



- General Purpose Remote IO Module or Customizable to be a Dedicated Digital Controller
- 4-Channel Analog Inputs
- 2-Channel Analog Outputs
- 4-Channel Digital Inputs
- 4-Channel Digital Outputs
- Serial Communication with Modbus RTU
- Industry Hardened IOs
- AC/DC Power Input
- Industrial Grade Enclosure

Sunlux is offering **iOTA** Series of modules with digital and analog inputs and outputs which can be either used for remote data acquisition over serial / ethernet based network or can be customized to work as application specific Dedicated Digital Controllers. The modules have been developed for Industrial and Building Automation.

**iOTA MIO14-S** has up to 4-channel analog inputs, 2-channel analog outputs, 4-channel digital inputs and 4-channel digital outputs. By default Modbus RTU protocol on RS485 network is provided for remote connectivity. However customization in terms of number of channels and software is also offered.

## SPECIFICATIONS:

ANALOG INPUT	
Channels	04
Type (DIP Switch Configurable)	a. Single Ended Voltage Input (0 – 12V) b. Current Input (0 – 24mA)
Input Impedance	a. Voltage Input: 1MΩ b. Current Input: 250Ω
Max. Input Voltage	30VDC
Max. Input Current	30mA
Resolution	12-Bit
Accuracy	± 0.6% of Full Scale (for 10 – 40 degC) ± 1.0% of Full Scale (for 0 – 65 degC)
Scan Speed	20 samples per second
Filtering	Analog Low Pass Filter (-3dB Cutoff at 30Hz) Digital Smoothing Filter
Protection	Overvoltage, Overcurrent and Reverse polarity
Channel Diagnostics	Over-voltage detection
Calibration	Self calibration upon trigger or manual calibration
ESD	Compliant as per IEC 61000-4-2 Level 3 (Contact Discharge: 8kV, Air Discharge: 15kV)
EFT	Compliant as per IEC 61000-4-4 Level 3 (1kV, 5kHz)
Connector	Pluggable Screw Terminals capable of 2.5mm <sup>2</sup> core

ANALOG OUTPUT	
Channels	02
Type	Single Ended Voltage Output
Range	0 – 10V with Up to 11V for overdrive
Drive Capability	≥ 750Ω
Resolution	10-Bit
Accuracy	± 0.3% of Full Scale (for 10 – 40 degC) ± 0.6% of Full Scale (for 0 – 65 degC)
Settling Time	5 ms
Scan Speed	20 samples per second
Protection	Overload and short circuit
Calibration	Self calibration upon trigger or manual calibration
ESD	Compliant as per IEC 61000-4-2 Level 3 (Contact Discharge: 8kV, Air Discharge: 15kV)
EFT	Compliant as per IEC 61000-4-4 Level 3 (1kV, 5kHz)
Connector	Pluggable Screw Terminals capable of 2.5mm <sup>2</sup> core

DIGITAL INPUT	
Channels	04
Type	Voltage Input
Logic High Voltage	10VDC to 36VDC
Logic Low Voltage	0VDC to 2VDC
Input Current	20mA max.
Response Time	100ms
Isolation	Opto Isolated up to 1kVAC, 1min for Channel to Ground
Protection	Reverse Polarity and Overvoltage
ESD	Compliant as per IEC 61000-4-2 Level 3 (Contact Discharge: 8kV, Air Discharge: 15kV)
EFT	Compliant as per IEC 61000-4-4 Level 3 (1kV, 5kHz)
Connector	Pluggable Screw Terminals capable of 2.5mm <sup>2</sup> core

