

# Product data sheet

Specifications



## analog output module, Modicon TM5, 2O, +/-10V, 0 to 20mA, 12bits

TM5SAO2L

### Main

|                            |                                                |
|----------------------------|------------------------------------------------|
| Range of product           | Modicon TM5                                    |
| Product or component type  | Analog output module                           |
| Analogue output number     | 2                                              |
| Analogue output resolution | 12 bits + sign, +/- 10 V<br>12 bits, 0...20 mA |

### Complementary

|                                |                                                                                               |
|--------------------------------|-----------------------------------------------------------------------------------------------|
| Range compatibility            | Modicon LMC058<br>Modicon M258                                                                |
| Product compatibility          | Motion controller<br>Logic controller                                                         |
| Analogue output type           | Current 0...20 mA<br>Voltage +/- 10 V                                                         |
| Measurement resolution         | 4.882 mV, +/- 10 V<br>9.766 µA, 0...20 mA                                                     |
| Colour                         | White                                                                                         |
| Response time                  | <= 1 ms                                                                                       |
| Minimum output impedance       | 1 Ohm                                                                                         |
| Load impedance ohmic           | <= 500 Ohm (current)                                                                          |
| Sampling duration              | 200 µs                                                                                        |
| Measurement error              | < 0.15 % of full scale +/- 10 V at 25 °C<br>< 0.15 % of full scale 0...20 mA at 25 °C         |
| Temperature coefficient        | 0.02 %FS/°C, analogue output type: current<br>0.02 %FS/°C, analogue output type: voltage      |
| Non-linearity                  | < 0.007 %FS, analogue output type: current<br>< 0.007 %FS, analogue output type: voltage      |
| Type of cable                  | Shielded cable                                                                                |
| Isolation                      | 500 Vrms AC insulation between channel and bus<br>No insulation between channels              |
| Supply                         | Internal                                                                                      |
| [Us] rated supply voltage      | 24 V DC -15...20 %                                                                            |
| Local signalling               | 1 LED green for power supply<br>1 LED red for power supply<br>2 LEDs yellow for output status |
| Current consumption            | 2 mA at 5 V DC bus<br>46 mA at 24 V DC input/output                                           |
| Maximum power dissipation in W | 1.11 W                                                                                        |

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

|                |          |
|----------------|----------|
| Marking        | CE       |
| Product weight | 0.025 kg |

## Environment

|                                       |                                                                                                                                                       |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards                             | CSA C22.2 No 142<br>IEC 61131-2<br>UL 508<br>CSA C22.2 No 213                                                                                         |
| Product certifications                | CSA<br>GOST-R<br>cULus<br>C-Tick                                                                                                                      |
| Ambient air temperature for operation | 0...55 °C without derating (horizontal installation)<br>0...60 °C with derating factor (horizontal installation)<br>0...50 °C (vertical installation) |
| Ambient air temperature for storage   | -25...70 °C                                                                                                                                           |
| Relative humidity                     | 5...95 % without condensation                                                                                                                         |
| IP degree of protection               | IP20 conforming to IEC 61131-2                                                                                                                        |
| Pollution degree                      | 2 conforming to IEC 60664                                                                                                                             |
| Operating altitude                    | 0...2000 m                                                                                                                                            |
| Storage altitude                      | 0...3000 m                                                                                                                                            |
| Vibration resistance                  | 1 gn at 8.4...150 Hz on DIN rail<br>3.5 mm at 5...8.4 Hz on DIN rail                                                                                  |
| Shock resistance                      | 15 gn for 11 ms                                                                                                                                       |
| Resistance to electrostatic discharge | 4 kV on contact conforming to IEC 61000-4-2<br>8 kV in air conforming to IEC 61000-4-2                                                                |
| Resistance to electromagnetic fields  | 1 V/m 2...2.7 GHz conforming to IEC 61000-4-3<br>10 V/m 80...2000 MHz conforming to IEC 61000-4-3                                                     |
| Resistance to fast transients         | 1 kV (I/O) conforming to IEC 61000-4-4<br>1 kV (shielded cable) conforming to IEC 61000-4-4<br>2 kV (power lines) conforming to IEC 61000-4-4         |
| Surge withstand                       | 0.5 kV differential mode conforming to IEC 61000-4-5<br>1 kV common mode conforming to IEC 61000-4-5                                                  |
| Electromagnetic compatibility         | EN/IEC 61000-4-6                                                                                                                                      |
| Disturbance radiated/conducted        | CISPR 11                                                                                                                                              |

