HSYCO I/O Max Datasheet

Note: all values typical, at +25 °C and under normal operating conditions.

POWER SUPPLY	
Power supply operating voltage (VS)	⎓dc 24 V nominal (range 10-50 V), 20 W max Reverse polarity and surge protection with 3.3 A resettable fuse
UPS external battery (not included)	12 V or 24 V lead acid battery. Suggested capacity: 1.2 Ah to 7 Ah. Reverse polarity and surge protection with 3.3 A resettable fuse
UPS battery charge voltage	28.5 V (Max. for 24V batteries)
UPS battery charge current	500 mA (Max. for 12V batteries)
Voltage threshold for switching to battery mode	below 7.0 V
VSO output voltage range	+12…+24 V
VSO output power	8W (Max)
VSO output resettable fuse	1.1 A
5VO output voltage	4.7 V (no load) 4.6 V (10 Ohm load)
5VO output current	500 mA (Max)
USB1 port output current	500 mA (Max)
USB2 + USB_INTERNAL port output current	500 mA (Max)
EXP port output voltage	5 V
EXP port output current	500 mA (Max)
HARDWARE PLATFORM	
Hardware Platform	Strato Pi Max Raspberry Pi Compute Module 4S Lite 1GB RAM (Alternative) Raspberry Pi Compute Module 4S Lite 4GB RAM Industrial μSD card 8GB

HSYCO I/O Max Datasheet (cont)

COMMUNICATION PORTS	
Serial communication ports	RS-485 Half-Duplex with automatic data direction management RS-232 Full-Duplex
Baud Rates on COMM ports	1200 to 115200
ESD-Protection Voltage on RS-232 TX/RX	±15 kV human body model ±8 kV contact discharge
ESD-Protection Voltage on RS-485 A/B	±15 kV human body model ±8 kV contact discharge
Surge protection on RS-485 A/B	Surge protection up to ±500 V / 2 Ohms 1.2/50 µs; 600 W peak pulse power capability at 10/1000 µs waveform
Fail safe feature on RS-485	Yes
CAN interface	8 Mbps (Max. CAN-FD)
ESD-Protection Voltage on CANH, CANL	±14 kV human body model ±8 kV contact discharge
Transient Voltage protection on CANH, CANL	-150 V to +100 V (waveforms of the applied transients in accordance with ISO-7637, Part 1, test pulses 1, 2, 3a and 3b)
USB ports	USB 2.0 Type A
Ethernet Port	10/100 Mbps
AVx: ANALOG VOLTAGE INPUTS	
Input voltage range	0…20 V
Input impedance	> 1 MOhm
Total Unadjusted Error (TUE)	±0.06 % of full-scale
Resolution	24 bits (Max)
AIx: ANALOG CURRENT INPUTS	
Input current range	-0.5…+24 mA
Input impedance	240 Ohm
Total Unadjusted Error (TUE)	±0.08 % of full-scale
Resolution	24 bits (Max)

HSYCO I/O Max Datasheet (cont)

ATx: TEMPERATURE SENSORS INPUTS (PT100, PT1000)	
Temperature range	-150…+400 °C
Accuracy (not including Pt and cable errors)	± 0.3 °C ± 0.05 % of reading
Resolution	24 bits (Max)
AOx: ANALOG VOLTAGE OUTPUTS	
Output range	0…+10 V
Output drive current	15 mA (Max)
Total Error	±0.5 % of full-scale (Max)
Resolution	12 bits
AOx: ANALOG CURRENT OUTPUTS	
Output range	0…+20 mA
Output drive voltage	12 V (Max)
Total Error	±0.5 % of full-scale (Max)
Resolution	12 bits
DIx: DIGITAL INPUTS	
Input voltage range	0…40 V
Input impedance	6.9 kOhm
Voltage threshold	VIH: 4.2 V VIL: 3.4 V
OCx: OPEN COLLECTOR OUTPUTS	
Sink current	200 mA (Max)
On resistance	3 Ohm
Voltage range	0…50 V
DTx: DIGITAL INPUT/OUTPUT	
Output voltage	VOL: 0.2 V VOH: 5.0 V
Input voltage threshold	VIH: 2.4 V VIL: 0.8 V
Pull-up (+5 V)	10 kOhm

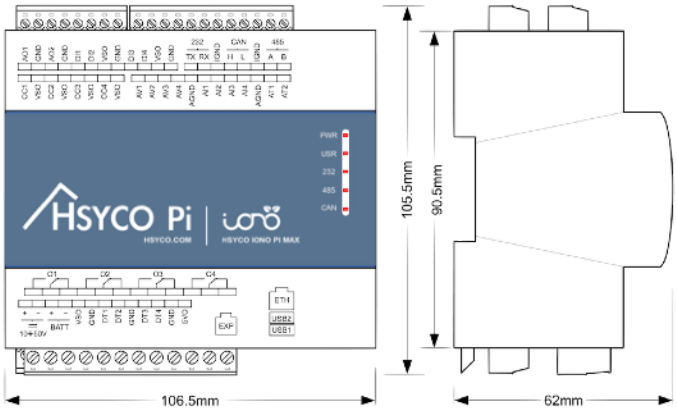
HSYCO I/O Max Datasheet (cont)

