Product data sheet

Characteristics

TM3AI2H
module TM3 - 2 analog inputs high resolution

Main

Range of product  Modicon TM3
Product or component type  Analog input module
Range compatibility  Modicon M251
                     Modicon M221
                     Modicon M241
Analogue input number  2
Analogue input type  Current, analogue input range: 4...20 mA
                     Current, analogue input range: 0...20 mA
                     Voltage, analogue input range: 0...10 V
                     Voltage, analogue input range: -10...10 V

Complementary

Analogue input resolution  15 bits + sign
                           16 bits
Permissible continuous overload  13 V voltage
                                40 mA current
Input impedance  <= 50 Ohm current
                 >= 1 MOhm voltage
LSB value  2.44 mV, analogue input: 0...10 V voltage
           4.88 mV, analogue input: -10...10 V voltage
           4.88 µA, analogue input: 0...20 mA current
           3.91 µA, analogue input: 4...20 mA current
Conversion time  1 ms + 1 ms per channel + 1 controller cycle time
Sampling duration  <= 1 ms
Absolute accuracy error  +/- 0.1 % of full scale at 25 °C
                        +/- 1 % of full scale
Temperature drift  +/- 0.006 %/FS/°C
Repeat accuracy  +/- 0.5 %/FS
Non-linearity  +/- 0.01 %/FS
Cross talk  <= 1 LSB
[Us] rated supply voltage  24 V DC
Supply voltage limits  20.4...28.8 V

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.
<table>
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<tr>
<th><strong>Type of cable</strong></th>
<th>Twisted shielded pairs cable 30 m for input circuit</th>
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</table>
| **Current consumption** | 30 mA at 5 V DC (no load) via bus connector  
40 mA at 5 V DC (full load) via bus connector  
25 mA at 24 V DC via external supply |
| **Local signalling** | 1 LED green for PWR |
| **Electrical connection** | 11 x 2.5 mm² removable screw terminal block with pitch 5.08 mm adjustment for inputs and supply |
| **Insulation** | 500 V AC between input and internal logic  
1500 V AC between input and supply |
| **Marking** | CE |
| **Surge withstand** | 1 kV for power supply with common mode protection conforming to EN/IEC 61000-4-5  
0.5 kV for power supply with differential mode protection conforming to EN/IEC 61000-4-5  
1 kV for input with common mode protection conforming to EN/IEC 61000-4-5 |
| **Mounting support** | Top hat type TH35-15 rail conforming to IEC 60715  
Top hat type TH35-7.5 rail conforming to IEC 60715  
Plate or panel with fixing kit |
| **Height** | 90 mm |
| **Depth** | 70 mm |
| **Width** | 23.6 mm |
| **Product weight** | 0.115 kg |

### Environment

| **Standards** | EN/IEC 61010-2-201  
EN/IEC 61131-2 |
| **Resistance to electrostatic discharge** | 4 kV on contact conforming to EN/IEC 61000-4-2  
8 kV in air conforming to EN/IEC 61000-4-2 |
| **Resistance to electromagnetic fields** | 10 V/m at 80 MHz...1 GHz conforming to EN/IEC 61000-4-3  
3 V/m at 1.4 GHz...2 GHz conforming to EN/IEC 61000-4-3  
1 V/m at 2 GHz...3 GHz conforming to EN/IEC 61000-4-3 |
| **Resistance to magnetic fields** | 30 A/m conforming to EN/IEC 61000-4-8 |
| **Resistance to fast transients** | 1 kV I/O conforming to EN/IEC 61000-4-4 |
| **Resistance to conducted disturbances** | 10 V at 0.15...80 MHz conforming to EN/IEC 61000-4-6  
3 V at spot frequency (2, 3, 4, 6.2, 8.2, 12.6, 16.5, 18.8, 22, 25 MHz) conforming to Marine specification (LR, ABS, DNV, GL) |
| **Electromagnetic emission** | Radiated emissions, test level: 40 dBμV/m QP class A (10 m at 30...230 MHz) conforming to EN/IEC 55011  
Radiated emissions, test level: 47 dBμV/m QP class A (10 m at 230...1000 MHz) conforming to EN/IEC 55011 |
| **Immunity to microbreaks** | 10 ms |
| **Ambient air temperature for operation** | -10...55 °C (horizontal installation)  
-10...35 °C (vertical installation) |
| **Ambient air temperature for storage** | -25...70 °C |
| **Relative humidity** | 10...95 % without condensation in operation  
10...95 % without condensation in storage |
| **IP degree of protection** | IP20 |
| **Pollution degree** | 2 |
| **Operating altitude** | 0...2000 m |
| **Storage altitude** | 0...3000 m |
| **Vibration resistance** | 3.5 mm at 5...8.4 Hz with DIN rail mounting support  
3 gn at 8.4...150 Hz with DIN rail mounting support |
| **Shock resistance** | 15 gn during 11 ms |

### Offer Sustainability

| **Sustainable offer status** | Green Premium product |
| **RoHS (date code: YYWW)** | Compliant |
| **REAC** | Reference not containing SVHC above the threshold  
Reference not containing SVHC above the threshold |
<p>| <strong>Product environmental profile</strong> | Available |</p>
<table>
<thead>
<tr>
<th>Product end of life instructions</th>
<th>Available</th>
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<tbody>
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<td>End of Life Information</td>
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Dimensions

(*) 8.5 mm/0.33 in when the clamp is pulled out.
Product data sheet
Mounting and Clearance

Spacing Requirements

[Diagram showing clearances and dimensions]
Mounting on a Rail

Incorrect Mounting
Mounting on a Panel Surface

(1) Install a mounting strip

Mounting Hole Layout
Analogue Input Module

Wiring Diagram (Current / Voltage)

(*) Type T fuse
(1) Current/Voltage analog output device