
XGI-D22A
XGQ-TR4A
XGL-CH2A
XGL-DMEA
XGF-PO3A
XGF-M16M
XGQ-TR2A
XGI-D24A

Special

XGT series offer diverse special modules such as analog, HSC, and positioning to satisfy complicated industrial needs

Contents

94 XGT speial module
96 Analog input module
98 2Wire Analog input module
99 Analog input module [Isolated]
100 Analog input module [Example]
101 Analog output module
102 Analog output module [Example]
103 Analog input/output module
104 HART interface analogue/digital conversion module
105 High-speed counter module
108 8-Channel high peed counter module
109 High-speed counter module [Example]
112 Positioning module (XPM)
114 Positioning module (Network Type)
116 XG5000
118 Motion Module [EtherCAT]
119 RTD input module
120 Thermocouple module
121 Temperature controller
122 Event input module
124 Datalog module

Revolution of easy to use ... XGT Special module

Fast processing of parameter and data of special module

- Continually refreshing operation data of special module by CPU module
- Including contact points such as conversion data of AD/DA module and command of HSC & positioning module

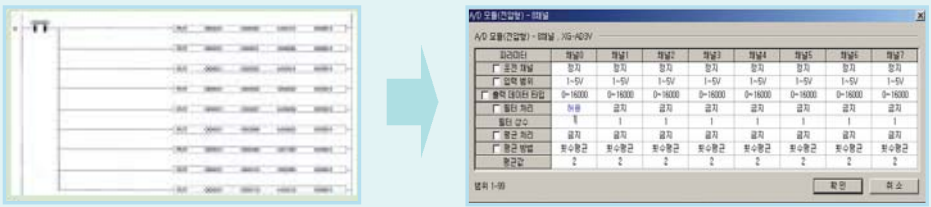
Easy- to-use(Easy operation parameter setting and data monitoring)

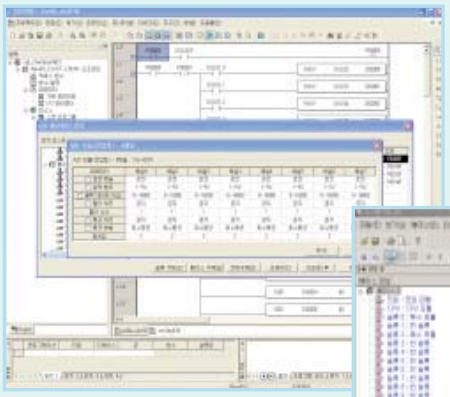
- Convenient parameter setting available through XG5000
- Providing useful functions that can monitor and test operation data and contact points through XG5000

Simple maintenance (Changing online module)

- Without turning off and holding CPU, users can change special module with ease.

Before





◀Example of programming

Monitoring of special module ▶

Analog input/output module

Analog input module

XGF-AV8A	8 channels, voltage
XGF-AC8A	8 channels, current
XGF-AD8A	8 channels, voltage/current
XGF-AD4S	4 channels, voltage/current
XGF-AD16A	16 channels, voltage/current
XGF-AW4S	2-wire, Voltage/ Current input, 4Ch (Isolated)

Analog output module

XGF-DV4A	4 channels, voltage
XGF-DC4A	4 channels, current
XGF-DV8A	8 channels, voltage
XGF-DC8A	8 channels, current
XGF-DV4S	4 channels, voltage, Isolated
XGF-DC4S	4 channels, current, Isolated

Analog input/output module

XGF-AH6A	Input: 4ch, Voltage/ Current Output: 2Ch Voltage/ Current

Temperature module

Temperature input module

XGF-TC4S	4 channels, thermocouple input, Isolated
XGF-RD4A	4 channels, RTD input
XGF-RD4S	4 channels, RTD input, Isolated

Temperature controller

XGF-RD8A	8 channels input: RTD
XGF-TC4UD	4 channels input: voltage/current/TC/RTD 8 channels output: current/TR
XGF-TC4RT	4 channels input: RTD 4 channels output: TR Control: 4loop

Positioning module/Motion controller

Positioning module

XGF-P01A~P03A	Open collector, 1~3axis
XGF-PD1A~PD3A	Line drive, 1~3axis
XGF-P01H~P04H	Open collector, 1~4axis
XGF-PD1H~PD4H	Line drive, 1~4axis

Motion module

Motion module

XGF-M32E	Standard EtherCAT Net, 32 axes

High speed counter module

High-speed counter module

XGF-H02A	2 channels, Open collector
XGF-HD2A	2 channels, Line driver
XGF-H08A	8-channels high speed counter module, 8Ch

Event input module

High-speed counter module

XGF-SOEA	DC24V, 32points

SPECIAL

XGT Analog input module

Features

- Fast conversion processing
- High resolution
- Setting and monitoring the special module parameter through XG5000
- Supporting 4 types of digital output data format

Specifications

Item	XGF-AV8A (Voltage input)	XGF-AC8A (Current input)	XGF-AD4S (Voltage/Current input)
No. of input channel	8 channels		4 channels
Analog input	DC 1~5V, 0~5V, 0~10V, -10~10V	DC 4~20mA, 0~20mA	DC 1~5V, 0~5V, 0~10V, -10~10V DC 4~20mA, 0~20mA

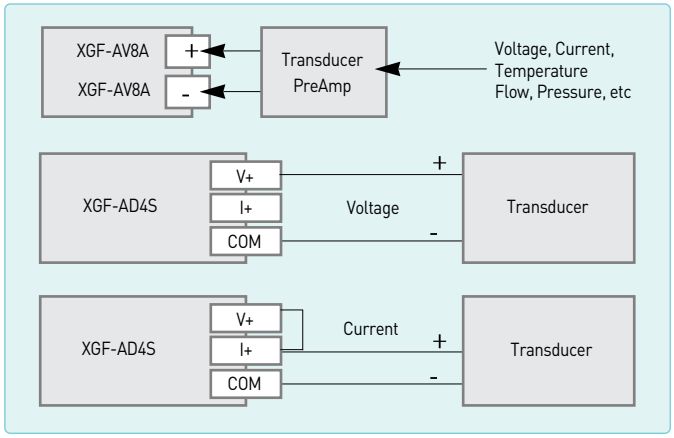
Digital output

Selection of input range in program or S/W package (Available to be set per channel)

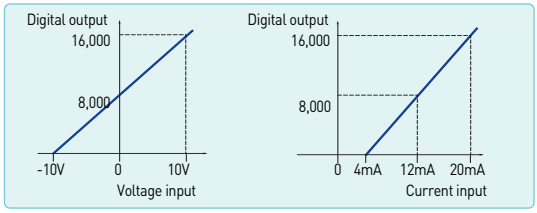
XGF-AV8A	Analog input		1~5V	0~5V	0~10V	-10~10V	
	Digital output	Unsigned value	0~16,000				
		Signed value	-8000~8,000				
		Precise value	1,000~5,000	0~5,000	0~10,000	-10,000~10,000	
		Percentile value	0~10,000				
XGF-AC8A	Analog input		4~20mA		0~20mA		
	Digital output	Unsigned value	0~16,000				
		Signed value	-8,000~8,000				
		Precise value	4,000~20,000		0~20,000		
		Percentile value	0~10,000				
XGF-AD4S	Analog input		1~5V	0~5V	0~10V	-10~10V	4~20mA	0~20mA
	Digital output	Signed value	-32,000~32,000					
		Precise value	1,000~5,000	0~5,000	0~10,000	-10,000~10,000	4,000~20,000	0~20,000
		Percentile value	0~10,000					

Item	XGF-AV8A (Voltage input)		XGF-AC8A (Current input)		XGF-AD4S (Voltage/Current input)			
Resolution	1/16,000				1/64,000			
	1~5V	0.250mV	4~20mA	1.0㎂	1 ~ 5V	62.5㎶	4~20mA	250㎂
	0~5V	0.3125mV			0~5V	78.1㎶		
	0~10V	0.625mV	0~20mA	1.25㎂	0 ~ 10V	156.3㎶	0~20mA	312.5㎂
	-10V~10V	1.250mV			±10V	312.5㎶		
Accuracy	±0.2% or less (Ambient temperature 25 ℃) ±0.3% or less (Range of operation temperature)				±0.05% or less (Ambient temperature 25 ℃) Temp. coefficient ±16.7ppm/℃(Range of operation temperature)			
Conversion speed	250㎲/channel							
Max. absolute input	15V		±30mA		Voltage: ±15V, Current: ±30mA			
Insulation method	Photo-coupler Insulation between input terminal and power supply							
	No insulation between channels				Insulation between channels			
Connection terminal	18 points							
No. of occupied	Fixed type (Setting in basic parameter): 64 points							
I/O points	Variable type (Dissolving in basic parameter): 16 points							
Current consumption	420mA				610mA			
Weight (Kg)	0.14							

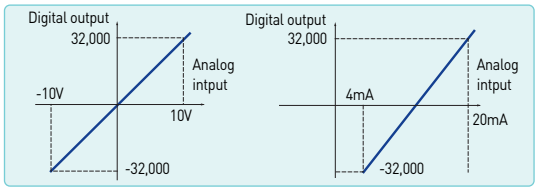
Configuration



A/D conversion characteristics



Insulation type



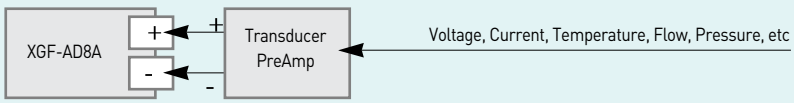
Features

- Fast conversion processing
- High resolution
- Setting and monitoring the special module parameter through XG5000
- Supporting 4 types of digital output data format

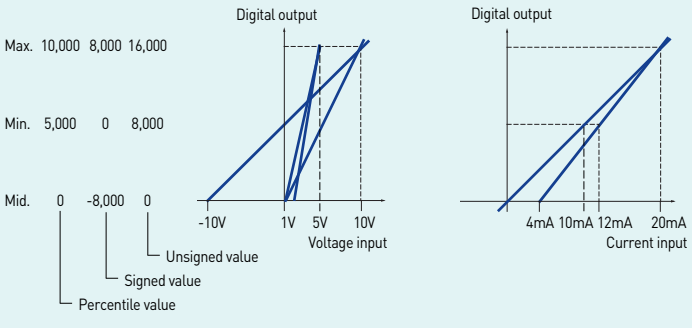
Specifications

Item		XGF-AD16A			XGF-AD8A		
No. of input channel		16 channels			8 channels		
Analog input	Voltage input	DC 1~5V, DC 0~5V, DC 0~10V, DC -10~10V (Input resistance: 1㏁)					
	Current input	DC4~20㎃, DC 0~20㎃ (Input resistance: 250Ω)					
	Input selection	Dip switch					
	Range selection	Selection of input range in the program or S / W package (Available to set per each channel)					
	Input type	Voltage input				Current input	
		DC 1~5V	DC 0~5V	DC 0~10V	DC -10~10V	DC 4~20㎃	DC 0~20㎃
Digital output	Unsigned value	0~16,000					
	Signed value	-8,000~8,000					
	Precise value	0~10,000					
	Percentile value	1,000~5,000	0~5,000	0~10,000	-10,000~10,000	4,000~20,000	0~20,000
	Resolution(1/16000)	0.2500mV	0.3215mV	0.6250mV	1.250mV	1.00㎂	1.25㎂
	Range selection	Selection of input type by program or parameter (Available to be set per each channel)					
Resolution		±0.2% or less (Ambient temperature 25℃), ±0.3% or less (Range of operation temperature)					
Max. absolute input		±15V				±30㎃	
Conversion speed		500㎲/channels			250㎲/channels		
Insulation method		Photo-coupler insulation between terminal and power supply					
Terminal		32 points			18 points		
No. of occupied I/O points (XGK)		Fixed type (Setting in basic parameter): 64 points			Variable type (Dissolving in basic parameter): 16 points		
Current consumption		DC 5V : 420㎃					
Wight		140g					

