## M-7004

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

### Features

■ 4-Port DS18B20 Sensor Input Module

■ 2- or 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

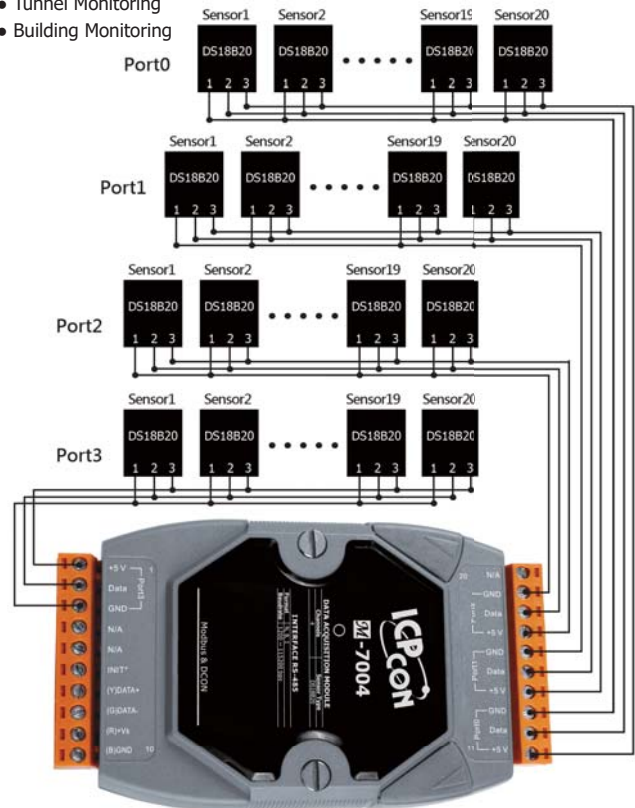■ Wide Operating Temperature Range: -25 to +75°C

### Introduction

The M-7004 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 M-7004 module in a daisy-chain arrangement with a maximum wiring distance of 100 meters. The M-7004 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

| Model | M-7004 |
|---|---|
| **Communication** | |
| Interface | RS-485 |
| Bias Resistor | Yes, 1k Ω bias resistor by Jumper selectable |
| Format | N81, N82, E81, O81 |
| Baud Rate | 1200 to 115200 bps |
| Protocol | DCON Modbus/RTU |
| 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 $V_{DC}$ |
| **EMS Protection** | |
| ESD (IEC 61000-4-2) | ±4 kV Contact for each Terminal |
| | ±8 kV Air for Random Point |
| EFT (IEC 61000-4-4) | ±4 kV for Power |
| Surge (IEC 61000-4-5) | ±2 kV for power liner |
| **Power** | |
| Reverse Polarity Protection | Yes |
| Input Range | +10 ~ +48 $V_{DC}$ |
| Consumption | 0.5 W |
| **Mechanical** | |
| Dimensions (L x W x H) | 123 mm x 72 mm x 35 mm |
| Installation | DIN-Rail |
| **Environment** | |
| Operating Temperature | -25 to +75°C |
| Storage Temperature | -30 to +80°C |
| Humidity | 10 to 90% RH, Non-condensing |

