			
Power supply	5 V DC 24 V DC	0—+10 V (8 bit), 0—+5 V (8 bit)	-10—+10 V (12 bit)
30 mA (from base unit) 90 mA (from base unit)			
70 mA (from base unit) 90 mA (from base unit)			
20 mA (from base unit) 90 mA			
Related I/O points	8	8	0
Dimensions (WxHxD)	mm 43x90x87	55x90x87	17.6x90x89.5
Order information	Art. no. 41790	153740	221549



### Analog I/O adapters

The FX3U-4AD-ADP adapter module for analog input is a special function adapter to add four analog input points to the FX3G or FX3U/FX3UC PLC system.

The FX3U-4DA-ADP adapter module for analog output is a special function adapter to add four analog output points to the FX3U/FX3UC PLC system.

Specifications	FX3U-4AD-ADP	FX3U-4DA-ADP
Analog channels	4	—
inputs	—	—
outputs	—	4
Analog range	0—+10 V DC, 4—+20 mA	0—+10 V DC, 4—+20 mA
Resolution	2.5 mV/10 $\mu$ A (12 bit/11 bit)	2.5 mV/4 $\mu$ A (12 bit)
Overall accuracy	$\pm 0.5\%$ / $\pm 1\%$	$\pm 0.5\%$ / $\pm 1\%$
Power supply	5 V DC 24 V DC	15 mA (from base unit) 40 mA 15 mA (from base unit) 150 mA
Related I/O points	0	0
Dimensions (WxHxD)	17.6x90 (106)x89.5	17.6x90 (106)x89.5
<b>Order information</b>	165241	165271

\*Dependent on the ambient temperature and signal quality

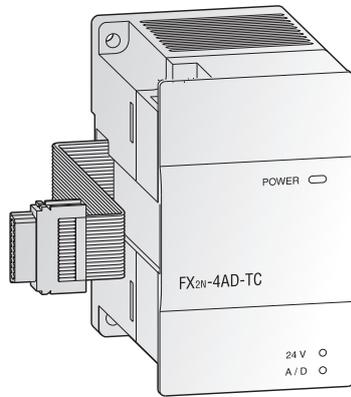
Note: when connecting these adapter modules to a FX3U, a communications adapter FX3U-□□□□-BD is required. When connecting an adapter to a FX3G PLC the communications adapter FX3G-CNV-ADP is required.

### Analog temperature input modules

The analog input module for thermocouples FX2N-4AD-TC is used for processing temperatures. It has 4 independent inputs for detecting signals from thermocouples of types J and K. The type of thermocouple can be chosen independently for each point.

The analog input module for Pt100 inputs FX2N-4AD-PT permits the connection of four Pt100 sensors to the FX3G, FX3GC, FX3GE, FX3U or FX3UC series controller.

The temperature control module FX2N-2LC is equipped with two temperature input points and two transistor (open collector) output points. It is used to read temperature signals from thermocouples and Pt100 sensors, and performs PID output control.



Specifications	FX2N-4AD-TC	FX2N-4AD-PT	FX2N-2LC
Analog inputs	4 (J or K type)	4 (Pt100 sensors)	2 channels*
Compensated temperature range	-100—+600 (J type)/ -100—+1200 (K type)	-100—+600	Thermocouple and Pt100 sensor
Digital outputs	-1000—+6000 (J type)/ -1000—+12000 (K type)	-1000—6000 (12 bit conversion)	2 transistor output points
Resolution	0.3 (J type)/0.4 (K type)	0.2—0.3 °C	0.1 °C or 1 °C
Power supply	5 V DC 24 V DC	40 mA (from base unit) 60 mA	30 mA (from base unit) 50 mA 70 mA (from base unit) 55 mA
Related I/O points	8	8	8
Dimensions (WxHxD)	mm 55x90x87	55x90x87	55x90x87
<b>Order information</b>	Art. no. 65588	65587	129196

\*Temperature input modules with 10 channels on request.

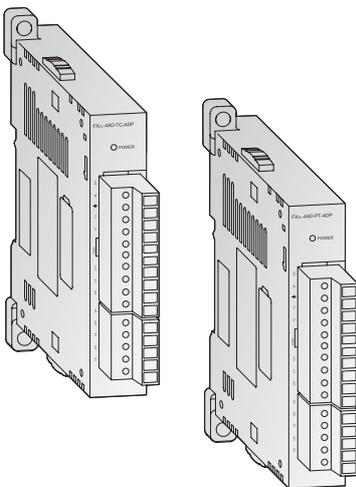
### Analog temperature input adapters

The analog input adapter for thermocouples FX3U-4AD-TC-ADP is used for processing temperatures. It has 4 independent inputs for detecting signals from thermocouples of types J and K.