Configuration



A/D conversion characteristics



SPECIAL

XGT 2Wire Analog input module

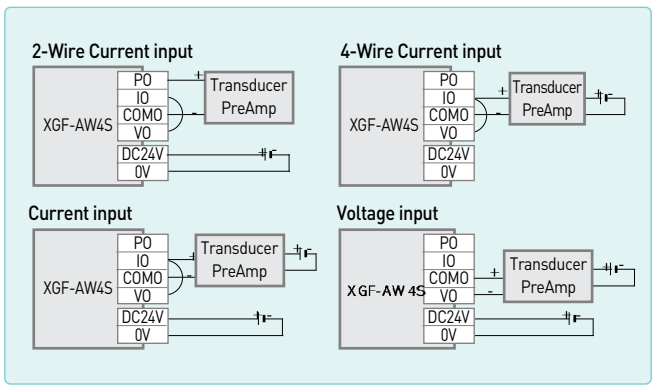
Features

- 2Wire sensor (transmitter) input
- 1/64000 resolution
- Channel insulation
- Various additional functions

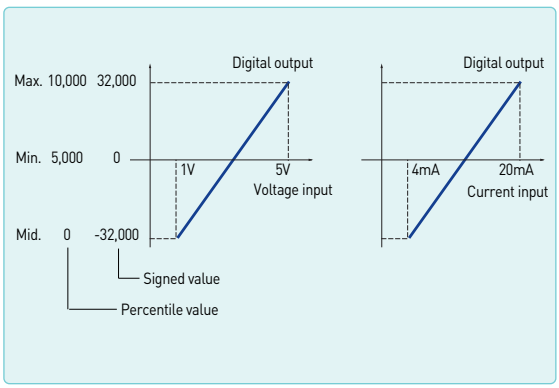
Specifications

Item		XGF-AW4S		
No. of input channel		4channels		
Voltage input		DC 1~5V(Input resistance: 11 ㏀)	DC 4~20mA(Input resistance : 250 Ω)	
Digital output	Signed value	-32,000~32,000	-32,000~32,000	
	Precise value	1,000~5,000	4,000~20,000	
	Percentile value	0~10,000	0~10,000	
	Resolution(1/64000)	0.25mV	1uA	
	Range selection	Selection of input range in program or S/W package (Available to be set per channel)		
Resolution		±0.05% or less (Ambient temperature 25 ℃), Temp. coefficient ±70ppm/ ℃(Range of operation temperature)		
Max. absolute input		±6V	±30mA	
Conversion speed		10ms/4channels		
Insulation	Item	Method	Withstand voltage	Resistance
	Channel	Transformer	500VAC, 50/60Hz, 1min, Leakage current: 10mA or less	500VDC,10 ㏁ or more
	Terminal - Power	Photo-coupler		
Transmitter	Voltage	DC 24V ± 15%		
	Max. current	30mA		
	Short circuit protection	Limit current: 25 ~35mA		
External power		DC 24V + 20%, -15%		
Terminal		18 point terminal		
No. of occupied I/O points (XGK)		Fixed type (Setting in basic parameter): 64 points, Variable type (Dissolving in basic parameter): 16 points		
Current consumption	DC 5V	180mA		
	DC 24V	480mA		
Wight		140		

Configuration



A/D conversion characteristics



Analog input module(Isolated)

Features

- Channel isolation
- 1/64000 resolution
- ±0.05%(25℃) fixed density
- Setting and monitoring the special module parameter through XG5000

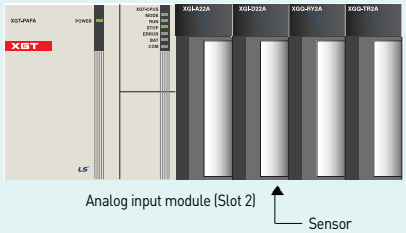
Specifications

Item		XGF-AD4S					
No. of input channel		4 channel					
Analog input	Voltage input	DC 1~5V, DC 0~5V, DC 0~10V, DC -10~10V (Input resistance: 1㏁)					
	Current input	DC 4~20㎃, DC 0~20㎃ (Input resistance: 250Ω)					
	Input selection	Dip switch			-		
	Range selection	Selection input range in the program or S/W package(Available to set per each channel)					
	Input type	Voltage input				Current input	
		DC 1~5V	DC 0~5V	DC 0~10V	DC -10~10V	DC 4~20㎃	DC 0~20㎃
Digital output	Signed value	-32,000~32,000					
	Precise value	0~10,000					
	Percentile value	1,000~5,000	0~5,000	0~10,000	-10,000~10,000	4,000~20,000	0~20,000
	Resolution(1/64,000)	0.0625mV	0.0781mV	0.1563mV	0.3125mV	0.25㎂	0.3125㎂
	Range selection	Selection input range in the program or S/W package(Available to set per each channel)					
Resolution		±0.2% or less(Ambient temperatue 25℃), ±0.3% or less(Range of operation temperature)					
Max. absolute input		±15V				±30㎃	
Conversion speed		10ms/4 channel					
Isolation Standards	Item	Isolation Method		Isolation withstand voltage		Isolation resistance	
	Channels	Transformer isolation		500VAC, 50/60Hz		10㏁ or more	
	Input-PLC Power	Photo-coupler isolation					
Terminal		18 points					
No. of occupied I/O points (XGK)		Fixed type(Setting in basic parameter):64points, Variable type(Dissolving in basic parameter): 16points					
Current consumption		DC 5V: 610㎃					
Wight		140					

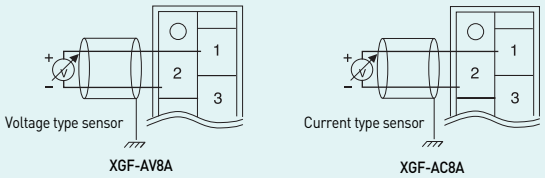
Analog input module (Example)

System Configuration

This is a simple example to start Analog input module setting. For more details, refer to user's manual.

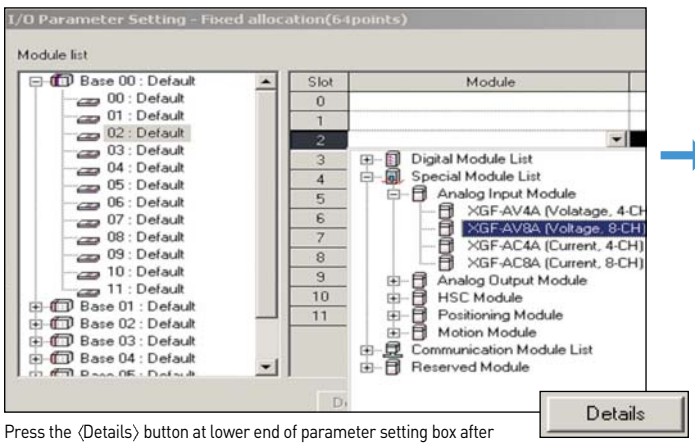


Wiring

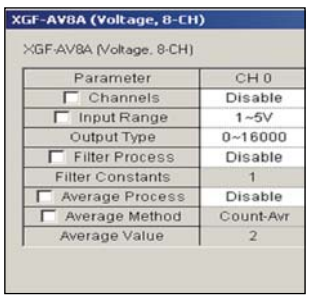


Parameter setting

In the parameter setting box, select slot and analog module that you want to use.
(This example shows to select ' 0' channel of voltage input type.)



Press the 〈Details〉 button at lower end of parameter setting box after selecting the module.



You need to fill out each item suitable for your system.

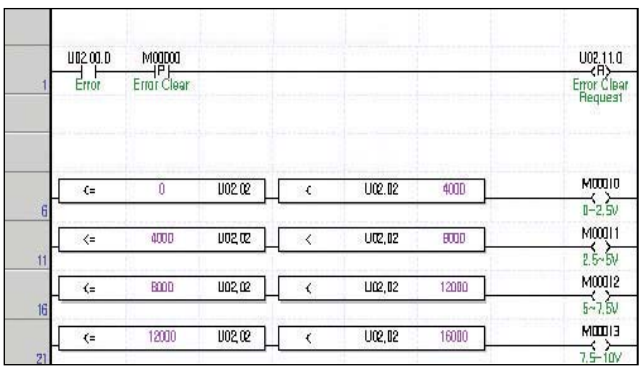
Programming

Create a program for A/D conversion (0~10V to 0~16,000).

Special devices for programming

Refer to user's manual for more details.
U02.0.0: Error
U02.11.0: Requesting error-clear
U02.02: Memory of channel A/D value

Uxy.aa.bb
x: Base number
y: Slot number
aa,bb: Refer to user's manual.



