



I-87004W-G

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

Introduction

The I-87004W is a digital temperature sensor module that provides four ports for 2- or 3-wire DS18B20 digital temperature sensor input. The DS18B20 temperature sensor has a high accuracy of $\pm 0.5^\circ\text{C}$ when measuring temperatures between -10 and $+85^\circ\text{C}$, with a total measurement range of between -55 and $+125^\circ\text{C}$. 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.

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 x W x H)	115 mm x 30 mm x 102 mm
Environment	
Operating Temperature	-25 to $+75^\circ\text{C}$
Storage Temperature	-30 to $+80^\circ\text{C}$
Humidity	10 to 90% RH, Non-condensing

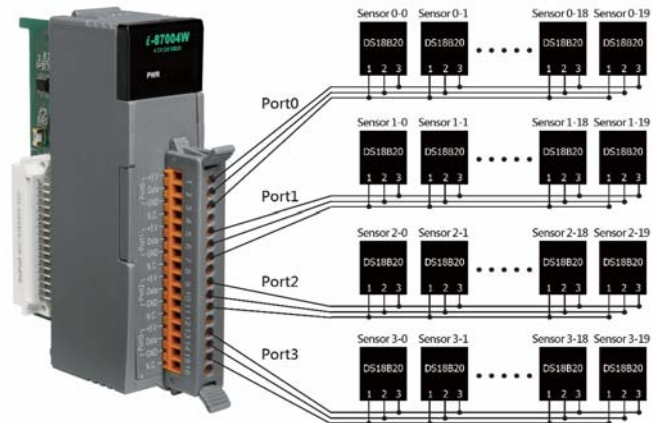
Features

- 4-Port DS18B20 Sensor Input Module
- 2/3-wire DS18B20 Wire Connection
- Max. 20 Sensors per Port
- Max. Distance of 100 m per Port when using Daisy-Chain Wiring
- Measures Temperatures from -55 to $+125^\circ\text{C}$
- $\pm 0.5^\circ\text{C}$ Accuracy from -10 to $+85^\circ\text{C}$
- 4 kV ESD Protection
- 3000 Vdc Intra-module Isolation, Field to Logic



Applications

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

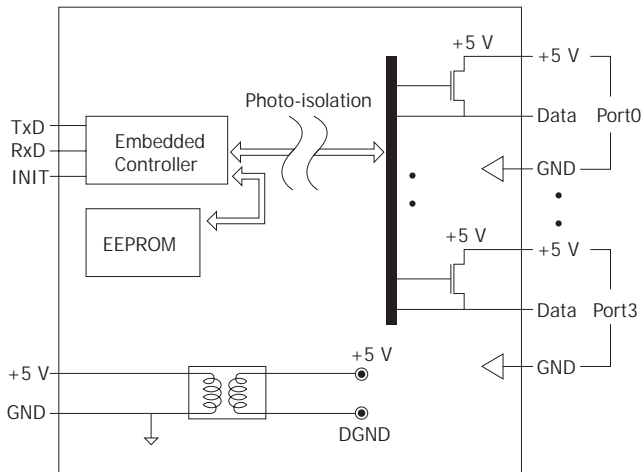


I/O Specifications

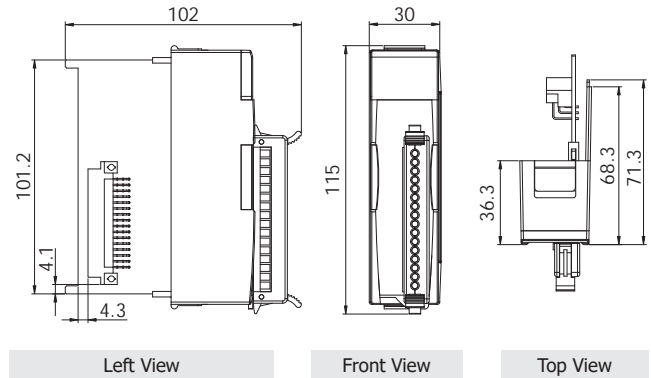
Temperature Measurement	
Port	4
Wiring	2-wire or 3-wire
Sensor Type	DS18B20
Temperature Measurement Range	-55°C to $+125^\circ\text{C}$
Resolution	12-bit
Accuracy	$\pm 0.5^\circ\text{C}$ (See Note 1)
Sampling Rate	1 Hz
Number of Sensors per Port	20
Sensor Wiring Length	Max. 100 m per Port