The FX3U-4AD-PNK-ADP analog input adapter enables the connection of up to four Pt1000/Ni1000 thermocouples.

The FX3U-4AD-PT-ADP and FX3U-4AD-PTW-ADP analog input adapters enable the connection of up to four Pt100 thermocouples to the PLC system.

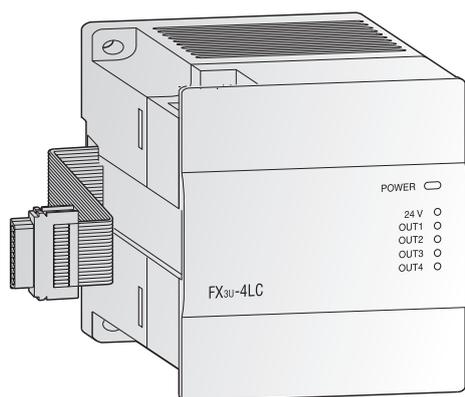
All analog adapters can be used in combination with the base units of the FX3G/FX3U/FX3UC series only.



Specifications	FX3U-4AD-TC-ADP	FX3U-4AD-PNK-ADP	FX3U-4AD-PT-ADP	FX3U-4AD-PTW-ADP
Analog inputs	4 (J or K type)	(Pt1000/Ni1000 sensors, 2/3 wire)	4 (Pt100 sensors)	4 (Pt100 sensors, 3-wire)
Compensated temperature range	-100—+600 (J type)/ -100—+1000 (K type)	-50—+250 (Pt1000)/ -40—+110 (Ni1000)	-50—+250	-100—+600
Digital outputs	-1000—+6000 (J type)/ -1000—+10000 (K type)	-500—+2500 (Pt1000)/ -400—+1100 (Ni1000)	-500—+2500	-1000—+6000
Resolution	0.3 (J type)/0.4 (K type)	0.1	0.1	0.2—0.3
Total accuracy	$\pm 0.5\%$ fullscale	$\pm 0.5$ — $1.0\%$ (fullscale)*	$\pm 0.5$ — $1.0\%$ (fullscale)*	$\pm 0.5$ — $1.0\%$ (fullscale)*
Power supply	5 V DC 24 V DC	15 mA (from base unit) 45 mA	15 mA (from base unit) 50 mA	15 mA (from base unit) 50 mA
Related I/O points	0	0	0	0
Dimensions (WxHxD)	mm 17.6x90 (106)x89.5	17.6x90 (106)x89.5	17.6x90 (106)x89.5	17.6x90 (106)x89.5
<b>Order information</b>	Art. no. 165273	214172	165272	214173

\*Dependent on the ambient temperature

Note: when connecting these adapter modules to a FX3U, a communications adapter FX3U-□□□□-BD is required. When connecting an adapter to a FX3G PLC the communications adapter FX3G-CNV-ADP is required.



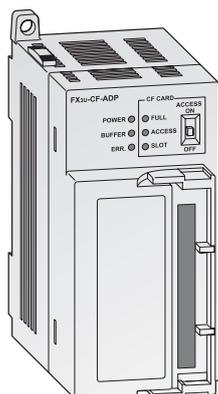
### Temperature control module

The temperature control module FX3U-4LC is equipped with four temperature input points and four transistor (open collector) output points. It is used to read temperature signals from thermocouples and Pt100 sensors, and performs PID output control.

The proportional band, the integral time and the derivative time can be easily set by auto tuning.

The channels are isolated against each other. Self-diagnosis functions are provided, and the disconnection of heaters can be detected by current detection (CT).

Specifications	FX3U-4LC
Analog inputs	4 (Thermocouple and Pt100 sensors)
Compensated temperature range	°C -200—+2300
Digital outputs	4 NPN transistor open collector output points
Resolution	°C 0.1 or 1
Total accuracy	±0.3–0.7 % (fullscale, dependent on the ambient temperature)
Power supply	5 V DC 160 mA (from base unit)
	24 V DC 50 mA
Related I/O points	8
Dimensions (WxHxD)	mm 90x90x86
<b>Order information</b>	Art. no. 232806