Analog output module

Features

- Fast conversion processing
- High resolution
- Setting and monitoring the special module parameter through XG5000
- Supporting 4 types of digital input data format

Specifications

Item	XGF-DV4A, XGF-DV8A, XGF-DV4S (Voltage output type)	XGF-DC4A, XGF-DC8A, XGF-DC4S (Current output type)
No. of output channel	XGF-DV4A/4S, XGF-DC4A/4S : 4 channels / XGF-DV8A, XGF-DC8A : 8 channels	
Analog output range	DC 1~5V, 0~5V	DC 4~20mA
	DC 0~10V, -10~10V	DC 0~20mA
	Selection of input range in the program or S/W package (Available to set per each channel)	

Digital input range

Analog output	Voltage type		1~5V	0~5V	0~10V	-10~10V
	Digital input	Unsigned value	0~16,000			
		Signed value	-8,000~8,000			
		Precise value	1,000~5,000	0~5,000	0~10,000	-10,000~10,000
		Percentile value	0~10,000			
Analog output	Current type		4~20㎃		0~20㎃	
	Digital input	Unsigned value	0~16,000			
		Signed value	-8,000~8,000			
		Precise value	4,000~20,000		0~20,000	
		Percentile value	0~10,000			

16-bit binary value: selection of input type by program or parameter (Available to be set per each channel)

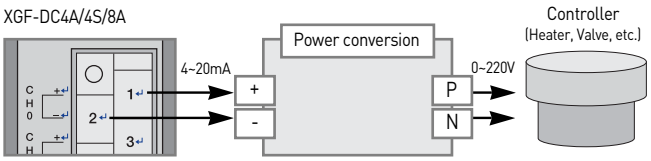
Max. resolution	1/16,000 (Per each input range)			
	1~5V	0.250㎷	4~20㎃	1.0㎂
	0~5V	0.3125㎷		
	0~10V	0.625㎷	0~20㎃	1.25㎂
	±10V	1.250㎷		
Accuracy	XGF-DV4A/8A, DC4A/8A : ±0.2% or less (Ambient temperature 25℃), ±0.3% or less (Range of operation temperature)			
	XGF-DV4S/DC4S : ±0.1% or less (Ambient temperature 25℃), temp coefficient: ±80ppm/℃			
Conversion speed	250㎲/channel			
Max. absolute output	±15V		±24㎃	
Insulation method	Photo-coupler insulation between terminal and power supply XGF-DV4A/8A, XGF-DC4A/8A: No insulation between channels XGF-DV4S, XGF-DC4S (Insulation type): Insulation between channels			
Connection terminal	18 point terminal			
No. of occupied points	Fixed type (Setting in basic parameter): assign 64 points			
	Variable type (Dissolving in basic parameter): assign 16 points			

Current consumption (mA)	DV4A	DV8A	DV4S	DC4A	DC8A	DC4S
Internal	190	190	200	190	190	200
External	140	180	150	210	300	220

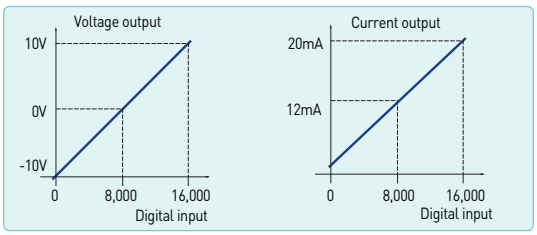
Weight (Kg)	0.15

Output wiring

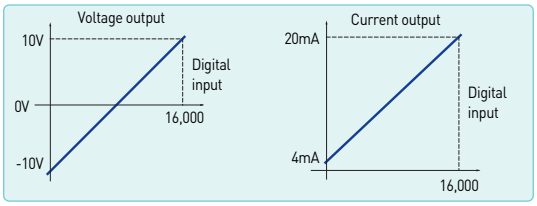
XGF-DV4A/4S/8A
XGF-DC4A/4S/8A



I/O conversion characteristics



Insulation type

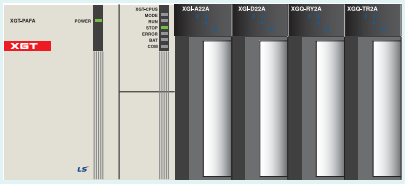


SPECIAL

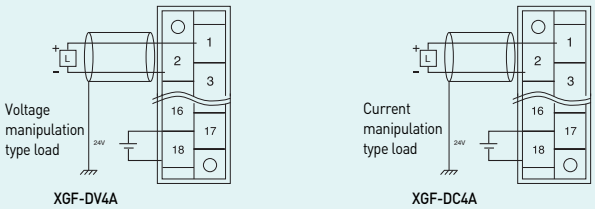
Analog output module (Example)

System Configuration

This is a simple example to start Analog output module setting. For more details, refer to user's manual.

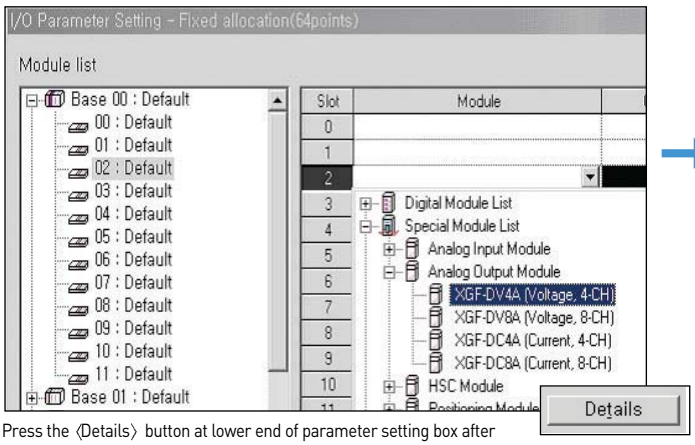


Wiring

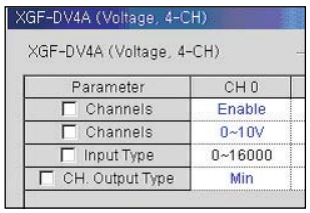


Parameter setting

In the parameter setting box, select slot and analog module that you want to use.
(This example shows to select '0' channel of voltage output type.)



Press the 〈Details〉 button at lower end of parameter setting box after selecting the module.



You need to fill out each item suitable for your system.

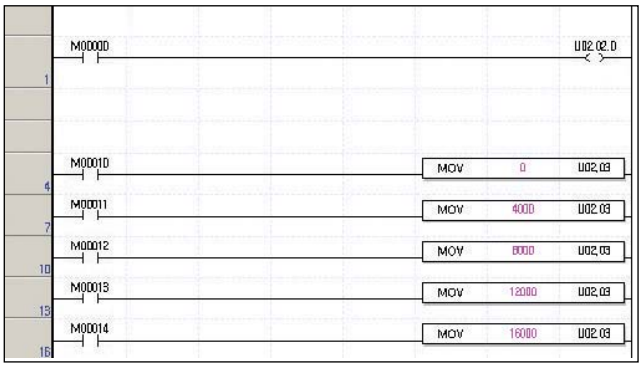
Programming

Create a program for D/A conversion (0~16000 to 0~10V).

Special devices for programming

Refer to user's manual for more details.
U02.02.0: Admitting Channel 0 output
U02.03: Output data of channel 0

Uxy.aa.bb
x: Base number
y: Slot number
aa,bb: Refer to user's manual.



Analog input/output module

Features

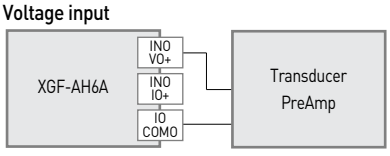
- Input 4channels Output 2channels
- 4channels, 1/8000 resolution
- Parameter setting and monitoring by XG5000

Specifications

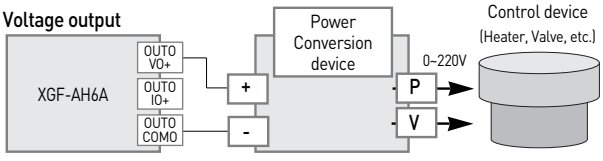
Item			XGF-AH6A				
Input	No. of input channel		4channels				
	Analog output	Range	DC1~5V	DC0~5V	DC0~10V	DC-10~10V	DC4~20mA
		Resistance	1M Ω				250 Ω
		Selection	V+ and COM				
	Digital output	Unsigned value	0~8,000				0~8,000
		Signed value	-4,000~4,000				-4,000~4,000
		Precise value	0~10,000				0~10,000
		Percentile value	1,000~5,000	0~5,000	0~10,000	-10,000~10,000	4,000~20,000
		Resolution(1/8000)	0.5mV	0.625mV	1.25mV	2.5mV	2.0uA
		Range selection	Selection of input range in program or S/W package (Available to be set per channel)				
	Resolution		±0.2% or less (Ambient temperature 25℃), ±0.3% or less (Range of operation temperature)				
	Max. absolute input		±15V				±30mA
	Conversion speed		500㎲/channels				
Output	No. of input channel		2channels				
	Analog output	Range	DC1~5V	DC0~5V	DC0~10V	DC-10~10V	DC4~20mA
		Resistance	1k Ω or more				600 Ω or less
		Selection	V+ and COM				
	Digital output	Unsigned value	0~8,000				0~8,000
		Signed value	-4,000~4,000				-4,000~4,000
		Precise value	0~10,000				0~10,000
		Percentile value	1,000~5,000	0~5,000	0~10,000	-10,000~10,000	4,000~20,000
		Resolution(1/8000)	0.5mV	0.625mV	1.25mV	2.5mV	2.0uA
		Range selection	Selection of input range in program or S/W package (Available to be set per channel)				
	Resolution		±0.2% or less (Ambient temperature 25℃), ±0.3% or less (Range of operation temperature)				
	Max. absolute input		±15V				±24mA
	Conversion speed		500us/channels				
Insulation method			Photo-coupler insulation between terminal and power supply				
Terminal			18 point terminal				
No. of occupied I/O points (XGK)			Fixed type (Setting in basic parameter): 64 points, Variable type (Dissolving in basic parameter): 16 points				
Current consumption (DC5V)			770mA				
Wight			140				

Wiring

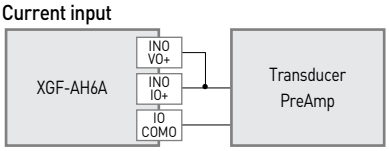
Voltage input



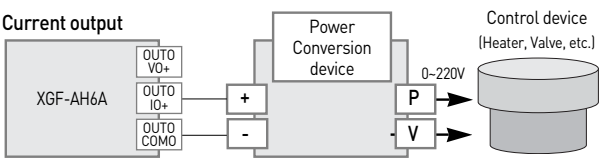
Voltage output



Current input



Current output



XGT HART interface analogue/digital conversion module

Features

- It supports HART protocol
  In the input range of 4 ~ 20mA, bi-directional digital communication is available by using analog signal wiring. If analog wiring is currently used, there is no need to add wiring for HART communication (HART communication is not supported in the range of 0 ~ 20mA)
- High accuracy
- Operation parameters setting/monitoring
- Input disconnection detection function

Specifications

Item		XGF-AC4H		XGF-DC4H	
No. of Channels		4channels		4channels	
Analog input/output range		DC4~20mA,DC 0~20mA, (Input Resistance 250 Ω)		DC 4~20mA,DC 0~20mA, (Load resistance 600 Ω or less)	
Digital input/ output	Analog output/Digital input	DC4~20mA	DC0~20mA	DC4~20mA	DC0~20mA
	Signed value	-32000~32000		-8000~8000	
	Unsigned value	-		0~1600	
	Precise value	4000~2000	0~2000	4000~2000	0~2000
	Percentile value	0~10000			
Max. resolution		0 / 64000			
		4~20mA:250.0㎂, 0~20mA:312.5㎂		4~20mA:1.00㎂, 0~20mA:1.25㎂	
Accuracy		±0.10% or less (when ambient temperature is 25℃ ±5℃)		±0.10% or less (when ambient temperature is 25℃ ±5 ℃)	
		±0.25% or less (when ambient temperature is 0℃~55 ℃)		±0.3% or less (when ambient temperature is 0 ℃~55 ℃)	
Conversion speed		10ms/4channels			
Absolute Max. input/output		±3mA		DC 24mA	
Analog input points		4 channels / 1module			
Isolation specification		Photo-coupler isolation between input terminal and PLC power (no isolation between channels)			
Terminal connected		18-point terminal			
I/O points occupied		Fixed type: 64 points, Non fixed type : 16 points			
HART communication method		Mono drop only Primary master only			
Internal-consumed current		DC5V:340㎃		DC5V:200㎃, DC24V:220mA	
Weight (g)		145		150	