Note 1: $\pm 0.5^\circ\text{C}$ accuracy only applies for measurements between -10°C and $+85^\circ\text{C}$

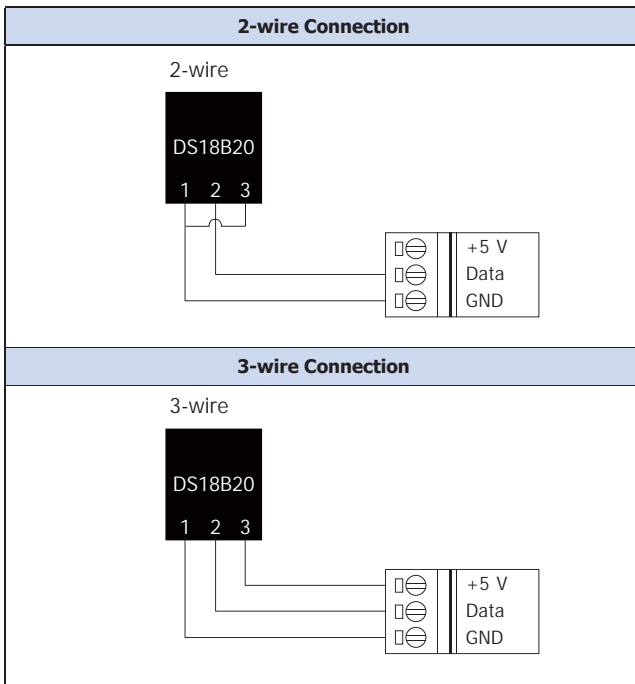
Internal I/O Structure



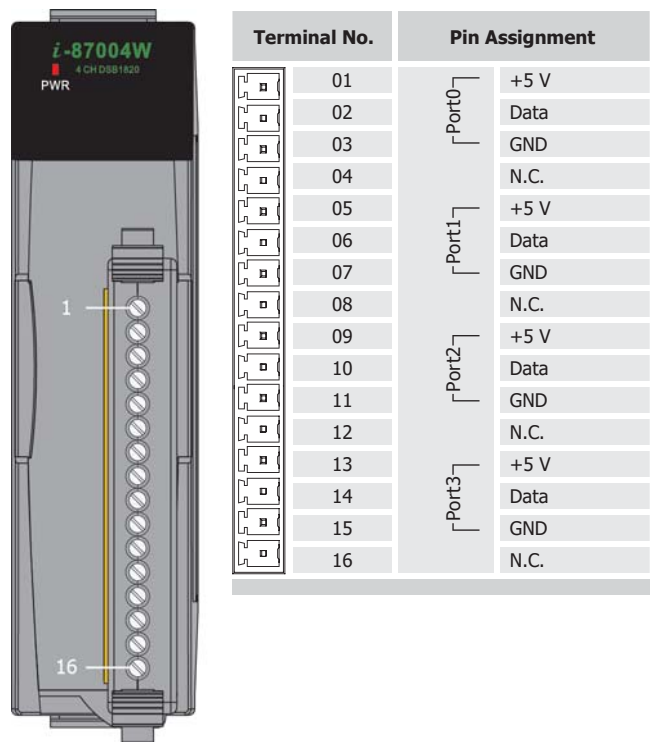
Dimensions (Units: mm)



Wire Connections



Pin Assignments



Ordering Information

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

CA-TP1-M100-L020 CR	3-wire DS18B20, Stainless steel, 2M (-30 °C ~ 125 °C) (RoHS)
CA-TP1-M200-L020 CR	3-wire DS18B20, copper nickel plated, 2 M (-30 °C ~ 125 °C) (RoHS)
SG-770 CR	7-channel Differential or 14-channel Single-ended Surge Protector (RoHS)