



## TAC Xenta® 451A/452A

### Universal Input and Analog Output Module

TAC Xenta 451A and 452A are Universal Input/Analog Output modules in the TAC Xenta family. They can be used as normal Xenta I/O modules or as certified LONMARK® devices.

Both modules have eight universal inputs and two analog outputs. The universal inputs can be used as digital, thermistor, current, or voltage inputs.

In addition, the TAC Xenta 452A is equipped with LED status indicators. There is one for each universal input when used for digital inputs. There is also a manual override for the analog output values. The LED colors, red or green, can be selected individually by altering the parameter settings in the TAC Menta® graphical tool.

TAC Xenta 451A/452A is linked to a specific controller using TAC Menta.

If there are several controllers and I/O modules in the same network, a special software called the Device Configuration Tool is used during installation.

The input/output status can be checked from a TAC Xenta OP (Operator Panel), connected to any TAC Xenta controller in the same network. TAC Xenta OP has a display and a small number of push buttons to facilitate the taking of readings and altering settings.

#### TECHNICAL DATA

Supply voltage . . . 24 V AC  $\pm 20\%$ , 50/60 Hz or 21.6–40 V DC  
 Power consumption . . . . . max. 3 W  
 Transformer sizing . . . . . 6 VA

#### Ambient temperature:

Storage . . . . . -20 to 70 °C (-4 to 158 °F)  
 Operation . . . . . 0 to 50 °C (32 to 122 °F)  
 Humidity . . . . . max. 90% RH non-condensing

#### Mechanical:

Enclosure . . . . . ABS/PC  
 Enclosure rating . . . . . IP 20  
 Flammability class, materials . . . . . UL 94 V-0  
 Dimensions (mm) . . . . . see diagram on last page  
 Weight . . . . . 0.2 kg (0.44 lbs)

#### Universal Inputs (U1–U8):

Quantity . . . . . 8  
 – as Digital Inputs;  
 Voltage across open contact . . . . . 20 V DC  
 Current through closed contact . . . . . 3 mA  
 Pulse input duration . . . . . min. 80 ms  
 – as Thermistor Inputs;  
 Thermistor sensor . . . . . 1800 ohm at 25 °C (77 °F)  
 or . . . (indiv. selectable) thermistor 10 kohm at 25 °C (77 °F)  
 Measuring range . . . . . -50 to 150 °C (-58 to 302 °F)  
 Measuring precision . . . . . see table overleaf  
 – as Current Input;  
 Input signal (terminals U–M; over-current protected) 0–20 mA  
 Input resistance . . . . . 47 ohm  
 . . . . . inaccuracy within  $\pm(0.03 \text{ mA} + 0.4\% \text{ of reading})$   
 Power supply for one two-wire 4–20 mA transmitter  
 . . . . . 20 V DC/25 mA  
 – as Voltage inputs;  
 Input signal . . . . . 0–10 V DC  
 Input resistance . . . . . >100 kohm  
 . . . . . inaccuracy  $\pm(7 \text{ mV} + 0.2\% \text{ of reading})$

#### Analog outputs (Y1–Y2):

Quantity . . . . . 2  
 Control voltage . . . . . 0–10 V DC  
 Control current, short-circuit proof . . . . . max. 2 mA  
 Deviation . . . . . max 1%

#### LED digital input status indicators (TAC Xenta 452A only):

Quantity . . . . . 8  
 Color . . . . . red or green, selectable in TAC Menta

#### Manual override for analog outputs (TAC Xenta 452A only):

Quantity . . . . . 2  
 Switch positions . . . . . MAN, AUTO  
 Potentiometer range . . . . . 0–10.5 V

#### Communication, transceiver type FTT10A:

Network . . . . . Echelon LonWorks™ TP/FT-10, 78 kbps  
 LonMark® standard

Interoperability . . . . . LonMark Interop. Guidelines v 3.3  
 LonMark Functional Profiles:

