



**I-7018BL**

**I-7018P**

8-channel Analog Input Module

### Features

- I-7018BL
  - Open Thermocouple Detection
- I-7018P
  - Additional Thermocouple Types, L and M
- 8-channel Differential or 6-channel Differential and 2-channel Single-ended Analog Input
- Current, Voltage or Thermocouple Input
- High Resolution: 16-bit
- 3000 Vdc Intra-module Isolation
- Dual Watchdog
- RoHS Compliant
- Wide Operating Temperature Range: -25 to +75°C



### Introduction

The I-7018P is an Analog Input module that features current and voltage input, as well as thermocouple input. The I-7018BL is a thermocouple input module. Both of the modules provide 8-channel differential or 6-channel differential and 2-channel single ended input that can be selected via a jumper, and all channels can be configured for the same input type. Note that an optional external 125 Ω resistor is required for current input. The modules also feature 3000 VDC intra-module isolation as well as ±35 VDC overvoltage protection. The I-7018BL provides thermocouple open wire detection and the I-7018P provides support for two additional thermocouple types, L and M.

### Applications

- Building Automation
- Machine Automation
- Remote Diagnosis
- Factory Automation
- Remote Maintenance
- Testing Equipment

### System Specifications

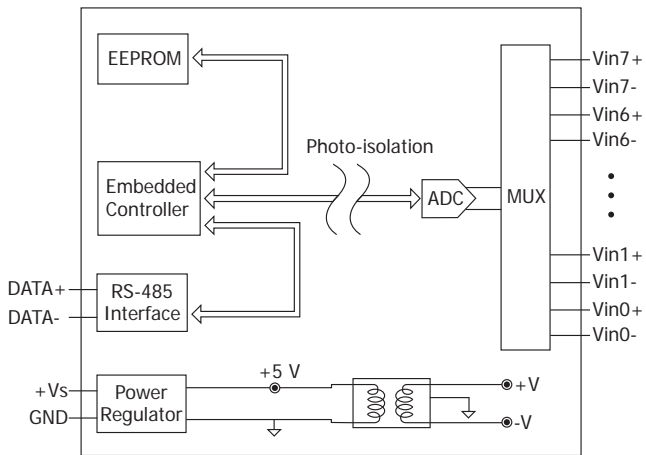
| Model                                  | I-7018BL   | I-7018P |
|--|--|---------|
| <b>Communication</b>                   |  |         |
| Interface                              | RS-485   |         |
| Bias Resistor                          | No (Usually supplied by the RS-485 Master. Alternatively, add a tM-SG4 or SG-785.) |         |
| Format                                 | (N, 8, 1) (N, 8, 2) (E, 8, 1) (O, 8, 1)  |         |
| Baud Rate                              | 1200 to 115200 bps   |         |
| Protocol                               | DCON   |         |
| Dual Watchdog                          | Yes, Module (1.6 Seconds), Communication (Programmable)                            |         |
| <b>LED Indicators/Display</b>          |  |         |
| System LED Indicator                   | Yes, 1 as Power/Communication Indicator  |         |
| I/O LED Indicators                     | -  |         |
| 7-segment LED Display                  | -  |         |
| <b>Isolation</b>                       |  |         |
| Intra-module Isolation, Field-to-Logic | 3000 Vdc   |         |
| <b>EMS Protection</b>                  |  |         |
| ESD (IEC 61000-4-2)                    | ±2 kV Contact for each Terminal  |         |
| EFT (IEC 61000-4-4)                    | ±4 kV to Power Line  |         |
| Surge (IEC 61000-4-5)                  | ±0.5 kV for Power Line   |         |
| <b>Power</b>                           |  |         |
| Reverse Polarity Protection            | Yes  |         |
| Input Range                            | +10 ~ +30 Vdc  |         |
| Consumption                            | 1.0 W  |         |
| <b>Mechanical</b>                      |  |         |
| Dimensions (L x W x H)                 | 123 mm x 72 mm x 35 mm   |         |
| Installation                           | DIN-Rail or Wall Mounting  |         |
| <b>Environment</b>                     |  |         |
| Operating Temperature                  | -25 to +75°C   |         |
| Storage Temperature                    | -40 to +85°C   |         |
| Humidity                               | 10 to 95% RH, Non-condensing   |         |

