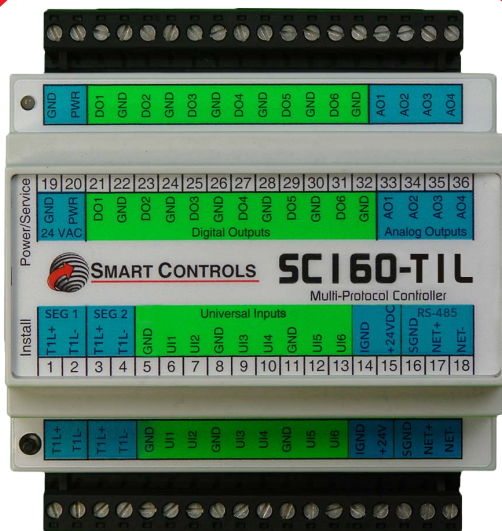




SMART CONTROLS

SC160-T1L

Shaping the Future of Building Automation



Overview

Unlock the high-performance, low-cost power of 10BASE-T1L innovation with Smart Controls.

With the **SC160-T1L** multi-protocol controller from Smart Controls, optimize your energy management with powerful and personalized control. Engineered to handle expansive communication and application flexibility, the **SC160-T1L** empowers you to take charge of your building's system using single-pair 10BASE-T1L Ethernet wiring.

Effortlessly integrate the **SC160-T1L** into your network infrastructure with its available 10BASE-T1L and RS-485 connection ports, ensuring minimized retrofit costs and hassle-free installation into nearly any commercial building.

Alongside its robust 16-point I/O system, communication support over BACnet™ and Modbus™, with an optional airflow pressure sensors, you can future-proof your control network with affordability and reliability.

Experience the intelligent future of building automation with the **SC160-T1L**.

Controller



Features & Highlights

- **Versatile Communication Options:** Seamlessly communicate with BACnet or Modbus using two-port 10BASE-T1L Fail-Safe Bypass switch or one-port RS-485.
- **Comprehensive I/O Points:** Manage up to 16 I/O points for flexible and expansive control over a wide range of applications.
- **Advanced Programming Made Easy:** Leverage VisualControl, the advanced graphical programming software from Smart Controls, for optimized application programming, allowing full system customization and control.
- **Space-Efficient Design:** Enjoy the benefits of a compact controller size that fits seamlessly into DIN-rail mounts, saving valuable space and delivering robust functionality.



Technical Specifications

Power

- *Nominal Input Range:* 24 VAC
- *Input Voltage Range:* $\pm 20\%$
- *Typical Consumption:* 1.6 VA
- *Maximum Consumption:* 2.4 VA

Hardware

- *Processor:* 32-bit ARM Cortex-M33
- *Application Memory:* 2 MB FLASH
640 KB RAM

Enclosure

- *Dimensions:* L 4.13" x W 3.39" x H 2.28"
(105 x 86 x 58 mm)
- *Cover:* Lexan 940, UL94-V0 Rated
- *Base:* Noryl VO1550, UL94-V0 Rated
- *Mounting:* DIN-rail mounting

Environmental

- *Operating Temperature:* -4°F to 158°F
(-20°C to 70°C)
- *Storage Temperature:* -40°F to 158°F
(-40°C to 70°C)

Inputs

- *Number:* Six (6) Universal Inputs
- *Voltage:* 0-5 V, 0-10 V
- *Current:* 4-20 mA
- *Thermistor:* Type 2, 3: 10K ohms (77°F, 25°C),
20K ohms (77°F, 25°C)
- *Digital:* Dry Contact, Open-Collector
- *Resolution:* 12-bit
- *Accuracy:* $\pm 1\%$ FS (77°F, 25°C)
- *Protection Circuitry:* Transient Overvoltage, ESD

Outputs

- *Number:* Ten (10) Outputs
 - 6 Digital: Triac 1.0 A @ 24 VAC, Voltage Sourcing
 - 4 Analog: 0-10 V
- *Resolution:* 12-bit
- *Accuracy:* $\pm 1\%$ FS (77°F, 25°C)
- *Protection Circuitry:* Transient Overvoltage, ESD

