Analog Control

FX Analog Options

Analog Setpoint

The analog setpoint boards provide 8 analog setpoint potentiometers to the FX system. Setpoints can be polled by the PLC and used as default values for timers, counters and data registers.

Model Number	FX3G-8AV-BD	FX3U-8AV-BD
Stocked Item	S	S
Certification	CE (EMC)	
Applicable PLCs	FX3G / FX3GE / FX3S	FX3U
Power Supply	All modular extension units are powered by the base unit	
Analog Channels (Inputs)	8-bit	8-bit
Related I/O Points	0	0
Weight	0.02	0.02
Dimensions (W x H x D) mm	35 x 51 x 12	19.7 x 46.1 x 53.5

Analog Input

Analog input modules can provide up to 8 analog inputs that are used to convert analog voltage or current signals into digital values which can be used by the FX PLC.

Model Number		FX3G-2AD-BD	FX3U-4AD-ADP	FX3U-4AD	FX3UC-4AD
Stocked Item		S	S	S	-
Certification		CE (EMC)	UL • cUL • CE (EMC)		
Applicable PLCs		FX3G / FX3GE / FX3S	FX3U / FX3UC / FX3G / FX3GE / FX3S	FX3U / FX3UC / FX3G / FX3GE	FX3UC
Power Supply		5VDC (from main unit)	5VDC / 15 mA (from main unit) 24VDC / 40 mA	5VDC / 110 mA (from main unit) 24VDC / 90 mA	5VDC / 100 mA (from main unit) 24VDC / 80 mA
Analog Channels (Input)		2	4	4	4
Analog Range		0 to 10VDC / 4 - 20 mA	0 to 10VDC / 4 - 20 mA	-10 to 10VDC / -20 to +20mA / 4 to 20 mA DC	-10 to 10VDC / -20 to +20mA / 4 to 20 mA DC
Resolution	Voltage	2.5 mV	2.5 mV (12 bit)	0.32 mV (15 bit + sign)	0.32 mV (15 bit + sign)
	Current	8 µA (11 bit)	10 µA (11 bit)	1.25 µA (14 bit + sign)	1.25 µA (14 bit + sign)
Overall Accuracy for Fullscale		±1%	±0.5% to 1%	±0.3 to 1% fullscale	±0.3 to 1% fullscale
Related I/O Points		0	0	8	8
Weight (kg)		0.02	0.1	0.2	0.13
Dimensions (W x H x D) mm		35 x 51 x 29.2	17.6 x 90 x 89.5	55 x 90 x 87	20.2 x 90 x 89

Analog Input (Continued)

Model Number		FX2N-2AD	FX2N-4AD	FX2NC-4AD	FX2N-8AD (*2)
Stocked Item		S	S	S	S
Certification		UL • cUL • CE (EMC)			
Applicable PLCs		FX3U / FX3UC / FX3G / FX3GE		FX3UC	FX3U / FX3UC / FX3G / FX3GE
Power Supply		5VDC / 20 mA (from main unit) 24VDC / 50 mA (from main unit)	5VDC / 30 mA (from main unit) 24VDC / 55 mA	5VDC / 50 mA (from main unit) 24VDC / 130 mA	5VDC / 50 mA (from main unit) 24VDC / 80 mA
Analog Channels (Input)		2	4	4	8
Analog Range		0 to 10VDC / 0 to 5VDC / 4 to 20mA DC	-10 to 10VDC / -20 to 20mA DC / 4 to 20mA DC	-10 to 10VDC / -20 to 20mA DC / 4 to 20mA DC	-10 to 10VDC / -20 to 20mA DC / 4 to 20mA DC
Resolution	Voltage	2.5 mV (12 bit)	5 mV (11 bit + sign)	0.32 mV (15 bit + sign)	0.63 mV (14 bit + sign)
	Current	4 µA (12 bit)	20 µA (10 bit + sign)	1.25 µA (14 bit + sign)	2.5 µA (13 bit + sign)
Overall Accuracy for Fullscale	Voltage	±1%	±1%	±0.3% - 0.5% (*1)	±0.3 - 0.5% (*1)
	Current			±0.5 - 1.0% (*1)	
Related I/O Points		8	8	8	8
Weight (kg)		0.2	0.3	0.13	0.4
Dimensions (W x H x D) mm		43 x 90 x 87	55 x 90 x 87	20.2 x 90 x 89	75 x 90 x 75

1. **Notes:**
1. Dependent on the ambient temperature.
2. 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.

Analog Output

Analog output modules provide up to 4 analog outputs that are used to convert digital values in the PLC to voltage or current signals.

