TELSEC® ESB

for Monitoring, Control & Building Management of Remote Sites

ENVIRONMENTAL ALARM MONITORING & CONTROL

INTELLIGENT LEAD/LAG HVAC MONITORING & CONTROL

DOOR ACCESS CONTROL & INTRUSION ALARMING
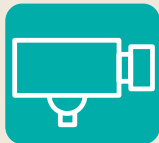
GENERATOR & ATS MONITORING

AC/DC POWER & UPS MONITORING

TELEPHONY EQUIPMENT MONITORING

TOWER LIGHT MONITORING

VIDEO CAMERA MONITORING

MSG.GENALARM
Generator Failed to Run (Alarm Critical)

TELSEC® ESB with Web browser for status & configuration

http://www...

The TELSEC® ESB provides an integrated surveillance solution to monitor and control all environmental and access control functions and equipment alarming:

- Performs all controlling, monitoring, and communication functions in a single product.
- Install in CEVs, CUEs and Cabinets.
- Install in COs and Data/Computer Centers.
- SNMP, embedded Web Server, and Email Alarm Messaging.
- Uses Quest's patented economizer control algorithm to dynamically adjust settings to optimize the use of outside air for cooling.
- Compact, versatile package operates with a standard control program or can be customized to meet your requirements.
- Enables remote interrogation of remote sites from any alarm and/or maintenance center.
- UL and CE listed. Mountable in customized UL approved Panel Enclosures.

Acting as your smart eyes and ears, the TELSEC® delivers large savings and quick payback by:

- Reducing energy costs via intelligent HVAC lead/lag control strategies.
- Reducing visits to remote sites.
- Eliminating downtime by acting as an early warning system.
- Reducing capital expenditures by replacing multiple devices to accomplish the same task.
- Extending life of critical operating equipment including air conditioners, generators and power equipment.
- Providing remote visibility and 2-way communications.

Quest Controls
Intelligent Solutions. Controlled.

TELSEC® ESB Features:

- TCP/IP over Ethernet Connectivity. Supports SNMP v1, SNMP v2c.

- Expandable to 128 universal inputs, 64 digital outputs and 10 analog outputs plus 16 stand alone RTU HVAC controllers.

- Controls multiple air conditioning units for fan, cooling, heat, and economizer through optional Intelligent Roof Top Unit Stand Alone Controllers.

- Uses Quest's patented economizer control algorithm to dynamically adjust settings to optimize the use of outside air for cooling.

- Supports polling and alarming of 512 registers for Modbus RTU slave modules.

- Converts Modbus RTU data to SNMP for remote polling and alarming of devices.

- Non-volatile FLASH memory prevents program loss & stores program upgrades.

- Monitors all environmental alarms: temperature, humidity, fire/smoke, toxic and combustible gas, high water.

- Built-in RS-232 communications port for on-site monitoring and programming.

- Built-in 2 line, 40 character LCD display and 18 button keypad for system status and setpoint changes.
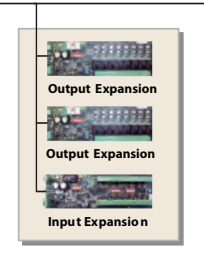
SNMP Alarm Management
Web Browser for Status & Configuration
Email Alarm Messaging
UL Approved Panel Configuration
1 Year Warranty

Remote Web-based or In-house Communications

HTTP, SNMP and Telnet over Ethernet

TELSEC® ESB   EXP Expansion Panel*

Output Expansion

Output Expansion

Input Expansion

RTU #1

RTU #2

RTU #16

RTU Units Installed in Rooftop or Wall Mount HVAC

Up to 3 Input or Output TELSEC® ESB Input/Output Boards can be mounted in an Expansion Panel