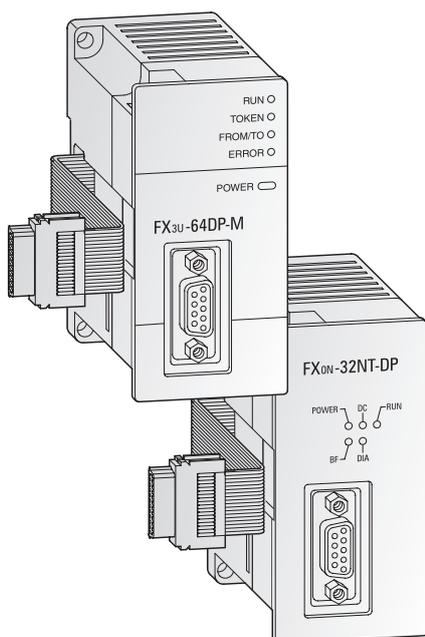
### Data logger module

The FX3U-CF-ADP is a general purpose data logging adapter. The difference to other available logging units is that the PLC main unit controls the data logging based on user requirements, e.g. periodical or even based. For tracing a timestamp is automatically added to all data storages, that eases alarm and other time critical

logging. Another usage is the storage of bigger recipe data. A CompactFlash memory card up to 2 GB can be used. Six applied instructions allow all kinds of data writing, manipulation or reading, making this adapter the optimum solution towards customer requirements.

Specifications	FX3U-CF-ADP
Data access method	Controlled by the main unit, no polling from the logging unit possible.
Connectable units	A maximum of one FX3U-CF-ADP can be connected per PLC.
Time stamp function	The real time clock data of the base unit is used.
Recommended storage media	CompactFlash memory card (GT05-MEM-256MC, -512MC, -1GC, -2GC)
Max. file size	512 MB
File format	CSV
Max. numbers of files	63 (Plus one FIFO file.)
FIFO function	One pattern (The file name gets automatically generated.)
Power supply	24 V DC 130 mA
Related I/O points	0
Dimensions (WxHxD)	mm 45x90x89.5
<b>Order information</b>	Art. no. 230104





### Master and slave modules for Profibus DP

The Mitsubishi Electric Profibus modules provide an FX family CPU with an intelligent Profibus DP link for the implementation of decentralised control tasks.

The FX3U-64DP-M is a Profibus DP master module that allows the integration of a MELSEC FX3U or FX3UC PLC system as a class 1 master in a Profibus DP network.

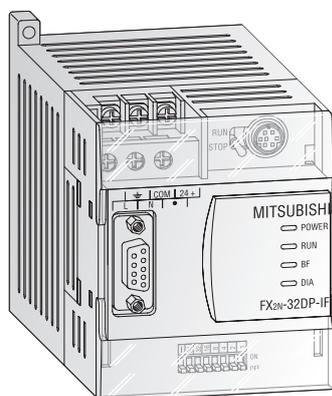
The FX3U Profibus DP master supplies comprehensive data and alarm processing to the Profibus DP V1 standard. It is easily set up with the GX Configurator-DP software.

The FX0N-32NT-DP and FX3U-32DP are Profibus DP slave modules that make it possible to integrate a FX3G, FX3GC, FX3GE, FX3U or FX3UC in an existing Profibus DP network.\*

It links the system to the master PLC in the Profibus DP network for efficient and trouble-free data exchange.

Specifications	FX3U-64DP-M	FX3U-32DP	FX0N-32NT-DP
Module type	Master	Slave	Slave
Transmission type	Bus network		
Transmission data	32 byte/slave (normal service mode) 244 byte/slave (extended service mode)		
Interface	Profibus DP (with 9 pole D-Sub connector)		
Max. number of master per configuration	1	—	—
Repeaters	3	—	—
Max. number of slaves	64	—	—
Communications speed	Profibus standard		
Communications distance	m Max. 1,200 (depends on communication speed)		
Communication cable	Profibus cable with 9-pin D-Sub connector		
Power supply	5 V DC 24 V DC	— 145 mA (from base unit)	Max. 170 mA (from base unit) 60 mA
Related I/O points	8	8	8
Dimensions (WxHxD)	mm 43x90x87	43x90x87	43x90x87
<b>Order information</b>	Art. no. 166085	194214	62125

\*Note: the FX3U-64DP-M can be used in combination with a FX3U/FX3UC base unit only.  
The FX3U-32DP can be used in combination with FX3G/FX3U/FX3UC base unit only.