High-speed counter module

Features

- Parameter setting and monitoring using XG5000
- Incremental encoder available
- Supporting various pulse input (5V, 12V, 24V)
- Various multiplication (1/2 phase pulse input)
- External present input
- Providing function to prevent from counting external signal
- Supporting HTL-level incremental encoder in the line-drive input type

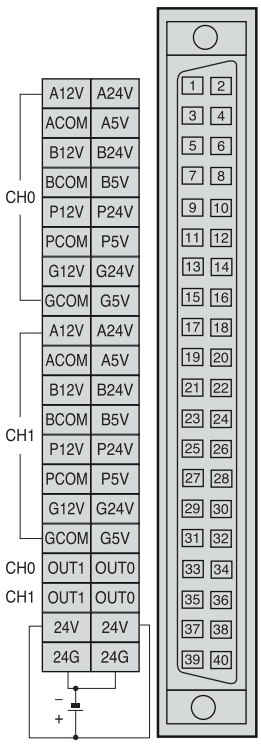
Specifications

Item			XGF-HO2A			XGF-HD2A
No. of command	Signal		A Phase, B Phase			
	Input type		Voltage input (Open Collector)			Differential input (Line Driver)
	Signal level		DC 5/12/24V			RS-422 Line Drive/HTL LEVEL Line Drive
	Input voltage		24V DC (17.0V ~ 26.4V)	12V DC (9.8V ~ 13.2V)	5V DC (4.5V ~ 5.5V)	Line Driver
	Input current		7~11mA	7~11mA	7~11mA	RS-422 Line Drive HTL Level Line Drive
	Min. On guaranteed voltage		17.0V	9.8V	4.5V	
	Max. Off guaranteed voltage		4.5V	3.0V	1.7V	
	Counter enable		Set by program (Count only in ' Enable')			
Max. counting speed			200Kpps			500Kpps (HTL input: 250Kpps)
No. of channels			2 channels			
Counting range			Signed 32 Bit (-2,147,483,647 ~ 2,147,483,647)			
Counting type (Program setting)			Linear count (Generating Carry/Borrow when exceeding counting range, Max/Min value)			
Input mode (Program setting)			1 Phase input			
			2 Phase input			
			CW/CCW input			
Signal type			Voltage			
Up/Down counter setting	1-phase input		Program or B-phase			
	2-phase input		Phase difference			
	CW/CCW		A-phase input: Up count B-phase input: Down count			
Multiplication	1-phase input		1/2 multiplication (Programming)			
	2-phase input		1/2/4 multiplication (Programming)			
	CW/CCW		1 multiplication			
Control input	Signal		Preset signal, Signal to admit additional signal (Setting by terminal block or programming)			
	Signal level		DC 5V/12V/24V input type (Selecting terminal)			
	Signal type		Voltage			
External output	No. of output point		2 points/channel: Terminal output available			
	Type		Single comparison (>,>=,=,=<,<) or section comparison			
	Output type		Open Collector (Sink)			
Operating status display	Input signal		A-phase, B-phase, Preset signal, Signal to admit additional signal			
	Output signal		OUT1, OUT2			
	Operation status		Module Ready, Pulse input status of A, B phase			
Addition functions (Program setting)			• Count clear, Count latch • Pulse frequency count (Each input channel) • Section count (Set time value:1~60000ms) • Measuring counting number per a unit time (Set time value:1~60000ms) • Preventing from counting (Setting by internal/external input during counting)			
No. of occupied			Fixed type (Setting in basic parameter): 64 points			
I/O points			Variable type (Dissolving in basic parameter): 16 points			
Terminal block			40-pin connector			
Current consumption			270			330
Weight (Kg)			0.09			

SPECIAL

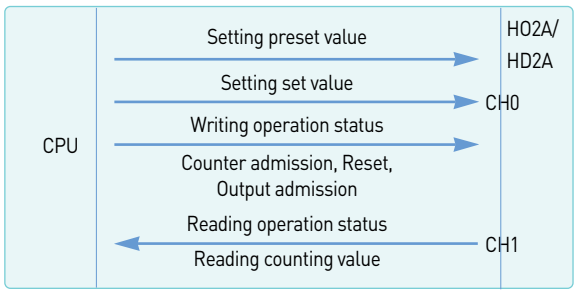
Terminal block configuration

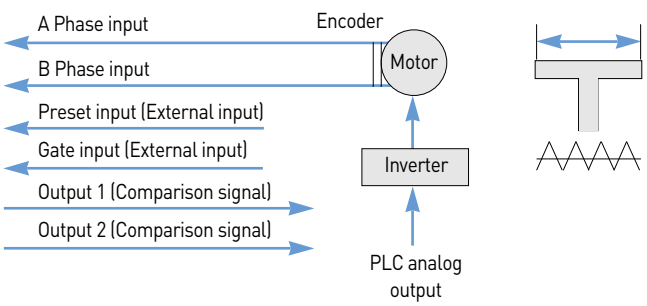
XGF-H02A



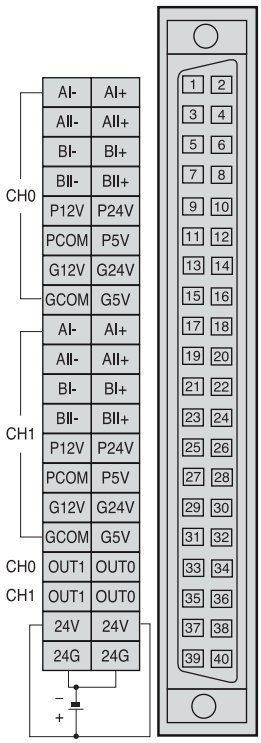
Pin number		Signal name	
CH0	CH1		
1	17	A12V	A phase DC12V input
2	18	A24V	A phase DC24V input
3	19	A_C	A phase COM
4	20	A5V	A phase DC5V input
5	21	B12V	B phase DC12V input
6	22	B24V	B phase DC24V input
7	23	B_C	B phase COM
8	24	B5V	B phase DC5V input
9	25	P12V	Preset DC12V input
10	26	P24V	Preset DC24V input
11	27	P_C	Preset COM
12	28	P5V	Preset DC5V input
13	29	G12V	Gate DC12V input
14	30	G24V	Gate DC24V input
15	31	G_C	Gate COM
16	32	G5V	Gate DC5V input
33	35	OUT1	Comparison output OUT1
34	36	OUT0	Comparison output OUT0
37	38	24V	External power supply
39	40	24G	DC24V

Configuration

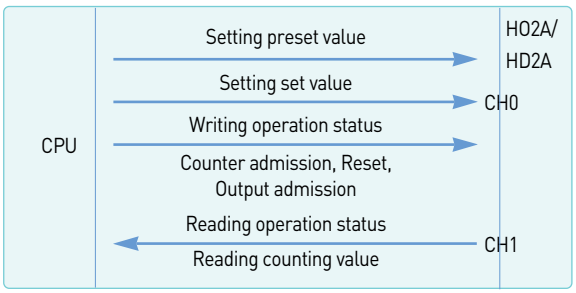


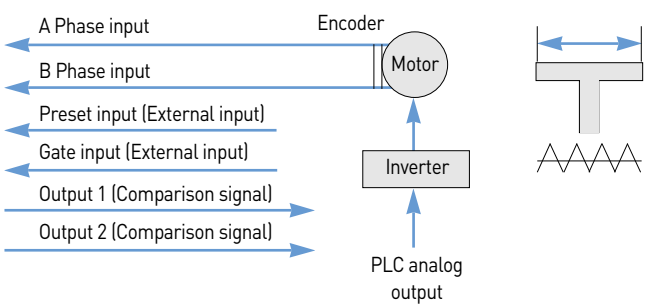


XGF-HD2A

Pin layout	Pin number		Signal name	
	CH0	CH1		
	1	17	AI-	AI-Input (LINEDRIVETTL LEVEL Input)
	2	18	AI+	AI+Input (LINEDRIVETTL LEVEL Input)
	3	19	AII-	AII-Input (LINE DRIVEHTL LEVEL Input)
	4	20	AII+	AII+Input (LINEDRIVEHTL LEVEL Input)
	5	21	BI-	BI- Input (LINEDRIVETTL LEVEL Input)
	6	22	BI+	BI+Input (LINE DRIVETTL LEVEL Input)
	7	23	BII-	BII-Input (LINEDRIVEHTL LEVEL Input)
	8	24	BII+	BII+Input (LINEDRIVEHTL LEVEL Input)
	9	25	P12V	Preset DC12V input
	10	26	P24V	Preset DC24V input
	11	27	P_C	Preset COM
	12	28	P5V	Preset DC5V input
	13	29	G12V	Gate DC12V input
	14	30	G24V	Gate DC24V input
	15	31	G_C	Gate COM
	16	32	G5V	Gate DC5V input
	33	35	OUT1	Comparison output OUT1
	34	36	OUT0	Comparison output OUT0
	37	38	24V	External power supply
	39	40	24G	DC24V

Configuration





SPECIAL

XGT 8-Channel high peed counter module

Features

- Multiple high-speed counter input support(8ch, 80-pin connector)
- Only improve performance and safety caused by the use of FPGA enhanced
- Program controlled by the preset function
- Per 1 channel output 1 point(Program setting)
- Input filter can be set (100kpps, 10kpps, 1kpps, 0.1kpps)
- The output signal through the operation status display

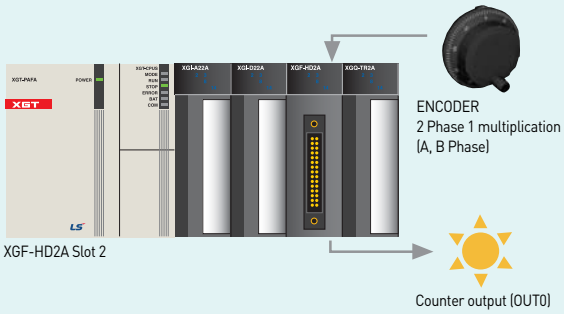
Specifications

Item		XGF-H08A
No. of Channels		8 channels
Phase		1-phase input, 2-phase input
Signal level		5V DC (7 to 11mA), 24V DC (7 to 11mA)
Input type		1/2/4 multiplication, CW/CCW
Max. counting speed		200 kpps
Input filter		None, 100kpps, 10kpps, 1kpps, 0.1kpps
Counting range		Signed 32bit (-2147483648 ~ 2147483647)
Counting type		Linear counter, Ring counter
Up/Down Counter setting	1-phase input	B-phase : Up/Down count
	2-phase input	Phase difference
	CW/CCW	A-phase : Up count, B-phase : Down count
Multiplica-tion	1-phase input	1/2 multiplication(Programming)
	2-phase input	1/2/4 multiplication(Programming)
	CW/CCW	1 multiplication
External output	Comparison detection	Single comparison(→,→=,=,=←,←) or Section comparison
	Output points	1 point/channels : Internal or External output (programming)
	type	Open collector output(Sink)
Operating status display	Input signal	A-phase, B-phase
	Output signal	OUT
	Operating condition	Module ready
Addition functions(Program setting)		Counter clear, Count latch
		Section count(Set time value : 1 ~ 60000ms)
		Pulse frequency(Each input channel)
		Measuring counting number per a unit time (Set time value : 1 ~ 60000ms)
		Preventing from counting
Power		DC5V (600mA)
Terminal block		80-pin connector

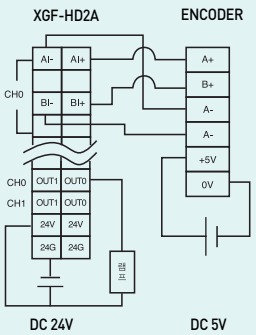
High-speed counter module (Example)

This is a simple example of high-speed counter module setting.
For more details, refer to user's manual.