Specifications	TELSEC® ESB	EXP Expansion Panel	UIB Board	DOB Board	AOB Board	RTU
Part Number	150770	150775 requires External Power Supply	130455	130454	130456	130440
Mounting	Wall mount					
Inputs	16 universal inputs expandable to 128 in 16 input increments, Analog (0-5 VDC or 0-20 mA) or dry contact closures (order part# 130455)					
Outputs - Digital	16 digital outputs expandable to 64 in 8 output increments, (order part# 130454)					
Contact Rating	(16) Form A, 1 amp at 30 VDC, 0.3 amps at 60 VDC, 0.5 amps at 125 VAC, (order part# 130454) (8) Form C, 10 amps at 28 VDC, 8.5 amps at 120 VAC					
Outputs - Analog Optional	2 on-board, expandable to 10 analog outputs, 0-10 VDC or 0-20/4-20 mA (order part# 130456)					
HVAC Control	16 stand alone RTU Controllers can be networked to the system. Order part# 130440					
Card Access	Supports industry standard Wiegand format, proximity or card swipe readers. Up to 600 cards can be programmed per site. Logs 800 most recent events					
Power	24 VAC/20-60 VDC, current draw 0.5 amps at 24 VDC					
Front Panel	Built-in programming panel with 18 keys and an 80-character backlit LCD Display					
Modem (option)	56K modem for communications over standard dialup phone line					
Serial Port	DB-9 RS-232 port. Supports asynchronous communications. Programmable for speed, parity, & bit format					
Serial Network Options Supported	Modbus RTU selectable for RS485 or 232. 512 registers for reading coils, inputs, analog and holding registers. Registers can be 16 bit integer, 32 bit integer, floating or signed					
Network Interface (option) LAN Protocols Supported	Ethernet 10/100BaseT with RJ45 connector. Built-in Web Server, Telnet, HTTP, SMTP (Email), SNMP v1, v2c, Traps/Informs					
Logging	Logs all inputs, outputs (up to 16,000 points) and alarms (last 99)					
Software	Supports any off-the-shelf terminal communication software and Web browser (e.g. Internet Explorer® 6+, Firefox® 1.5+)					
I/O Terminals	2 piece pull-off terminals for all field wiring					
Battery	Long life lithium: 10 year shelf life, 1.5 years under load					
Temp/Humidity Sensor Accuracy	Temp: ±1°F (±0.5°C), Humidity: ±2% of range. Temperature & Humidity sensor (standard)					
Ambient Operating Temp	-20 to 180°F (-29 to 82°C), 0-95% RH Non-condensing					
Certification	UL, CE					
Dimensions	12.25"W x 15.25"H x 3.92"D (311 x 387 x 92 mm)					
Weight	14 lb. (6.4 kg)					
Warranty	1 year					

For use under U.S. Patent No. U.S. 10,267,529 B2 when component is part of a patented combination
Specifications subject to change without notice

TESB062019 v10

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TELSEC® MINI PRO²

Alarm Monitoring

The TELSEC MINI PRO² is designed to address the monitoring and alarming requirements of critical infrastructure equipment used in Utility, Telecommunications, and Cable/Broadband remote facilities. The compact intuitive system will monitor environmental conditions such as temperature, humidity, intrusion, DC power plants, generators, fuel level, energy usage, and other critical systems found in remote cabinets and shelters. The MINI PRO² has 32 universal inputs which support monitoring temperature, contact closures or any 0-5 VDC or 4-20 mA sensors. Two RS485 serial ports are available to monitor Modbus RTU enabled devices for trending and alarming. Up to 512 unique Modbus registers can be polled per port. There are four digital outputs for alarm notification or control such as generator exercise, as well as an Ethernet port for remote communications.

The system features a built-in web server for programming and status monitoring of the site, including a historical graphing engine. The alarm logic is programmable with multiple severity levels and all programming is stored in non-volatile memory. All alarm notifications are sent using TL1, SNMP traps/informs and/or email notification.
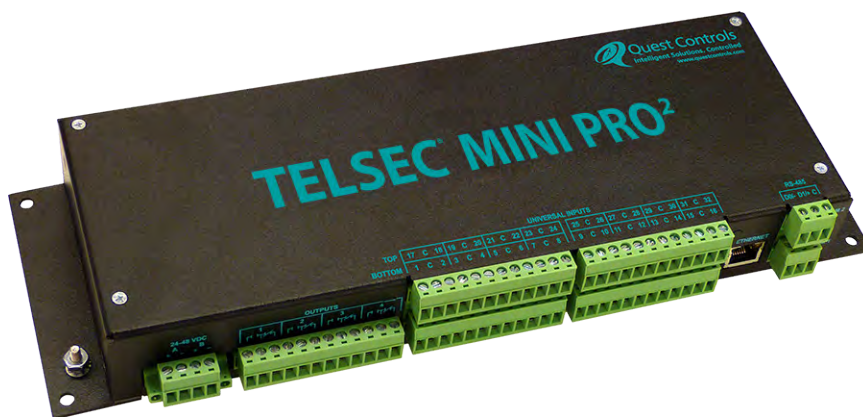
Features:

