MITSUBISHI ELECTRIC

Mitsubishi Programmable Controller

Changes for the Better

November 2007

New Product Release

No.301E

Q68TD-G-H01

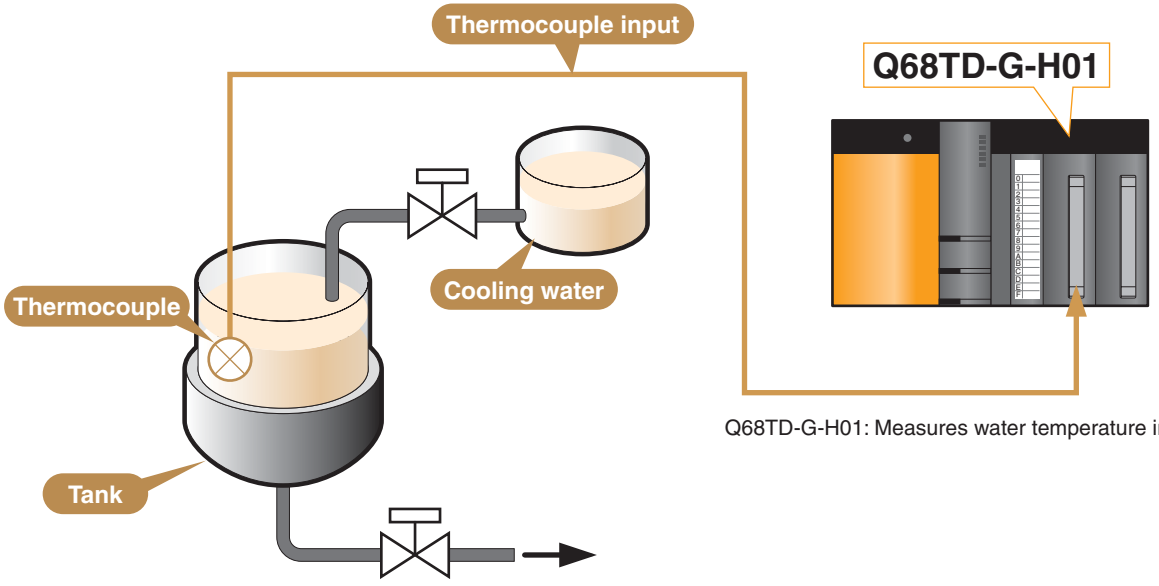
Channel Isolated Thermocouple Input Module

8-channel thermocouple input module now available!

Features

1. Reduces cost and space requirements
2. Enhanced functionality
3. Ideal solution for process control

(E.g.) Water temperature control in the tank



Q68TD-G-H01: Measures water temperature in the tank.

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001(standards for quality assurance management systems)

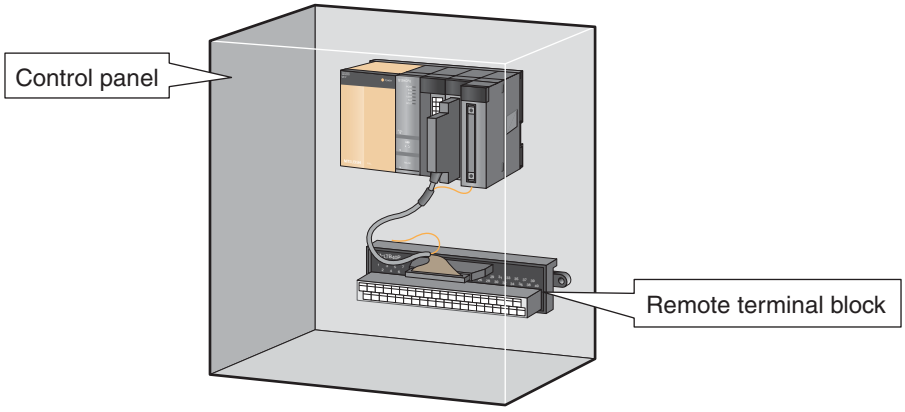
ISO 14001 JACO EC97J1113 UKAS ENVIRONMENTAL MANAGEMENT 051

