



The Alerton<sup>®</sup> TX-653P<sup>™</sup> is a high-performance programmable logic controller designed for HVAC and industrial equipment. Common applications include rooftop units, unit ventilators, central plant equipment, air handling units, and clean room equipment. It operates either as a stand-alone controller or as part of a site-wide, integrated DDC system.

All TX-653P control logic is programmed using Alerton's easy to learn DDC programming language. This self documenting software includes a complete library of control functions, enabling totally flexible control strategies. A single TX-653P can contain multiple control loops for various parts or multiple pieces of equipment.

The TX-653P communicates with the Alerton global controller over a two-conductor communication trunk at 9600, 4800, or 1200 baud. A portable computer running Alerton TDS software can also connect directly to the TX-653P with an optional portable computer cable.

The TX-653P is designed for high-speed data processing, with an internal DDC loop cycle time of 100 msec. Programmable timers have a resolution of 100 msec. Inputs are universal and support thermistor, dry contact, 0-5 VDC, or

4-20 mA signals. A 24 VDC power supply is built-in to provide up to 150 mA of power to external field transducers.

The TX-653P supports the Alerton Microset<sup>™</sup>, a wall mount temperature sensor that contains a digital display and simple pushbutton controls. All input and output values can be viewed at the Microset.

CMOS circuitry, a four layer circuit board with separate ground plane, hardware and software input filtering, and power supply noise filters ensure reliable and stable operation. The communication trunk is optically isolated to prevent ground loop problems. The CMOS processor incorporates an internal watchdog monitor, and the power supply voltage is monitored to provide automatic shutdown and data backup. All program data is stored in non-volatile EEPROM.

### Product Numbers

**TX-653P**

Accessories  
MS-1000/1010/1020/1030 (Microsets)  
AC-2650 (Portable Computer Cable)

# Specifications

## TX-653P™

<b>Power</b>	24 VAC @ 10 VA plus any digital output loads (70 VA max.). The internal supply utilizes a half-wave rectifier, which enables multiple TUXs to be powered from a single transformer. One leg of 24 VAC connects to earth (panel) ground.
<b>Inputs</b>	6 inputs with 10-bit resolution. All inputs support dry contact, thermistor, potentiometer, 0–5 VDC, or 4–20 mA signals. 4–20 mA inputs require an external 250Ω resistor. Inputs 1 and 2 also support an Alerton® Microset™.
<b>Digital Outputs</b>	5 outputs, each rated 24 VAC @ 0.5 Amp, which utilize optically coupled triacs and have a common connection to the fused 24 VAC supply.
<b>Analog Outputs</b>	3 outputs with 8-bit resolution. DIP switch configurable for 4–20 mA or 0–10 VDC. Outputs are sourced by the TX-653P. Connected loads must return to ground. Minimum load resistance is 500Ω.
<b>24VDC Supply</b>	Up to 150 mA of 24 VDC power is provided to power external transducers or other devices.
<b>Processor</b>	Motorola (MC68HC705) CMOS processor with ROM and RAM.
<b>EEPROM</b>	2048 bytes of non-volatile program and data storage.
<b>Maximum Dimensions</b>	5.0"(127mm) H X 5.4"(137mm) L X 1.4"(36mm) D.
<b>Terminations</b>	Removable screw terminals accept 14–20 AWG wire.
<b>Environmental</b>	32–158°F (0–70°C). 0–95% RH, non-condensing.
<b>Communications</b>	Optically isolated TUX trunk operates at 9600, 4800, or 1200 baud. Access port for portable computer using AC-2650 cable.
<b>Ratings</b>	<ul style="list-style-type: none"> <li>Listed Underwriters Laboratory for Open Energy Management Equipment (PAZX) under the UL Standard for Safety 916. Listing includes both U.S. and Canadian certification.</li> <li>FCC Part 15, Subpart J, Class A.</li> <li>EMC Directive 89/336/EEC (European CE Mark).</li> </ul>

Specifications subject to change without notice.

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