+24 V Isolated DC (750 mA) Supply

- *Voltage:* +24 \pm 0.5 VDC
- *Current Continuous (Max.):* 0.75 A (68°F, 20°C)
- *Fused:* 1.5 A trip, Auto-Reset (68°F, 20°C)

Protocols

- *BACnet:*
 - IP over T1L (Auto-Discovery)
 - MSTP
- *Modbus:*
 - TCP over T1L (Smart-Polling)
 - RTU

10BASE-T1L

- *Number:* 2 ports, Fail-Safe Bypass Switch
- *Standard Compliance:* 10BASE-T1L IEEE802.3cg
- *Wiring:* Single twisted-pair (shielded and unshielded)
- *Cable Type:* Twisted pair, typically 18-22 AWG
- *Distance:* 2952 ft (900 m) for point-to-point, up to
984 ft (300 m) with multiple nodes on the bus
- *Transmission Rate:* 10 Mbps
- *Control:* IP Switch

RS-485 (Isolated)

- *Number:* 1 port
- *Standard Compliance:* EIA/TIA-485-A
- *Wiring:* Single twisted-pair (shielded and unshielded)
with third wire ground
- *Cable Type:* Twisted pair 18-24 AWG
- *Maximum Distance:* 4000 ft (1200 m)
- *Transmission Rate:* 9.6, 19.2, 38.4 Kbps default
(configurable)
- *Isolation:* Isolated RS-485 transceiver
- *Termination:* End-of-Line termination support

Air-Flow/Pressure (on -XP model)

- *Type:* Differential Pressure
- *Range:* 0-2" W.C. (0-500 Pa)
- *Resolution:* 12-bit
- *Accuracy:* 0.2% Full Scale
(32°F to 122°F, 0°C to 50°C)

Warranty

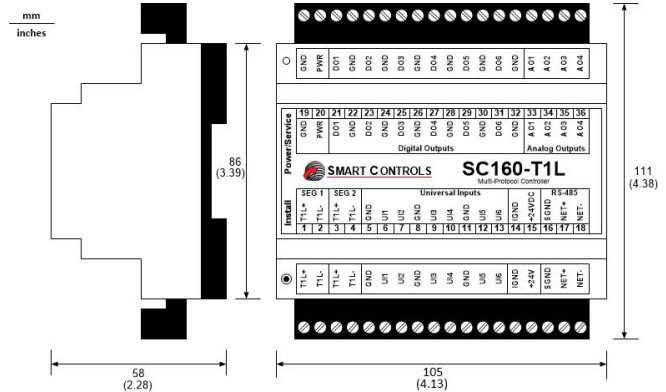
- *Period:* Five (5) Year Limited Warranty