- 32 Universal Inputs & 4 form C digital outputs
- Ethernet communications with support for IPv6, IPv4, HTTP, HTTPS, DNP3, RADIUS Password Authentication, SNMP v1, v2c and v3, SSH, Telnet, TL1 and SMTP (Email)
- DNP3 – Supports polling of inputs and outputs via Ethernet or serial
- Compact Package allows for Wall or Rack Mounting
- Enable Interrogation of Remote Site from any Alarm or Maintenance Center
- Modbus RTU Communications – Supports communicating to Modbus RTU enabled equipment such as KW meters, generators, fuel level sensors and HVAC systems

Benefits:

- Simple to install & program
- Can be configured through a web browser or upload a config file
- Real time view of your facility and critical equipment
- Reduces visits to Remote Sites
- Low cost solution for remote monitoring of your critical facilities
- Eliminates downtime by acting as an Early Warning System

Applications:

- Utilities / Telecommunication / Cable & Broadband – Remote Cabinets & Shelters
- Data / Switching / Computer Centers / COs / Headends & Hubs

Specifications

Part number: 151052-32

Inputs: 32 universal inputs supporting 0-5 VDC, 4-20 mA, thermistor & contact closure

Outputs: 4 form C digital outputs. Contact rating: 0.5 amp @ 60 VDC

Network interface: Ethernet 10/100 Base-T

Protocols supported: IPv6, IPv4, HTTP, HTTPS, DNP3, RADIUS Password Authentication, NTP, SMTP (email), SSHv2, Telnet, TL1, SNMP v1, v2c and v3 for Gets, Sets and traps/informs

Serial interface: Two RS485 serial ports

Serial Protocols Supported: Modbus RTU read and write with up to 1024 registers for 16 & 32-bit integers, floating point and signed integers
DNP3: Supports polling of the MINI PRO²'s inputs and outputs

Logging: Logs data for inputs, outputs, alarms, control states and Modbus registers

Alarm notification methods: TL1 over SSH/Telnet, Email/SMTP and SNMP traps or informs

Destinations: four programmable trap destinations, ten email addresses or distribution lists

I/O terminal: removable screw terminals supports up to 12 AWG wire

Power: dual feed 24-48 VDC, 3.7 W max.

Battery: long life lithium

Temperature sensor accuracy: ±1°F

Ambient operating temperature: 23° to 131°F (-5° to 55°C), 0-95% RH Non-condensing

Dimensions: 13.15 W x 4.15 L x 1.63 H in. (334 x 105 x 41 mm)

Weight: 1 lb. (454 g)

Warranty: 1 Year

Specifications subject to change without notice

RSC 1000™ Remote Site Controller

With Touch Screen Technology.

Quest has boldly reimagined the control and monitoring experience of remote CI structures using touch screen technology. Operators can manage the Site Controller using custom graphics created for users of varying expertise. The high resolution display makes the RSC 1000 easy to use by the local technician to monitor and control the site's HVAC units and manage peripheral systems connected via Modbus RTU.

The RSC 1000 allows the end-user to improve quality, reduce maintenance costs, shrink energy consumption and boost productivity through intelligent remote management of the facility. The RSC 1000 Controller is specifically designed for use in remote sites offering added value of the latest in facility automation.

Quest RSC 1000 Features

- Base system controls up to two air conditioning units for cooling, heating, vent and economizer, plus a separate exhaust fan. Supports single stage, two stage cooling and heat pumps.

- Expandable to control an additional two air conditioning units.

- Uses Quest's patented economizer control algorithm to dynamically adjust settings to optimize the use of outside air for cooling.

- Analog outputs for direct control of economizer dampers and variable speed supply fans.

- Alarm outputs for high temperature, low temperature, smoke/fire, HVAC unit power failure, compressor lockout, generator running and controller failure.

- Standard configuration controls, monitors, and alarms inside temperature and humidity.

- Lead/Lag or Lead/Standby control of AC Units with programmable changeover time of 1-168 hours.

- Automatic changeover upon HVAC failure.

- Comfort Mode—ability to change setpoints to a Comfort Mode with automatic reset. Time delay is user defined.

- Programmable settings for control and alarm setpoints with built in limits to prevent personnel from adjusting the settings out of range.

- Menu-driven interface.

- Exhaust fan control to purge facility when gas is present or in a high temperature condition. Automatic shutdown when smoke or fire is detected.