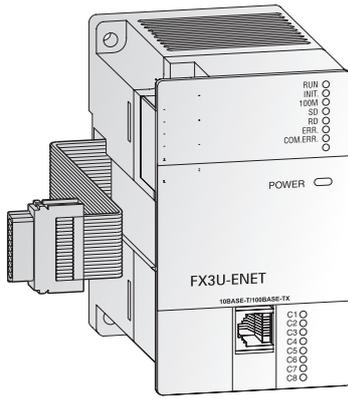
### Remote I/O station FX2N-32DP-IF

The remote I/O station FX2N-32DP-IF forms an extremely compact communication unit and provides a connection of I/O modules with up to 256 I/O points and/or up to 8 special function modules of the FX2N series as an alternative (analog I/Os, network, communications and positioning modules).

It features an entire electrical isolation of the Profibus DP connector and of the sensor/actuator circuits.

The FX2N-32DP-IF includes a 240 V power supply unit and a 24 V service voltage terminal, e.g. for analog modules. The FX2N-32DP-IF-D is supplied with 24 V DC. Profibus data such as the baud rate or I/O data can be monitored directly with the programming software or on the hand-held programming unit FX-30P. This facilitates an easy error diagnosis directly on the remote I/O station.

Specifications	FX2N-32DP-IF	FX2N-32DP-IF-D
Power supply	100–240 V AC(+10 %/-15 %) 50/60 Hz	24 V DC(+20 %/-30 %)
Power consumption	30 VA	14 W
Internal current consumption	5 V DC/max. 220 mA (from base unit), 24 V DC/500 mA	5 V DC/max. 220 mA (from base unit)
Interface (connectors)	9-pin D-Sub for Profibus DP, 8-pin Mini-DIN for PC or programming unit FX-30P	
Communication speed	1200 m kbps	9.6/19.2/45.45/93.75
	1000 m kbps	187.5
	400 m kbps	500
	200 m kbps	1500
	100 m kbps	3000/6000/12000
Communication distance	m Max. 1200 (depends on communication speed)	
Communication cable	Profibus cable with 9-pin D-Sub connector	
Max. number of controllable I/O points	256	
Related I/O points	0	
Dimensions (WxHxD)	mm 75x98x87	
<b>Order information</b>	Art. no. 145401	142763
<b>Accessory</b>	Hand-held programming unit FX-30P; art.-no.: 221540	



**Network module for Ethernet**

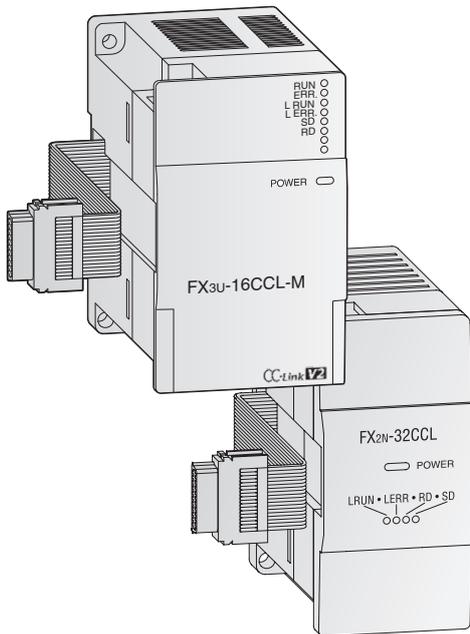
The FX3U-ENET communications modules provides the FX3G or FX3U/FX3UC PLC with a direct connection on to an Ethernet network.

With the Ethernet module installed an FX3G, FX3GC, FX3GE, FX3U or a FX3UC PLC can exchange data quickly and easily with process visualization systems in addition

to supporting full program UP/DOWN load as well as comprehensive monitoring support.

The FX3U-ENET also support Peer to Peer connection and MC Protocol. Up to 8 independent connections are available. It is easily set-up with the FX Configurator-EN software.

Specifications	FX3U-ENET/FX3U-ENET-P502
Protocol	TCP/IP, UDP
Communication mode	Full-duplex/half-duplex
No. of simultaneous open connections	8
Fixed buffer communication	1023 word x 8
Communication with mail server	SMTP, POP3
Interface	IEEE802.3u (100BaseTX), IEEE802.3 (10BaseT)
Connector	RJ45
Max. transfer rate	100 Mbps, 10 Mbps
Max. segment length	m 100
Cable	CAT5 STP or 3 STP
Power supply	24 V DC/240 mA (from base unit)
Related I/O points	8
Dimensions (WxHxD)	mm 55x90x87
<b>Order information</b>	Art. no. 166086/225142



**CC-Link master and slave modules**

The CC-Link network enables the controlling and monitoring of decentralized I/O modules at the machine.