System Configuration



Wiring



* This is wiring diagram of line driver. For open collector or other control, refer to user's manual.

SPECIAL

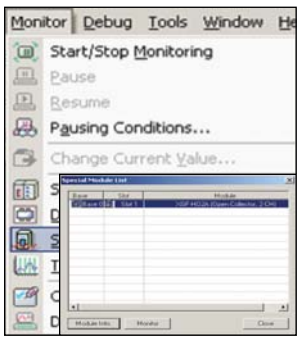
XGT High-speed counter module (Example)

Control configuration

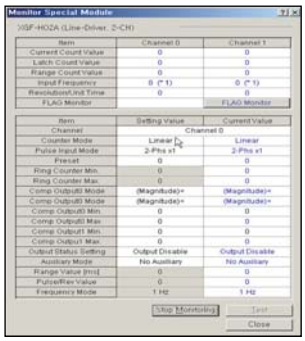
- Light a lamp of output when present value reaches 1000 of pulse input counted by encoder.
- Current value of pulse is saved in D100~D101 and is monitored.

Module test (Online)

- Module test function of XGT enables to monitor operation status of high-speed counter module and to test-run.

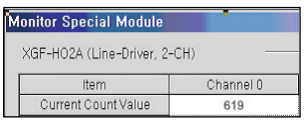


Select [Monitor] →[Special Module Monitoring] in menu and appoint high-speed counter.



After pressing the button for [Start Monitoring], press the button [FLAG monitor].

Change [Counter Enable] status to ON.



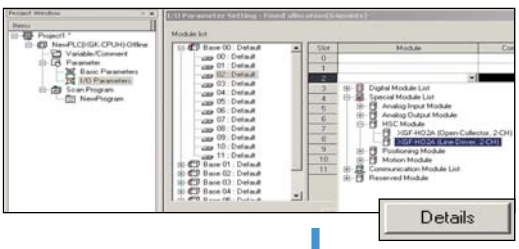
Check current counting value in 'Monitor Special Module' screen box.

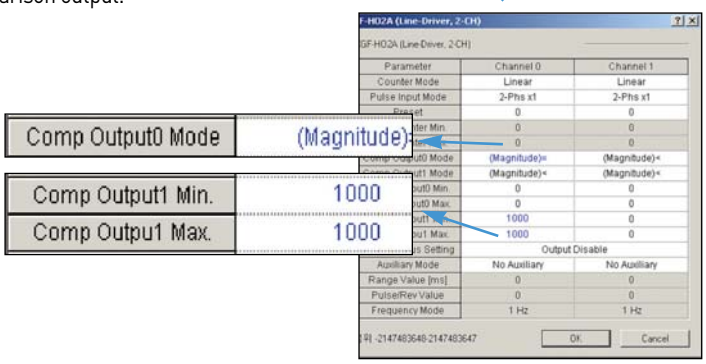
Parameter setting

- In I/O parameter setting box, select slot and analog module that you want to use. (This example shows to select 2-channel line driver.)

Press the 〈Details〉 button at lower end of parameter setting box after selecting the module.

Input 1000 as Max. and Min. comparison output.





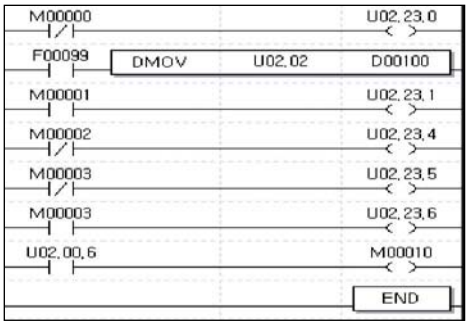
programming

- After completing programming like following figure, download it to PLC and check operation status.

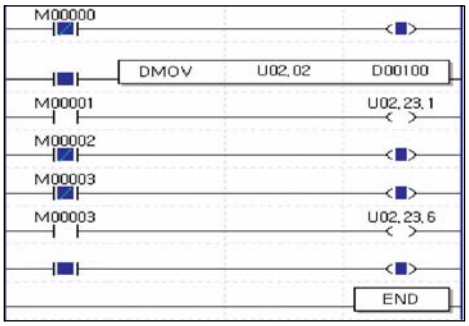
Special devices for programming

Refer to user's manual for more details.
U02.23.0: Count operation admission
U02.23.1: Count preset
U02.23.4: Consistent output admission
U02.23.5: Output external terminal admission
U02.23.6: OUT0 consistent signal reset
U02.00.6: Contact for checking external output
(Practically effective output is outputted through OUT0 terminal)
U02.02~U02.03: Counter present value

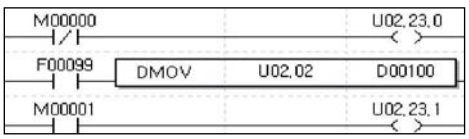
Uxy.aa.bb
x: Base number
y: Slot number
aa,bb: Refer to user's manual



After downloading, monitor operation status.



For monitoring just present value, follow the example.



SPECIAL

XGT Positioning module(XPM)

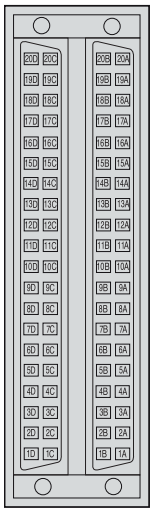
Features

- Max 4Axis, Max pulse output 4Mpps
- Circular/linear/ellipse/helical interpolation
- Asymmetric acceleration and deceleration driving
- FRAM parameter
- XG5000 monitoring, simulation, trace
- CAM profile program

Specifications

Item			XGF-PO1H XGF-PD1H	XGF-PO2H XGF-PD2H	XGF-PO3H XGF-PD3H	XGF-PO4H XGF-PD4H
Number of axis			1 axis	2 axis	3 axis	4 axis
Interpolation			-	Circular, linear, ellipse	Circular, linear, helical, ellipse	
Control method			Position control, speed control, speed/position control, position/speed control, FEED			
Positioning data			Each axis has 400 data items (Operation step number 1~400). It is available to set with XG5000 or programming.			
Configuration Tool			XG5000 (Connected with USB or RS-232C Port of CPU module)			
Data backup			FRAM (Parameter, Operation data), Flash memory (CAM Data), No battery			
Pulse output			XGF-POxH: Open collector, XGF-PDxH: line driver			
Positioning	Positioning method		Absolute / Incremental			
	Position address range	mm	-214,748,364.8~ 214,748,364.7(㎛)			
		inch	-21,474.83648 ~21,474.83647			
		degree	-21,474.83648 ~21,474.83647			
		pulse	-2,147,483,648 ~2,147,483,647			
	Position address speed	mm	0.01 ~20,000,000.00(㎜/min)			
		inch	0.001 ~2,000,000.000(inch/min)			
		degree	0.001 ~2,000,000.000(degree/min)			
		pulse	1 ~ 500,000(pulse/sec): Open collector, 1 ~ 4,000,000(pulse/sec): line driver			
		RPM	0.1 ~ 100,000.0 (RPM)			
	Accel/Decel pattern		Trapezoidal & S-curve acceleration/deceleration			
	Accel/Decel time		0~2,147,483,647ms			
Max. output pulse			Open collector: 500kpps, line driver: 4Mpps			
Max. distance			Open collector: 5m, line driver: 10m			
Max. encoder input			500kpps			
Error display			LED			
Size of cable			AWG #24			
Occupied points of I/O			64 points (Fixed type), 16 points (Variable type)			
Connection connector			40Pin		80Pin	
Current consumption (mA)			XGF-PO1H:400mA	XGF-PO2H:410mA	XGF-PO3H:420mA	XGF-PO4H:430mA
			XGF-PD1H:520mA	XGF-PD2H:600mA	XGF-PD3H:850mA	XGF-PD4H:890mA
Weight (kg)			120		130	

Terminal block configuration

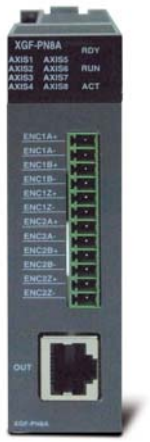


Pin number				Signal name		Remarks
AX1	AX2	AX3	AX4			
20A				MPG A +	Manual pulse generntor / Encoder A+ input	
20B				MPG A-	Manual pulse generntor / Encoder A- input	
19A				MPG B +	Manual pulse generntor / Encoder B+ input	
19B				MPG B-	Manual pulse generntor / Encoder B- input	
20C, 19C, 20D, 19D				NC	Not used	
18A	18B	18C	18D	FP +	Foward pulse (+)	
17A	17B	17C	17D	FP -	Foward COM (-)	
16A	16B	16C	16D	RP +	Backward pulse (+)	
15A	15B	15C	15D	RP -	Backward COM (-)	
14A	14B	14C	14D	OV +	Max. signal	
13A	13B	13C	13D	OV -	Min. signal	
12A	12B	12C	12D	DOG	Appoximate orgin signal	
11A	11B	11C	11D	EMG	Emergency stop	
				STOP	External stop signal	
10A	10B	10C	10D	VTP	Speed / Position switching signal	
9A	9B	9C	9D	COM	Common (0V+,0V-,DOG,EMG,STOP,VTP)	
8A	8B	8C	8D	DR	Drive ready signal	
7A	7B	7C	7D	INP	In-position	
6A	6B	6C	6D	DR/INP COM	Drive ready / In-position Common	
5A	5B	5C	5D	CLR	Deviation counter clear signal	
4A	4B	4C	4D	CLR COM	Deviation counter clear signal Common	
3A	3B	3C	3D	HOME +5V	Zero signal (+5V)	
2A	2B	2C	2D	HOME COM	Zero signal (+5V) Common	
1A, 1C				+24V	+24V	
1B, 1D				+24V COM	+24V GND	

* Open collector type module : +24V (1A/1C: 24V, 1B/1D: 0V)

XGT Positioning module(Network Type)

Features



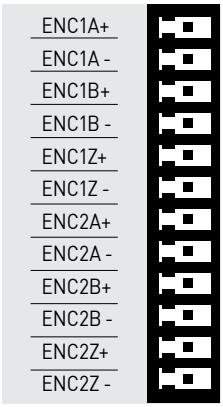
- XGF-PN8A : Dedicated LS ELECTRICEtherCAT Network Support (XGT Servo N series)
- XGF-PN4B/8B/16B : Standard EtherCAT Network Support(Standard EtherCAT Servo)
- Direct connect with servo driver Max 16
- 2~8 axis linear interpolation, 2axis circular interpolation, 3axis helical interpolation
- Position, speed, feed control is possible through the various operation
- Parameters, the operation data stored in the FRAM(without Battery)
- CAM for controlling up to eight different types of CAM data