Analog Input . . . . . #0520  
 Analog Output . . . . . #0521

#### Agency Compliances:

Emission . . . . . C-Tick; EN 61000-6-3;  
 FCC Part 15, Subpart B, Class B

Immunity . . . . . EN 61000-6-1

#### Safety:

CE . . . . . EN 61010-1  
 UL 916 . . . . . C-UL US pending

#### Part numbers:

Electronics part TAC Xenta 451A . . . . . 0-073-0285  
 Electronics part TAC Xenta 452A  
 (with LED indicators and AO override) . . . . . 0-073-0286  
 Terminal part TAC Xenta 400 . . . . . 0-073-0902  
 Operator terminal TAC Xenta OP . . . . . 0-073-0907

## DESIGN

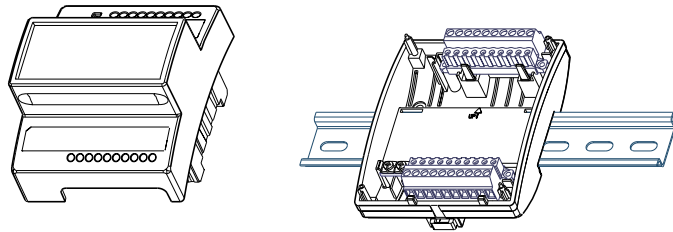
The TAC Xenta 451A/452A consists of a terminal and a circuit board mounted together (figure 1). All terminations of field wires are made to the terminal. Thus, the electronics may be removed for service without affecting the terminal connections.

### Universal Inputs

The Universal Inputs can be individually configured as Analog or Digital Inputs, or as pulse counters. A high and a low limit can be set for each Universal Input. If configured as Digital Inputs, the Universal Inputs may be used for sensing switch positions.

The Universal Input types are selected via the application program.

Figure 1



### Analog Outputs

There are two Analog Outputs to control actuators and the connection to controllers. No external power supply is required.

### LED indicators

There are two general LED indicators on the front of the module. One is red and lights up if there is a hardware fault. The other is green and blinks to indicate that the device is online.

TAC Xenta 452A is equipped with eight status indicators, one for each universal input used as a DI.

The corresponding LED can be configured in TAC Menta to light up either when the input status is ON or when it is OFF.

## MOUNTING

TAC Xenta 451A/452A is cabinet mounted on a TS 35 mm DIN rail EN 50022. The Input/Output module consists of two parts: a terminal with screw terminals and electronics with circuit boards. To simplify installation, the terminal can be pre-mounted in the cabinet (see figure 1).

## CABLES

G and G0:

Min. wire size of 0.75 mm<sup>2</sup> (18 AWG).

C1 and C2:

The TP/FT-10, 78 kbps system allows the user to wire the control devices with virtually no topology restrictions. The max. wire distance in one segment depends on the type of wire and the topology.

For network segments installed as bus topology, using the Belden 85102 cable, the max. cable length is 2700 m (9000 ft.).

For other applications, please refer to the TAC Xenta Network guide.

The wires are polarity insensitive, but must be a twisted-pair.

Terminals U1–U8, Y1–Y2:

Min. wire size 0.25 to 0.75 mm<sup>2</sup> (18 to 22 AWG).

Max. cable length 20 to 200 m (66 to 660 ft.). (Please refer to the 0-004-7771 TAC Xenta 400 I/O Modules handbook for details).

## INSTALLATION

There is a label on the front of the module with both the numbers and the names of the terminals (1 C1, 2 C2 and so on). The numbers are also stamped on the plastic of the terminal part.

### Service pin

To simplify network commissioning, there is a service pin on the electronic unit which, when pressed, identifies the unit on the network.

The unique Neuron ID is printed on a label on the rear of the unit.