### I/O Specifications

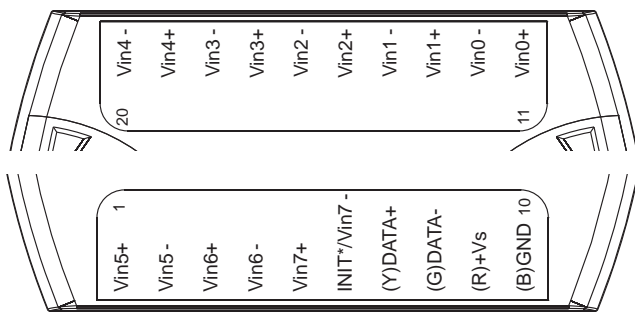
| Model                                       | I-7018BL                                       | I-7018P                   |   |
|---|--|---------------------------|---|
| <b>Analog Input</b>                         |  |                           |   |
| Channels                                    | Differential and Single-ended, or Differential |                           |   |
| Wiring                                      | Differential                                   |                           |   |
| Sensor Types                                | Thermocouple                                   | J, K, T, E, R, S, B, N, C | J, K, T, E, R, S, B, N, C, L, M                       |
|   | Voltage  | -                         | ±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V        |
|   | Current  | -                         | ±20 mA (requires an optional external 125 Ω resistor) |
| Resolution                                  | 16-bit   |                           |   |
| Accuracy                                    | 0.15% of FSR                                   | 0.1% of FSR               |   |
| Sampling Rate                               | 10 Hz  |                           |   |
| Input Impedance                             | > 400 kΩ                                       |                           |   |
| Common Voltage Protection                   | ±15 VDC  |                           |   |
| Individual Channel Configuration            | -  |                           |   |
| Overvoltage Protection                      | ±35 VDC  | ±80 Vdc                   |   |
| Open Wire Detection (for thermocouple only) | Yes  | -                         |   |
| Temperature Outputs Consistency             | -  |                           |   |
| Stable Temperature Output in the Field      | -  |                           |   |

**Note:** For highly-accurate thermocouple measurement, ICP DAS recommends selecting the I-7018Z/I-7019Z module, which features automatic cold-junction compensation for each channel, ensuring consistent and stable temperature output.

## Internal I/O Structure

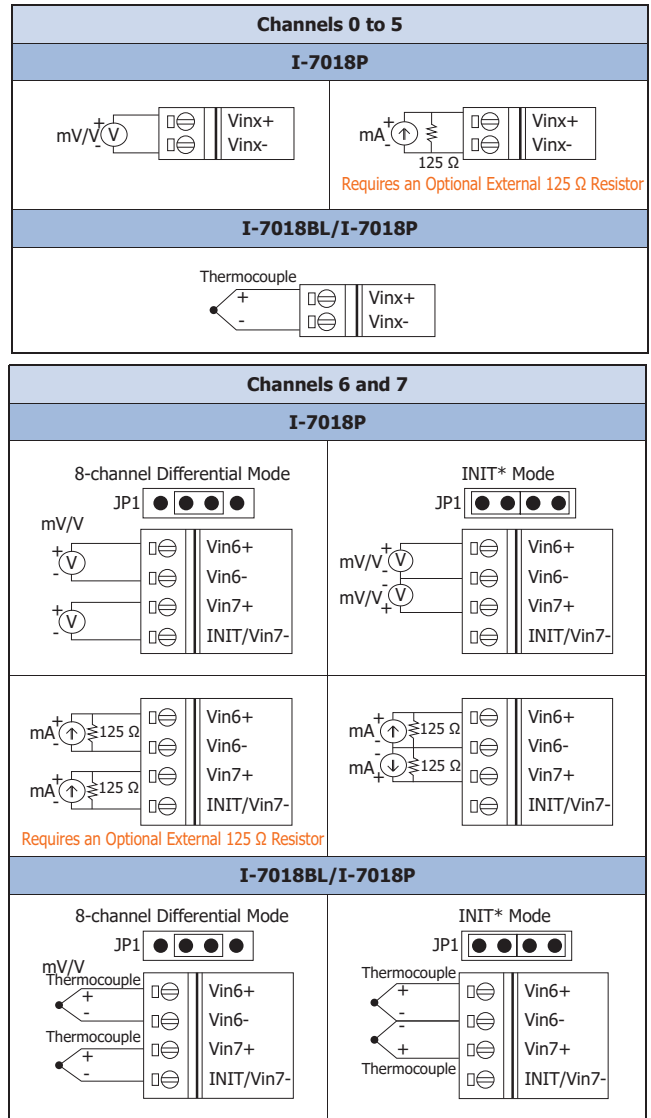


## Pin Assignments



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## Wire Connections



Note: To access the jumpers, the cover must be opened.

## Ordering Information

|                     |   |
|---------------------|---|
| <b>I-7018BL CR</b>  | 8-channel Thermocouple Input Module using the DCON Protocol (Blue Cover) (RoHS) |
| <b>I-7018P CR</b>   | 8-channel Analog Input Module using the DCON Protocol (Blue Cover) (RoHS)       |
| <b>I-7018P-G CR</b> | 8-channel Analog Input Module using the DCON Protocol (Gray Cover) (RoHS)       |

## Accessories

|  |             |  |
|--|-------------|--|
|  | tM-7520U CR | RS-232 to RS-485 Converter (RoHS)                  |
|  | tM-7561 CR  | USB to RS-485 Converter (RoHS)                     |
|  | tM-SG4 CR   | RS-485 Bias and Termination Resistor Module (RoHS) |
|  | I-7514U CR  | 4-channel RS-485 Hub (RoHS)                        |

|  |                          |  |
|--|--------------------------|--|
|  | SG-770 CR                | 7-channel Differential or 14-channel Single-ended Surge Protector (RoHS)                               |
|  | SG-3000 Series           | Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Input Transformers |
|  | 125 Ω, 0.1% DIP Resistor | 125 Ω External Resistor for use with Current input on I-7011/I-7012/I-7017/I-7018 series modules       |