THERIS® FAMILY OF VALVES

LONMARK® Certified

The **Phoenix Controls Theris™ Family of Valves** is designed specifically for the ventilation requirements of critical spaces in healthcare facilities, where infection control, energy savings and reducing maintenance costs are an important part of business operations.

Theris provides constant volume (CV) and variable air volume (VAV) solutions for directional airflow, climate control, and overall ventilation balance.

System Benefits

- Factory characterization reduces system commissioning time
- Pressure-independent valves avoid rebalancing costs
- No flow sensors to maintain
- High turndown ratios contribute to reducing energy costs

PRODUCT MODELS

Four venturi valve options are available in the Theris family:

PRODUCT	DESCRIPTION
Theris-TP (Tracking Pair VAV)	To meet the need of directional airflow, Theris-TP features tracking valve pairs that maintain a prescribed CFM offset to enable accurate space pressurization and complete room climate control.
Theris-TX (Enhanced Tracking Pair VAV)	For tracking pair applications in isolation rooms, operating rooms, and other spaces, Theris-TX provides extra I/O to meet the needs of humidity control and pressure monitoring, plus optional shut-off capability for decontamination procedures.
Theris-SO (Supply-only VAV)	In VAV applications where ducted exhaust is sufficient to meet local codes and engineering guidelines, Theris-SO provides a cost-effective supply valve when no tracking exhaust valve is required.
Theris-CV (Constant Volume)	For fixed-flow operation and stable airflow throughout the facility, Theris-CV provides a solution for constant volume supply and exhaust applications.

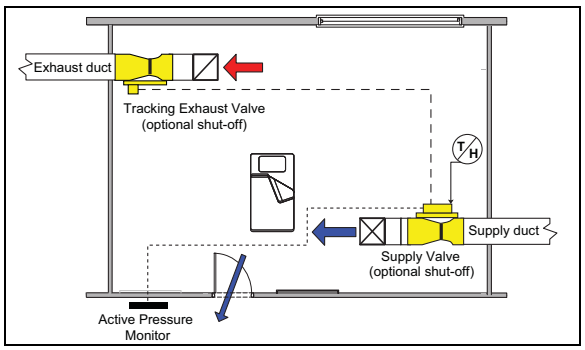
SPECIFICATIONS

Construction
- 16 ga. spun aluminum valve body with continuous welded seam
- Aluminum valve body
- Composite Teflon® shaft bearings
- Spring grade stainless steel spring and PPS slider assembly
- Supply valves insulated with 3/8" (9.5 mm) flexible closed-cell polymer-based foam. Flame/smoke rating 25/50. Density is 1.5 lb/ft^3 (24.0 kg/m^3)

Operating Range
- 32-122 °F (0-50 °C) ambient
- 10-90% non-condensing RH

Performance
- Pressure independent over a 0.3"-3.0" WC (74-747 Pa) drop across valve
- Volume control accurate to ±5% of airflow command signal
- No additional straight duct runs needed before or after valve
- Available in flows from 35-5000 CFM (59-8495 m^3/hr)
- Response time to change in command signal: <1 minute

Sound
Designed for low sound power levels to meet or exceed ASHRAE noise guidelines



The Theris-TX valve maintains directional airflow with variable air volume (VAV) temperature and humidity control.

SPECIFICATIONS (CONTINUED) —

Power
- 24 Vac (±15%) @ 50/60 Hz

Power Consumption (singles and duals)
- SO (one controller/one actuator): 10 VA
- TP, TX (one controller/two actuators): 12 VA

Notes:
1. All power consumption VA ratings listed here are based on fully-loaded I/O except for floating point reheat actuators.
2. VA ratings for floating point reheat actuators must be factored in separately.

Input Accuracy
- Voltage, current, resistance: ±1% full scale

Output Accuracy
- 0 to 10 Vdc: ±1% full scale into 10 KΩ minimum
- 4 to 20 mA: ±1% full scale into 500 Ω +0/-50 Ω

Interoperability
- Based on LONWORKS technology for peer-to-peer communication between room controllers
- LonMark® certified according to the Interoperability Guidelines Version 3.4
- LonMark functional profile SCC-VAV #8502

Room-level Communications
- FTT-10, 78 KB, LonTalk™ network

Agency Compliance
- CE
- CSA
- FCC: 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.
  2. This device must accept any interference received, including interference that may cause undesired operation.

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75 Discovery Way • Acton, MA 01720 • Tel (978) 795-1285 • Fax (978) 795-1111 • www.phoenixcontrols.com

FEATURES

FEATURE	THERIS MODEL	DESCRIPTION
Pressure independence	All	CFM airflow maintained regardless of changes in duct static pressure.
No flow sensors	All	Factory flow characterization eliminates the need for flow sensors.
Airflow offset maintained	TP, TX, CV	Supply and exhaust CFM offset settings maintain accurate pressurization.
Temperature and occupancy control	TP, TX, SO	Primary and secondary PID loops. Occupied, unoccupied or standby. Building Management System (BMS) or local set point input.
Humidity control and pressure monitoring	TX	Humidity monitoring and control. Pressure monitoring. BMS control available.
HVAC emergency modes	TP, TX, SO	Multiple modes available. Custom setup for each mode.
Floating point reheat	TP, TX, SO	Control algorithm and TRIAC support for tri-state hydronic reheat valves.
Proportional reheat	TP, TX, SO	Control algorithm and AO support for proportional hydronic reheat valves.
Flexible I/O	TP, TX, SO	Up to 14 Standard LON Network Variable Types (SNVT) per I/O point available to read/write via LonTalk.
Additional inputs/outputs (I/O)	TX	Two additional universal inputs (humidity, pressure).
Shut-off capability	TX	Optional shut-off valve configuration enables room decontamination procedures.

TP = Tracking pair VAV
TX = Enhanced Tracking pair VAV
CV = Constant volume
SO = Supply-only VAV

AVAILABLE INPUTS AND OUTPUTS*

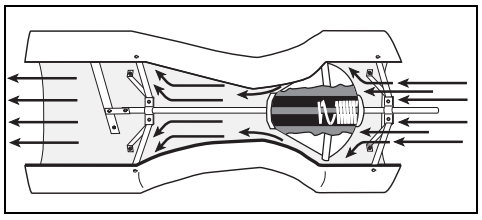
TYPE		DESCRIPTION
Universal input	UI 1	Dry contact (≤100 Ω = Closed, ≥100 KΩ = Open), 0-10.5 Vdc, 4-20 mA, Thermistor NTC2 and 3 (resistance 0-10 KΩ)
Universal input	UI 2	Same as UI 1
Universal input	UI 3	Same as UI 1
Universal input	UI 4**	Same as UI 1; for humidity sensor or spare
Universal input	UI 5**	Same as UI 1; for Active Pressure Monitor (APM) pressure sensor or spare
Digital input	DI 1	Dry contact (≤100 Ω = Closed, ≥100 KΩ = Open); logic level (≤0.7 Vdc = OFF, ≥1.4 Vdc = ON)
Analog output	AO 1	0-10.5 Vdc, 4-20 mA
Analog output	AO 2	Same as AO1
Digital output	DO	Type C, 1 Amp @24 Vac/Vdc
TRIAC 1	Main valve control	TRIAC to control main low-speed actuator
TRIAC 2	Tracking valve control	TRIAC to control tracking low-speed actuator
TRIAC 3	Floating point reheat control	TRIAC to control 24 Vac floating point actuator for reheat valve; 6 VA max @ 24 Vac

* The flow tracking function does not use any of the inputs or outputs above. For more details, see the wiring diagrams on pages 8-10.
No I/O available on Theris-CV.

** Available only on Theris-TX.

APPLICATIONS

Pressure Independence



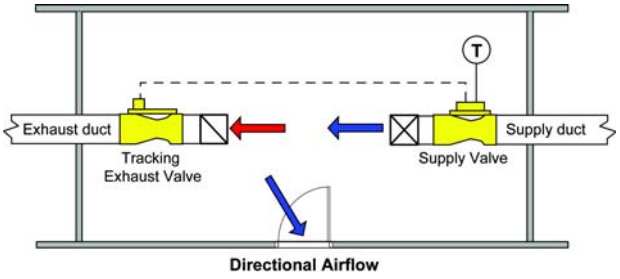
Phoenix Controls venturi valves use a simple mechanical regulator to compensate for the changes in static pressure, so accurate flow control is assured at all times.

Unlike commercial controls that use velocity pressure sensors mounted in the airstream, venturi valves are impervious to dust, dirt and sensor drift. Phoenix Controls valves continue to work even in the event of a power failure, assuring that the correct room pressurization and directional airflow are maintained at all times.