### Terminal Connections

Term. No.	Term. Name	Description
1	G	24 V AC (or DC+)
2	G0	
3	C1	LonWorks TP/FT-10
4	C2	
5	U1	Universal Input
6	M	Measurem. neutral
7	U2	Universal Input
8	U3	Universal Input
9	M	Measurem. neutral
10	U4	Universal Input

Term. No.	Term. Name	Description
11	Y1	Analog output
12	M	Output neutral
13	Y2	Analog output
14	U5	Universal input
15	M	Measurem. neutral
16	U6	Universal input
17	U7	Universal input
18	M	Measurem. neutral
19	U8	Universal input
20	20 V DC	Supply

## COMMUNICATION

### LONWORKS connection

TAC Xenta 300/400 controllers and I/O-modules communicate with each other using a common bus, Echelon LONWORKS™ TP/FT-10, Free Topology, 78 kbps. A number of controllers can form a network and exchange data. Additional I/O units can also be connected to the network.

An I/O unit can only be associated with one controller.

The LONTALK™ protocol makes it possible to use Network Variables (NVs; for example I/O values) defined in third party equipment.

### MAINTENANCE

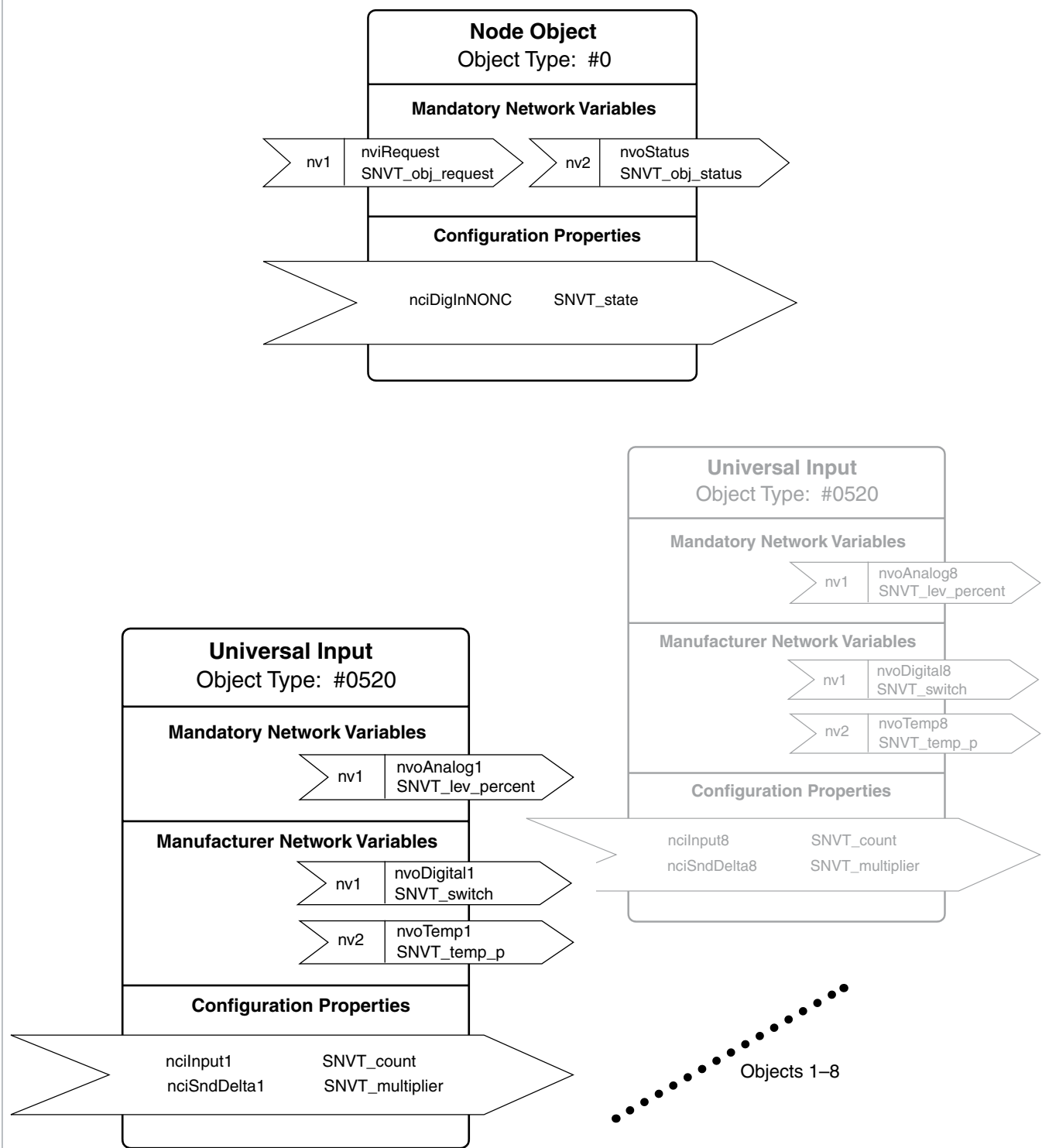
Caring for the controller includes keeping it dry and keeping it clean using a dry cloth.