The CC-Link master module FX3U-16CCL-M is a special extension block which assigns an FX3G, FX3GC, FX3GE, FX3U or FX3UC series PLC as the master station of the CC-Link system.

The setting of all modules within the network is handled directly via the master module.

Up to 16 remote stations and remote device stations can be connected to the master station as decentralized I/O stations. These remote stations can be up to 8 remote device stations or 8 intelligent device stations. 1 master module can be connected to one FX3G, FX3GC, FX3GE, FX3U or FX3UC base unit.

The maximum communications distance is 1200 m without repeater.

The communication modules FX2N-32CCL and FX3U-64CCL enables the user to connect the FX PLC as a slave on an existing CC-Link network.

The buffer memory of the FX2N-32CCL is read and written by FROM/TO instructions.

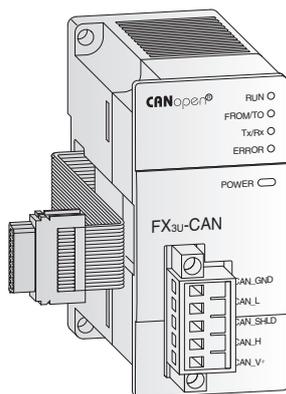
The slave modules can be used in combination with a FX3G, FX3GC, FX3GE, FX3U and FX3UC PLC.

The connection of the modules is to the extension bus on the right-hand-side of the controller.

Specifications	FX3U-16CCL-M	FX2N-32CCL	FX3U-64CCL*
Module type	Master station	Remote station	Intelligent station
Link points per station	I/O points 32 register 8	32 8	64 16
Max. number of I/O points	FX3G: 32 x number of stations ≤128 FX3U/FX3UC: 32 x number of stations ≤256**	—	—
Number of connectable modules	Max. 16	—	1–4
Power supply	5 V DC — 24 V DC 240 mA	Max. 130 mA (from base unit) 50 mA	— 220 mA
Related I/O points	8	8	8
Dimensions (WxHxD)	mm 55x90x87	43x90x87	55x90x87
<b>Order information</b>	Art. no. 248224	102961	217915

Note: Refer to the Network section of this catalog for I/O blocks and power supply units.

\* for FX3G/FX3U/FX3UC only \*\*Total number of I/O points of the base unit and extension units and inside the CC-Link network ≤384.



### Network module for CANopen

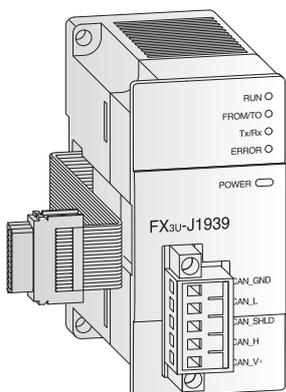
The FX3U-CAN communications module makes it possible to connect an FX3G/FX3GC/FX3GE or FX3U/FX3UC PLC to an existing CANopen network.

In addition to real-time capabilities and high-speed data transfer at rates of up to 1 Mbps the CANopen module also has high transfer reliability and simple network configuration.

Up to 320 data words can be sent and received as process data objects (PDOs). The CANopen profiles CiA 405 V2.0 and CiA 417 V2.0 are supported.

Communication with the module's memory buffer is performed with simple FROM/TO instructions.

Specifications	FX3U-CAN
Module type	CANopen master
CAN standard	ISO 11898/1993
CANopen standard by CiA	DS-301 version 3.0
Additional CANopen features	Based on CiA 301 V4.1, CiA 302, CiA 305 V2.2, CiA 405 V2.0, CiA 417 V2.0 network variables based on DS-405 V1.0
Max. nbr. of modules that can be connected to the network	30 without repeater; 127 with repeater
Station numbers	1-127
Supported baud rate	kBaud 10, 20, 50, 125, 250, 500, 800, 1000
Power supply	5 V DC
	24 V DC
Related I/O points	8
Dimensions (WxHxD)	mm 43x90x95
<b>Order information</b>	Art. no. 252845



### Network module for J1939

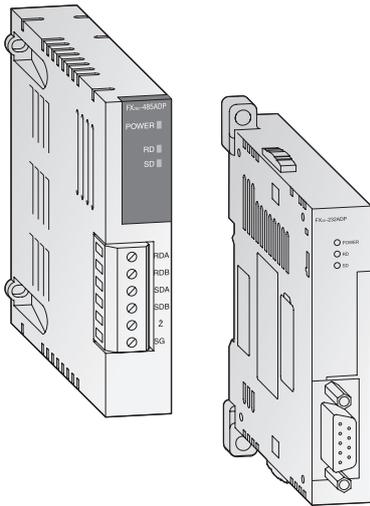
The FX3U-J1939 communication module allows the connection of FX3G/FX3GC\*/FX3U/FX3UC\* Series PLCs to a J1939 network. J1939 is a CAN based protocol used for communication with motors, generators and compressors.