Unique 48-point flow characterization curves for the supply and exhaust valves serving the room are downloaded to every Theris Room Controller's on-board microprocessor before the valves leave the factory. The controller uses this flow data to accurately control flow-tracking between the two valves, virtually eliminating the need for field calibration and rebalancing.

Theris-TP VAV isolation or patient room

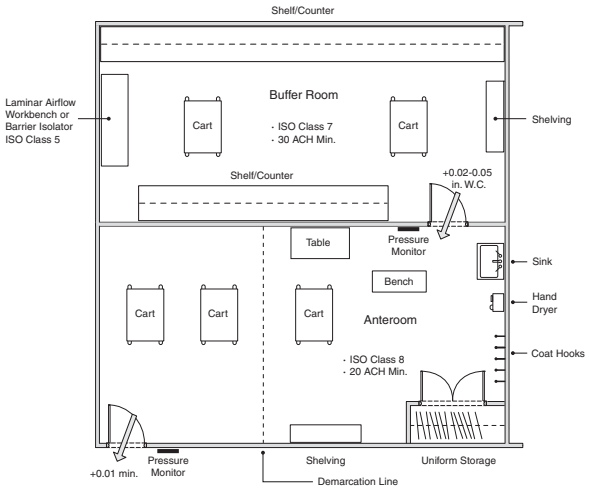
VAV tracking pair - one supply and one exhaust valve.



This patient room has a Theris-TP valve on the supply and exhaust sides. Supply and exhaust valves track airflow rates to maintain room pressure and offset. The Theris-TP supply valve can have an associated temperature sensor and control a hot water valve, as well as a second stage of heating, if needed. An optional duct temperature sensor can be placed in the ductwork on either the supply or exhaust side to monitor or control temperature.

Theris-TP VAV tracking pair

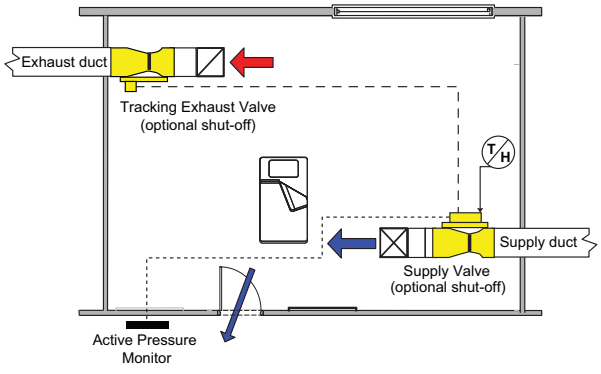
Hospital pharmacy using compounded sterile preparations.



Hospital pharmacies using Compound Sterile Preparations (CSP) for cancer treatment are required by USP 797 to maintain an ISO Class 7 clean room. Theris-TP valves can be used in both the buffer and ante rooms to maintain reliable pressurization.

Theris-TX Enhanced VAV tracking pair

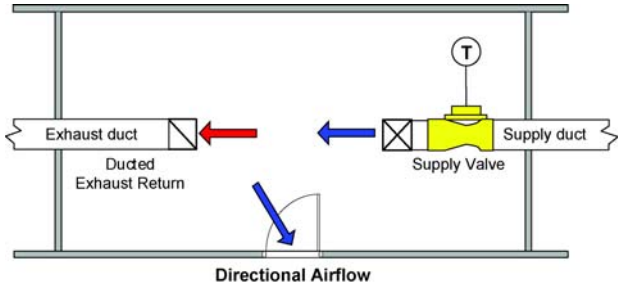
Operating rooms and other critical pressurized spaces.



Applications for Theris-TX include operating rooms, isolation rooms, hazardous materials storage, pharmacies, and other critical spaces. The available functionality includes all the features of Theris-TP, plus full temperature control, humidity control, and valve shut-off capability.

Theris-SO VAV patient room

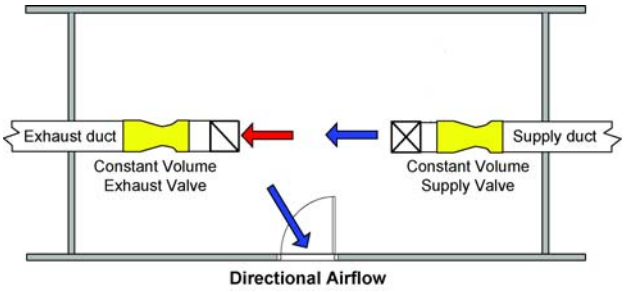
Standalone supply with ducted return.



This patient room has a standalone Theris-SO valve on the supply side and a ducted return on the exhaust side. The Theris-SO valve can have an associated temperature sensor and control a hot water valve. An optional temperature sensor can be placed in the ductwork to monitor duct temperature either on the supply or exhaust side.

Theris-CV Constant volume patient room

Constant volume with supply and exhaust.



This patient room has a Theris-CV (constant volume) valve on the supply and exhaust sides. Temperature control can be managed by a separate controlling thermostat. Equipment can be set and left alone. No maintenance is required and valves will keep these flow settings indefinitely.

ORDERING GUIDE

HSV A 2 10 M - A L E H N - P _ _

VALVE FAMILY
HSV = Theris Supply valve (comes standard with insulation)
HEV = Theris Exhaust valve

VALVE CONSTRUCTION
A = Body and cone uncoated aluminum; shaft uncoated 316 stainless steel

NUMBER OF VALVE BODIES
F = One valve body with welded circular flange
1 = One valve body, no flange
2 = Two valve bodies (dual); *10", 12" and 14" only*
3 = Three valve bodies (triple); *constant volume only*
4 = Four valve bodies (quad); *constant volume only*

VALVE SIZE
08 = 8" valve (7.88"/200mm actual diameter); *see Note 1*
10 = 10" valve (9.67"/246mm actual diameter)
12 = 12" valve (11.84"/301mm actual diameter)
14 = 14" valve (13.88"/353mm actual diameter); *see Note 2*

FLOW/PRESSURE OPERATING RANGE
See the *Flow/Pressure Operating Range* tables in this section
M = Medium pressure operation; pressure independent over a range of 0.6 to 3.0" WC (150 to 750 Pa), associated pressure switch trips at 0.3" WC
L = Low pressure operation; pressure independent over a range of 0.3 to 3.0" WC (75 to 750 Pa), associated pressure switch trips at 0.2" WC; *see Notes 3, 4*

VALVE DESIGN
A = Conical-shaped diffuser (Accel II)
S = Standard shut-off valve (metal-on-metal seal); *see Note 3*
L = Low-leakage shut-off valve (gasketed seal); *see Note 4*

CONTROL TYPE
C = Constant volume
I = IP54 electric actuator; *available for single-body 8-, 10-, and 12-inch valves o*
L = Low-speed electric actuation

VALVE CONTROLLER DESIGNATION
E = Theris TP Supply (analog without boosters)
X = Theris TX Supply (controlling valve of tracking pair with expanded features)
O = Theris SO Supply (no tracking pair ability)
N = No electronics (tracking valve or constant volume)

VALVE ORIENTATION
H = Horizontal
U = Vertical upflow
D = Vertical downflow

FAIL SAFE POSITION
Z = Fails to last position

VALVE OPTIONS
EVI = Exhaust valve with insulation and blocks
IBO = Insulation blocks only, no insulation
PSL = Pressure switch, low limit
REI = Remote electronics - indoor; *see Note 5*
WRE = Weather-resistant electronics - LonMark only ; *see Notes 6,*
SFB = Square flanges on each end of single body valve
SFX = Single square flange on single body valve, mounted on eith the inlet of exhaust valves or discharge of supply valves

NOTES:
1. 8-inch shut-off Valves (Design = S or L) are available ONLY in Construction = A (uncoated).
2. 14-inch valves are currently NOT available as Low Leakage Shut-off (Design = L) with Medium Pressure (Range = M).
3. Low Pressure (Range = L), Standard Shut-off (Design = S) valves are NOT available in Orientation U (vertical upflow).
4. Low Pressure (Range = L), Low Leakage (Design = L) valves are currently NOT available in any size.
5. Option REI: Remote Electronics, indoor installations ONLY. The distance to the valve controller is limited to:
- 150 feet (45.7 meters) of 22 gauge cable for low-speed electric actuators (Control Type = L or I).

6. Option WRE: Weather Resistant Electronics, outdoor installations. Applies to ELECTRICALLY actuated valves with sufficient IP ratings only (Control = I only for single-body valves; Control = L only for multi-body valves). HORIZONTAL orientation ONLY.
- Includes: sealed Vpot and large weather-resistant IP66 box mounted on base channel that houses the controller and all electric connections to/from it.
- When used in Low-Speed Electric applications for 08, 10, and 12 inch single-body valves, WRE must ALSO be ordered with Control Type I (IP54 actuator) in place of the standard Control Type L.
- REQUIRES use of a dog house enclosure - provided by others - to protect the valve from the elements and maintain temperature and humidity conditions within Phoenix specifications.

