



ACT-3X

Panel Tachometer/Totalizer

Features:

- 1/8 DIN sized
- 5-digit LED
- 5 to 999,990 RPM range
- Universal sensor inputs
- User configurable with front panel pushbuttons or optional PM Remote Software
- View real-time data on PC*
- Store data in Excel™ file in real time*
- Universal AC power 100 to 240 V ac, 50/60 Hz or optional 12 or 240 V dc power
- Optional 4-20 mA or 0-5 V dc scalable output

Typical Uses:

- Process monitoring
- Research and development
- Field testing
- Engine performance analysis
- Interface to PLCs
- Trip speed testing
- Verification of rate of change (speed)
- Single-event capture
- Predictive maintenance

*Requires downloadable PM Remote Software



The ACT-3X is a powerful NIST calibrated, fully programmable tachometer and totalizer. It accepts inputs from all Monarch speed sensors or from any standard TTL generating device. The unit operates from 120/240 V ac input power or from 12 or 24 V dc input power (optional). Programming is easily performed through the 5 front panel pushbuttons or using the optional PM Remote Software. Set up for single channel monitoring. Programmable scale factor with menu selection for multiple pulses per revolution, linear rates, totalization, single event trip speeds and rate of change in RPM. A TTL pulse repeater output is standard.

Options include: 0-5 V dc or 4-20 mA isolated (or non-isolated) outputs and 2 Form C microprogrammable relay outputs. **Available communication options include:** bi-directional RS232C, USB or Ethernet. When used with the free downloadable PM Remote Software, the communication options allow for remote configuration, real-time view of data, and data streaming directly into Microsoft Excel.



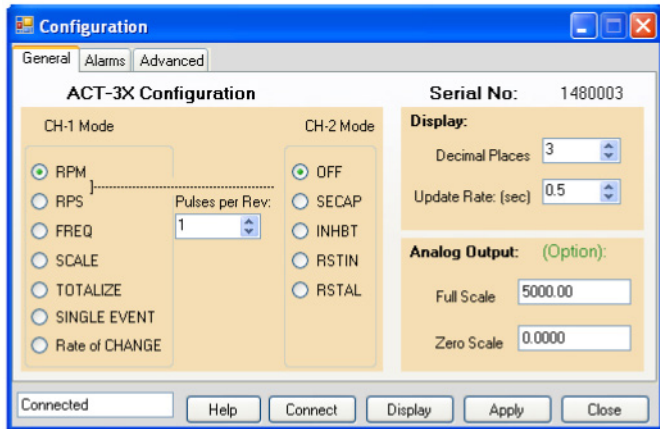
ACT-3X Panel Tachometer/Totalizer



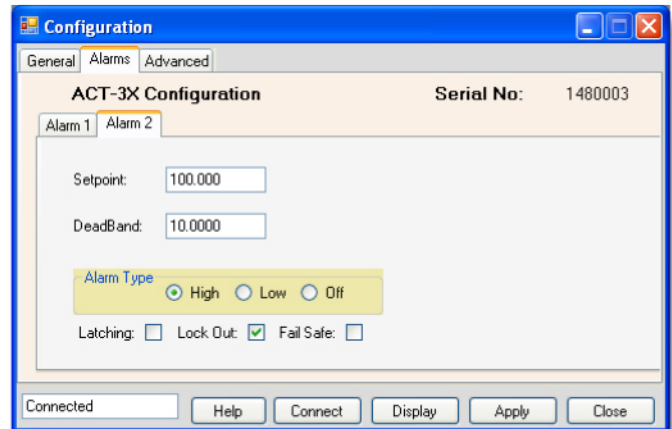
PM Remote Software

PM (Panel Meter) Remote Software is a Windows-based software application that allows the user to customize the configuration of the ACT-3X Tachometer/Totalizer. Set the mode of operation to RPM, RPS, Frequency, Totalization, Single Event Capture or Rate of Change and select the input scale (pulses per revolution). In addition, the decimal places displayed can be selected as well as the output scale of the optional analog output modules.

