ACT-3X Programmable Panel Tachometer/Totalizer

NIST RoHS

Description

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 120/240Vac input power or from 12 or 24Vdc input power (optional). Programming is easily performed through the 5 front panel push buttons or using the optional PM Remote Software. Set up for single channel monitoring or use the auxiliary second channel input. 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: 0-5Vdc or 4-20mA isolated (or non-isolated) outputs and 2 Form C programmable relay outputs. Available communication options include: bi-directional RS232C, USB or Ethernet. When used with the optional PM Remote Software, the communication options allow for remote configuration, real-time view of data, and data streaming directly into Microsoft Excel™.

Features

- 1/8 DIN sized
- 5 Digit LED display
- 5 to 999,990 RPM range
- Universal sensor inputs
- User configurable with front panel push buttons or Optional PM Remote Software
- View real-time data on PC*
- Store data in Excel File in real-time*
- Universal A/C power 100 to 240 Vac, 50/60Hz or optional 12 or 24Vdc power
- Optional 4-20mA or 0-5Vdc scalable output

*Requires Optional PM Remote Software

Typical Uses

- Process monitoring
- Research and development
- Field testing
- Engine performance
- Interface to PLC's
- Marine testing
- Trip speed testing
- Rate of change (speed)
- Single event capture
- Predictive maintenance

MONARCH INSTRUMENT

Made in USA

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 Min and Max values. Data can be streamed directly into Microsoft Excel™ with one simple mouse click. PM Remote Software is supplied on CD and is included when purchasing the optional 3 foot programming cable (1/8" (3.5mm) phone plug to USB connector). Units ordered with USB, RS232 or Ethernet do not include an interface cable.

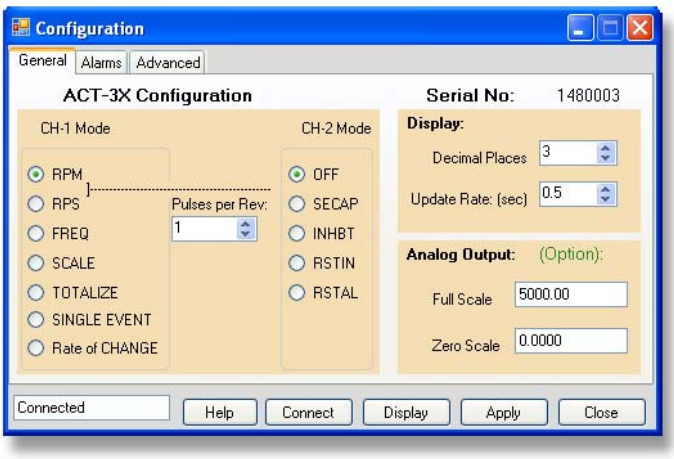
Real-time display



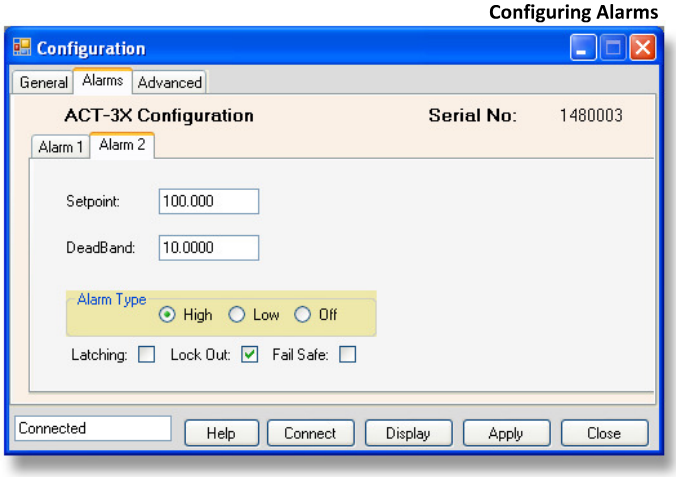
Rear Panel



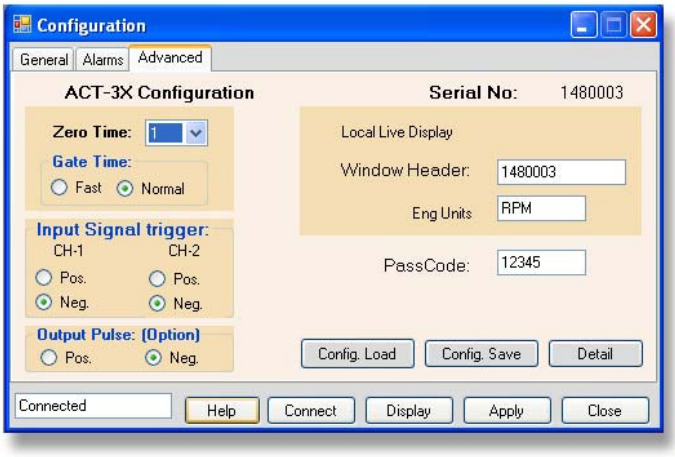
Configuring Basic Features



Configuring Alarms



Configuring Advanced Features



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ACT-3X Programmable Panel Tachometer/Totalizer