Specifications

Item		XGF-PN8A	XGF-PN4B	XGF-PN8B	XGF-PN16B
Number of axis		8 axis	4 axis	8 axis	16 axis
Interpolation		2~8 axis linear, 2axis circular, 3axis helical interpolation			
Control method		Position, speed, Speed/position, position/speed position/torque, Feed control			
Setting unit		pulse, mm, inch, degree			
Positioning data		Each axis has 400 data items (Operation step number 1~400). It is available to set with software package or programming.			
XG5000	Port	RS-232C, USB			
	Data	Basic, expansion, manual, servo parameter, operation data, cam data, command information			
	Monitor	Operation, trace, input sort, error information			
Back-up		FRAM(parameter, operation data) no battery			
Positioning	Positoning method	Absolute/Incremental			
	Position address range		Absolute	Incremental	Speed/position, position/speed conversion control
		mm	-214748364.8 ~ 214748364.7(㎛)	-214748364.8 ~ 214748364.7(㎛)	-214748364.8 ~ 214748364.7(㎛)
		inch	-21474.83648 ~ 21474.83647	-21474.83648 ~ 21474.83647	-21474.83648 ~ 21474.83647
		degree	-21474.83648 ~ 21474.83647	-21474.83648 ~ 21474.83647	-21474.83648 ~ 21474.83647
		pulse	-2147483648 ~ 2147483647	-2147483648 ~ 2147483647	-2147483648 ~ 2147483647
	Position speed range	mm	0.01 ~ 20000000.00(mm/Min)		
		inch	0.001 ~ 2000000.000(inch/Min)		
		degree	0.001 ~ 2000000.000(degree/Min)		
		pulse	1 ~ 20.000.000(pulse/Sec)		
		RPM	0.1 ~ 100000.0(RPM)		
	Accel/Decel pattern	Trapezoidal & S-curve acceleration/deceleration			
	Accel/Decel time	1~2.147.483.647 ms			
Manual		Jog/ MPG/ inching			
Homing method		[XGF-PN8A] Upper limit+Z phase(CW), lower limit+Z phase(CCW), DOG+Z phase(CW), DOG+Z phase(CCW), upper limit+DGO+Z phase(CW), upper limit+DGO+Z phase(CCW), Z phase(CW), Z phase(CCW), DGO(CW), DGO(CCW) [XGF-PN4B/PN8B/PN16B] Refer to the method supported by the servo driver			
The ability to Change speed		Absolute/Percent			
Torque		Rated torque %			
Absolute position System		0 (Absolute encoder type servo)			
Encoder input	Channel	2 Channel			
	Max. Input	Max. 200 Kpps			
	Input method	line-drive input(RS-422A IEC), open collector output type			
	Type	CW/CCW, Pulse/Dir, Phase A/B			
	Connector	12 Pin connector			
Communication Cycle		800 ㎲	1 ms		
Max. distance		100 m			
Cable		STP(Shielded Twisted pair) cable			
Error display		LED			
Operation display		LED			
Occupied points of I/O		64points (Fixed type), 16points (Variable type)			
Current consumption (mA)		500 ㎃			
Weight(kg)		115 g			

Terminal block configuration

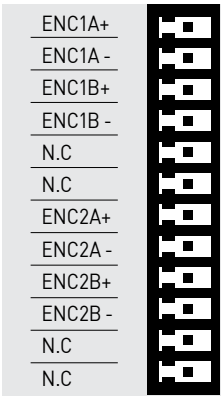
Pin arrangement



XGF-PN8B/XGF-PN4B/XGF-PN8A

Pin No.	Signal name		Signal direction
1	ENC1A+	Encoder 1 A+ input	c
2	ENC1A -	Encoder 1 A- input	
3	ENC1B+	Encoder 1 B+ input	
4	ENC1B -	Encoder 1 B- input	
5	ENC1Z+	Encoder 1 Z+ input	
6	ENC1Z -	Encoder 1 Z- input	
7	ENC2A+	Encoder 2 A+ input	
8	ENC2A -	Encoder 2 A- input	
9	ENC2B+	Encoder 2 B+ input	
10	ENC2B -	Encoder 2 B- input	
11	ENC2Z+	Encoder 2 Z+ input	
12	ENC2Z -	Encoder 2 Z- input	

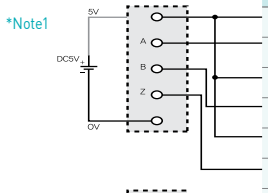
Pin arrangement

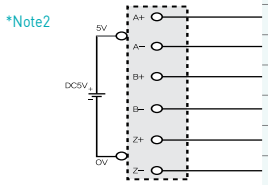


XGF-PN16B

Pin No.	Signal name		Signal direction
1	ENC1A+	Encoder 1 A+ input	Input
2	ENC1A -	Encoder 1 A- input	
3	ENC1B+	Encoder 1 B+ input	
4	ENC1B -	Encoder 1 B- input	
5	N.C	N.C	
6	N.C	N.C	
7	ENC2A+	Encoder 2 A+ input	
8	ENC2A -	Encoder 2 A- input	
9	ENC2B+	Encoder 2 B+ input	
10	ENC2B -	Encoder 2 B- input	
11	N.C	N.C	
12	N.C	N.C	

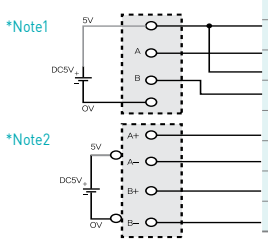
External encoder wiring





XGF-PN8B/XGF-PN4B/XGF-PN8A

Pin No.	Signal	
1	ENC1A+	Encoder 1A+ input
2	ENC1A -	Encoder 1 A- input
3	ENC1B+	Encoder 1 B+ input
4	ENC1B -	Encoder 1 B- input
5	ENC1Z+	Encoder 1 Z+ input
6	ENC1Z -	Encoder 1 Z- input
7	ENC2A+	Encoder 2 A+ input
8	ENC2A -	Encoder 2 A- input
9	ENC2B+	Encoder 2 B+ input
10	ENC2B -	Encoder 2 B- input
11	ENC2Z+	Encoder 2 Z+ input
12	ENC2Z -	Encoder 2 Z- input



XGF-PN16B

Pin No.	Signal	
1	ENC1A+	Encoder 1A+ input
2	ENC1A-	Encoder 1 A- input
3	ENC1B+	Encoder 1 B+ input
4	ENC1B-	Encoder 1 B- input
7	ENC2A+	Encoder 2 A+ input
8	ENC2A-	Encoder 2 A- input
9	ENC2B+	Encoder 2 B+ input
10	ENC2B-	Encoder 2 B- input

*Note1 Wiring of encoder 1 is example about 5V voltage output type (open collector). When using 12V, 24V type MPG, change the input voltage from 5V to 12V or 24V and in case of 12V, connect 910Ω resistor to ENC1 A+(pin 1), ENC1 B+ (pin3), in case of 24V, 2.4kΩ resistor, before connecting the power source (adding PULL-UP resistor is needed)

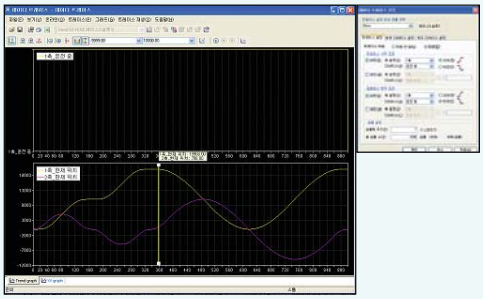
*Note2 Wiring of encoder 2 is example about 5V voltage output type (line driver)

XGT XG5000

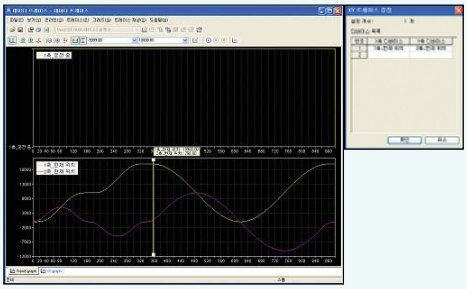
Features

- Configuration tool with updated APM software package
- All models can be used for XGT Positioning module (APM, XPM)
- Simultaneous communications can be accessed with XG5000
- Powerful simulation, trace, monitoring

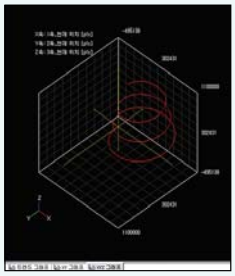
System View



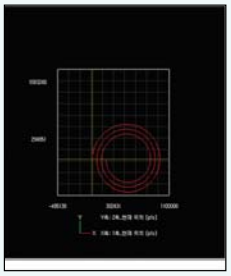
Data trace (trend graph)



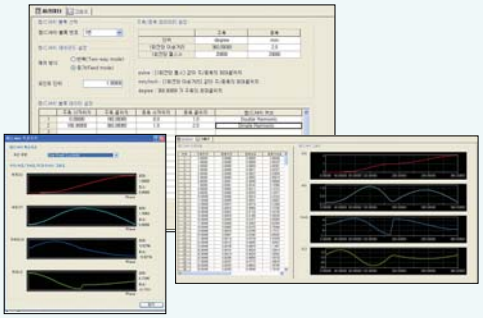
Data trace (XY graph)



XYZ trend
(3D View)



XYZ monitor
(2D View)



CAM control profile

Simulation

Motion Module[EtherCAT]

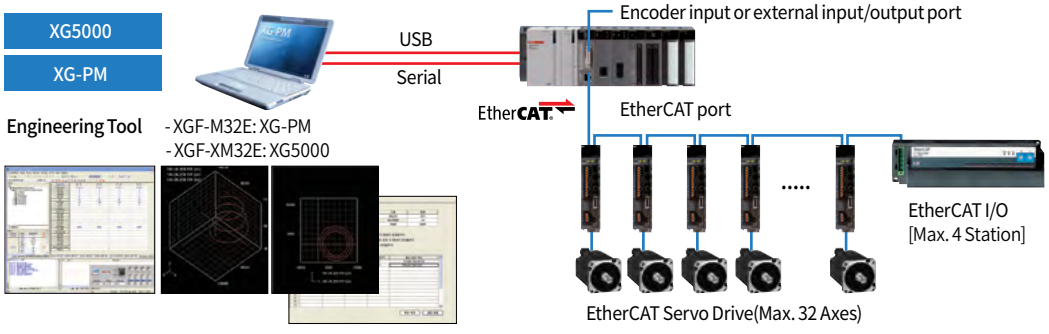
Features

- Supports Standard Network
  - Servo Drive control through EtherCAT CoE protocol
  - EtherCAT I/O connectivity
  - Comm. Speed: 100Mbps, Distance: Max. 100M
- Various Motion Functions
  - Max. 36 Axes(including virtual axes) with synchronous and cam block settings
- XGF-M32E
  - 32 Real-axes, 4 Virtual-axes, 4 EtherCAT I/O stations supported
  - Programming Language: LD(FB), ST
  - Engineering Tool: XG-PM
- XGF-XM32E
  - 32 Real-axes, 4 Virtual-axes, 32 EtherCAT I/O stations supported
  - Programming Language: LD(FB), ST, G Code
  - Engineering Tool: XG5000
  - Moving Magnet Solution Supported
  - Backup/Restore using SD Card