ISO 9001 BUREAU VERITAS Certification UKAS QUALITY MANAGEMENT 008

Features

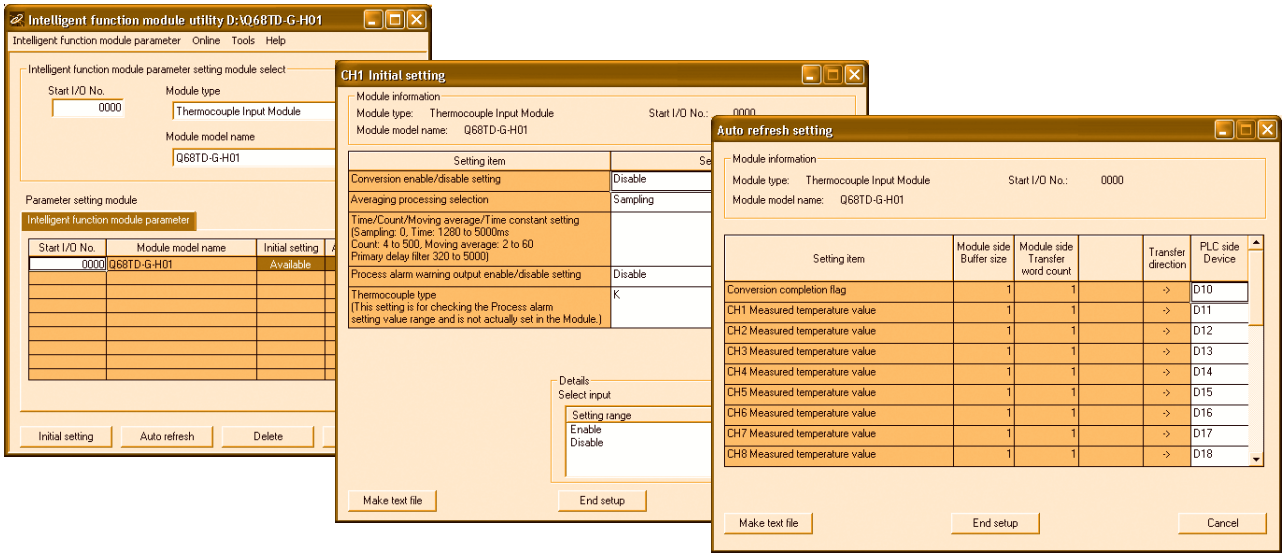
1. Reduces cost and space requirements

- 8-channel thermocouple input is possible, reducing the cost per channel.
- Wiring inside control panel can be reduced by using a commercially available remote terminal block, minimizing wiring and space requirements.



2. Enhanced functionality

- Prevents false detection due to noise.
  - Less susceptible to noise by using filter functions, such as the average processing and primary delay filter.
- The utility package (software tool) facilitates setup without programming.
  - With GX Configurator-TI, no need to program initial settings and auto refresh. (This software is sold separately.)



3. Ideal solution for process control

- Detects equipment errors by upper/lower limit warning without a program. (Warning output function)
  - Process alarm: Outputs warning when a temperature input value exceeds the specified range.
    Upper and lower limits can be set for each channel. Setting with hysteresis for warning on/off is also available.
  - Rate alarm: Outputs warning when a temperature input change rate exceeds the specified change rate.
- Engineering value conversion can be done without a program. (Scaling function)
- The module can be replaced without stopping the system. (Online module change function)

  Note: This function is available only when the module is used in combination with Q12PHCPU, Q25PHCPU, Q12PRHCPU, Q25PRHCPU, QJ72LP25-25, QJ72LP25G, or QJ72BR15.