7. Option WRE with Theris LonMark valves is limited to Valve Controllers E, O, or X ONLY.

Flow/Pressure Operating Range Tables

FLOW/PRESSURE OPERATING RANGE FOR VALVE DESIGN A

Designation	Size	Operating Range in CFM (m^3/hr) Single	Dual	Pressure Drop Across Valve
M = Medium pressure	**08"**	35-700 (60-1185)	—	0.6-3.0" WC (150-750 Pa)
	10"	50-1000 (85-1695)	100-2000 (170-3390)	
	12"	90-1500 (155-2545)	180-3000 (310-5090)	
	14"	200-2500 (340-4245)	400-5000 (680-8490)	
L = Low pressure	**08"**	35-500 (60-845)	—	0.3-3.0" WC (75-750 Pa)
	10"	50-550 (85-930)	100-1100 (170-1860)	
	12"	90-1050 (155-1780)	180-2100 (310-3560)	
	14"	200-1400 (340-2375)	400-2800 (680-4750)	

FLOW/PRESSURE OPERATING RANGE FOR SHUT-OFF VALVE DESIGNS S AND L

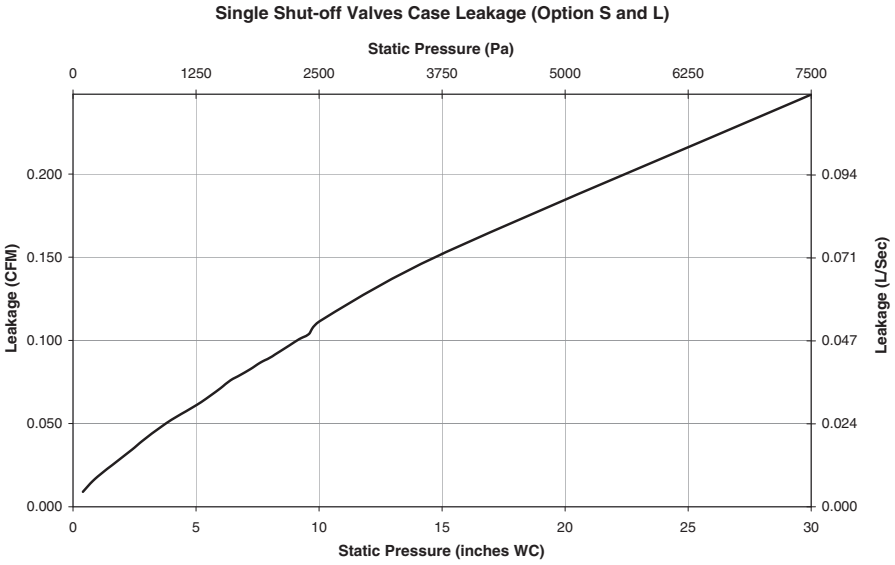
Designation	Size	Operating Range in CFM (m3/hr) Single	Dual	Pressure Drop Across Valve
M = Medium Pressure	**08"**	35-600 (60-1015)	—	0.6-3.0" WC (150-750 Pa)
	10"	50-850 (85-1440)	100-1700 (170-2880)	
	12"	90-1300 (155-2205)	180-2600 (310-4410)	
	14"	200-1600 (340-2715)	400-3200 (680-5430)	
L = Low Pressure	**08"**	35-400 (60-675)	—	0.3-3.0" WC (75-750 Pa)
	10"	50-450 (85-760)	100-900 (170-1520)	
	12"	90-900 (155-1525)	180-1800 (310-3050)	
	14"	200-1000 (340-1695)	400-2000 (680-3390)	

SHUT-OFF LEAKAGE PERFORMANCE

Shut-off Valves are available in two designs: Standard (Option S) and Low Leakage (Option L). Shut-off can be initiated locally through an analog input (AI) emergency switch (dry contact) from the building management system (BMS).

In the following graphs, the term, *shut-off leakage*, refers to the expected airflow through the valve in the shut-off position. The term, *casing leakage*, refers to the expected airflow through the penetrations of the valve body.

Casing Leakage: Shut-off Valves (Options S and L)



NOTE:

Leakage rates shown in this graph are for all four valve sizes: 8-, 10-, 12-, and 14-inch. A 14-inch low leakage valve is not available at this time.

- Exceeds Eurovent Class A, B, C and D specifications (Eurovent Committee of Air Handling and Equipment Manufacturers) when valve duct surface areas noted in <Italic>Table (this page) are taken into account.
- Option S leakage rates are for all four valve sizes (8", 10", 12", 14").
- Option L leakage rates are for 8-, 10-, and 12-inch valves only. A 14-inch low-leakage valve is not available at this time.

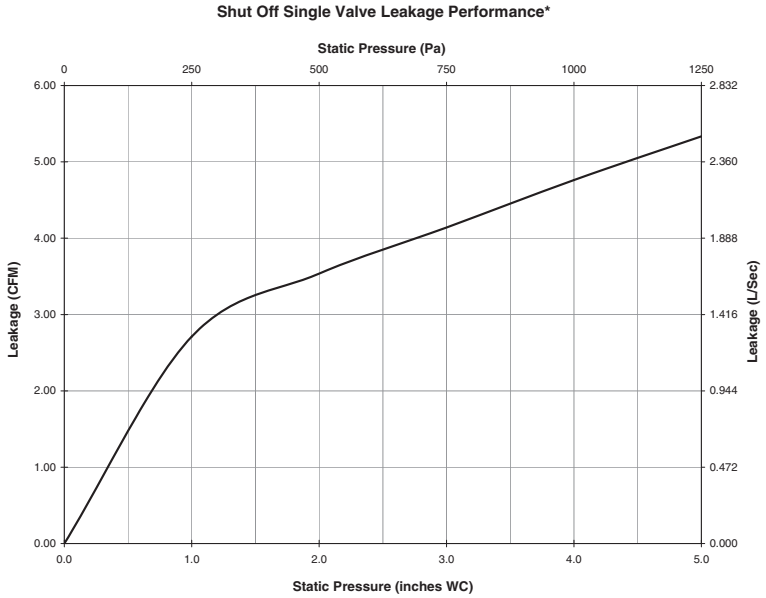
Calculating Valve Area

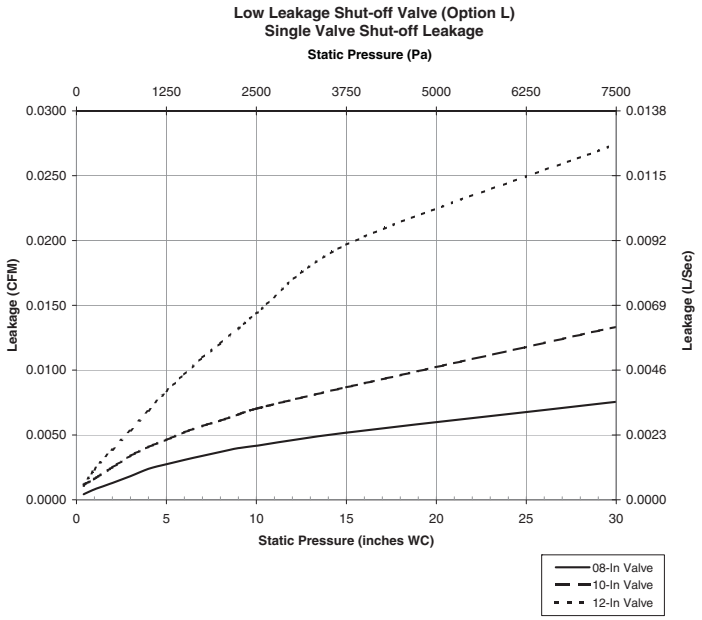
Leakage Specification = Leakage/Valve Area = 0.150 CFM/3.60 ft^2 = 0.42 CFM per ft^2

Valve Area Specifications:

Valve Size	Area (ft^2)	Area (m^2)
8-inch	3.60	0.33
10-inch	4.26	0.40
12-inch	6.28	0.58
14-inch	8.52	0.79

Leakage rates shown in this graph (Option S) are for all four valve sizes: 8-, 10-, 12-, and 14-inch.