In a J1939 network are no master or slave stations. All nodes may receive each others' messages. Standard messages contain up to 8 bytes of data, extended messages

contain up to 250 bytes of data. Up to 75 standard messages and 4 extension messages can be sent and received.

The FX3U-J1939 is compatible with the NMEA2000 standard used for ship automation and with CAN Layer 2 communication. In this mode, a FX3U-J1939 can send and receive up to 42 messages on a CAN network.

Specifications	FX3U-J1939
Communication standard version	J1939, NMEA2000® compatible node
Network node size	J1939: 2-30 NMEA2000®: 2-50
Communication method	Cyclic, acyclic or request driven (user configurable)
CAN layer-2 communication	Send and receive
Max. cable length	m 5000
Baud rates	kbit/s 10, 20, 50, 100, 125, 250, 500, 800, 1000
Power supply	24 V DC/110 mA (from base unit)
Weight	kg 0.2
Dimensions (WxHxD)	mm 43x90x95
<b>Order information</b>	Art. no. 254276



**Active data modules (RS485 and RS232)**

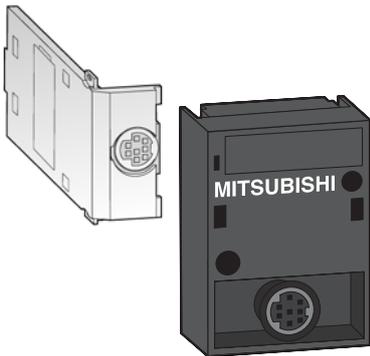
The addition of active data interface modules permit active communication between the PLC and surrounding devices. With RS232 communications this can include modems, printers, bar code readers, PCs, PLCs etc. Information can be sent and received and is handled by the PLC program with the RS instruction.

With RS485 communication can be configured as either 1:N multidrop, parallel link or peer to peer operation. FX3U-232ADP-MB and FX3U-485ADP-MB also support Modbus RTU and Modbus ASCII.

Specifications	FX2NC-232ADP <sup>①</sup>	FX3U-232ADP-MB <sup>②</sup>	FX2NC-485ADP <sup>①</sup>	FX3U-485ADP-MB <sup>②</sup>
Interface	RS232C with 9 pin D-Sub compact plug (photocoupler isolation)	RS232 with 9-pin D-Sub connector; Modbus RS232C	RS485	RS485; Modbus RS485
Communication speed* kbps	0.3–19.2	0.3–19.2	0.3–19.2	0.3–19.2
Max. communication distance m	15	15	500	500
Power supply	5 V DC 100 mA (from base unit) 24 V DC	30 mA (from base unit)	max. 150 mA (from base unit)	20 mA (from base unit)
Related I/O points	0	0	0	0
Dimensions (WxHxD) mm	19.1x90x83	17.6x90 (106)x74	19.1x90x78	17.6x90 (106)x74
<b>Order information</b>	Art. no. 149110	206190	149111	206191

① Application for FX1S base unit ② Application for FX3G/FX3GC/FX3GE/FX3U/FX3UC base units  
\* Speed depends on communication method (Parallel link, N:N Network, No protocol, Dedicated protocol etc.)

Note: When connecting these adapter modules to a FX3U, a communications adapter FX3U-□□□-BD is required. When connecting the FX2NC adapters to a FX1S PLC the communications adapter FX1N-CNV-BD is required. When connecting an FX3U adapter to a FX3G PLC the communications adapter FX3G-CNV-ADP is required.



**Interface adapters**

The FX□□-232-BD interface adapters provide an RS232C interface for serial data communications with the MELSEC FX1S, FX3G or FX3U PLC.

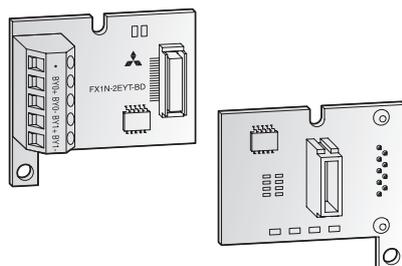
With the help of the interface adapter FX□□-422-BD a RS422 interface can be added to a MELSEC FX1S, FX3G, FX3GE or FX3U PLC.