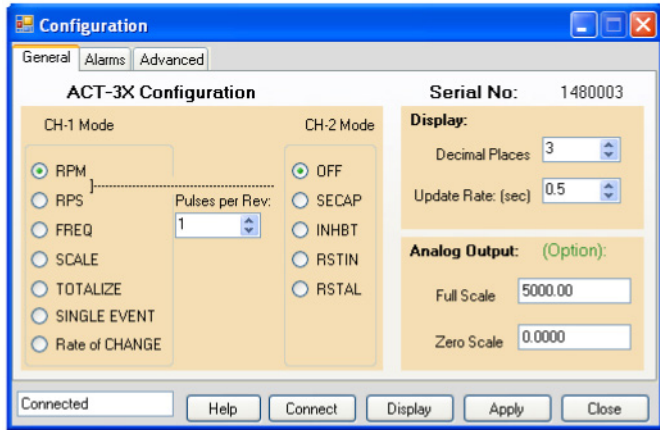
The two alarm setpoints are easily configured within the Alarms tab. From the Advanced tab, the user can set the input pulse trigger and optional output pulse to be positive or negative. Complete unit configurations can be saved to disk and quickly reloaded or transferred to other ACT-3X units. Real-time data can be displayed directly on the PC along with max/min. values. Data can be streamed directly into Microsoft Excel with one simple mouse click. PM Remote Software is free and downloadable from the [Monarch website](http://www.monarchinstrument.com). If you order the serial communication option with 1/8" phone plug connector, you will need to order the optional USB Programming Cable. Units ordered with USB, RS232 or Ethernet do not include an interface cable.



ACT-3X Configuring Basic Features



ACT-3X Configuring Alarms



ACT-3X Configuring Advanced Features



ACT-3X Real-time Display



ACT-3X Panel Tachometer/Totalizer



Specifications*	ACT-3X Panel Tachometer/Totalizer
Speed Range	5 to 999,990 RPM (single pulse per revolution), 0.5 to 999,990 RPM (10 pulses per revolution) Speeds below 5 RPM are possible with multiple pulses per revolution
Input Frequency Range	0.083 Hz to 250 kHz
Totalizer/Counter	Display Range: 0.001 to 99,999 (Only top 5 digits are shown for 100,000-999,990) Max # of counts = 16,777,216 even with 0.001 scale
Input Configuration	Universal Inputs: 1 to 9,999 pulses per revolution, front panel pushbutton programmable TTL input and 1.1 V to 50 V ac signals Optional: -1 to -50 V dc
Accuracy	$\pm 0.001\%$ of reading or ± 1 displayed resolution (Standard Gate) $\pm 0.01\%$ of reading or ± 1 displayed resolution (Fast Gate)
Resolution	Up to 0.001 RPM, 10 RPM (100,000 to 999,990 RPM)
Display	5-digit, 0.56" [14 mm] high red LED
Display and Output Update	Menu selectable between: 0.5 second above 120 RPM, 1 second above 60 RPM and 1.5 seconds above 40 RPM
Max Measurement Rate	Up to 100 times per second (standard gate) or up to 1000 (fast gate) dependent on input frequency; input must be > measurement rate
Scaling	Programmable scaling: 0.0001 to 9999.9 (front panel pushbutton programmable)
Decimal Point	User selectable (0-3) decimal places max (front panel pushbutton programmable)
Memory	Maximum, minimum and last reading recall from front panel pushbuttons
Dimensions	1/8 DIN by 4.5" [114 mm] deep; panel cutout: 3.58" x 1.74" [91 mm x 44 mm]
Input Power	Standard: 100 - 240 V ac $\pm 10\%$, 50/60 Hz Optional: 12 or 24 V dc $\pm 20\%$, isolated, 6.0 Watts
Inputs	Universal input for optical, proximity, two-wire or three-wire magnetic, infrared or laser sensors; TTL input or 1.5 V ac to 50 V ac input Standard input is 1 pulse per revolution
Sensor Excitation	5 V dc or optional 12 V dc or 24 V dc to sensor
Recommended Monarch Sensors	Optical: ROS-W, ROS-P-25, ROS-HT-W-25, ROSM-5W Proximity: P5-11 Magnetic: M-190W or MT-190W Infrared: IRS-W Laser: ROLS-W, SLS Smart Laser Sensor Inductive: GE200 HP (Gas Engine)
Pulse Repeater Output	Standard, 0 to 5 V TTL compatible, one pulse out for each pulse in Menu-selectable polarity
Communications	Bidirectional RS232C, USB or Ethernet interface
Analog Output	Voltage (AO): 0 to 5 Vdc, 5mA max load (isolated or non-isolated) Current (IO): 4 to 20 mA, 500 Ω max load (isolated or non-isolated), 1 to 5 V dc possible using 250 Ω resistor 16-bit resolution Front panel pushbutton programmable for full scale and offset RPM ranges
Alarm Capacity	Two alarm setpoints: High or Low alarm limits, latching or non-Latching, front panel pushbutton programmable hysteresis, deadband and low limit lockout are programmable; relays can be set as failsafe Alarms can be reset manually or automatically; remote reset via auxiliary input
Alarm Outputs	Two Form C relay contacts, rated 1A at 115 V ac or 230 V ac
Remote Programming	Unit can be remotely programmed using optional communications interface and PM Remote Software
Environmental	Indoor use only, Installation category II per IEC 664 Temperature: -10°C to 50°C operating per IEC 61010-1 Humidity: Maximum relative humidity 80% for temperatures up to 31°C, decreasing linearly to 50% relative humidity at 40°C
Electrical Safety	Meets EN61010-1:2001, EC low voltage directive 72/23/EEC and 89/336/EEC