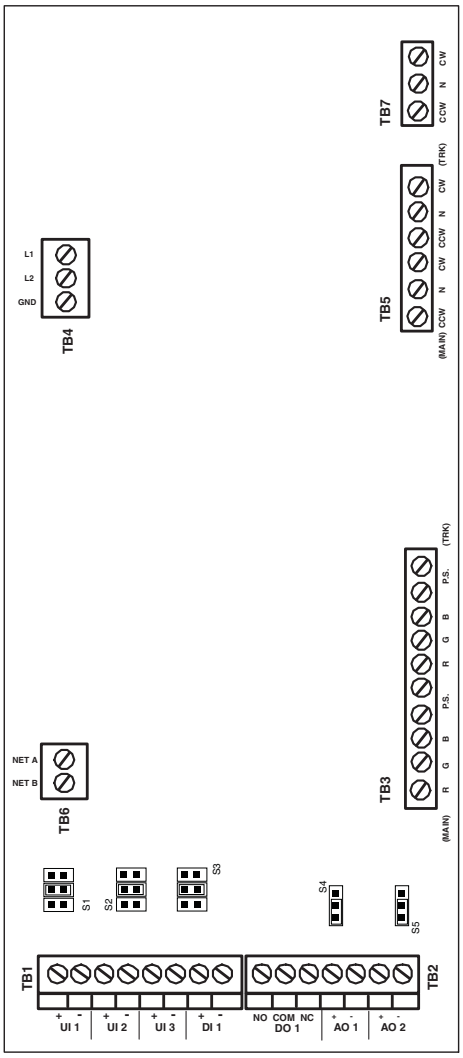
Recommended Valve Construction for Decontamination

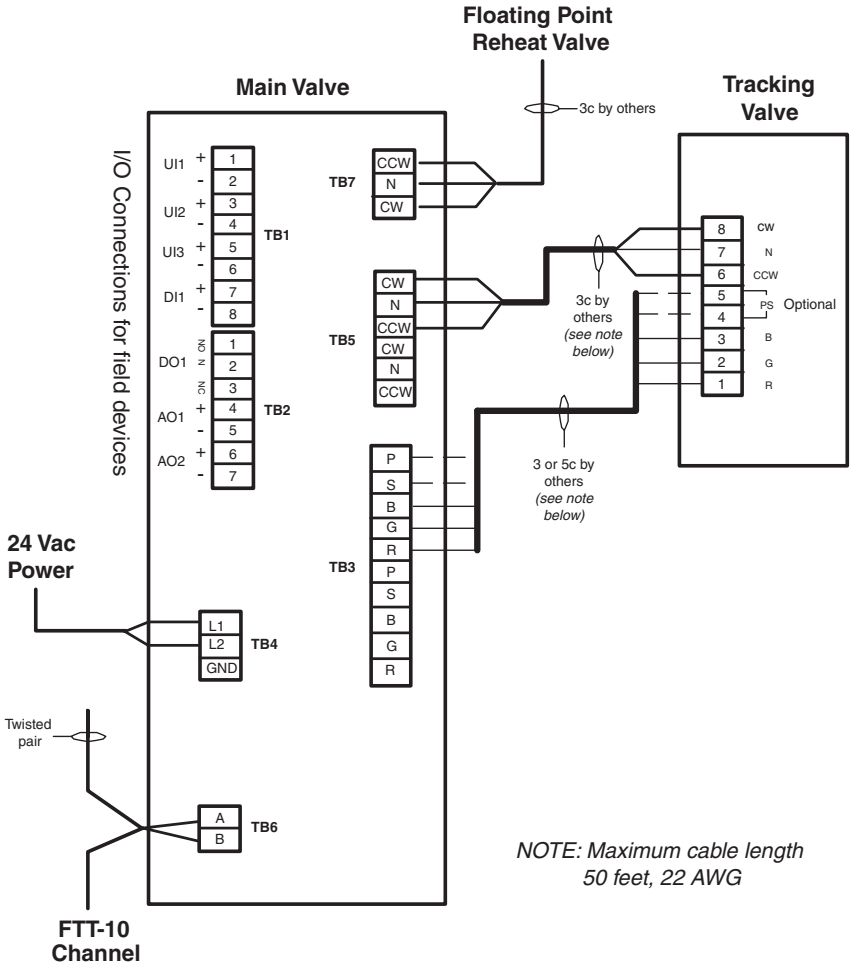
Gaseous Decontamination Agent	Recommended Valve Construction
Hydrogen peroxide vapor	A
Ammonium chloride	A
Chlorine dioxide	A**
Paraformaldehyde	A

NOTE:
- See Model Numbering Fields, Valve Construction in this section for details about these construction codes.
- Chemical resistance data acquired from Compass Corrosion Guide.
- **For concentrations up to 800 ppm. To achieve higher concentrations during decontamination, use construction B valves.

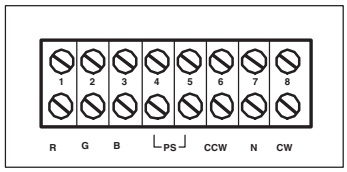
WIRING *(See submittal wiring diagram for project-specific details.)*

Theris-TP Main Valve

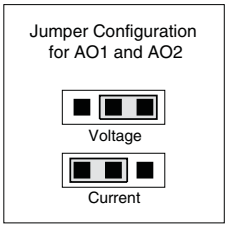


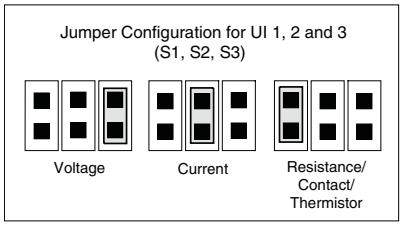


Theris-TP Tracking Valve



Euro Style Block
Potentiometer, actuator and pressure switch wiring



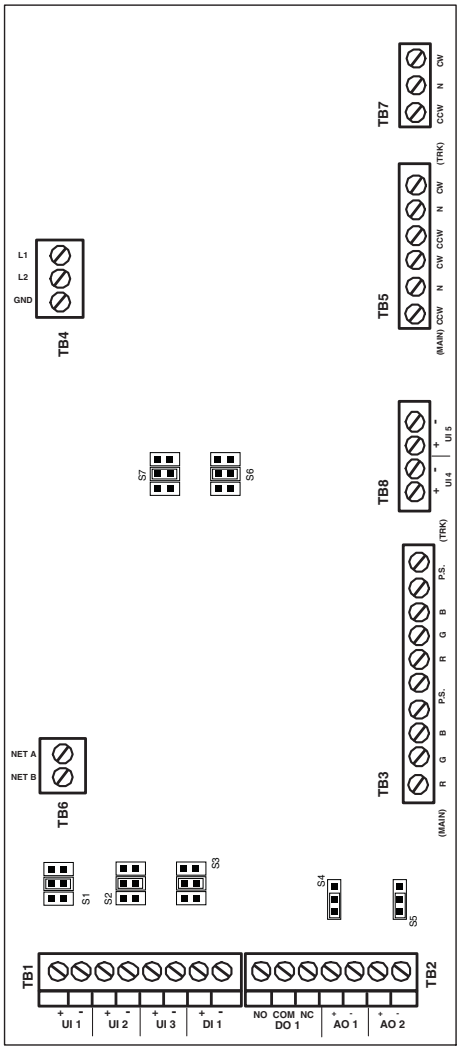


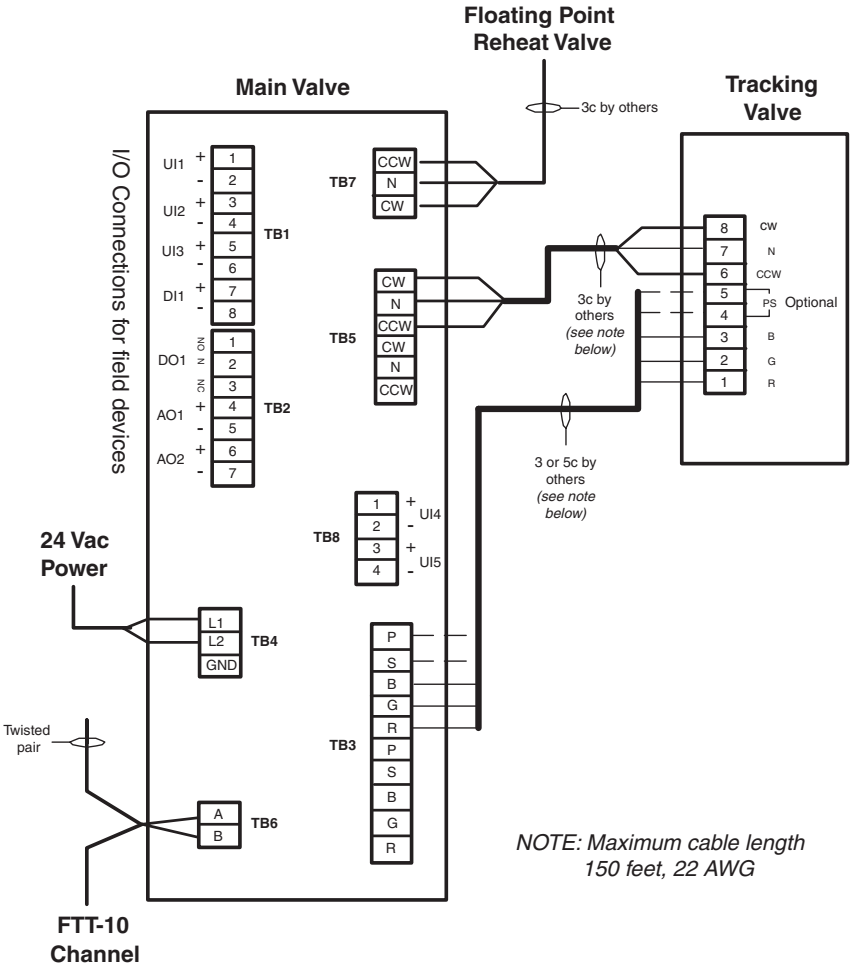
TERMINAL BLOCKS

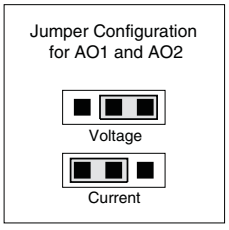
Terminal Block	Typical Function	No. of Terminations
TB1		
TB2		
TB3		
TB4		
TB5		
TB6		
TB7		