Ox: RELAYS	
Rated current	6 A
Rated voltage	250 V AC
Rated load (AC1, resistive load)	1500 VA
Rated load (AC15, cos ϕ = 0.5)	250 VA
Single phase motor rating (230 V AC)	185 W
Breaking capacity (DC1)	• 3 A at 30 V DC • 0.35 A at 110 V DC • 0.2 A at 220 V DC
Electrical life at rated load AC1	50000 cycles
Mechanical life	20000000 cycles
Operate/release time	6/4 ms
Dielectric strength between open contacts	1000 V AC
Type of insulation between coil and contacts	Basic
Dielectric strength between coil and contacts	4000 V AC
REAL TIME CLOCK	
Oscillator frequency	32768 kHz
Frequency Tolerance	±3 ppm
Backup battery	Only use CR1220 or BR1220 Lithium / Manganese Dioxide (Li/MnO2) batteries. Expected battery life without main power supply: 3 or more years, depending on environmental conditions
INTERNAL TEMPERATURE SENSORS	
Temperature accuracy	±2 °C
Resolution	11 bits (0.125 °C)
INTERNAL VOLTAGE SENSORS (VS, BATT, VSO)	
Voltage range	0…58 V (VS) 0…30 V (BATT, VSO)
Total Unadjusted Error (TUE)	±0.25 % of full-scale
Resolution	12 bits

HSYCO I/O Max Datasheet (ends)

INTERNAL CURRENT SENSORS (VS, BATT, VSO)	
Current range	0…4 A (VS) 0…1 A (BATT, VSO)
Total Unadjusted Error (TUE)	±2.5 % of full-scale
Resolution	12 bits
EMI IMMUNITY STANDARDS	
Electromagnetic immunity compliance	EN 61000-4-2 (ESD) EN 61000-4-3 (Radiated RF Field) EN 61000-4-4 (Burst/fast transient) EN 61000-4-5 (Surge) EN 61000-4-6 (Conducted) EN 61000-4-8 (Power frequency magnetic field)
ENVIRONMENTAL	
Operating temperature	-20…+60 °C
Storage temperature	-30…+80 °C
Altitude	Up to 2000 m
Humidity	5% to 95% RH noncondensing
Protection degree	IP20
MECHANICAL	
3.81 mm pitch terminal block characteristics	Maximum conductor cross section: 1.3 mm2 (16AWG), or 0.5 mm2 when using ferrules (highly recommended) Recommended stripping length: 6 mm Screw thread: M2 Maximum screws tightening torque: 0.3 Nm
5.08 mm pitch terminal block characteristics (relays)	Maximum conductor cross section: 3.3 mm2 (12AWG) Recommended stripping length: 7 mm Screw thread: M3 Maximum screws tightening torque: 0.5 Nm
Dimensions	6 module Din Rail enclosure width: 106.5 mm height: 90.5mm depth: 62.0mm
Weight	330 g

Dimensions



DIMENSIONS (mm)

Disposal

Waste Electrical & Electronic Equipment

(Applicable in the European Union and other European countries with separate collection systems). This marking on the product, accessories or literature indicates that the product should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Iono Pi Max contains a small non rechargeable manganese dioxide lithium coin battery.

In the Iono Pi Max, the battery is not accessible from the outside. You should first remove the case body to gain access to the Iono Pi Max circuit boards. Always remove the battery before disposing of this product.

Installation and use restrictions

Standards and regulations

The design and the setting up of electrical systems must be performed according to the relevant standards, guidelines, specifications and regulations of the relevant country. The installation, configuration and programming of the devices must be carried out by trained personnel.

The installation and wiring of connected devices must be performed according to the recommendations of the manufacturers (reported on the specific data sheet of the product) and according to the applicable standards.

All the relevant safety regulations, e.g. accident prevention regulations, law on technical work equipment, must also be observed.

Safety instructions

Carefully read the safety information section at the beginning of this document.

Set-up

For the first installation of the device proceed according to the following procedure:

- ✓ make sure all power supplies are disconnected
- ✓ install and wire the device according to the schematic diagrams on the specific product user guide

✓ after completing the previous steps, switch on the power supply and other related circuits.

Conformity Information

EU

This device complies with the following applicable European Community harmonised standards:

✓ 2014/30/EU - Electromagnetic Compatibility Directive (EMC)

✓ 2014/35/EU - Low Voltage Directive (LVD)

✓ 2011/65/EU and 2015/863/EU - Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The following harmonised standards have been used to demonstrate conformity to these directives:

✓ EN60664-1:2007 - Insulation coordination for equipment within low-voltage systems

✓ EN61000-6-2:2019 - EMC Immunity standard for industrial environments

✓ EN 61000-6-3:2007/A1:2011/AC:2012 - EMC Emission standard for residential, commercial and light-industrial environments

The declaration of conformity is available at: https://www.sferalabs.cc

USA

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Shielded cables must be used with this equipment to maintain compliance with FCC regulations.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device

must accept any interference received, including interference that may cause undesired operation.

CANADA

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

RCM AUSTRALIA / NEW ZEALAND

This product meets the requirements of the standard EN 61000-6-3:2007/A1:2011/ AC:2012 - Emission for residential, commercial and light-industrial environments.