Model Number		FX3G-1DA-BD	FX3U-4DA-ADP	FX3U-4DA	FX2N-2DA	FX2N-4DA	FX2NC-4DA
Stocked Item		S	S	S	S	S	S
Certification		CE (EMC)	UL • cUL • CE (EMC)				
Applicable PLCs		FX3G /FX3GE / FX3S	FX3U / FX3UC / FX3G / FX3GE / FX3S	FX3U / FX3UC / FX3G / FX3GE / FX3S	FX3U / FX3UC / FX3G / FX3GE	FX3U / FX3UC / FX3G / FX3GE	FX3UC
Power Supply		5VDC (from main unit)	5VDC / 15 mA (from main unit) 24VDC / 150 mA	5VDC / 120 mA (from main unit) 24VDC / 160 mA	5VDC / 30 mA (from main unit) 24VDC / 85 mA (from main unit)	5VDC / 30 mA (from main unit) 24VDC / 200 mA	5VDC / 30 mA (from main unit) 24VDC / 130 mA
Analog Channels (Output)		1	4	4	2	4	4
Analog Output Range		0 to 10VDC / 4 to 20mA DC	0 to 10VDC / 4 to 20mA DC	-10 to 10VDC / 0 to 20mA / 4 to 20mA DC	0 to 10VDC / 0 to 5VDC / 4 to 20mA DC	0 to 10VDC / 0 to 20mA DC / 4 to 20mA DC	-10 to 10VDC / 0 to 20mA DC / 4 to 20mA DC
Resolution	Voltage	2.5 mV (12 bit)	2.5 mV (12 bit)	0.32 mV (15 bit + sign)	2.5 mV (14 bit)	5 mV (11 bit + sign)	5 mV (11 bit + sign)
	Current	8 µA (11 bit)	4 µA (12 bit)	0.63 µA (15 bit)	4 µA (12 bit)	20 µA (10 bit + sign)	20 µA (10 bit + sign)
Overall Accuracy for Fullscale		±1%	±5% - 1% (*1)	±0.3% - 0.5% (*1)	±1% (*1)	±1% (*1)	±0.5% -1% (*1)
Related I/O Points		0	0	8	8	8	8
Weight (kg)		0.02	0.1	0.2	0.2	0.3	0.13
Dimensions (W x H x D) mm		35 x 51 x 29.2	17.6 x 90 x 89.5	55 x 90 x 87	43 x 90 x 87	55 x 90 x 87	24.2 x 90 x 89

1. **Note 1:** Dependent on the ambient temperature.

Combination Analog Input / Output Modules

Combination analog input / output modules are used for both digital to analog and analog to digital conversion.

Model Number		FX2N-5A	FX3U-3A-ADP
Stocked Item		S	S
Certification		UL • cUL • CE (EMC)	UL • cUL
Applicable PLCs		FX3U / FX3UC / FX3G / FX3GE	FX3U / FX3UC / FX3G / FX3GE / FX3S
Power Supply		5VDC / 70 mA (from main unit) 24VDC / 90 mA	5VDC / 20 mA (from main unit) 24VDC / 90 mA
Analog Channels	Input	4	2
	Output	1	1
Analog Input Range (Resolution)	Voltage	-10 to 10 V (15 bit + sign) -100 to 100 mV (11 bit + sign)	0 to 10VDC (12 bit)
	Current	-20 to 20 mVDC (14 bit + sign) 4 to 20 mA DC (14 bit)	4 to 20 mA DC (12 bit)
Analog Output Range (Resolution)	Voltage	-10 to 10VDC (12 bit)	0 to 10VDC (12 bit)
	Current	0/4 to 20 mA DC (10 bit)	4 to 20 mA DC (12 bit)
Overall Accuracy for Fullscale		±0.3 - 1%	±0.5 - 1%
Related I/O Points		8	0
Weight (kg)		0.3	0.1
Dimensions (W x H x D) (mm)		55 x 90 x 87	17.6 x 90 x 89.5

Temperature Input Options

The analog temperature input modules are used for J and K type thermocouple and Pt100 temperature sensor input and temperature control. 2 open collector transistor outputs are available with the FX2N-2LC, 4 with the FX3U-4LC.

Model Number	FX3U-4AD-PTW-ADP	FX3U-4AD-PT-ADP	FX3U-4AD-PNK-ADP	FX3U-4AD-TC-ADP	FX2N-2LC	FX3U-4LC
Stocked Item	-	S	-	S	S	S
Certification	UL • cUL • CE (EMC)					
Applicable PLCs	FX3U / FX3UC / FX3G / FX3GE / FX3S				FX3U / FX3UC / FX3G / FX3GE	FX3G / FX3GE / FX3U / FX3UC
Power Supply	5VDC / 15 mA (from main unit) 24VDC / 50 mA	5VDC / 15 mA (from main unit) 24VDC / 50 mA	5VDC / 15 mA (from main unit) 24VDC / 50 mA	5VDC / 15 mA (from main unit) 24VDC / 45 mA	5VDC / 70 mA (from main unit) 24VDC / 55 mA	5VDC / 160 mA (from main unit) 24VDC / 50 mA
1. Analog Inputs	4 (Pt100 sensors)	4 (Pt100 sensors)	4 (Pt1000 or Ni1000)	4 (J or K type)	2 points (Thermocouple and Pt100 sensor)	4 points (Thermocouple and Pt100 sensor)
Compensated Temperature Range (°C)	-100 to +600	-50 to +250	-50 to +250 (Pt1000) -40 to +110 (Ni1000)	-100 to +600 (J type) -100 to +1000 (K type)	-200 to +1300	-200 to +1300
Digital Outputs	-1000 to +6000	-500 to +2500	-500 to +2500 (Pt1000) -400 to +1100 (Ni1000)	-1000 to +6000 (J type) -1000 to +10000 (K type)	2 transistor output points	4 transistor output points
Resolution (°C)	0.2 to 0.3	0.1	0.1	0.3 (J type) 0.4 (K type)	0.1 or 1	0.1 or 1
Overall Accuracy for Fullscale	±0.5% - 1% (*1)	±0.5% - 1% (*1)	±0.5% - 1% (*1)	±0.5% - 1% (*1)	±0.3% - 0.7% (±1 digit) (*1)	±0.3% - 0.7% (±1 digit) (*1)
Related I/O Points	0	0	0	0	8	8
Weight	0.1	0.1	0.1	0.1	0.3	0.4
Dimensions (W x H x D) mm	17.6 x 90 x 89.5	17.6 x 90 x 89.5	17.6 x 90 x 89.5	17.6 x 90 x 89.5	55 x 90 x 87	90 x 90 x 80

1. **Note 1:** Dependent on the ambient temperature.