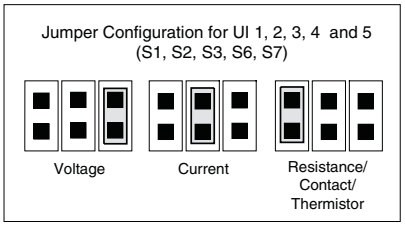
WIRING (CONTINUED) *(See submittal wiring diagram for project-specific details.)*

Theris-TX Main Valve

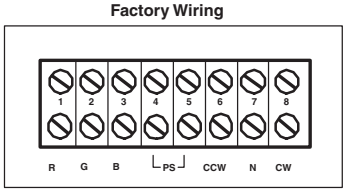








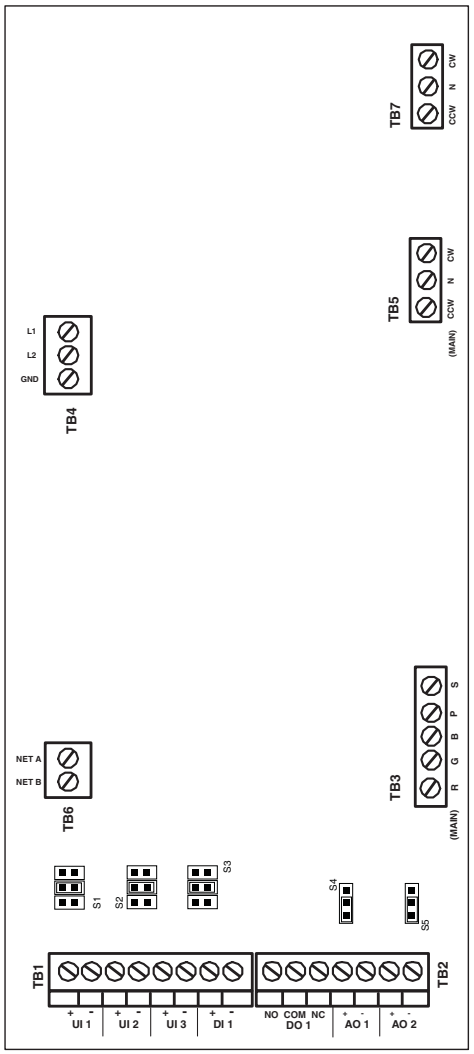
Theris-TX Tracking Valve

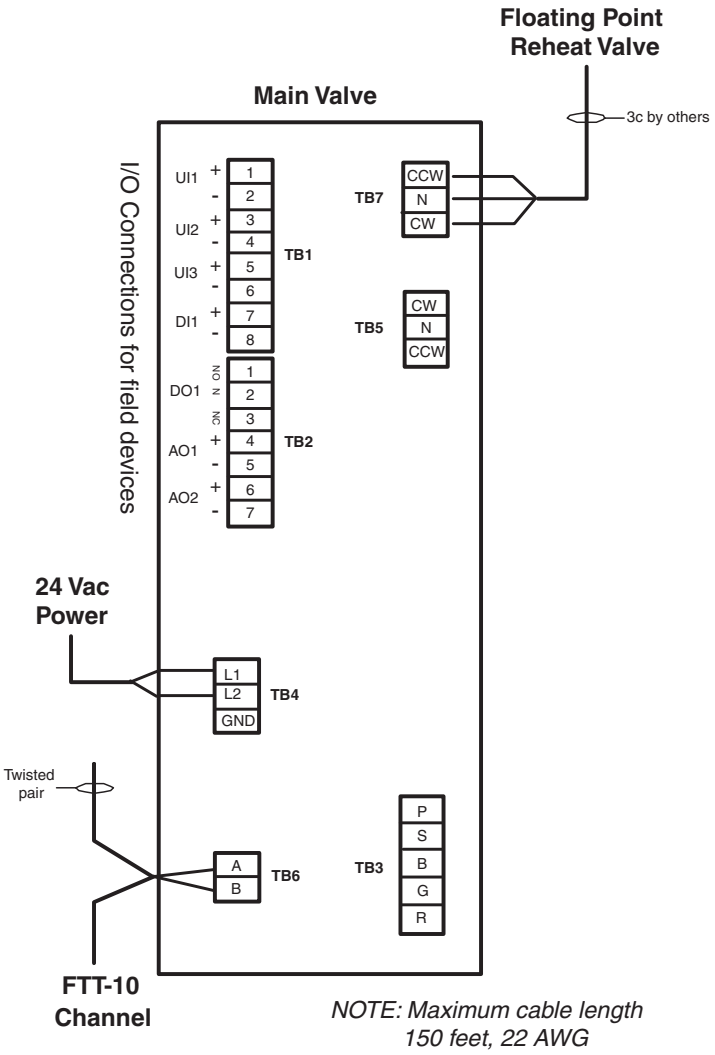


Euro Style Block
Potentiometer, actuator and pressure switch wiring

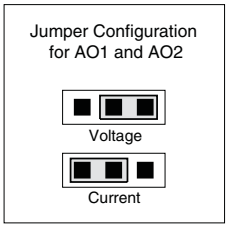
TERMINAL BLOCKS

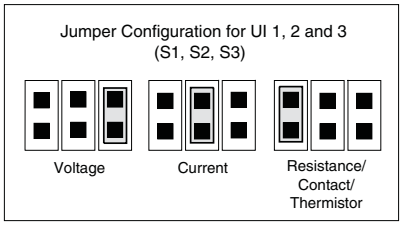
Terminal Block	Typical Function	No. of Terminations
TB1		
TB2		
TB3		
TB4		
TB5		
TB6		
TB7		
TB8		