*Specifications are subject to change without notice.

ACT-3X Panel Tachometer/Totalizer

Ordering Information

ACT-3X – [] – [] – [] – [] – [] – [] – []

Input Power

1 100-240 V ac 50/60 Hz

2 Isolated 12 V dc $\pm 20\%$

3 Isolated 24 V dc $\pm 20\%$

Sensor Power

1 12 V dc

2 5 V dc

3 24 V dc

Analog Output

0 None

1 0-5 V dc non-isolated

2 4-20 mA non-isolated

3 0-5 V dc isolated

4 4-20 mA isolated

Alarm Outputs

0 None

1 2 Form C relays rated 1 Amp @ 230 V ac

Communications

0 Standard Serial (phone plug)

1 RS232C (9-pin D shell)

2 USB (Type B)

3 Ethernet (RJ45)

BN Modification

0 None

1 Modification for use w/Bently Nevada or eddy probes

Sensors

6180-030	ROLS-W	Remote Optical Laser Sensor with 8 ft. cable, 4 tinned leads, mounting bracket with jam nuts and 12 inches of T-5 Reflective Tape
6180-056	ROS-W	Remote Optical Sensor with 8 ft. cable, mounting bracket and 12 inches of reflective tape
6180-057-25	ROS-P-25	Remote Optical Sensor with 25 ft. cable, mounting bracket and 12 inches of reflective tape
6180-058-25	ROS-HT-W-25	Same as 6180-056 for high temperature applications to 257 °F (125 °C) with 25 ft. cable
6180-013	P5-11	Proximity Sensor with 6 ft. cable
6180-018	MT-190W	Magnetic Trigger Sensor/Amplifier with 8 ft. cable
6180-012	M-190W	Magnetic Sensor with 8 ft. cable
6180-019	GE200 HP	Gasoline Engine Electromagnetic Inductive Sensor and amplifier with 23 ft. of cable
6180-021	IRS-W	Infrared Sensor with 8 ft. cable, tinned wires and mounting bracket

Accessories

6180-031	USB Programming Cable	3 ft. Programming Cable, 1/8" (3.5mm plug to USB) and Windows™ compatible PM Remote Software Package; allows user configuration of operation mode, analog output scaling, decimal places, display update rate and pulses per input and ability to view real-time data in digital format and/or through Excel
6180-070	T-5 Reflective Tape	5 ft. roll, 0.5 inch wide
6180-079	T-5 WP Reflective Tape	Waterproof reflective tape (honeycomb pattern) - 5 ft. roll, 1 inch wide

ACT-3X/0723



15 Columbia Drive, Amherst NH 03031
 800-999-3390 // 603-883-3390 // Fax 603-886-3300
sales@monarchinstrument.com

www.monarchinstrument.com