## Packing Units

|                              |           |
|------------------------------|-----------|
| Unit Type of Package 1       | PCE       |
| Number of Units in Package 1 | 1         |
| Package 1 Height             | 2.000 cm  |
| Package 1 Width              | 6.000 cm  |
| Package 1 Length             | 10.500 cm |
| Package 1 Weight             | 39.000 g  |
| Unit Type of Package 2       | S02       |
| Number of Units in Package 2 | 97        |
| Package 2 Height             | 15.000 cm |
| Package 2 Width              | 30.000 cm |
| Package 2 Length             | 40.000 cm |

|                  |          |
|------------------|----------|
| Package 2 Weight | 3.996 kg |
|------------------|----------|

## Contractual warranty

|          |           |
|----------|-----------|
| Warranty | 18 months |
|----------|-----------|

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

[Environmental Data explained >](#)

[How we assess product sustainability >](#)

| Environmental footprint  |                                               |
|--------------------------|-----------------------------------------------|
| Environmental Disclosure | <a href="#">Product Environmental Profile</a> |

Use Better

| Materials and Substances               |                                                                                                                                                                                                                                                                                             |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Packaging made with recycled cardboard | No                                                                                                                                                                                                                                                                                          |
| Packaging without single use plastic   | Yes                                                                                                                                                                                                                                                                                         |
| <a href="#">EU RoHS Directive</a>      | Pro-active compliance (Product out of EU RoHS legal scope)                                                                                                                                                                                                                                  |
| REACH Regulation                       | <a href="#">REACH Declaration</a>                                                                                                                                                                                                                                                           |
| California proposition 65              | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |
| PVC free                               | Yes                                                                                                                                                                                                                                                                                         |

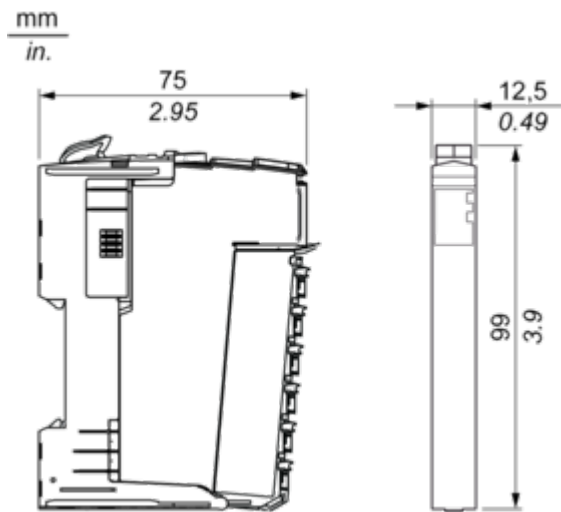
Use Again

| Repack and remanufacture        |                                                                                                                                                                                                                 |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| End of life manual availability | <a href="#">End of Life Information</a>                                                                                                                                                                         |
| Take-back                       | No                                                                                                                                                                                                              |
| WEEE Label                      |  The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |

