TAC Xenta® 421/422

Digital Input and Output Module **26 Aug 2003**

TAC Xenta 421 and 422 are Digital Input/Output modules in the TAC Xenta family. They are used as expansion modules for the TAC Xenta controllers and are connected by the common network.

Both modules have four Digital Inputs and five Digital Outputs. The inputs can also be used as pulse counters.

In addition, TAC Xenta 422 is equipped with LED status indicators, one for each digital input and manual override switches for the digital outputs. The LED colors, red or green, are individually selectable through switches under the front cover.

The TAC Xenta 421/422 is associated with a specific controller with the assistance of the TAC Menta® graphical tool.

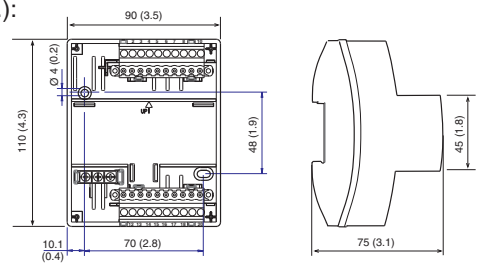
If several controllers and I/O modules are used in the same network, a special Device Configuration Tool PC program is used during installation.

The digital input/output status can be checked from the TAC Xenta OP operator panel connected to any TAC Xenta controller in the same network. TAC Xenta OP has a display and push buttons to take readings and alter settings.

TECHNICAL DATA

Supply voltage ..... 24 V AC ±20%, 50/60 Hz
..... or 19–40 V DC
Power consumption ..... max. 2 W
Transformer sizing ..... 5 VA
Ambient temperature (*except* TAC Xenta 421XT and 422XT):
Storage ..... –20 to 50 °C (–5 to 122 °F)
Operation ..... 0 to 50 °C (32 to 122 °F)
Ambient temperature TAC Xenta 421XT and 422XT:
Storage and Operation ..... –20 to +70 °C (–5 to +158 °F)
Humidity ..... max. 90% RH non-condensing
Mechanical:
Enclosure ..... ABS/PC
Enclosure rating ..... IP 20
Dimensions ..... see diagram
Weight ..... 0.5 kg (1.1 lbs)
Digital inputs (X1–X4):
Quantity 4
Voltage across open contact ..... 33 V DC
Current through closed contact ..... 4 mA
Pulse input duration ..... min. 20 ms
Digital outputs (relays; K1–K5):
Quantity 5
Control voltage, relay outputs ..... up to 230 V AC
Control current, to be protected by max. 10 A fuse,
..... max. 2 A
LED digital input status indicators (TAC Xenta 422 only):
Quantity 4
Color ..... red or green, selectable with DIP switch
Manual override for digital outputs (TAC Xenta 422 only):
Quantity 5
Switch positions ..... ON, AUTO, OFF
Indicators for Auto output status ..... green LEDs
Communication:
Network ..... Echelon LonWorks® TP/FT-10, 78 kbps

mm (in.):



Agency Compliances:
Emission ..... C-Tick, EN 50081-1, FCC Part 15
Immunity ..... EN 50082-1
Safety:
CE ..... EN 61010-1
UL 916 ..... Energy Management Equipment
Flammability class, materials ..... UL 94 V-0
ETL listing ..... UL 3111-1, first edition
..... CAN/CSA C22.2 No. 1010.1-92
Part numbers:
Electronics part TAC Xenta 421 0-073-0241
Electronics part TAC Xenta 422
(with LED indicators and DO override) 0-073-0243
Electronics part TAC Xenta 421XT 0-073-0242
Electronics part TAC Xenta 422XT 0-073-0244
Terminal part TAC Xenta 400 0-073-0902
Operator terminal TAC Xenta OP 0-073-0907

DESIGN

The TAC Xenta 421/422 consists of a terminal and a circuit board mounted together (figure 1). All terminations of field wires are made to the terminal part only. Thus, the electronics may be removed for service without affecting the terminal connections.