### I/O Specifications

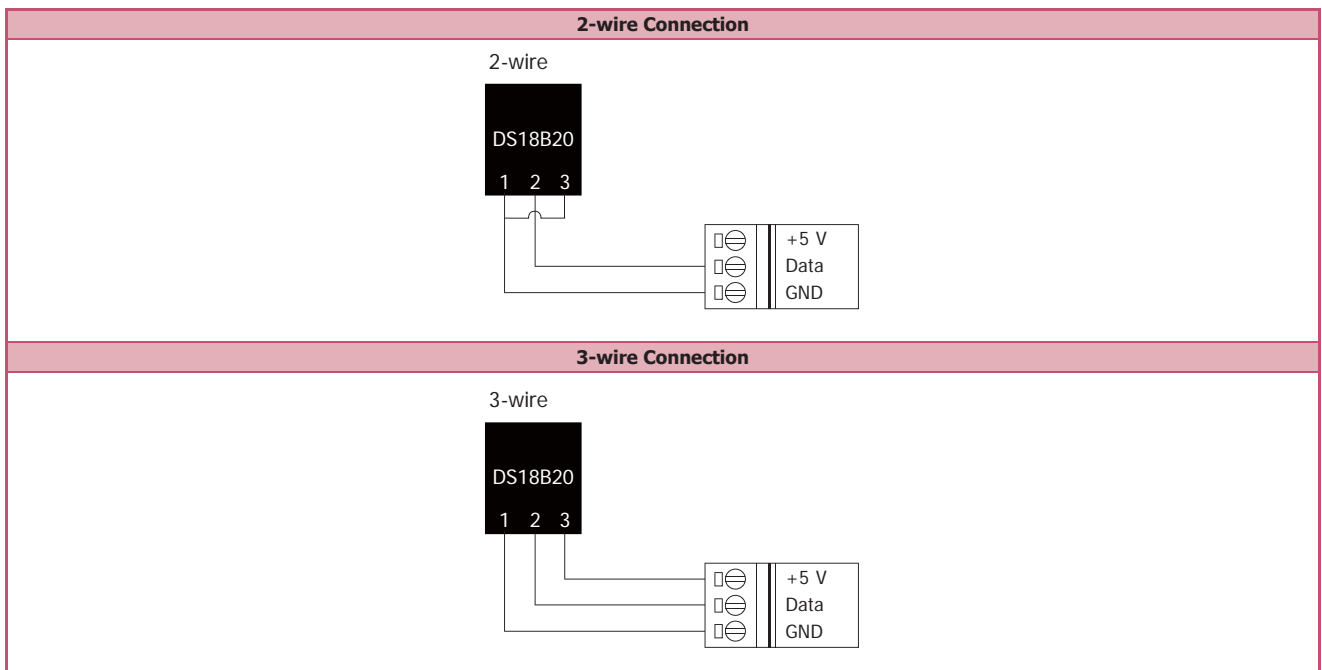| Model | M-7004 |
|---|---|
| **Analog Input** | |
| Port | 4 |
| Wiring | 2-wire or 3-wire |
| Sensor Type | DS18B20 |
| Temperature Measurement Range | -55°C to +125°C |
| Resolution | 12-bit |
| Accuracy | ±0.5°C (See Note 1) |
| Sampling Rate | 1 Hz |
| Number of Sensors per Port | 20 |
| Sensor Wiring Length | Max. 100 m per Port |

Note :1 ±0.5°C Accuracy from -10°C to +85°C

M-7004

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## Internal I/O Structure
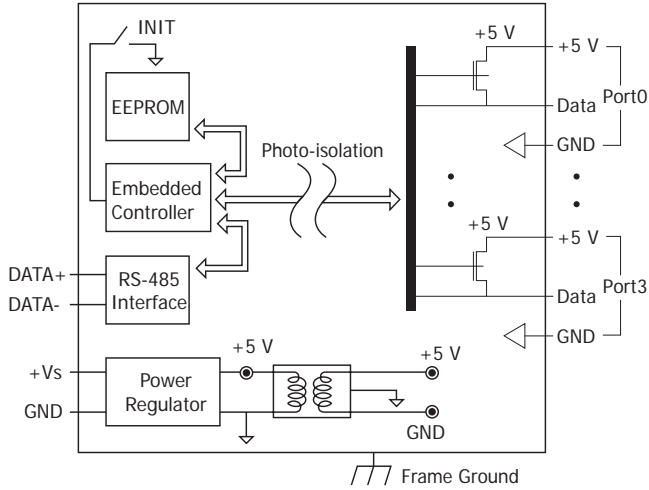


## Pin Assignments



## Wire Connections
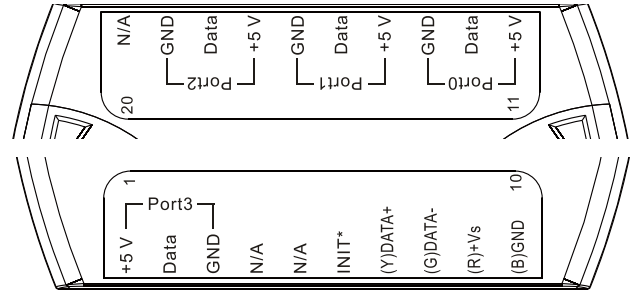
| 2-wire Connection |
|---|
|  |
| **3-wire Connection** |
|  |

## Ordering Information

| M-7004 CR | 4- Port Digital Temperature Sensor Module with Daisy-Chain Wiring using the DCON and Modbus Protocols (Gray Cover) (RoHS) |
|---|---|

## Accessories

| | tM-7520U CR | RS-232 to RS-485 Converter (RoHS) |
|---|---|---|