The interface adapters FX□□-485-BD provide a MELSEC FX1S, FX3G, FX3GE or FX3U PLC with an additional RS485 interface. The adapter, which is simply inserted into the base unit's expansion slot, enables the configuration of RS485 1:n multidrop, parallel link or peer-to-peer networks with FX systems.

Specifications	FX1N-232-BD	FX3G-232-BD	FX3U-232-BD
Applicable for	Base units FX1S	Base units FX3G	Base units FX3U
Interface	RS232C with 9 pole D-Sub connector		
Power supply	5 V DC/20 mA (from base unit)		
Related I/O points	—	—	—
Dimensions (WxHxD) mm	43x38.5x22	35x51x12	19.3x46.1x62.7
<b>Order information</b>	Art. no. 130743	221254	165281

Specifications	FX1N-422-BD	FX3G-422-BD	FX3U-422-BD
Applicable for	Base units FX1S	Base units FX3G	Base units FX3U
Interface	RS422 with 8 pole Mini-DIN connector		
Power supply	5 V DC/60 mA (from base unit)	—	5 V DC/20 mA (from base unit)
Related I/O points	—	—	—
Dimensions (WxHxD) mm	43x38.5x20	35x51x12	19.6x46.1x53.5
<b>Order information</b>	Art. no. 130741	221252	165282

Specifications	FX1N-485-BD	FX3G-485-BD	FX3U-485-BD
Applicable for	Base units FX1S	Base units FX3G	Base units FX3U
Interface	RS485/RS422		
Power supply	5 V DC/60 mA (from base unit)		
Related I/O points	—	—	—
Dimensions (WxHxD) mm	43x38.5x22	35x51x12	19.6x46.1x69
<b>Order information</b>	Art. no. 130742	221253	165283



### Digital and analog extension adapters FX1S

Two different digital and analog extension adapters are available at a time for direct installation in the base unit controllers of the FX1S series.

Specifications	FX1N-4EX-BD	FX1N-2EYT-BD	FX1N-2AD-BD	FX1N-1DA-BD
Applicable for	Base units FX1S	Base units FX1S	Base units FX1S	Base units FX1S
Function	4 digital inputs	2 transistor outputs	AD converter	DA converter
Dimensions (WxHxD)	mm 43x38.5x22	43x38.5x22	43x38.5x22	43x38.5x22
<b>Order information</b>	Art. no. 139418	139420	139421	139422

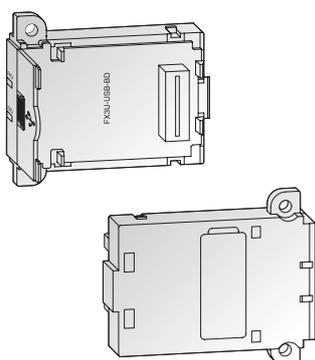


### Extension adapters FX3U/FX3G/FX3GE

For the FX3G series PLCs an analog-digital converter with two analog inputs and a digital-analog converter with one analog output is available.

The FX3U-8AV-BD analog setpoint adapter enables the user to set 8 analog setpoint values. All adapters are inserted directly into the extension slot of the base unit.

Specifications	FX3G-2AD-BD	FX3G-1DA-BD	FX3G-8AV-BD	FX3U-8AV-BD
Applicable for	Base units FX3G	Base units FX3G	Base units FX3G	Base units FX3U
Function	A-D converter	D-A converter	Analog setpoint	Analog setpoint
Dimensions (WxHxD)	mm 35x51	35x51	35x51	19.6x46.1x53.5
<b>Order information</b>	Art. no. 221265	221266	221267	237307



### Communication adapter board FX3U-USB-BD

This adapter board is an additional USB 2.0 interface for a FX3U base unit and allows the program transfer from a notebook PC which is not equipped with a serial interface.

Specifications	FX3U-USB-BD
Applicable for	Base units FX3U
Power supply	5 V DC (from base unit)
Weight	kg 0.02
Dimensions (WxHxD)	mm 19.6x46.1x53.5
<b>Order information</b>	Art. no. 165284

### Communications adapter

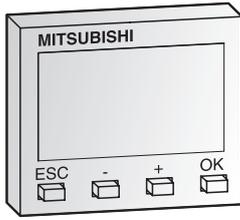
The below listed communications adapters enable the connection of the adapter modules FX□□□□ADP on the left hand side of the FX3G and FX3U base units.