Digital Inputs

The four Digital Inputs are used to sense alarm contacts, status indications, pulse counting, etc.

Each digital input can be used as a pulse counter (e.g. for flow measurement).

Another available application is alarm monitoring. Each time an alarm is tripped, the corresponding counter can be incremented, providing data for operating statistics.

The Digital Input circuits are internally powered.

Digital Outputs

There are five Digital Outputs for the control of equipment such as fans, pumps or similar devices. The output signal can be pulse width modulated and these outputs can also be used to control increase/decrease actuators.

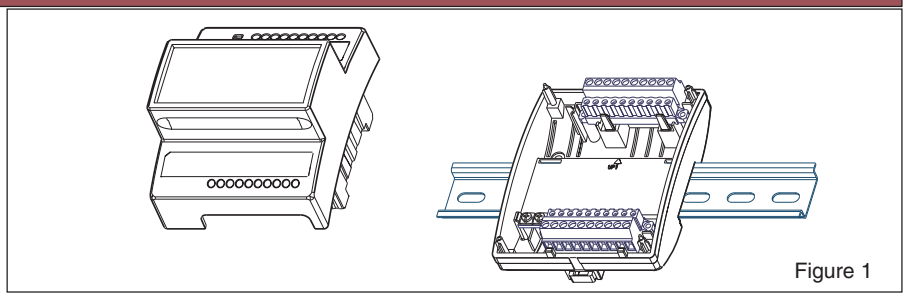


Figure 1

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 application program is running.

TAC Xenta 422 is equipped with four status indicators, one for each digital input. The corresponding LED lights up when the input status is ON.

The LED colors, red or green, are individually selectable, by the setting of switches under the front cover.

Furthermore, there are five switches for manual override of the digital outputs. In this case the LEDs are green and they show the status of the Auto output signal.

MOUNTING

TAC Xenta 421/422 is cabinet mounted on a TS 35 mm norm rail EN 50022. The Input/Output module consists of two parts: a terminal with screw terminals and electronics with circuit board. To simplify installation the terminal can be pre-mounted on the cabinet (see figure 1).

If the module is to be wall mounted, a wide range of standardized boxes are available.

CABLES

G and G0:

Min. wire size of 0.75 mm^2 (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 normal applications, using the Belden 85102 cable, the distance may be up to 500 m (1640 ft.).

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

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

Terminals X1–X4:

Min. wire size of 0.25 mm^2 (23 AWG).
Max. cable length 200 m (650 ft.).

Terminals K1–K5:

Min wire size of 0.75 to 1.5 mm^2 (18 to 16 AWG).
Max. cable length 200 m (650 ft.).

INSTALLATION

There is a label on the front of the controller with both the numbers and the names of the terminals (1 G, 2 G0 and so on). The numbers are also shown in 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 lable attached to the unit.

Terminal Connections

Term. no.	Term. name	Description
1	G	24 V AC/DC
2	G0	
3	C1	LonWorks
4	C2	TP/FT-10, 78 kbps
5	X1	Digital input
6	M	Measurement neutral
7	X2	Digital input
8	X3	Digital input
9	M	Measurement neutral
10	X4	Digital input

Term. no.	Term. name	Description
11	K1	Relay
12	K1C	K1 common
13	K2	Relay
14	K2C	K2 common
15	K3	Relay
16	K3C	K3 common
17	K4	Relay
18	K4C	K4 common
19	K5	Relay
20	K5C	K5 common

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.

The additional I/O units also connect to the network and may be added as needed. An I/O unit can only be associated with one controller.

The LonTalk® protocol makes it possible to use Network Variables (for example I/O values) defined in foreign equipment.

TAC Xenta OP

The operator panel is also connected to the network and can thus act as an operator panel for other units in the network. The connection is made to the modular jack on the front of the Xenta controller.

MAINTENANCE

Caring for the controller includes keeping it dry and cleaning it externally with a dry cloth when needed.