

Application

Q1-EXP is a physical I/O expansion for other Q1 digital controllers. Q1-EXP adds additional I/O without introducing additional LonWorks network nodes. This functionality is required by some building specifications where use of multiple controllers to control single piece of equipment is prohibited.

Network

Q1-EXP is built to operate on I/O Expansion bus ("EBus") connected with twisted-shielded wire to local Q1 digital controller. The EBus is not designed to span distances over 500ft. EBus network is polarity sensitive and needs to be wired in bus topology.

Software

Q1-EXP has software configurable physical I/O. Q1 digital controllers provide the required software interface for I/O type selection and configuration.

Hardware

- 12 inputs include: 2 resistive-sensor-only inputs and up to 10 universal inputs. Universal inputs can accept 0-10V, 0-20mA, resistive and dry-contact signals. UI type is adjustable by plug-in, no jumpers.
- 8 Digital outputs are triac digital on/off or floating point.
- 4 Universal analog outputs are capable of 0-10 volts and adjustable within that range, or digital (0-12V DC)
- 16V DC on-board power supply provides power for loop-powered 4-20mA sensors.
- Analog outputs are fused.
- RJ11 jack provides quick access to network and 16V DC power for handheld.
- DIN rail mounting is integrated into enclosure for rapid installation.



Q1-EXP boards provide physical I/O count expansion to Q1 digital controllers. The I/O becomes available internally to the Q1 digital controller and can be utilized in internal sequence of operation. Optionally the I/O can be exposed to the LonWorks network on which the Q1 digital controller is commissioned.

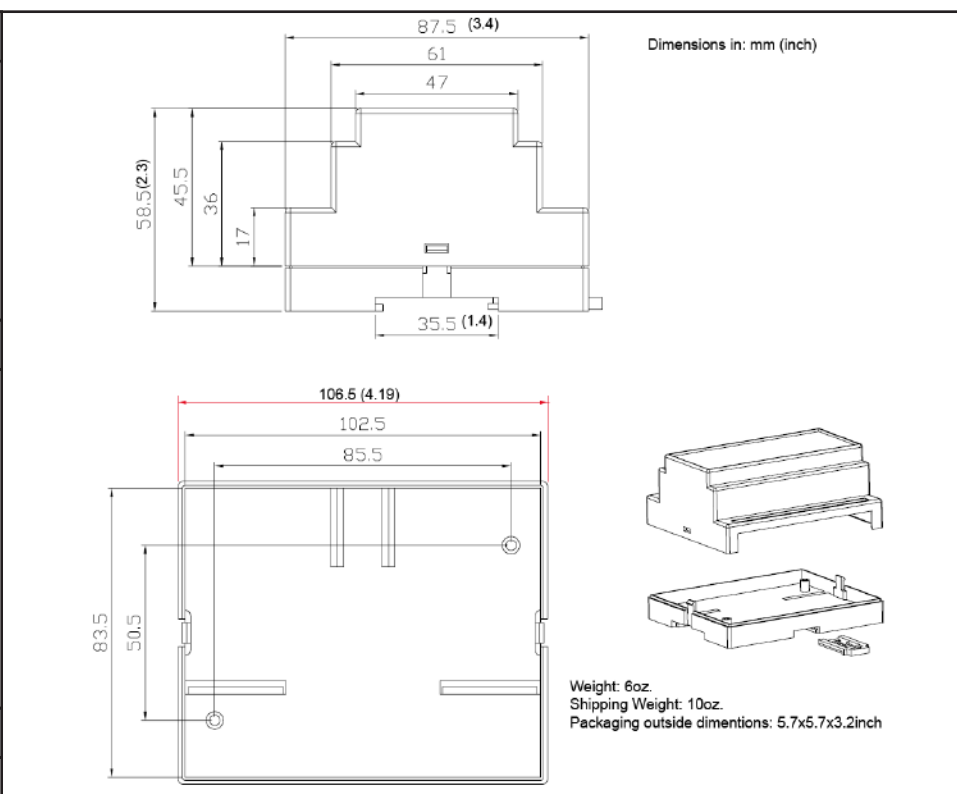
The Q1-EXP hardware is build to high quality standards and is backed by two-year warranty. All hardware is build in the USA using eco-friendly, lead-free technology and is **RoHS** compliant. Features: 12 universal inputs, 12 universal outputs, 5 independent PID loops.

Q1-EXP-2.10.8.4

Hardware Specifications



Environmental	
Operating temperature:	0°-70°C (32°-158°F)
Operating humidity:	0-90% non-condensing
Storage temperature:	-20°- 70°C (-4° - 158°F)
Power	
Typical power consumption:	5-6VA plus peripherals.
Max power consumption:	30VA including peripherals.
Supply voltage:	20-30V AC Class II or 22-50V DC
Fuse:	Fuse: 1.8A resettable fuse
Enclosure	
Installation:	Mounts on 35mm Din-Rail.
Color:	Off-white
Material:	ABS
Connectors:	Connectors: Green, pluggable, 10 position.
Hardware	
Processor:	ARM, 32bit, 80MHz
Memory:	128k application memory
Transceiver:	RS-485
Indicator light:	Multi color LED, power, status, service
Comm jack:	RJ11; power, LON, hand-held comm.



Inputs:
 Q1 hardware platform always has 2 resistive sensor inputs. In addition there are up to 10 Universal Inputs. Number of UIs depends on the part number. Input resolution is 12 bits. UIs are software configurable.

- Voltage 0-10VDC
- Current 0-20mA
- Digital Dry contact
- Resistive sensors
 - Thermistor 10kΩ Type 2 (recommended), Type 3
 - Thermistor custom translation table on each UI
 - Potentiometer with custom translation table on each UI

Outputs:
 Q1 hardware has up to 8 triac digital outputs and 4 analog outputs. Number of outputs depends on the part number. Triac outputs can source 24VAC or route external AC power depending on power jumper (P6) setting.

- Digital Triac
 - Triacs rated for 1A at 24VAC for a total of 2A all outputs.
 - External power supply or
 - Sourcing of 24VAC. See jumper setting.
- Analog Universal
 - 0-10VDC adjustable, linear
 - 0 Or 12VDC digital
 - 35mA max at 30°C.
 - Resolution 8 bit
 - Auto reset fuse at 125mA

LED color codes:
 Red/Green alternating = Powered on and application less
 Green = Powered on and configured
 Red = Powered on and Neuron chip fault
 OFF, no color = No power