<b>DIGITAL OUTPUT</b>	
Channels	04
Type (Factory Configured)	<ul style="list-style-type: none"> <li>a. Electro-Mechanical Relay SPST-NO for high power switching</li> <li>b. Solid State Relay SPST-NO for frequent low power switching</li> </ul>
Electro-Mechanical Relay	<ul style="list-style-type: none"> <li>a. Contact Type: SPST-NO / 1 Form A</li> <li>b. Contact Rating: 230VAC, 48VDC, 5A</li> <li>c. Max. Switching Power: 150W / 1.25kVA</li> <li>d. Contact Resistance: Max. 100 mΩ</li> <li>e. Contact Material: AgNi type</li> <li>f. Expected Life: 100,000 operations with 5A</li> <li>g. Isolation Between Contacts and Coil: 4000Vrms</li> <li>h. Isolation Between Open Contacts: 750Vrms</li> <li>i. Operating Time: 20ms</li> <li>j. Certification: UL certified E43028</li> </ul>
Solid-State Relay	<ul style="list-style-type: none"> <li>a. Contact Type: SPST-NO / 1 Form A</li> <li>b. Contact Rating: 32VAC, 48VDC, 500mA</li> <li>c. Contact Resistance: Max. 100 mΩ</li> <li>d. Expected Life: Infinite under given conditions</li> <li>e. Isolation Between Input and Output: 1500Vrms</li> <li>f. Isolation Resistance Between Open Contacts: 1000MΩ at 500VDC</li> <li>g. Operating Time: 1ms (Typical)</li> <li>h. Protection: Overvoltage and Overcurrent</li> <li>i. ESD: Compliant as per IEC 61000-4-2 Level 3 (Contact Discharge: 8kV, Air Discharge: 15kV)</li> <li>j. EFT: Compliant as per IEC 61000-4-4 Level 3 (1kV, 5kHz)</li> </ul>
Connector	Pluggable Screw Terminals capable of 2.5mm <sup>2</sup> core

<b>SERIAL COMMUNICATION</b>	
Channel	1-channel RS485 Half Duplex
Maximum Devices	Up to 64 nodes (DIP Switch configurable Device ID)
Drive Capability	As per EIA485 specifications
Baudrates (BPS)	4800, 9600, 19200, 38400, 57600, 115200 (DIP Switch Configurable)
Protection	Against short circuit on A and B lines Hot plug and play
ESD	Compliant as per IEC 61000-4-2 Level 3 (Contact Discharge: 8kV, Air Discharge: 15kV)
Protocol	Modbus RTU Slave Digital IOs on Coils and Input Status Facility for single or multiple read and write for coils
Indications	Communication Activity
Connector	Pluggable Screw Terminals

PROCESSOR	
Type	32-Bit ARM Cortex-M0 48MHz Microcontroller
Software Reliability	Watchdog Timer, fail-safe IOs, Simple software architecture with no operating system

POWER SUPPLY	
Input Voltage	9-36VDC
Power Consumption	3W max.
Protection	Short Circuit, Overvoltage, Undervoltage
Conducted Emissions	Line filters for Class A and Class B Emissions
ESD	Compliant as per IEC 61000-4-2 Level 3 (Contact Discharge: 8kV, Air Discharge: 15kV)
EFT	Compliant as per IEC 61000-4-4 Level 3 (1kV, 5kHz)
Connector	Pluggable Screw Terminals

ENVIRONMENTAL	
Operating Temperature	0°C to 65°C
Operating Humidity	20%RH to 90%RH non-condensing
Ingress Protection	IP 40 (all surfaces except rear)

MECHANICAL	
Enclosure	Aluminum with powder coating
Mounting	DIN Rail
Dimensions	105mm x 80mm x 35mm (Without Plugs)
Weight	200g

## ORDER CODE:

Part Number	Digital Output	Protocol
iOTA-MIO14-S / MB-R	Electro-Mechanical Relays	Modbus RTU
iOTA-MIO14-S / MB-S	Solid State Relays	Modbus RTU
iOTA-MIO14-S / BA-R	Electro-Mechanical Relays	BACnet MSTP
iOTA-MIO14-S / BA-S	Solid State Relays	BACnet MSTP

**NOTE: By default, DIN rail mounting is provided. For wall mounting add suffix '-W' to the part number**

## CONTACT:

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