Model Selection

Series	Air Flow/Pressure
SC160-T1L	-N: None
	-XP: Differential Pressure Sensor

Dimensions



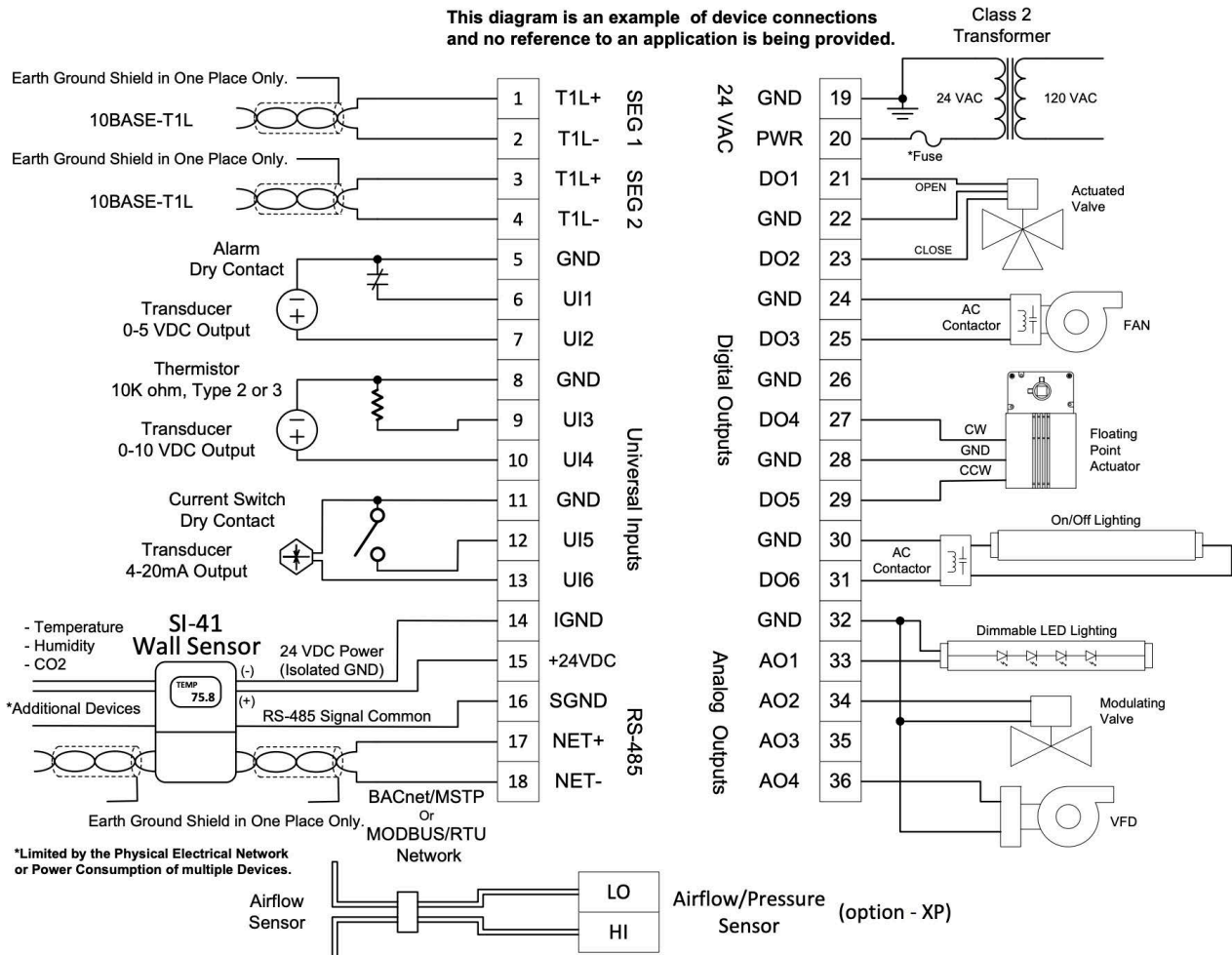
Wiring Diagram

IMPORTANT WIRING INFORMATION

All inputs are software selected for analog, digital or resistive.

- 1) Secondary of Class 2 Transformer should always be earth grounded to provide reliable communication and sensor readings.
- 2) *External fuse not supplied. Size fuse according to application load and not to exceed 5 Amps.
- 3) Do not connect external resistor to voltage inputs to sense 4-20 mA current devices. Incorrect readings will result.

This diagram is an example of device connections and no reference to an application is being provided.





Smart Controls System Overview



Connect ArtAir Sensors

Elevate your space with high-performance **ArtAir sensors** from Smart Controls that pair with the *SC160-T1L*.

Designed to deliver unmatched precision in **monitoring and controlling air quality** across any environment, Smart Controls sensors effortlessly track temperature, humidity, CO₂, and VOC levels to ensure optimal air quality conditions are sustained to meet your energy needs.

Fully Programmable Control

The *SC160-T1L* provides buildings with personalized energy efficiency thanks to its **freely programmable functionality**.

Using **VisualControl**, Smart Controls' advanced graphical programming software, it is easier than ever to **design, test, and upload custom applications** to your controllers, enhancing your building with targeted and streamlined control in any system.



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