

Model TCPU

TPC Control Processing Unit

Overview

The SCAN-A-LINE™ TPC Control Processing Unit – Model TCPU from Harris Instrument Corporation is a time proportional control processing unit for strip control applications. They are designed to provide a regulated power supply for the sensors as well as signal processing and conversion for control interface with systems that have no servo or proportional valves. There are three main configurations for the Model TCPU:

- Level 1:** For use with single or dual EG-Series sensors ONLY; 0 - 10VDC Edge Position Analogs & Directional Control Relays.
- Level 2:** For use with single 10XAS-Series sensor; 0 - 10VDC Edge Position Analogs & Directional Control Relays.
- Level 3:** For use with single or dual 10XAS-Series sensors; 0 - 10VDC Edge Position Analogs & Directional Control Relays.

Display

The Model TCPU is provided standard with a Bargraph Display to visually represent the position correction signal from the controller. The Bargraph Display also furnishes annunciators & limits relays & may be mounted remotely.

Options

- Auto-Zero:** (AZ Option) For 10XAS-Series sensors: Sets any strip position as a reference position (Level 3).
- Control Offset:** (OP Option) Offset of the control signal for final strip positioning with a ten-turn precision multi-dial.
- First Edge Video:** (FEV Option) Pre-processor to detect the first edge viewed, ignoring all other edges (Level 3 ONLY).
- Left/Center/Right:** (LCR Option) Select desired guide point for position control – Left, Center or Right (Level 3 ONLY).
- Line Driver:** (LDR Option) Converts sensor signals for routing to another processing unit up to 3000' [914m].
- 4/20 Current Loop:** (4/20 Option) 4/20mA Current Loop routes Edge Position Analog signals from Model TCPU over long distances. Single or Dual configurations available.



Model TCPU Level 1 with Control Offset

Features

- Compatible with SCAN-A-LINE™ sensors: EG-Series & 10XAS-Series sensors.
- Fully Adjustable Directional Relay Contact Closures for actuating existing customer manual jog switches.
- RESET Timer Input from Line Speed Encoder (not included) Available.
- Auto-Zero Contacts with Model TCPU Level 3 as well as 3 real-time & 3 reference analog outputs.
- Left/Right Limit Relays & Annunciators standard with Bargraph Display.
- No Moving Parts, Nothing to Wear Out, All Solid State.
- Linear Power Supply (± 12 VDC regulated for sensors & 5VDC regulated for logic circuits) & signal routing for up to sensors. Linear Power Supply 105VAC to 125VAC. 220VAC supply is available (no charge).
- Model TCPU Enclosure Dimensions: NEMA-style Steel 12" [305mm] wide x 14" [356mm] tall x 6" [152mm] deep.

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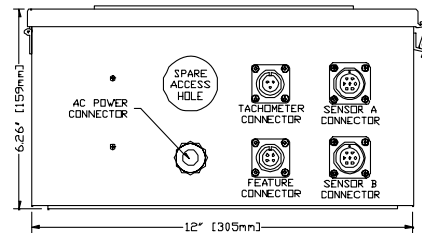
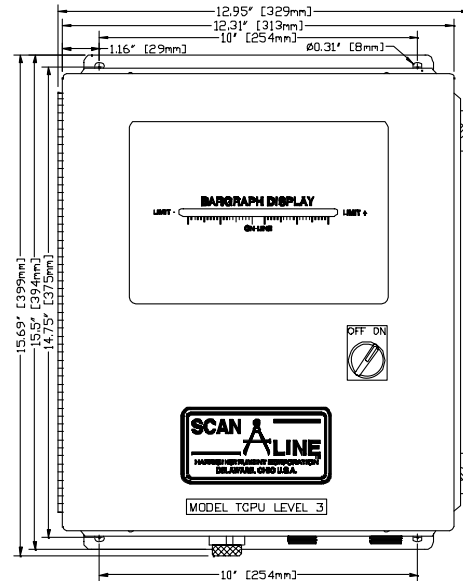
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Description

The **TPC Module** actuates existing position control solenoid valves in a fashion similar to the operator manual jog switches. The length of the closure of the position controlling relays is proportional to the magnitude of the error sensed and is fully adjustable by TIME GAIN control. A line speed or time adjustable RESET timer in the **TPC Module** circuit compensates for transport delay until correction can take effect. An input is utilized in the standard model to make the RESET time inversely proportional to the line speed. Also included is the **Control Offset** function for manual offset of the analog control signal (The **Control Offset** 10k Ohm potentiometer and ten-turn precision multi-dial with manual lock optionally available from Harris Instrument Corporation).

Input signals from an analog output device (**Model TCPU Level 2 or Level 3**) or analog sensors (EG-Series sensors with **Model TCPU Level 1**) are processed and control signals sent to the line control relays. Two normally-open (*N.O.*) relay contact closures are available for the activation of the time proportional directional position control switches. The **TPC Module** provides contacts on the customer connections terminal strip for attachment to the control offset functions. All **Model TCPU** processing units are provided with contacts for connection of a 10K ohm potentiometer (OP Option). This potentiometer is usually attached to a ten-turn precision multi-dial, which is typically mounted on the front panel (door) of the processing unit.

The **Control Offset** function provides a positive or negative offset to the control analog signal from the **TPC Module**. Most SCAN-A-LINE™ control systems operate with one or two sensors. When edge guiding, the system determines the position of the strip from the edge positioned over the sensor. When centerline guiding, the centerline position of the strip is the physical center of the two sensors (or the single sensor with a narrow strip in a single-sensor system). The **Control Offset** function allows the operator to offset that centerline to one side or the other. The **Control Offset** potentiometer takes signals from the **TPC Controller** and adds or subtracts voltage for the offset of the strip. This allows minor tuning of the edge or centerline position control signal.



Model TCPU Level 3 Dimensions
(dimensions typical for all levels of Model TCPU)



Model TCPU Level 3 with Auto-Zero



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