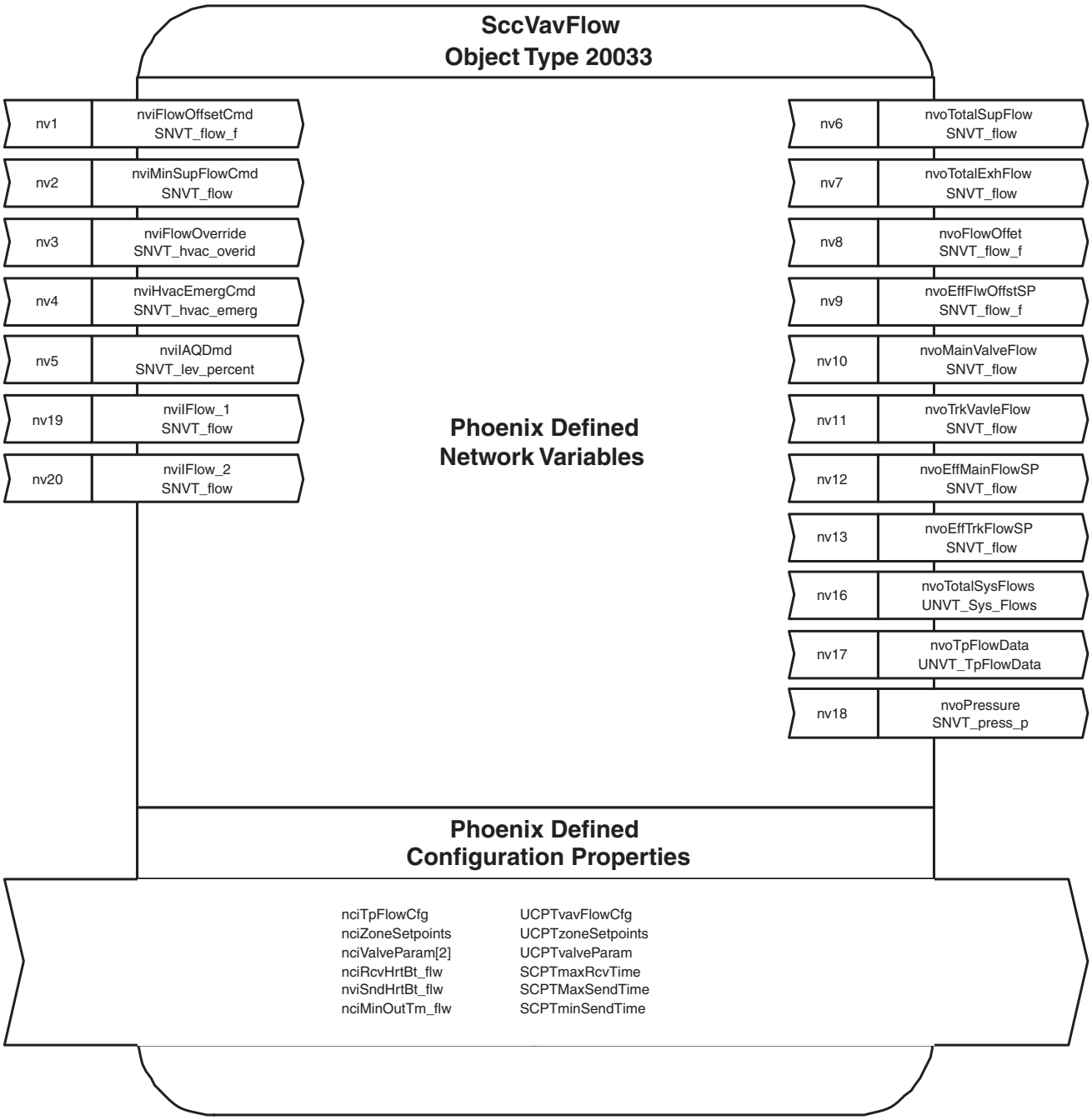




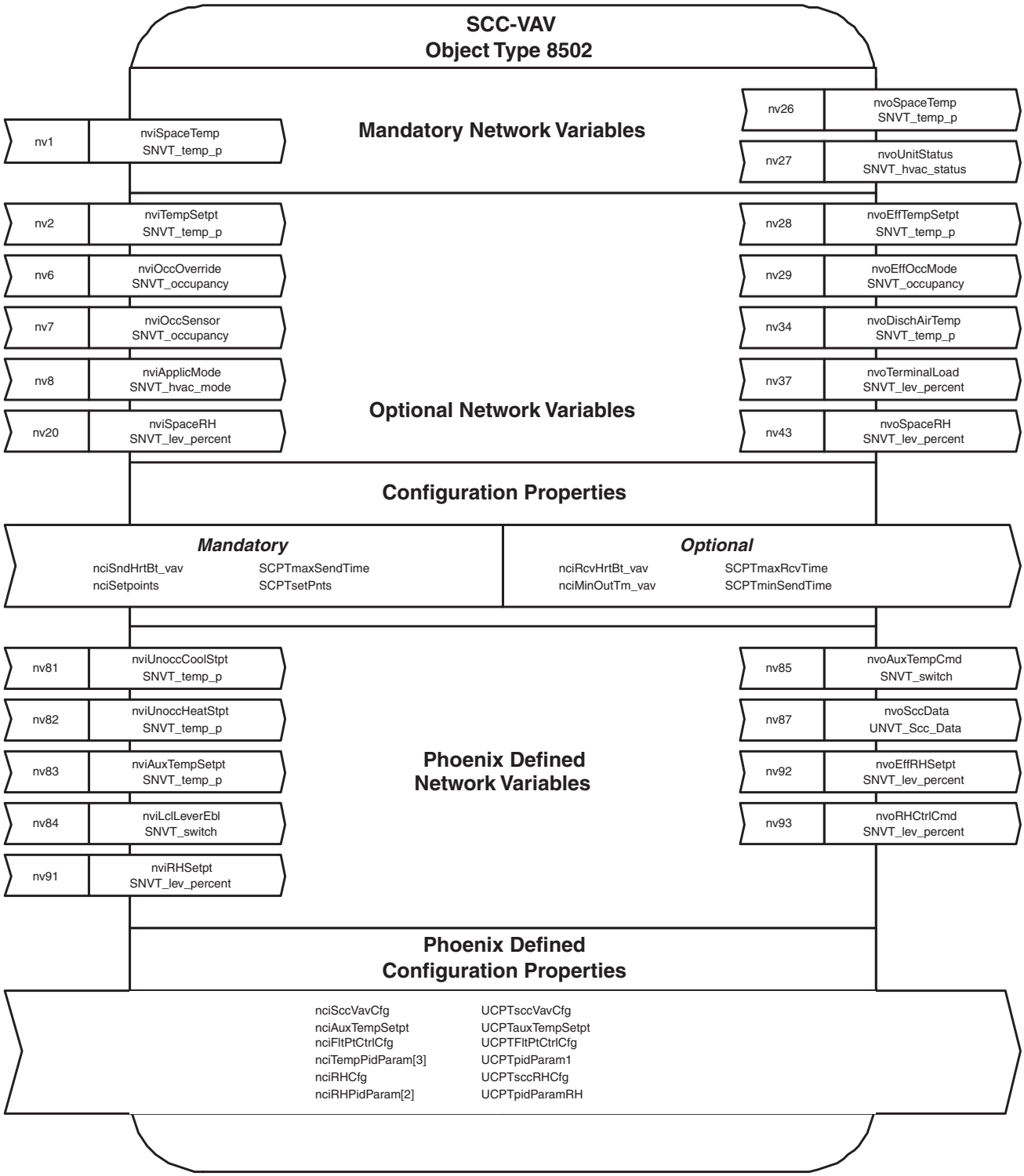
NOTE: Maximum cable length 150 feet, 22 AWG