- Graphical touch screen color display. 4.3" diagonal size with 24 bit TrueColor.

- Redundant Power—24 VAC power from AC#1, AC#2 or external transformer plus 24 VDC / 48 VDC power from DC plant.

- Ethernet communications with support for IPv6, IPv4, HTTP, HTTPS, RADIUS Password Authentication, SNMP v1, v2c and v3 and SMTP (Email).

- Data logging to monitor performance of the facility and HVAC systems, to include compressor runtime & cycles, indoor & outdoor temperature/humidity, supply & mixed air temperatures, energy consumption, etc.

- Expanded monitoring and control—Additional inputs and outputs to take direct control of economizer dampers and/or adjust temperature setpoints based on current load of DC Plant.

- Modbus RTU Communications—Supports communicating to Modbus RTU enabled equipment such as KW meters, generators, fuel level sensors and HVAC systems.

- Zone 1 temperature sensor is included with the base system.

RSC 1000™ Site Controller

RSC 1000 - I/O Summary	
20 Inputs	**Qty**
Analog Inputs	**10**
Room Temperature Sensor (Zone 1 is included in base system)	1
Additional Room Temp sensor (Zone 2)	1
HVAC Supply Temp	2
HVAC Mixed Air Temp	2
Indoor Humidity	1
Outdoor Air Temperature	1
4-20mA Inputs (Future)	2
Digital Inputs	**10**
Low Voltage HVAC Power Loss	2
Commercial Power Fail	1
Generator Running	1
HVAC Lockout Monitor	2
Fan/Filter/Econ Status	2
Gas Alarm	1
Smoke/Fire	1
21 Digital Outputs	**Qty**
Digital Outputs for Control	**13**
AC #1 Supply Fan	1
AC #1 Cool 1	1
AC #1 Cool 2	1
AC #1 Heat 1	1
AC #1 Emergency Vent	1
AC #1 Auxiliary (SPDT)	1
AC #2 Supply Fan	1
AC #2 Cool 1	1
AC #2 Cool 2	1
AC #2 Heat 1	1
AC #2 Emergency Vent	1
AC #2 Auxiliary	1
Exhaust Fan (SPDT)	1
Digital Outputs for Alarm (SPDT)	**8**
HVAC Failure	2
Smoke/Fire	1
High Temp (Stage 1&2)	2
Low Temp	1
High Humidity	1
Generator Running	1
4 Analog Outputs	**Qty**
AC #1 Economizer Damper	1
AC #1 Supply Fan	1
AC #2 Economizer Damper	1
AC #2 Supply Fan	1
Serial Networks (RS-485)	**Qty**
Modbus RTU Registers/Points	512
RSC-ACX	2

Specifications for the RSC 1000	
Part Number	150982
Mounting	Wall mount
Inputs	10 dry contact digital inputs (Normally Open/Closed), 7 Thermistor Inputs (10k Type3), and three 0-20 mA sensors.
Digital Outputs	21 digital outputs - (8 SPST, 5 SPDT) 8 amp at 250 VAC, 5 amps at 300 VDC, (8 SPDT) 1 amp at 30 VDC, .5 amps at 125 VDC.
Analog Outputs	4 analog outputs selectable for 0-10 VDC or 4-20 mA.
Power	24 VAC power from AC#1, AC#2 plus a separate 24 VAC or 18-65 VDC.
Front Panel	Color Touch Screen LCD 4.3" diagonal with 24-bit TrueColor. WQVGA resolution (480 x 272)
Serial Port	2 RS-485 (2 wire) for RSC ACX expansion modules and Modbus RTU.
Network Interface	Ethernet 10/100 Base-T
Protocols Supported	IPv6, IPv4, HTTP, HTTPS, RADIUS Password Authentication, SMTP (email), SNMP v1, v2c and v3 for Gets, Sets and traps/informs
Logging	Logs data for inputs, outputs, alarms, control states and Modbus registers.
Software	Built-in web server supports all modern web browsers (e.g. IE 6+, Firefox 1.5+, Chrome).
I/O Terminals	2 piece pull-off terminals for all field wiring.
Battery	Long life lithium: 10 year shelf life, 1.5 years under load.
Temp/Humidity Sensor Accuracy	Temp: ±1°F (±0.5°C). Temperature Sensor Standard, Optional Remote Temperature/Humidity Sensor (PN 150749), Temp: ±1°F (±0.5°C), Humidity: ±3% of range
Ambient Operating Temp	23° to 131°F (-5° to 55°C), 0-95% RH Non-condensing
Dimensions	11.25"W x 16.25"H x 3.5"D (286 x 413 x 89 mm)
Weight	6 lb. (2.7 kg)
Warranty	1 year