Specifications

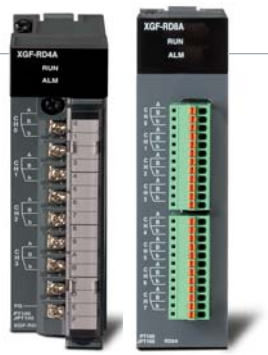
ITEM		XGF-M32E	XGF-XM32E
Communication		EtherCAT CoE	EtherCAT CoE (MDP)
Num. of Axes	Real	32 Axes	32 Axes
	Virtual	4 Axes	4 Axes
	Slave	4 Slave	32 Slave
	I/O	8 Points each	-
Control Unit		Pulse, mm, inch, degree	pulse, mm, inch, degree
Motion Program	No. of program	Max. 256	Max. 256
	Capacity	2MB	5MB(Motion), 5MB(NC)
	Language	LD(FB), ST	LD(FB), ST, G Code
Control Method		Position, Velocity, Torque, Synchronous, Interpolation Control	Position, Velocity, Torque, Synchronous, Interpolation Control
Range of Position/Velocity		±LREAL, 0	±LREAL, 0
Acc. Dec. Process		Trapezoid type, S-type	Trapezoid type, S-type
Acc. Dec. Time		1~2,147,483,647ms	1~2,147,483,647ms
Manual Operation		JOG Operation	JOG operation
Torque Unit		Rated torque % designation	Rated torque % designation
Encoder Input	Channel	2 CH	-
	Max. Input	500Kpps	
	Input Method	Line Drive / Open Collector	
	Input Type	CW/CCW, Pulse/Dir, Phase A/B	
Cam Operation		Time/Position Synchronous Cam	Time/Position Synchronous Cam
Coordinate System Function		Rectangular coordinates	Cartesian, Delta
Communication Period		1ms/2ms/4ms	1~20ms
Comm. Physical Layer/Distance		100BASE-TX/100m	100BASE-TX/100m
Consumable Current(mA)/Weight (g)		900/122	700/80
External Memory		Not Supported	Supported(Micro SDHC, SDXC)
Engineering Tool		XG-PM	XG5000

System Configuration



SPECIAL

XGT RTD input module



Features

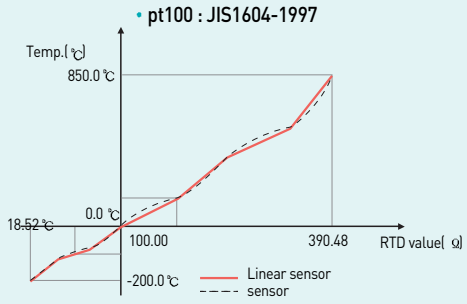
- Supports various additional functions (average, alarm, filter)
- Special module parameter setting and monitoring with XG5000
- Supports digital conversion, temperature display and user scaling
- Support Offset/Gain function(only RD8A)

Specifications

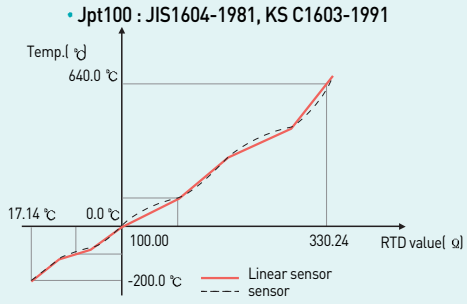
Item			XGF-RD4A	XGF-RD4S	XGF-RD8A
No. of input channel			4 channels	4 channels	8 channels
Input sensor type		Pt100	JIS C1604-1997	JIS C1604-1997	JIS C1604-1997
		JPt100	JIS C1604-1981, KS C1603-1991	JIS C1604-1981, KS C1603-1991	JIS C1604-1981, KS C1603-1991
		PT1000	-	JIS C1604-1997	-
		NI100	-	DIN 43760-1987	-
Temperature input range		Pt100	-200.0 ~ 850.0℃	-200.0 ~ 850.0℃	-200.0 ~ 850.0℃
		JPt100	-200.0 ~ 640.0℃	-200.0 ~ 640.0℃	-200.0 ~ 640.0℃
		PT1000	-	-200.0 ~ 850.0℃	-
		NI100	-	-60.0 ~ 180.0℃	-
Digital output	Temperature display (unit: 0.1)	Pt100	-2,000 ~ 8,500	-2,000 ~ 8,500	-2,000 ~ 8,500
		JPt100	-2,000 ~ 6,400	-2,000 ~ 6,400	-2,000 ~ 6,400
		PT1000	-	-2,000 ~ 8,500	-
		NI100	-	-2,000 ~ 1,800	-
	Scaling display (Customize)		0 ~ 65535		
			-32768 ~ 32767		
Accuracy	Normal temp.(25° C)		±0.2%	±0.1%	±0.2%
	Full temp.(0~55° C)		±0.3%	±70ppm/ ℃	±0.3%
Conversion speed			40ms / channel		
Insulation	Channel to Channel		Non-insulation	Insulation	Non-insulation
	Terminal to PLC Power		Photo-coupler		
Wiring method			3-wire	4-wire	3-wire
Function	Average		Time average (320~64000ms)		
			Counting average(2~64000 count)		
			Moving average(2~100 samples)		
	Alarm		Process alarm		
			Input changing rate alarm		
			Disconnection detection		
	Offset / Gain		-		0
	Filtering		Digital filter (160~64000ms)		
Terminal block			18-point terminal block		
Current consumption			5V: 450mA	5V: 780mA	5V: 780mA
Weight [g]			150g		

Characteristics of temperature conversion

• pt100 : JIS1604-1997

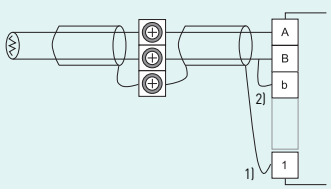


• Jpt100 : JIS1604-1981, KS C1603-1991

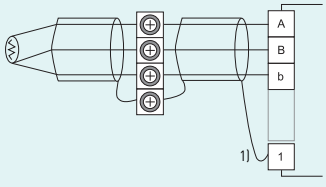


Wiring

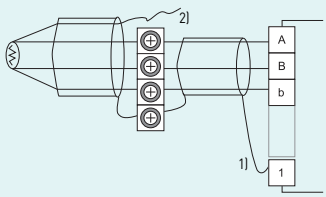
• Connection with 2-Wire type sensor



• Connection with 3-Wire type sensor



• Connection with 4-Wire type sensor



1) When sensor and compensating wire are shielded, shield-connection to FG terminal of the module is available.
2) The wiring of 4-wire type sensor is identical with the wiring of 3-wire type sensor. 3 wires is connected to the module.
But the other wire is not connected with the module.

Thermocouple module

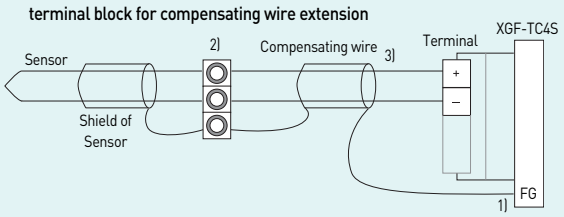
Features

- Insulation between channels
- ±0.1% (25 ℃) constant density
- Supports various input sensor (supporting C-type sensor)
- Various additional functions (average, filter, alarm, max/min value display)
- Special module parameter setting and monitoring with XG5000

Specifications

Item	XGF-TC4S	
Input channels	4 channels	
Input sensor type	K, J, E, T, B, R, S, N, C	JIS C1602-1995ITS-90
Input temperature range	K	-250 ~ 1350 ℃
	J	-200 ~ 1200 ℃
	E	-250 ~ 1000 ℃
	T	-250 ~ 400 ℃
	B	400 ~ 1800 ℃
	R	-50 ~ 1750 ℃
	S	-50 ~ 1750 ℃
	N	-270 ~1300 ℃
	C	0 ~ 2300 ℃
Digital output	Temperature display (unit: 0.1)	Display down to the first decimal place (0.1 ℃)
	Scaling (User range setting)	0 ~ 65535
		-32768 ~ 32767
Accuracy	Normal temp. (25 ℃)	±0.1%
		Some section can permit 0.5%
	Temperature coefficient (Operating temp. range)	±100ppm ℃
Conversion speed	40ms/ channel	
Insulation	Between channels Insulation	
	Between terminals and power	Insulation(Photo-Coupler)
Compensation	Automatic compensation by RJC sensing (PT100)	
	Compensation degree	±1.0%
Function	Average	Average time (320 ~ 6400ms)
		Average number (2~ 64000)
		Average move (2 ~100)
	Alarm	Process Alarm
		Change rate alarm
		Burn-out detection
	Filter	Digital filter (160 ~ 64000ms)
	Max./Min. values display	Max./Min. values display
Terminal block	18-point terminal block	
Current consumption	5V : 610mA	
Weight (kg)	0.150	

Input wiring

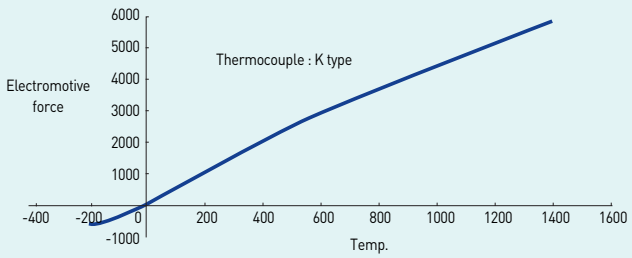


1) When sensor and compensating wire are shielded, shield connection to FG terminal is available.

2) To minimize an error, overall temperature of block terminal need to be equal.

3) Compensating sensor should be the same type of sensor which is used for measurement.