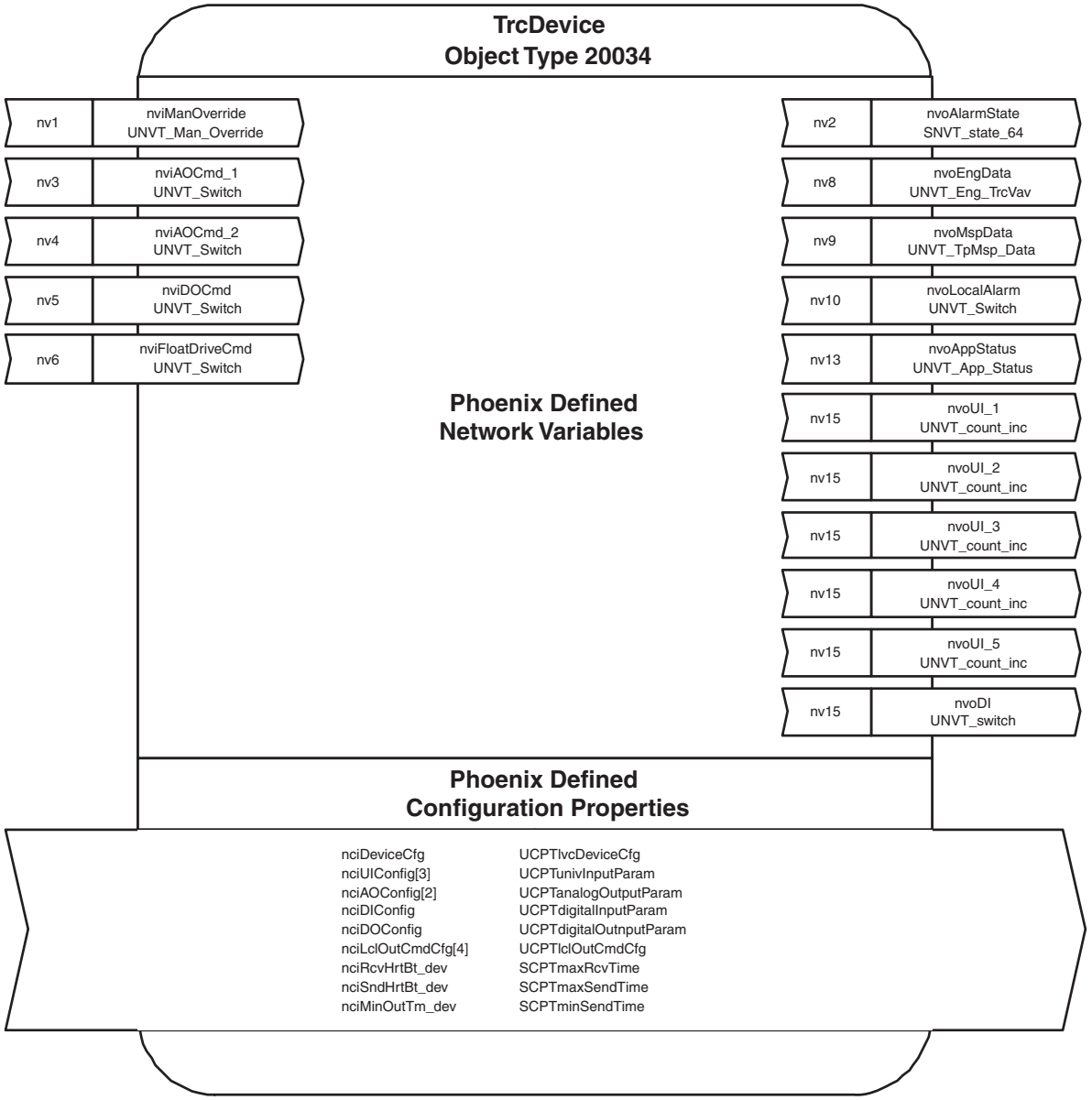





SccVavFlow
Object Type 20033
nv1
nviFlowOffsetCmd
SNVT_flow_f
nv2
nviMinSupFlowCmd
SNVT_flow
nv3
nviFlowOverride
SNVT_hvac_overid
nv4
nviHvacEmergCmd
SNVT_hvac_emerg
nv5
nviIAQDmd
SNVT_lev_percent
nv19
nviIFlow_1
SNVT_flow
nv20
nviIFlow_2
SNVT_flow
Phoenix Defined
Network Variables
nv6
nvoTotalSupFlow
SNVT_flow
nv7
nvoTotalExhFlow
SNVT_flow
nv8
nvoFlowOffet
SNVT_flow_f
nv9
nvoEffFlwOffstSP
SNVT_flow_f
nv10
nvoMainValveFlow
SNVT_flow
nv11
nvoTrkVavleFlow
SNVT_flow
nv12
nvoEffMainFlowSP
SNVT_flow
nv13
nvoEffTrkFlowSP
SNVT_flow
nv16
nvoTotalSysFlows
UNVT_Sys_Flows
nv17
nvoTpFlowData
UNVT_TpFlowData
nv18
nvoPressure
SNVT_press_p
Phoenix Defined
Configuration Properties
nciTpFlowCfg
nciZoneSetpoints
nciValveParam[2]
nciRcvHrtBt_flw
nviSndHrtBt_flw
nciMinOutTm_flw
UCPTvavFlowCfg
UCPTzoneSetpoints
UCPTvalveParam
SCPTmaxRcvTime
SCPTMaxSendTime
SCPTminSendTime

LONMARK® OBJECTS & NETWORK VARIABLES (CONTINUED)




TrcDevice
Object Type 20034
nv1
nviManOverride
UNVT_Man_Override
nv3
nviAOCmd_1
UNVT_Switch
nv4
nviAOCmd_2
UNVT_Switch
nv5
nviDOCmd
UNVT_Switch
nv6
nviFloatDriveCmd
UNVT_Switch
Phoenix Defined
Network Variables
nv2
nvoAlarmState
SNVT_state_64
nv8
nvoEngData
UNVT_Eng_TrcVav
nv9
nvoMspData
UNVT_TpMsp_Data
nv10
nvoLocalAlarm
UNVT_Switch
nv13
nvoAppStatus
UNVT_App_Status
nv15
nvoUI_1
UNVT_count_inc
nv15
nvoUI_2
UNVT_count_inc
nv15
nvoUI_3
UNVT_count_inc
nv15
nvoUI_4
UNVT_count_inc
nv15
nvoUI_5
UNVT_count_inc
nv15
nvoDI
UNVT_switch
Phoenix Defined
Configuration Properties
nciDeviceCfg
nciUIConfig[3]
nciAOConfig[2]
nciDIConfig
nciDOConfig
nciLclOutCmdCfg[4]
nciRcvHrtBt_dev
nciSndHrtBt_dev
nciMinOutTm_dev
UCPTlvcDeviceCfg
UCPTunivInputParam
UCPTanalogOutputParam
UCPTdigitalInputParam
UCPTdigitalOutnputParam
UCPTlclOutCmdCfg
SCPTmaxRcvTime
SCPTmaxSendTime
SCPTminSendTime

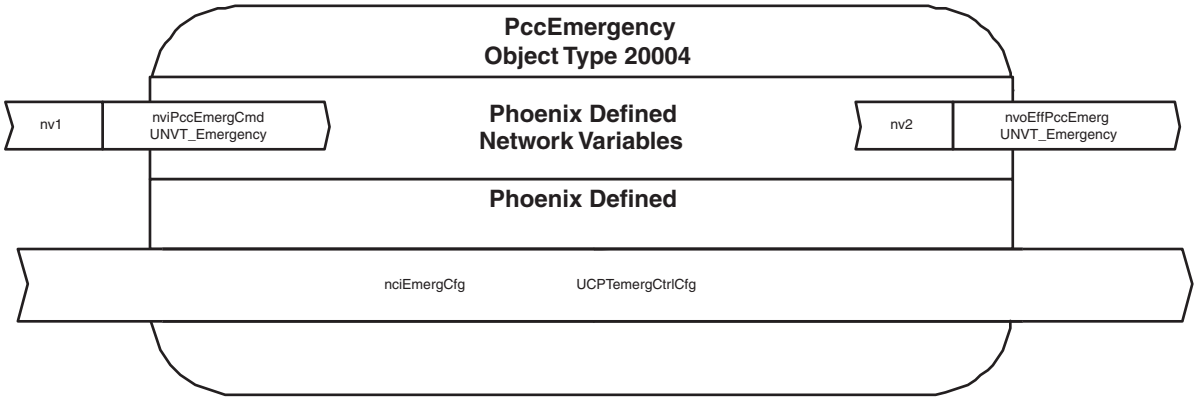

PccEmergency
Object Type 20004
nv1
nviPccEmergCmd
UNVT_Emergency
Phoenix Defined
Network Variables
nv2
nvoEffPccEmerg
UNVT_Emergency
Phoenix Defined
nciEmergCfg
UCPTemergCtrlCfg

Table 1. Points for Open LON Integration

Description	Object Type	Object Name	Network Variable Type (SNVT)	Network Variable (NV) Name
			SNVT_temp_p	nviSpaceTemp
Occupied temperature set point input	8502	SCC VAV	SNVT_temp_p	nviTempSetpt
Occupied override input	8502	SCC VAV	SNVT_occupancy	nviOccOverride
Occupancy sensor override	8502	SCC VAV	SNVT_occupancy	nviOccSensor
Application mode command input	8502	SCC VAV	SNVT_hvac_mode	nviApplicMode
Unoccupied cooling temperature set point	8502	SCC VAV	SNVT_temp_p	nviUnoccCoolStpt
Unoccupied heating temperature set point	8502	SCC VAV	SNVT_temp_p	nviUnoccHeatStpt
Auxiliary temperature set point input	8502	SCC VAV	SNVT_temp_p	nviAuxTempSetpt
Local temperature set point lever enable/scaling input	8502	SCC VAV	SNVT_switch	nviLclLeverEbl
Space relative humidity sensor input	8502	SCC VAV	SNVT_lev_percent	nviSpaceRH
Space relative humidity set point input	8502	SCC VAV	SNVT_lev_percent	nviRHSetpt
Effective space temperature output	8502	SCC VAV	SNVT_temp_p	nvoSpaceTemp
Unit HVAC status output	8502	SCC VAV	SNVT_hvac_status	nvoUnitStatus
Effective space temperature set point output	8502	SCC VAV	SNVT_temp_p	nvoEffTempSetpt
Effective occupancy mode status output	8502	SCC VAV	SNVT_occupancy	nvoEffOccMode
Discharge air temperature output	8502	SCC VAV	SNVT_temp_p	nvoDischAirTemp
Terminal load output	8502	SCC VAV	SNVT_lev_percent	nvoTerminalLoad
Auxiliary temperature control loop command output	8502	SCC VAV	SNVT_switch	nvoAuxTempCmd
Effective space relative humidity output	8502	SCC VAV	SNVT_lev_percent	nvoSpaceRH
Effective space relative humidity set point output	8502	SCC VAV	SNVT_lev_percent	nvoEffRHSetpt
Space humidity control command output	8502	SCC VAV	SNVT_lev_percent	nvoRHCtrlCmd
BMS zone flow offset set point input	20033	SCC VAV FLOW	SNVT_flow_f	nviFlowOffsetCmd
BMS minimum supply flow set point input	20033	SCC VAV FLOW	SNT_flow	nviMinSupFlowCmd
BMS HVAC flow override command input	20033	SCC VAV FLOW	SNVT_hvac_overid	nviFlowOverride
BMS HVAC emergency override input	20033	SCC VAV FLOW	SNVT_hvac_emerg	nviHvacEmergCmd
IAQ command input	20033	SCC VAV FLOW	SNVT_lev_percent	nvilAQCmd
Additional flow #1 input	20033	SCC VAV FLOW	SNVT_flow	nviFlow_1
Additional flow #2 input	20033	SCC VAV FLOW	SNVT_flow	nviFlow_2
Zone total supply flow output	20033	SCC VAV FLOW	SNVT_flow	nvoTotalSupFlow
Zone total exhaust flow output	20033	SCC VAV FLOW	SNVT_flow	nvoTotalExhFlow
Zone volumetric offset feedback output	20033	SCC VAV FLOW	SNVT_flow_f	nvoFlowOffset
Effective zone volumetric offset set point output	20033	SCC VAV FLOW	SNVT_flow_f	svoEffFlwOffstSP
Supply valve flow feedback output	20033	SCC VAV FLOW	SNVT_flow	nvoMainValveFlow
Exhaust valve flow feedback output	20033	SCC VAV FLOW	SNVT_flow	nvoTrkValveFlow
Effective supply valve flow set point output	20033	SCC VAV FLOW	SNVT_flow	nvoEffMainFlowSP
Effective exhaust valve flow set point output	20033	SCC VAV FLOW	SNVT_flow	nvoEffTrkFlowSP
Space relative pressure output	20033	SCC VAV FLOW	SNVT_press_p	nvoPressure
BMS AO port 1 override input	20034	TrcDevice	SNVT_switch	nviAOCmd_1
BMS AO port 2 override input	20034	TrcDevice	SNVT_switch	nviAOCmd_2
BMS DO port override input	20034	TrcDevice	SNVT_switch	nviDOCmd
BMS floating point drive override input	20034	TrcDevice	SNVT_switch	nviFloatDriveCmd
Current alarm status of all alarm bits output	20034	TrcDevice	SNVT_state_64	nvoAlarmState
Universal input port 1 feedback output	20034	TrcDevice	SNVT_count_inc	nvoUI_1
Universal input port 2 feedback output	20034	TrcDevice	SNVT_count_inc	nvoUI_2
Universal input port 3 feedback output	20034	TrcDevice	SNVT_count_inc	nvoUI_3
Universal input port 4 feedback output	20034	TrcDevice	SNVT_count_inc	nvoUI_4
Universal input port 5 feedback output	20034	TrcDevice	SNVT_count_inc	nvoUI_5
Digital input port feedback output	20034	TrcDevice	SNVT_count_inc	nvoDI

