I-87004W-G

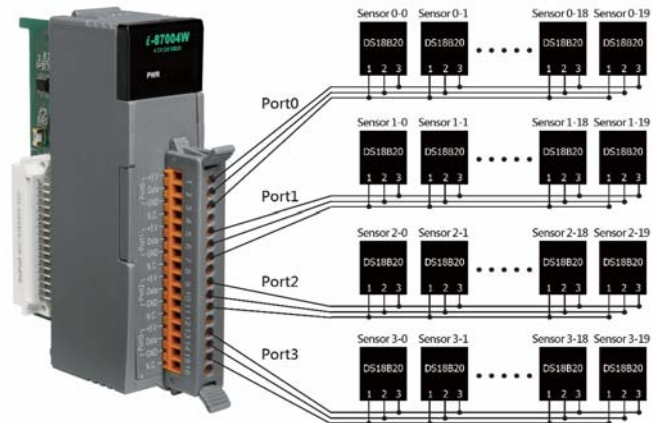4-port Digital Temperature Sensor Module with Daisy-Chain Wiring

Features

- 4-Port DS18B20 Sensor Input Module
- 2/3-wire DS18B20 Wire Connection
- Max. 20 Ssensors per Port
- Max. Distance of 100 m per Port when using Daisy-Chain Wiring
- Measures Temperatures from -55 to +125°C
- ±0.5°C Accuracy from -10 to +85°C
- 4 kV ESD Protection
- 3000 VDC Intra-module Isolation, Field to Logic
- RoHS Compliant
- Wide Operating Temperature Range: -25 to +75°C

Introduction

The I-87004W is a digital temperature sensor module that provides four ports for 2- or 3 wire DS8B20 digital temperature sensor input. The DS18B20 temperature sensor has a high accuracy of ±0.5°C when measuring temperatures between -10 and +85°C, with a total measurement range of between -55 and +125°C. Up to 20 DS18B20 sensors can be connected to each port on the I-87004W module in a daisy-chain arrangement with a maximum wiring distance of 100 meters. The I-87004W module is fully RoHS compliant, and features 4 kV ESD protection as well as 3000 VDC intra-module isolation.

Applications

- Temperature Measurement
- Environment Monitoring
- Tunnel Monitoring
- Building Monitoring

System Specifications

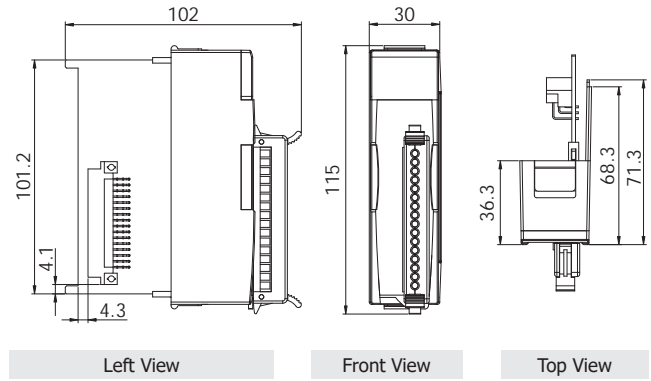| Communication	
Interface	RS-485
Format	N81, N82, E81, O81
Baud Rate	1200 to 115200 bps
Protocol	DCON
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
Isolation	
Intra-module Isolation, Field-to-Logic	3000 VDC
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal
	±8 kV Air for Random Point
Power	
Power Consumption	0.5 W Max.
Mechanical	
Dimensions (L × W × H)	115 mm x 30 mm x 102 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-30 to +80°C
Humidity	10 to 90% RH, Non-condensing

I/O Specifications

Temperature Measurement	
Port	4
Wiring	2-wire or 3-wire
Sensor Type	DS18B20
Temperature Measurement Range	-55°C to +125°C
Resolution	12-bit
Accuracy	±0.5°C (See Note 1)
Sampling Rate	1 Hz
Number of Sensors per Port	20
Sensor Wiring Length	Max. 100 m per Port

Note 1: ±0.5°C accuracy only applies for measurements between -10°C and +85°C

■ Internal I/O Structure

■ Dimensions (Units: mm)

| Left View | Front View | Top View |

■ Wire Connections

2-wire Connection

2-wire

DS18B20

1 2 3

+5 V
Data
GND

3-wire Connection

3-wire

DS18B20

1 2 3

+5 V
Data
GND

■ Pin Assignments

i-87004W
4 CH DSB1820
PWR

Terminal No.	Pin Assignment
01	+5 V
02	Data
03	GND
04	N.C.
05	+5 V
06	Data
07	GND
08	N.C.
09	+5 V
10	Data
11	GND
12	N.C.
13	+5 V
14	Data
15	GND
16	N.C.