Performance specifications

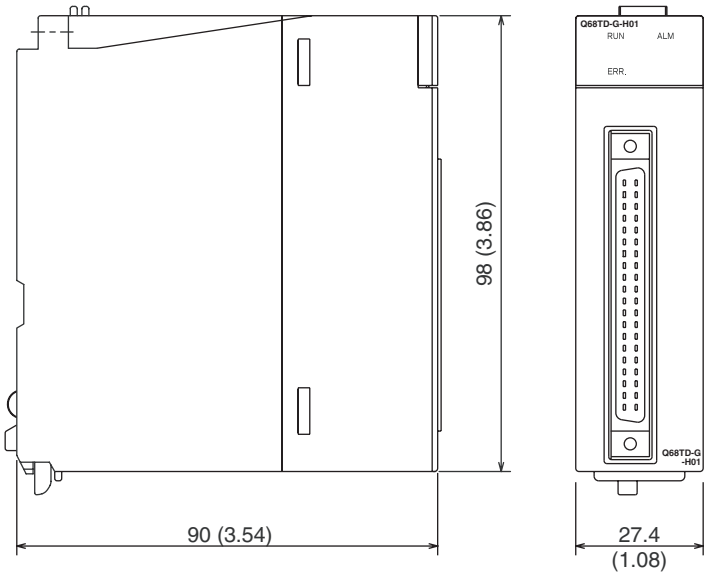
Item		Specifications
Number of channels		8 channels
Output	Temperature conversion value	16-bit signed binary (-2700 to 18200)
	Scaling value	16-bit signed binary
Thermocouple standards		JIS C 1602-1995, IEC 60584-1 (1995), IEC 60584-2 (1982)
Usable thermocouples		B, R, S, K, E, J, T, N
Resolution		B, R, S, N: 0.3˚C; K, E, J, T: 0.1˚C
Conversion speed		320 ms/8 channels*1
Number of analog input points		8 channels + cold junction compensation channel/module
Isolation		See below
Disconnection detection		No*2
Number of writes to flash memory		Up to 50,000 times
Number of occupied I/O points		16 points (I/O assignment: Intelligent 16 points)
External connections		40-pin connector
Applicable wire size		0.3 mm^2 (22AWG) or less
Applicable connector		A6CON4 (sold separately)
5 V DC internal current consumption		0.49 A
Weight		0.16 kg
External dimensions		98 (H) x 27.4 (W) x 90 (D) mm

Specific isolated area	Isolation method	Dielectric withstand voltage	Insulation resistance
Between thermocouple input channel and programmable controller power supply	Transformer	500 Vrms AC for 1 min.	500 V DC 10 MΩ or more
Between thermocouple input channels		1000 Vrms AC for 1 min.	
Between cold junction compensation channel and programmable controller power supply	Non-isolated	N/A	N/A

*1: The conversion speed is a period that a temperature measurement value is stored into the buffer memory during sampling processing. Regardless of the number of conversion-enabled channels, a temperature measurement value is stored into the buffer memory channel by channel every 320 ms.
*2: Instead of the disconnection detection function, the disconnection monitor function is equipped. At the time of disconnection, one of the following can be selected: “UP scale (the maximum value of measured temperature range + 5% of measured temperature range)”, “Down scale (the minimum value of measured temperature range - 5% of measured temperature range)”, or “Given value”. It takes up to 11s to verify disconnection.

External dimensions

Unit: mm (inch)



Supported utility package

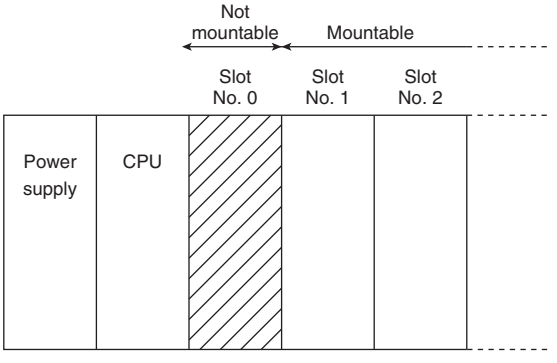
Product name	Model	Version
GX Configurator-TI	SW1D5C-QTIU-E	1.24AA or later

