YASKAWA

# Data sheet
## SM 031 - Analog input (031-1CB40)

### Technical data

| Order no. | 031-1CB40 |
|---|---|
| Type | SM 031 - Analog input |
| Module ID | 040B 1543 |
| **General information** | |
| Note | - |
| Features | 2x AI<br>16 Bit<br>Current 0(4)…20 mA |
| **Current consumption/power loss** | |
| Current consumption from backplane bus | 60 mA |
| Power loss | 0.7 W |
| **Technical data analog inputs** | |
| Number of inputs | 2 |
| Cable length, shielded | 200 m |
| Rated load voltage | DC 24 V |
| Current consumption from load voltage L+ (without load) | 15 mA |
| Voltage inputs | - |
| Min. input resistance (voltage range) | - |
| Input voltage ranges | - |
| Operational limit of voltage ranges | - |
| Operational limit of voltage ranges with SFU | - |
| Basic error limit voltage ranges | - |
| Basic error limit voltage ranges with SFU | - |
| Destruction limit voltage | - |
| Current inputs | yes |
| Max. input resistance (current range) | 60 Ohm |
| Input current ranges | 0 mA ... +20 mA<br>+4 mA ... +20 mA |
| Operational limit of current ranges | +/-0.2% |
| Operational limit of current ranges with SFU | - |
| Basic error limit current ranges | +/-0.1% |
| Radical error limit current ranges with SFU | - |
| Destruction limit current inputs (voltage) | max. 24V |
| Destruction limit current inputs (electrical current) | max. 40mA |
| Resistance inputs | - |
| Resistance ranges | - |
| Operational limit of resistor ranges | - |
| Operational limit of resistor ranges with SFU | - |
| Basic error limit | - |
| Basic error limit with SFU | - |
| Destruction limit resistance inputs | - |
| Resistance thermometer inputs | - |
| Resistance thermometer ranges | - |
| Operational limit of resistance thermometer ranges | - |



Publish date: 05.10.2023

| | |
|---|---|
| Operational limit of resistance thermometer ranges with SFU | - |
| Basic error limit thermoresistor ranges | - |
| Basic error limit thermoresistor ranges with SFU | - |
| Destruction limit resistance thermometer inputs | - |
| Thermocouple inputs | - |
| Thermocouple ranges | - |
| Operational limit of thermocouple ranges | - |
| Operational limit of thermocouple ranges with SFU | - |
| Basic error limit thermocouple ranges | - |
| Basic error limit thermocouple ranges with SFU | - |
| Destruction limit thermocouple inputs | - |
| Programmable temperature compensation | - |
| External temperature compensation | - |
| Internal temperature compensation | - |
| Temperature error internal compensation | - |
| Technical unit of temperature measurement | - |
| Resolution in bit | 16 |
| Measurement principle | successive approximation |
| Basic conversion time | 240 µs all channels |
| Noise suppression for frequency | >80dB (UCM<4V) |
| **Status information, alarms, diagnostics** | |
| Status display | yes |
| Interrupts | yes, parameterizable |
| Process alarm | yes, parameterizable |
| Diagnostic interrupt | yes, parameterizable |
| Diagnostic functions | yes |
| Diagnostics information read-out | possible |
| Module state | green LED |
| Module error display | red LED |
| Channel error display | red LED per channel |
| **Isolation** | |
| Between channels | - |
| Between channels of groups to | - |
| Between channels and backplane bus | yes |
| Between channels and power supply | yes |
| Max. potential difference between circuits | - |
| Max. potential difference between inputs (Ucm) | DC 4 V |
| Max. potential difference between Mana and Mintern (Uiso) | - |
| Max. potential difference between inputs and Mana (Ucm) | DC 3 V |
| Max. potential difference between inputs and Mintern (Uiso) | DC 75 V/ AC 50 V |
| Max. potential difference between Mintern and outputs | - |
| Insulation tested with | DC 500 V |
| **Technical data encoder supply** | |
| Number of outputs | - |
| Output voltage (typ) | - |
| Output voltage (rated value) | - |
| Short-circuit protection | - |
| Binding of potential | - |

| | |
|---|---|
| **Datasizes** | |
| Input bytes | 4 |
| Output bytes | 0 |
| Parameter bytes | 20 |
| Diagnostic bytes | 20 |
| **Housing** | |
| Material | PPE / PPE GF10 |
| Mounting | Profile rail 35 mm |
| **Mechanical data** | |
| Dimensions (WxHxD) | 12.9 mm x 109 mm x 76.5 mm |
| Net weight | 60 g |
| Weight including accessories | 60 g |
| Gross weight | 74 g |
| **Environmental conditions** | |
| Operating temperature | 0 °C to 60 °C |
| Storage temperature | -25 °C to 70 °C |
| **Certifications** | |
| UL certification | yes |
| KC certification | yes |



Publish date: 05.10.2023