Available Sensors	
Part Number	**Sensor**
151045	**RSC ACX - Expansion Module** Used to control an additional HVAC system. The RSC 1000 supports two RSC ACX modules.
151018	**Standard Temperature Monitoring Bundle** Includes (2) 8" Duct Mounted Temp Sensors (pn#300199) and (1) Wall Mounted Zone sensor (pn#150681).
151019	**Extended Temperature Monitoring Bundle** Includes (2) 8" Duct Mounted Temp Sensors (pn#300199), (1) Wall Mounted Hum/Temp Sensor (pn#150749) and (1) Outdoor Temp Sensor (pn#150747-C).
151020	**Economizer Monitoring Bundle** Includes (2) 8" Duct Mounted Temp Sensors (pn#300199), (1) Wall Mounted Hum/Temp Sensor (pn#150749), (1) Outdoor Temp Sensor (pn#150747-C) and (2) Bullet Probe Temp Sensors (pn#510049).
150681	**Zone temperature sensor (thermistor) Indoor wall mount enclosure**
150749	**Zone temperature sensor (thermistor)/Humidity (3%/4-20mA) Wall Mount**
510049	**Thermistor 10K bullet probe, 18"** Universal sensor used for indoor temp air monitoring applications.
300199	**Supply air temperature (thermistor) sensor, bell box duct mount with 8" probe**
150747-C	**Outdoor Temperature sensor (thermistor)** - Weatherproof
300781	**Fan Run Monitor - Split Core Current Sensor (on/off)** - Solid state switch, SPST, 30VAC/DC, 0.4 Amps max (terminal strip, accepts #14-22 AWG wire), 0.35-150 Amp.
150979	**Dirty Filter Monitor - Differential Pressure Switch**

U.S. Patent No. U.S. 10,267,529 B2
Specifications subject to change without notice

Quest Controls
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Quest RTU Controller

The RTU Controller is a stand-alone and network capable specific purpose controller designed to monitor and control air conditioning systems:

Provides direct digital control over all environmental control functions, ensuring complete HVAC automation, providing reduced maintenance costs, reduction in energy consumption and increased efficiency.

- Compact, versatile package operates with a standard control program or can be customized to meet your requirements.

- Reduces operating expenditures by precise zone temperature and humidity control.

- Sensor display for convenient maintenance and customer information.

- Extends life of critical operating equipment.

- Designed for buildings where multiple air conditioning systems are in use.

- Superior upgrade from conventional thermostat control.

- The RTU Controller and TELSEC® ESB make a complete building management system.

The Quest RTU Offers full digital control for air conditioning units and is installed in the rooftop HVAC system.

Comfort, energy efficiency, reduced equipment maintenance for your HVAC equipment.

Features

- Complete digital control

- Stand-alone and remote control

- Controls multiple air conditioning units for fan, cooling, and heating

- Up to 16 Quest RTU units can be networked to a TELSEC® ESB system

- Status LEDs

- Zone and supply temperature display

Specifications

Part Number: 150948

Digital Outputs: (6) Fan, cool 1, cool 2, heat 1, heat 2, economizer

Analog Outputs: (1) Output range 0-20 mA

Analog Inputs: (3) Zone sensor, supply sensor, and setpoint adjustment sensor

Digital Inputs: (2) Fan status and dirty filter

Status LEDs: Output status, Power, Network transmit & receive, Communication Fail, Heartbeat

Power: 24 VAC or 24 VDC@0.2 amps

LED: Readout with 7 segment display for status of zone and supply temperature sensors.