Dimensions Drawings

TM5 Slice

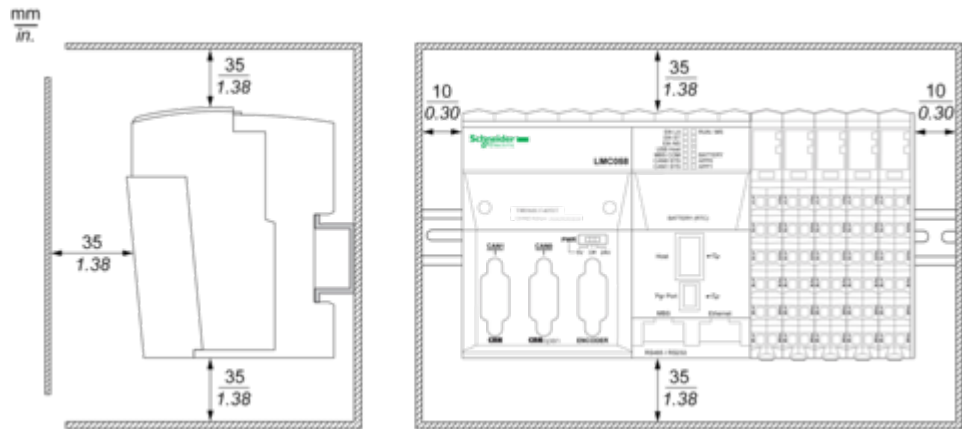
Dimensions



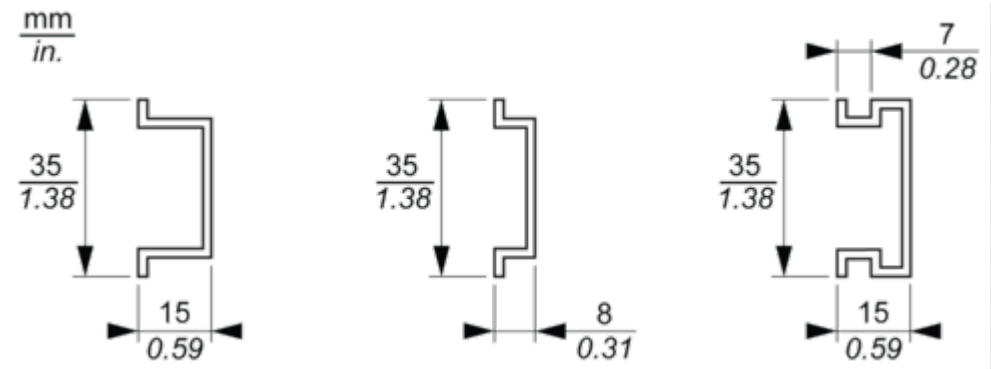
Mounting and Clearance

TM5 System

Spacing Requirements



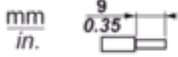
Mounting on a DIN Rail



Connections and Schema

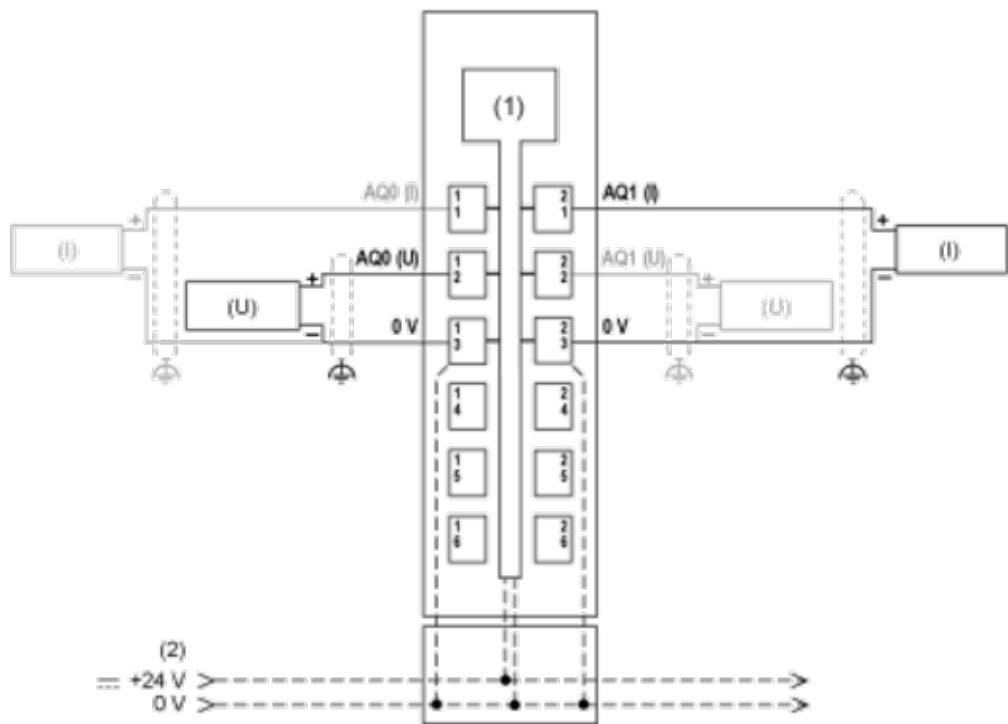
TM5 System Wiring Recommendations

Wire Sizes to Use with the Removable Spring Terminal Blocks

|                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |  |  |  |
| mm <sup>2</sup>                                                                   | 0,08...2,5                                                                        | 0,25...2,5                                                                        | 0,25...1,5                                                                        | 2 x 0,25...2 x 0,75                                                               |
| AWG                                                                               | 28...14                                                                           | 24...14                                                                           | 24...16                                                                           | 2 x 24...2 x 18                                                                   |

Electronic Module 2AO  $\pm 10\text{V}/0\text{--}20\text{mA}$  12 Bits

Wiring Diagram



- (1) Internal electronics
- (2) 24 Vdc I/O power segment integrated into the bus bases
- (I) Current
- (U) Voltage