Characteristics of I/O conversion



SPECIAL

XGT Temperature controller

Features

XGF-TC4UD

- Optimum temperature control
- Universal input: TC, RTD, Voltage, Current
- Isolated input
- Output: Current/Transistor
- Parameter setting via dedicated software: TG-CON
- Variety of control types
  - PID control
  - Cascade control
  - On/ Off control
- Disconnection detection
- Various input functions: Bias, Filter, Square root
- Auto-tuning

XGF-TC4RT

- Input RTD : Pt100, JPt100, Pt1000
- Control Type : PID, On / Off Control

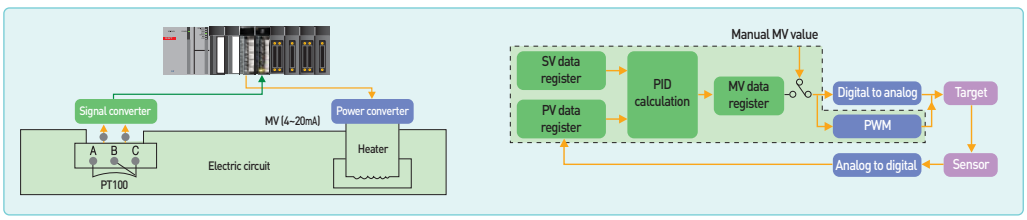
Specifications

Item		XGF-TC4UD		XGF-TC4RT
No. of loop		4 loops		4 loops
Input	Thermo couple	K	-200 ~ 1300 °C	–
			0 ~ 500 °C	
		J	-200 ~ 1200 °C	
			0 ~ 500 °C	
		E	-200 ~ 1000 °C	
		T	-200 ~ 400 °C	
		B	400 ~ 1800 °C	
		R	0 ~ 1700 °C	
		S	0 ~ 1700 °C	
		N	-200 ~ 1300 °C	
		C(W5Re/W26Re)	0 ~ 2300 °C	
		PL II	0 ~ 1300 °C	
		L	-200 ~ 900 °C	
		U	-200 ~ 600 °C	
	RTD	Pt100	-200 ~ 850 °C	-200 ~ 850 °C
		JPt100	-200 ~ 600 °C	-200 ~ 600 °C
		Pt1000	-200 ~ 800 °C	-200 ~ 800 °C
	Voltage	DC mV	0 ~ 10mV	–
			0 ~ 100mV	
		DC V	0 ~ 1V	–
			1 ~ 5V	
			0 ~ 5V	–
			0 ~ 10V	
			-5V ~ 5V	
			10V ~ 10V	
	Current	DC mA	4 ~ 20mA	–
			0 ~ 20mA	
	Input channel	4 channels(Input type selection per channel)		–

Specifications

Item	XGF-TC4UD				XGF-TC4RT
Resolution	Resolution Refer to the user's manual (Resolution for each input type)				
Cold junction compensation	Compensation		Automatic compensation by RJC sensor		–
	Precision		±0.2 ℃		–
Digital output	Temperature display		0.1 ℃/1 ℃ (Selection by software)		0.1 ℃
	Linear display		0~1000		–
	Scale display		Only for voltage/current input Range : -3,000~3,000 Setting range: 0~3000		–
Conversion speed	200ms / module				400ms / 4loops
Control type	PID, On/Off control				
Parameter	Set value (SV)		Selection per input type		
	Gain		0 : ON/OFF control, Real type		Range : 0.000~10000.000
	Integrated time		0 : No Differential control, Real type		Range : 0.000~10000.000
	Differential time		0 : No Integrated control, Real type		Range : 0.000~10000.000
Output	No. of output channel		8 channels (PWM or analog output)		4 channels
	PWM	Rated load voltage	DC 24V		
		Max. current point	0.1A points		
		On voltage drop	DC 0.3V or less		
		Off leakage current	0.1mA or less		
		Response time ON ⇒OFF	1ms or less		
		Response time OFF ⇒ON	1ms or less		
		Periodic	0.5~120.0sec (resolution: 0.5sec)		0.5~100.0sec(resolution: 0.1s)
		Time resolution	High value between 10ms or 0.5% of full scale		
	Analog output	Range	4~20mA		–
		Resistance	600 Ω or less		
		Resolution	±1.0%, 25 ℃		
		Precision	8 ㎂		
Insulation	Item		Insulation	Insulation withstand voltage	Insulation resistance
	Channel - Channel		Trans	500V AC, 50/60Hz 1min, Leakage 10mA or less	500V DC, 10M Ω or more
	Input terminal - PLC		Photocoupler		
	Current output - Current output		Non insulation		
	External power- Output				
Warm-up	20min or more				–
Terminal	18 points terminal				
Power	5V, DC 24V (external)				
Current consumption	DC 5V : 900mA (Internal) DC 24V : 300mA (external)				DC 5V: 310mA DC 24V: 28mA

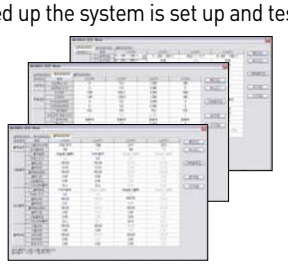
Example : Constant temperature



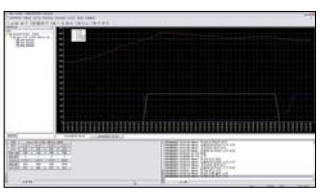
XG-TCON

- The configuration tool for the temperature control module
- Easy parameter settings, data monitoring and trend-monitor support
- Auto-tuning operation command to speed up the system is set up and test operation

Data Monitor



Parameter setting(input parameter)



Trend monitor

SPECIAL

XGT Event input module

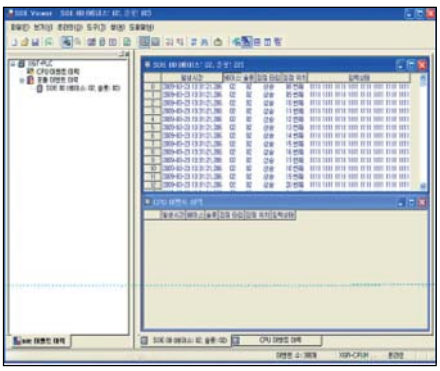
Features

- SOE: Sequence Of Events Recorder
- I/O information collection to analyze the control system in Generation and Transformer
- Event collection in every 1ms
- Max. 300ea data available
- Data retain by built-in memory
- Max. installable module: 16ea
- Event monitoring of history through SOE Viewer

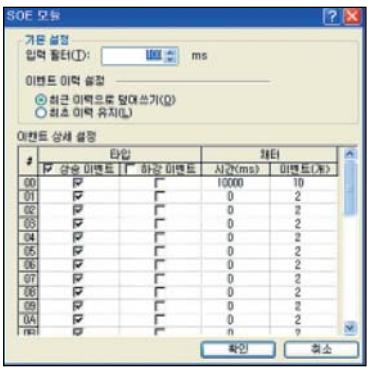
Specifications

Item		XGF-SOEA
No. of input point		32 points
Insulation method		Photo-Coupler Insulation
Memory size		1Mbit
The first event setting time		CPU RTC : 1 ms (±2ms : delay between modules) RS-422 IRIG-B :1 ms (±0.5ms : delay between modules)
Rated input voltage		DC24V
Rated input current		Approx. 4mA / points
Voltage range		DC20.4 ~ 28.8V(5% and lower ripple rate)
On voltage/On current		DC19V and higher / 3 mA and higher
Off voltage/ Off current		DC11V and lower/ 1.7 mA and lower
Input resistance		Approx. 5.6 kΩ
Response time (㎳)	Off →On	100us+Input filter time(User setting: 0~100ms)
	On →Off	150us+Input filter time(User setting: 0~100ms)
Clock Synchronization		CPU RTC or RS-422 by IRIG-B format
Withstand voltage		AC560V rms / 3 Cycle (altitude 2000m)
Insulation resistance		10MΩ and higher (DC500V)
COMM method		32point / COM
Current consumption		0.4 A (MAX)
Operation display		LED On with Input On
External connection method		40point connector
Size(mm)		27x98x90
Weight		0.2 kg

SOE Viewer



Monitoring window



Parameter setup

Datalog module

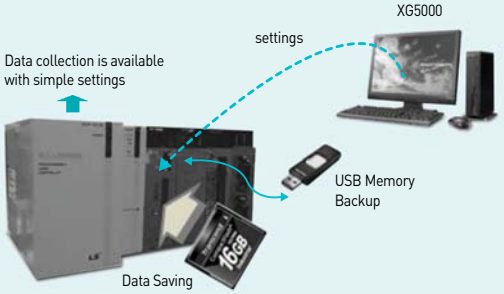
Features

- Capable to easily save PLC device data without PC
- Capable to save PLC control data without missing any change
  - Data can be saved whenever scanning is done or they can be saved at an interval of several ms(milliseconds).
- Capable to save a large volume of data file
  - Long-term data saving is available since CF card and USB memory with a large volume of up to 16GB can be used.

Specifications

Item		XGF-DL16A				
CF Card	Voltage of power supply	3.3V ± 5%				
	Card Type	CF200I(Transcend 's Industrial CF card)				
	Compatibility Capacity	1, 2, 4, 8, 16Gbyte				
	Number of mountable cards	1				
	Caution	Use only industrial CF cards manufactured by Transcend				
USB Memory	Voltage of power supply	5.0V ± 5%				
	Memory Type	USB 2.0 (Host function)				
	Compatibility Capacity	1, 2, 4, 8, 16Gbyte (Please use USB capacity above CF card capacity)				
	Saving Method	Auto Saving through PnP function (Activation of PnP auto duplication: when USB is mounted, when power is supplied again)				
	Number of mountable memories	1(Unavailable to support USB extension cables)				
Data Type	BOOL	0 or 1				
	BYTE	00 ~ FF				
	WORD	0000 ~ FFFF				
	DWORD	00000000 ~ FFFFFFFF				
	LWORD	00000000 00000000 ~ FFFFFFFF FFFFFFFF				
	SINT	-128 ~ 127				
	INT	-32, 768 ~ 32, 767				
	DINT	-2, 147, 483, 648 ~ 2, 147, 483, 647				
	LINT	-576, 460, 752, 303, 423, 488 ~ 576, 460, 752, 303, 423, 487				
	USINT	0 ~ 255				
	UINT	0 ~ 65,535				
	UDINT	0 ~ 4,294,967,295				
	ULINT	0 ~ 1,152,921,504,606,846,975				
	REAL	-3.402823466e+038 ~ -1.175494351e-038 or 0 or 1.175494351e-038 ~ 3.402823466e+038				
	LREAL	-1.7976931348623157e+308 ~ -2.2250738585072014e-308 or 0 or 2.2250738585072014e-308 ~ 1.7976931348623157e+308				
	STRING	Fixed letters (Maximum 8 letters)				
Data Saving	Number of Settings	Maximum 8				
	Number of Data	Maximum 32				
	Saving Kind	Saved by the ladder program				
	File Type	CSV file(Extension: csv)				
	Number of Saving Files	Total 800 (when using 16Gbyte CF memory)				
SavingSpeed	Processing Score(word)	4	16	64	256	1024
	Processing Speed(ms)	1	4	10	30	120
Time to Initialize CF card	Capacity(Gbyte)	1	2	4	8	16
	Time(s)	10	20	40	60	120
Collection Interval		1 ~ 9999999 ms (In consecutive saving)				
In/output Occupation Score		32 points 1 slot(Input 22 points, output 10 points)				
Clock		Synchronized at PLC CPU time whenever it is scanned				
DC5V Internal Consumption Current		0.53A				
External Size		98(H)[mm] x 27(W)[mm] x 90(D)[mm]				
Weight		0.13kg				

System Configuration



CSV File

	A	B	C	D
1	Time	Index	DWORD	WORD
2	2011/07/04/09:22:35.038	1807154	05701D3C	1D3C
3	2011/07/04/09:22:35.058	1807155	05701D3D	1D3D
4	2011/07/04/09:22:35.079	1807156	05701D3E	1D3E
5	2011/07/04/09:22:35.098	1807157	05701D3F	1D3F