POINTS (CONTINUED)

Table 2. Points for Integration through the Celeris Servers

Description	Network Variable Type (SNVT/UNVT)	Network Variable (NV) Name	Field Name
Occupied temperature set point input	SNVT_temp_p	nviTempSetpt	nviTempSetpt
Occupancy override input	SNVT_occupancy	nviOccOverride	nviOccOverride
Application mode command input	SNVT_hvac_mode	nviApplicMode	nviApplicMode
Unoccupied cooling temperature set point	SNVT_temp_p	nviUnoccCoolStpt	nviUnoccCoolStpt
Unoccupied heating temperature set point	SNVT_temp_p	nviUnoccHeatStpt	nviUnoccHeatStpt
Auxiliary temperature set point input	SNVT_temp_p	nviAuxTempSetpt	nviAuxTempSetpt
Local temperature set point lever scaling input	SNVT_switch.value	nviLclLeverEbl	value
Local temperature set point lever enable input	SNVT_switch.state	nviLclLeverEbl	state
Space relative humidity set point input	SNVT_lev_percent	nviRHSetpt	nviRHSetpt
Effective space temperature output	SNVT_temp_p	nvoSccData	SpaceTemp
Phoenix temperature mode status output	PHX_TEMP_MODE	nvoSccData	PccTempMode
HVAC mode status output	SNVT_hvac_mode	nvoSccData	HvacTempMode
Effective space temperature set point output	SNVT_temp_p	nvoSccData	EffSpaceTempSP
Effective auxiliary temperature set point output	SNVT_temp_p	nvoSccData	EffAuxTempSP
Effective occupancy mode status output	SNVT_temp_p	nvoTpFlowData	EffOccMode
Discharge air temperature output	SNVT_temp_p	nvoSccData	DschrgAirTemp
Exhaust air temperature output	SNVT_lev_percent	nvoSccData	ExhaustAirTemp
Primary temperature loop cooling command output	SNVT_lev_percent	nvoSccData	PrimaryCoolCmd
Primary temperature loop heating command output	SNVT_lev_percent	nvoSccData	PrimaryHeatCmd
Auxiliary temperature control loop command output	SNVT_switch.value	nvoSccData	AuxTempCmd.value
Auxiliary temperature control loop status (ON/OFF)	SNVT_switch.state	nvoSccData	AuxTempCmd.state
Effective space relative humidity output	SNVT_lev_percent	nvoSccData	SpaceRH
Effective space relative humidity set point output	SNVT_lev_percent	nvoSccData	EffSpaceRHSetpt
Space humidity control command output	SNVT_lev_percent	nvoSccData	HumidifyCmd
Space dehumidity control command output	SNVT_lev_percent	nvoSccData	DehumidifyCmd
BMS zone flow offset set point input	SNVT_flow_f	nviFlowOffsetCmd	nviFlowOffsetCmd
BMS minimum supply flow set point input	SNT_flow	nviMinSupFlowCmd	nviMinSupFlowCmd
BMS HVAC flow override command input	SNVT_hvac_overid	nviFlowOverride	nviFlowOverride
BMS HVAC emergency override input	SNVT_hvac_emerg	nviHvacEmergCmd	nviHvacEmergCmd
IAQ command input	SNVT_lev_percent	nviIAQCmd	nviIAQCmd
Zone total supply flow output	SNVT_flow	nvoTPFlowData	uwTotalSup
Zone total exhaust flow output	SNVT_flow	nvoTPFlowData	uwTotalExh
Zone volumetric offset feedback output	SNVT_flow_f	nvoTPFlowData	swFlowOffset
Effective zone volumetric offset set point output	SNVT_flow_f	nvoTPFlowData	swEffFlowOffsetCmd
Supply valve flow feedback output	SNVT_flow	nvoTPFlowData	uwMainFlow
Exhaust valve flow feedback output	SNVT_flow	nvoTPFlowData	uwTrackFlow
Effective supply valve flow set point output	SNVT_flow	nvoTPFlowData	uwEffMainFlowSP
Effective exhaust valve flow set point output	SNVT_flow	nvoTPFlowData	uwEffTrackFlowSP
Space relative pressure output	SNVT_press_p	nvoPressure	nvoPressure
BMS AO port 1 override command value input	SNVT_switch.value	nviAOCmd_1	value
BMS AO port 1 override command state input	SNVT_switch.state	nviAOCmd_1	state
BMS AO port 2 override command value input	SNVT_switch.value	nviAOCmd_2	value
BMS AO port 2 override command state input	SNVT_switch.state	nviAOCmd_2	state
BMS DO port override command value input	SNVT_switch.value	nviDOCmd	value
BMS DO port override command state input	SNVT_switch.state	nviDOCmd	state
BMS floating point drive override command value input	SNVT_switch.value	nviFloatDriveCmd	value
BMS floating point drive override command state input	SNVT_switch.state	nviFloatDriveCmd	state
Supply valve jam alarm output	SNVT_state_64	nvoAlarmState	JamAlarm
Supply valve flow alarm output	SNVT_state_64	nvoAlarmState	FlowAlarm
Exhaust valve jam alarm output	SNVT_state_64	nvoAlarmState	JamAlarm2

Description	Network Variable Type (SNVT/UNVT)	Network Variable (NV) Name	Field Name
Exhaust valve flow alarm output	SNVT_state_64	nvoAlarmState	FlowAlarm2
Universal input port 1 feedback output	SNVT_count_inc	nvoUI_1	nvoUI_1
Universal input port 2 feedback output	SNVT_count_inc	nvoUI_2	nvoUI_2
Universal input port 3 feedback output	SNVT_count_inc	nvoUI_3	nvoUI_3
Universal input port 4 feedback output	SNVT_count_inc	nvoUI_4	nvoUI_4
Universal input port 5 feedback output	SNVT_count_inc	nvoUI_5	nvoUI_5
Digital input port feedback output	SNVT_switch	nvoDI	nvoDI
Phoenix emergency mode command input	UNVT_Emergency	nviPccEmergCmd	nviPccEmergCmd
Effective Phoenix emergency mode status output	UNVT_Emergency	nvoTpFlowData	EffPccEmergMode
Effective HVAC emergency mode status output	SNVT_hvac_emerg	nvoTpFlowData	EffHvacEmergMode

MAINTENANCE