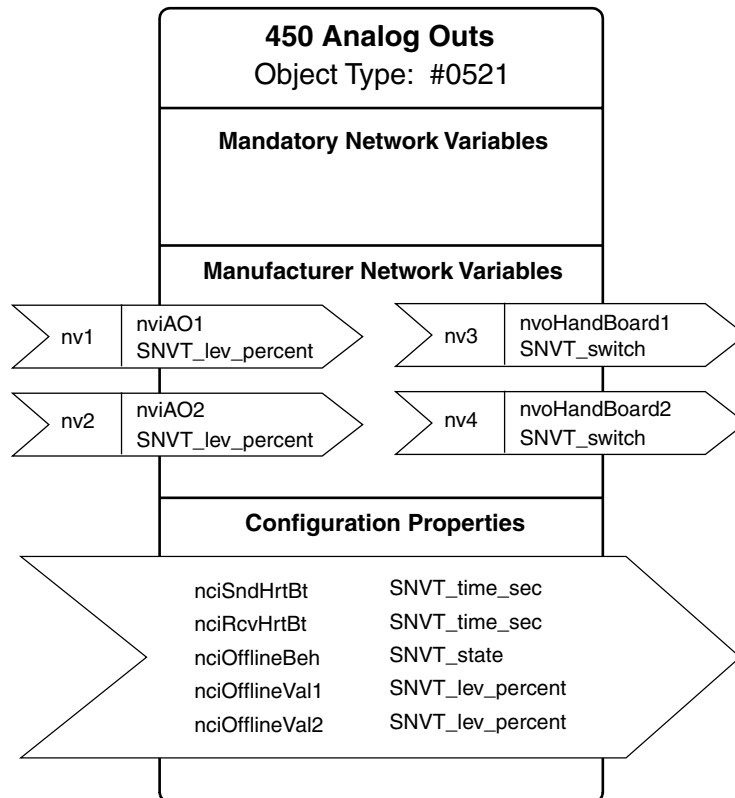
### THERMISTOR INPUTS

Precision, measurement input:

-50 to -30 °C (-58 to -22 °F)	.....±1.5 °C (±2.7 °F)
-30 to ±0 °C (-22 to +32 °F)	.....±0.5 °C (±0.9 °F)
±0 to +50 °C (32 to 122 °F)	.....±0.2 °C (±0.4 °F)
50 to 100 °C (122 to 212 °F)	.....±0.5 °C (±0.9 °F)
100 to 150 °C (212 to 302 °F)	.....±1.5 °C (±2.7 °F)

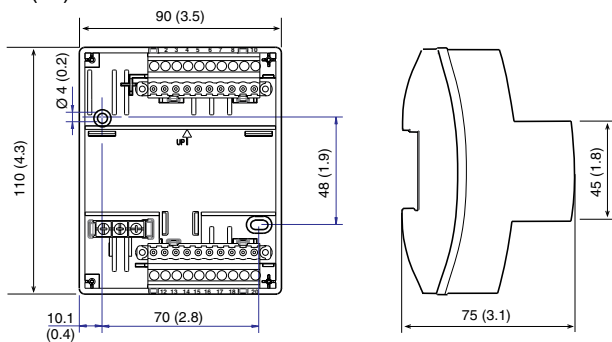
0510 8-channel configurable I/O





## DIMENSIONS

mm (in.):



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