Restrictions on mountable slot

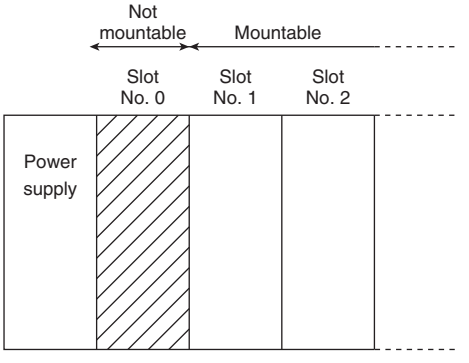
There are restrictions on mountable slots when using the Q68TD-G-H01. The following chart indicates the mountable slots according to the combination of the power supply module and base unit.
For the slot on which the Q68TD-G-H01 cannot be mounted, leave it open or mount a module other than the Q68TD-G-H01.
When using the Q68TD-G-H01 on remote I/O stations, the restriction is the same as for the main base unit.
When failing to comply with the following restrictions, the accuracy may not be in the specification range.

Power supply module	Restrictions	
	Main base unit	Extension base unit
Q61SP	No restrictions	No restrictions
Q61P-A1		
Q61P-A2		
Q61P		
Q62P		
Q63P	No restrictions	Mount the module on I/O slot No. 1 or later. See (b).
Q63RP		
Q64P	Mount the module on I/O slot No. 1 or later. See (a).	Mount the module on I/O slot No. 2 or later. See (c).
Q64RP		

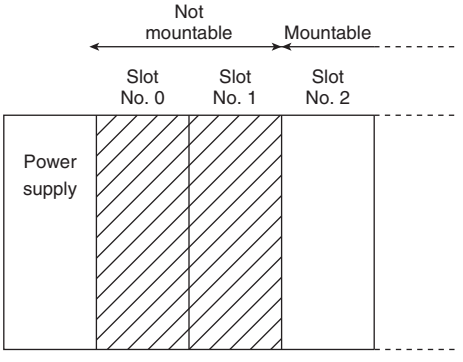
(a)



(b)



(c)



Comparison with Q64TD/Q64TDV-GH

(1) Differences

Item		Q68TD-G-H01	Q64TD	Q64TDV-GH
Number of channels		8 channels	4 channels	4 channels
Conversion speed		320 ms/8 channels	40 ms/channel	(20 ms/channel) x 3
Disconnection detection		No (However, disconnection monitor function is equipped.)	Yes	Yes
Disconnection detection	Detection time	N/A	Instant (40 ms x number of conversion-enabled channels)	Instant ([20 ms x number of conversion-enabled channels] x 3)
Disconnection detection	Recovery time	N/A	Instant (40 ms x number of conversion-enabled channels)	Instant ([20 ms x number of conversion-enabled channels] x 3)
Disconnection monitor	Time taken to turn ON disconnection state monitor signal	11 s or less	N/A	N/A
Disconnection monitor	Time taken to restart temperature conversion after recovery from disconnection state	11 s	N/A	N/A
Cold junction temperature compensation resistor disconnection detection		Yes	No	No
Microvoltage input		No	No	Yes
Restrictions		Mountable slots are restricted.	No	No

(2) Application

Q68TD-G-H01	Q64TD/Q64TDV-GH
• Used when connecting many thermocouples. • Suitable for monitoring temperature.	• Used when measuring temperature at relatively high speed with less channels. • Suitable for controlling temperature. Monitoring temperature is also available.

Product list

Product name	Model	Model code
Channel isolated thermocouple input module	Q68TD-G-H01	1W4578

Products sold separately

Product name	Model	Model code
External wiring connector	A6CON4	13L124
GX Configurator-TI	SW1D5C-QTIU-E	13PX24

Manuals

Manual name	Manual supply status	IB/SH No.	Model code
Channel Isolated Thermocouple Input Module User's Manual (Hardware)	Included	IB-0800389-A or later	13JY36
Channel Isolated Thermocouple Input Module User's Manual	Sold separately	SH-080699ENG-A or later	13JZ04

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