Network Interface: RS-485

Sensor Accuracy: ±1°F (±0.5°C) over full range

Environmental: Operating Temp -40° to 185°F (-40° to 85°C) 0-95% RH Noncondensing

Mounting: TDK Snaptrack (outdoor installation requires the RTU to be in a NEMA 4 Enclosure)

Size: 3" H x 6" W x 1.3" D (76 x 152 x 33 mm)

Weight: 1 lb (454g)

Warranty: One (1) year

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150948 052216 V1

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Quest T-stat Model 101 Lead/Lag Controller

Optimize Operation & Reduce Energy Consumption
Part Number: 150966-2

Features

- **Controls two single-stage HVAC systems for Fan, Cool and Heat.**
- **Power from both HVAC's 24VAC transformers.**
- **Automatic lead change every 24 hours.**
- **LCD display for current operating mode and shelter temperature readings.**
- **Comfort mode to allow "Occupied" temperature settings for one hour.**
- **Five button keypad for navigation to other status screens.**
- **Built in zone temperature.**
- **The setpoints are factory configured but changeable through password protected menus.**

The Quest T-stat Lead/Lag Controller Model 101 is a smart control system designed to replace conventional Lead/Lag controllers that do not offer wide temperature control windows for advanced optimization of HVAC operation. The T-stat LLC controls two single stage HVAC systems to provide lead/lag operation with automatic switching based upon time. The system has a built in 2 line by 16 character display for status monitoring of the current temperature and operating mode of the HVAC equipment.

Default Setpoints

Setpoint Name	Value
Normal mode - Lead unit cooling on	80
Normal mode - Lag unit cooling on	84
Normal mode - All cooling off	75
Normal mode - Lead unit heating on	45
Normal mode - Lag unit heating on	43
Normal mode - All heating off	50
Comfort mode - Lead unit cooling on	76
Comfort mode - Lag unit cooling on	80
Comfort mode - All cooling off	71
Comfort mode - Lead unit heating on	55
Comfort mode - Lag heating on	53
Comfort mode - All heating off	60
Lead Switch time	24 hours
Comfort mode time	1 hour
Lead unit fan operation	Automatic

Specifications

Quest Part number: 150966-2

Outputs: Six solid state digital outputs designed to switch 24VAC

Input: Thermistor temperature sensor ±1°F (0.5°C)

Display: LCD backlit 2 line by 16 alphanumeric character display

Keypad: Five button directional arrows plus enter button

Mounting: Wall mount directly or standard single gang electrical box

Power: 24VAC

Enclosure: Two piece thermal molded plastic enclosure. All wiring is done on the mounted base and the controller is pull-off.

Ambient Operating Temp: 23° to 131°F (-5° to 55°C), 0-95% RH Non-condensing

Size: 5.32"W x 3.5"H x 1"D (135 x 89 x 25 mm)

Weight: 0.5 lb. (227 g)

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Hydrogen Smart Gas Sensor

Part Number 300778

The Hydrogen Smart Sensor

Description

The smart sensor features a LCD display of gas concentration, LED indication of each of the SPDT relays and TX/RX for the RS-485 Modbus communications. The units are housed in a NEMA 4X enclosure with an integral buzzer that will meet the most stringent of applications. Pre-calibrated sensors can be purchased and installed by the user thereby reducing calibration costs and minimizing downtime. The user can select multiple screens from the menu that display relay status, time, TWA, STEL, concentration, and other data. Programming and calibration is nonproprietary and is accessed through a user selectable password that protects system integrity.

The unit can be installed as stand-alone or networked with Quest equipment through a RS-485 Modbus communication port that is standard. A 4-20 mA, 2-10 VDC and a 1-5 VDC analog output that is fully assignable over a chosen range is standard. User programmable relays and a buzzer are also standard allowing several options to energize relays through instantaneous activation upon a preselected concentration or activation through a time-waited average concentration.

Specifications

Input Power: 24VDC Nominal, range 18-72 VDC, 0.3A DC Total Max
24VAC Nominal, range 15-24 VAC, 0.3A AC Total Max
AC Must Not be grounded

Fuse: F2 on Main Board: Polyswitch 750 mA
Polyswitch resets after fault 15 cleared and powered up

Sensor: Catalytic Bead

Sampling: Diffusion or Pump-through

Panel Indicators: 5 Status LEDs
- RS485 TX Status (Green)
- RS485 RX Status (Green)
- Relay 1 Status (Red)
- Relay 2 Status (Red)
- Relay 3 Status (Red)

Display: LCD graphic display c/w backlight

Keypad: 3 Capacitive touch sensing keys: F1, F2, F3

Relays: 3 Relays SPDT, dry contact
- 1.0 A maximum at 30 VDC (resistive load)
- 0.3 A maximum at 125 VAC (resistive load)