Port0: 01–03, Port1: 05–07, Port2: 09–11, Port3: 13–15
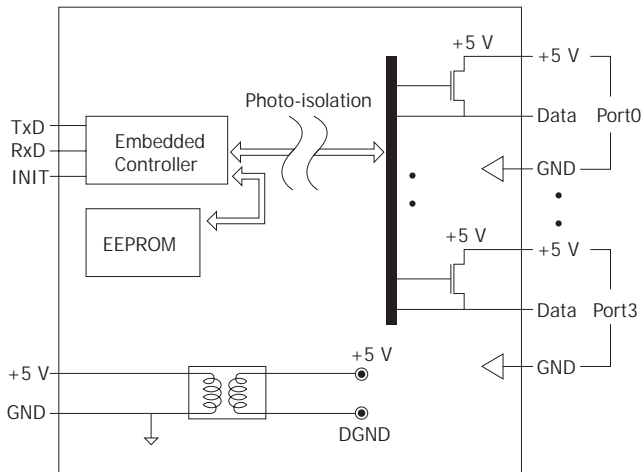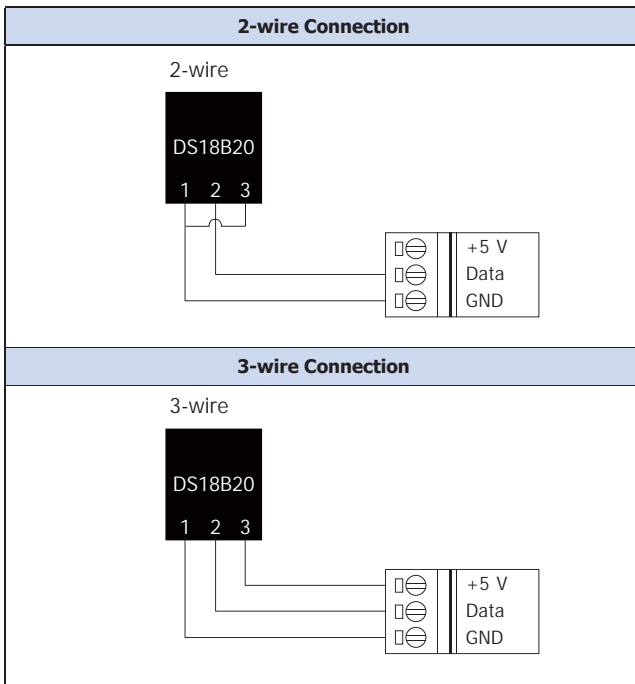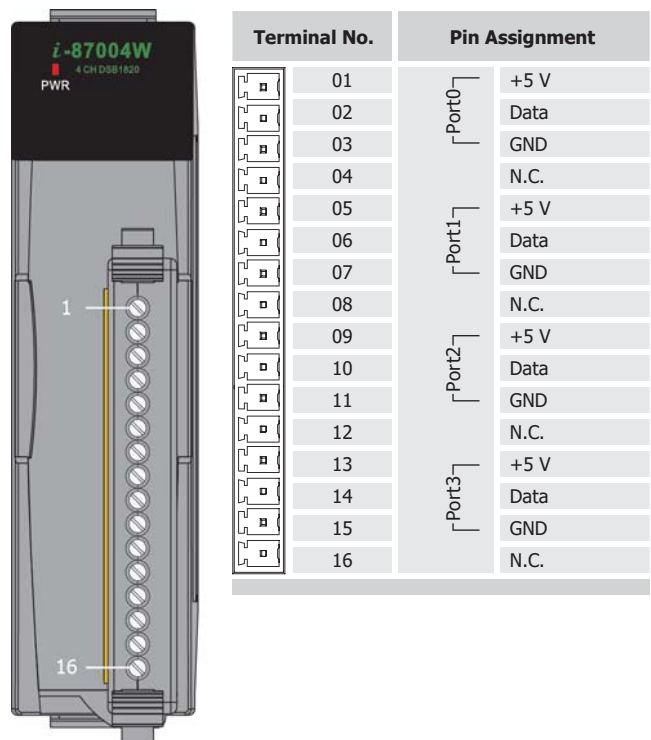
■ Ordering Information

I-87004W-G CR	4-Port Digital Temperature Sensor Module with Daisy-Chain Wiring (Gray Cover) (RoHS)

■ Accessories

SG-770 CR	7-channel Differential or 14-channel Single-ended Surge Protector (RoHS)