Specifications

NIST RoHS CE

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 push button programmable TTL input and 1.1V to 50vac signals, Opt: -1 to – 50Vdc
Accuracy:	±0.001% of reading or ±1 displayed resolution (Standard Gate), ±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 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 push button programmable).
Decimal Point:	User Selectable (0-3) decimal places max (front panel push button programmable).
Memory:	Maximum, minimum and last reading recall from front panel push buttons.
Dimensions:	1/8 DIN by 4.5" (114 mm) deep. Panel cutout: 3.58" x 1.74" (91 x 44mm)
Input Power:	**Standard:** 100 - 240 Vac ±10%, 50/60 Hz **Optional:** 12 or 24 Vdc ±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 Vac to 50 Vac input. Standard input is 1 pulse per revolution.
Sensor Excitation:	5Vdc or optional 12Vdc or 24Vdc to sensor.
Recommended Sensors:	Optical - Monarch ROS-W, ROS-P-25, ROS-HT-W-25, ROSM-5W Proximity - Monarch P5-11 Magnetic - Monarch M-190W or MT-190W Infrared - Monarch IRS-W Laser - Monarch ROLS-W, SLS-115/230 Inductive - Gas Engine GE-200
Pulse Repeater Output:	Standard, 0 to 5 V TTL compatible. One pulse out for each pulse in. Menu selectable polarity.
Communications:	Bi-directional RS232C, USB or Ethernet interface.
Analog Output:	**Voltage (AO):** 0 to 5 Vdc, 5mA max load (isoloated or non-isolated) **or Current (IO):** 4 to 20mA, 500Ω max load. (isolated or non-isolated), 1 to 5Vdc possible using 250Ω resistor) 16 bit resolution. Front panel push button programmable for full scale and offset RPM ranges.
Alarm Capability:	Two alarm set points: High or Low alarm limits, Latching or Non-Latching, Front panel push button programmable Hysteresis, dead band 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 115Vac or 230Vac
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

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Ordering Information

To specify your ACT-3X, select options from the list below. Insert your selection in the boxes above to complete your model number.

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

Input Power

1	100 to 240 Vac 50/60Hz
2	Isolated 12Vdc +/- 20%
3	Isolated 24Vdc +/- 20%

Sensor Power

1	12Vdc
2	5Vdc
3	24Vdc

Analog Output

0	None
1	0 to 5Vdc Non-isolated
2	4 to 20mA Non-isolated
3	0 to 5Vdc Isolated
4	4 to 20mA Isolated

Communications

0	Serial, 3.5mm phone plug (requires USB Programming cable with PM Remote)
1	RS232 Bi-directional serial interface with 9 pin connector
2	USB (type B) Bi-directional serial interface
3	Ethernet with RJ45 connector

Alarm Relay Outputs

0	None
1	2 Form C Relays rated 1 Amp @ 230Vac

Bentley Nevada Modification

0	None
1	Modification to support use of Bentley Nevada or Eddy style probes (-6V to -14Vdc)

Example Model Number: ACT-3X operating from AC input power with sensor supply of 5Vdc, isolated 4-20mA output, Ethernet communications and 2 Form C relay outputs and No Bentley Nevada modification would be **Model #: ACT-3X-1-2-4-3-1-0**

Accessories

6180-031	**USB Programming Cable and Software (supplied on CD)**	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. View real time data in digital format and/or through Microsoft® Excel.
1064-2022-001	**Wire (per foot)**	3-wire shielded Sensor Cable, bulk lengths for any sensor. Specify Total Length.
6180-070	**T-5**	Reflective Tape - 5 foot roll, 0.5 inch wide
6180-079	**T-5WP**	Waterproof reflective tape (honeycomb pattern) - 5 foot roll, 1 inch wide
6180-CAL	**Calibration - N.I.S.T.**	N.I.S.T. Traceable Certificate of Calibration (**For re-calibration only**). New units include N.I.S.T. calibration

Sensors

6180-030	**ROLS-W**	Remote Optical Laser Sensor with 8 foot cable, 4 tinned leads, mounting bracket with jam nuts and 12 inches of T-5 tape.
6180-056	**ROS-W**	Remote Optical Sensor with 8 foot cable, mounting bracket and 12 inches of reflective tape
6180-057-25	**ROS-P-25**	Remote Optical Sensor with 25 foot 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 foot cable
6180-013	**P5-11**	Proximity Sensor with 6 foot cable
6180-018	**MT-190W**	Magnetic Trigger Sensor/Amplifier with 8 foot cable
6180-012	**M-190W**	Magnetic Sensor with 8 foot cable
6180-019	**GE-200**	Gasoline Engine Electromagnetic Inductive Sensor and amplifier with 23 feet of cable
6180-021	**IRS-W**	Infrared Sensor with 8 foot cable, tinned wires and mounting bracket

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