Enclosure Rating: IP 66 & NEMA 4, 4X, 12 & 13

Buzzer: 80 db at 10 cm, 2700 Hz
Buzzer with 3 with programmable tones

Output signal: RS-485 with Modbus, 4-20 mA, 2-10 VDC, 1-5 VDC Analog Signal Output

Operating temperature: -40 to 158°F (-40 to +70 °C), depends on sensor specification

Ambient Humidity: 5% to 95% RH(non-condensing)

Storage Temperature: 32 to 104 °F (0 to 40 °C) depends on sensor specification

Size: 6" x 3.5" 2.6" (150 x 90 x 65 mm)

Weight: Less than 0.5 lb (227 g)

Warranty: 90 days

Features

- **Uses Catalytic Bead Sensors**
- **Pre-calibrated sensors available for easy replacement without calibration**
- **Three on board user programmable relays**
- **Non-proprietary set-up and calibration procedures**
- **Removable terminal blocks for easy wiring**
- **Digital display of TWA, STEL, concentration and relay status**
- **Stand-alone operation**
- **Analog communication to Quest equipment or through RS-485 digital communication protocols**
- **Integral buzzer with three tones**
- **NEMA 4X enclosure with knock-outs**
- **Sensor housing sealed from electronics**
- **Duct mount available**
- **Splash guard available**
- **Flow through/calibration cap available**
- **Operates on 24 VAC/DC or 48 VDC with included power supply (Quest part #150987 DC/DC power supply 36-72 VDC/24 VDC@0.625 A**

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Ultrasonic Fuel Level Transmitter

P/N 150999

Description

The transmitter is an innovative level sensor that replaces floats, conductance and pressure sensors that fail due to dirty sticking and scaling media in small tanks 49.2" (1.25 m) or less. This general purpose sensor combines non-contact switch, controller and transmitter capabilities into one package while combining 4 relays, 4-20mA output and pump/valve control into one small sensor. The device is maintenance free and reduces tank system hardware through simplicity and consolidation. The transmitter is well suited for corrosive and dirty applications with its non-metallic housing and transducer.

The rugged PVDF enclosure is well suited for a wide range of corrosive, waste or slurry type media, and can be broadly selected for atmospheric day tank, process vessel or dispenser, pump lift station and waste sump applications. Level indication can be monitored via a local display or controlled through a PLC.

FEATURES

- **Provides switch, controller and transmitter capabilities**
- **Replacement of multi-point float, conductivity and pressure level switches**
- **WebCal™, an innovative PC user interface that provides fast and accurate configuration**
- **Compact sensor with 2" dead band and beam width optimized for small tank applications 49.2" (1.25m) or less**

Specifications

Part Number: 150999

Range: 49.2" (1.25 m)

Accuracy: 0.125" (3mm)

Resolution: 0.019" (0.5 mm)

Beam Width: 2" (5 cm)

Dead Band: 2" (5 cm)

Supply Voltage: 24VDC (loop)

Loop Resistance: 400 Ohm Max.

Consumption: 35 mA Maximum

Signal Output: 4-20 mA (When loop powered)

Contact Type: (4) SPST, 1A relays

Loop Fail Safety: 4 mA, 20 mA, 21 mA, 22 mA or hold last

Relay Fail Safety:

    Power Loss: Hold Last

    Power On: Open, close or hold last

Hysteresis: Selectable

Configuration: WebCal® Windows® software interface

Temperature Compensation: Automatic over range

Operating Temperature: 20 to 160°F (-7 to 71°C)

Operating Pressure: Atmospheric

Cable Jacket Material: Polyurethane

Enclosure: NEMA 4X, encapsulated, corrosive resistant & submersible

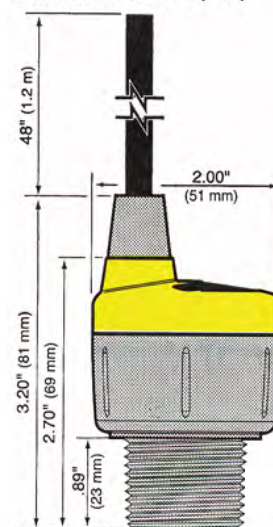**Enclosure Material:** PC/ABS FR

Strain Relief: Santoprene

Transducer Material: PVDF

Cable Length: 48" (1.2 m)

Process Mount: 2" NPT or 2" G

Warranty: 90 days

DIMENSIONS INCHES (MM)

48" (1.2 m)

2.00" (51 mm)

3.20" (81 mm)

2.70" (69 mm)

.89" (23 mm)

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