Specifications	FX1N-CNV-BD	FX3G-CNV-ADP	FX3U-CNV-BD
Applicable for	Base unit FX1S	Base units FX3G	Base units FX3U
General specifications	Conforms to base units	Conforms to FX3G base units	Conforms to FX3U base units
Power supply	Not necessary		
Related I/O points	0	0	0
Dimensions (WxHxD)	mm 43x38x14	14.6x74x90	19.6x46.1x53.5
<b>Order information</b>	Art. no. 130745	221268	165285

### Power supply modules

To enhance the power supply of a FX3G or FX3U/FX3UC base unit, discrete power supply modules are available.

For detailed information please refer to the power supplies chapter in this catalogue.

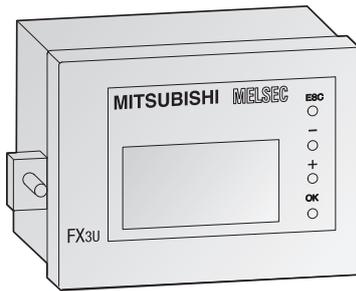


**Display modules FX1N-5DM and FX3G-5DM**

The display modules FX1N-5DM and FX3G-5DM are inserted directly with space-saving into the controller and

enable monitoring and editing of the data stored in the PLC.

Specifications	FX1N-5DM	FX3G-5DM
Applicable for	Base units FX1S	Base units FX3G series
Display	LCD (with backlight)	LCD (with backlight)
Power supply	5 V DC $\pm 5\%$ (from base unit)	5 V DC $\pm 5\%$ (from base unit)
Current consumption	mA 110	n/a
Dimensions (WxHxD)	mm 40x32x17	49x34x12
<b>Order information</b>	Art. no. 129197	221270

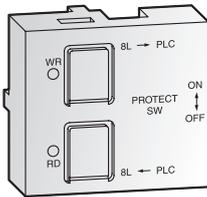


**Control and display panel FX3U-7DM, holder FX3U-7DM-HLD**

The FX3U-7DM display module can be incorporated in the main unit, or can

be installed in the enclosure using the FX3U-7DM-HLD display module holder.

Specifications	FX3U-7DM	FX3U-7DM-HLD
Applicable for	Base units FX3U	Base units FX3U
Display	16 letters x 4 lines	—
Power supply	5 V DC (from base unit)	—
Current consumption	mA 20	—
Extension cable	—	Included
Dimensions (WxHxD)	mm 48x35x11.5	66.3x41.8x13
<b>Order information</b>	Art. no. 165268	165287



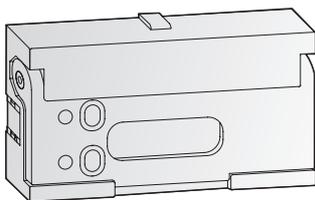
**Memory cassettes for FX1S, FX3G and FX3GE**

All FX1S, FX3G and FX3GE base units are equipped with a slot for the optional, robust FX memory cassettes. By connection of these memory cassettes, the internal memory of the controller is switched off and only the program specified in the respective memory cassette is run.

The memory cassettes can upload/download programs to and from the FX PLC internal memory with the help of 2 buttons.

The memory cassette FX3G-EEPROM-32L can also be placed on top of the standard BD expansion boards.

Specifications	FX1N-EEPROM-8L	FX3G-EEPROM-32L
Applicable for	Base units FX1S	Base units FX3G
Memory type	EEPROM	EEPROM
Size	2000/8000 steps	32000 steps
Protect switch	Provided	Provided
Data transfer buttons	Provided	Provided
<b>Order information</b>	Art. no. 130746	221269



**Memory cassettes for FX3U and FX3UC**

The memory cassette can be installed in the main unit, and when installed, the memory cassette's internal program is used in place of the internal RAM memory.

The loader functionality in the FX3U-FLROM-64L allows the memory cassette to upload and download programs to and from the internal PLC memory with the help of 2 buttons.

Specifications	FX3U-FLROM-16	FX3U-FLROM-64	FX3U-FLROM-64L	FX3U-FLROM-1M
Applicable for	Base units FX3U	Base units FX3U	Base units FX3U	Base units FX3U
Number of steps	16000	64000	64000	64000 + 1.3 MB for source data
Memory type	Flash memory	Flash memory	Flash memory	Flash memory
Protect switch	Provided	Provided	Provided	Provided
Data transfer buttons	Not provided	Not provided	Provided	—
Dimensions (WxHxD)	mm 37x20x6.1	37x20x6.1	37x20x6.1	37x20x6.1
<b>Order information</b>	Art. no. 165278	165279	165280	245565