

**Introduction**

Type AQ & IQ Valve Position Monitors are designed to provide high accuracy feedback of valve position to plant control systems. These instructions outline the requirements for ensuring a long and trouble free service life from the monitors.

**Installation - Mounting**

Attach mounting plate (1) to the actuator using fasteners (2) and lockwashers (2a) provided with mounting kit (if supplied by Imtex).

Loosen indicator cover set screw (3) and rotate indicator cover (4) to desired viewing angle. Retighten set screw (3).

Rotate coupling spacer (5) and indicator drum (6) to desired position (OPEN or CLOSED appearing through indicator window).

Fit torque coupler (7) or NAMUR drive block (7a) using screw (8) supplied in kit.

Fit monitor assembly to actuator ensuring that the torque coupler/NAMUR drive block (7/7a) engages the pinion of the actuator (9). Secure the assembly using the bolts (10) and lockwashers (11) provided with the mounting kit.

Fine tune the indicator cover (4) by loosening set screw (3). Retighten set screw when completed.

Operate the actuator to ensure proper alignment between monitor and actuator. Eccentricity of the shaft must not exceed 0.25mm. If it should be necessary, re-align monitor by loosening mount bolts (10). Retighten bolts when satisfied with alignment.

**Installation - Wiring & Transmitter Setting**

Once the monitor is fitted to the actuator, remove cover (12). NOTE: On flameproof enclosures, the cover lock screw (13) must be loosened prior to cover removal.

Bring field wiring into the enclosure via the conduit entries (14) fitted with a suitable cable gland. Use blanking plugs to block off any un-used cable entries. NOTE: Suitable IP rated glands and plugs must be used to maintain monitor IP rating. On flameproof enclosures, only certified cable glands and blanking plugs can be used.

Connect field wiring to the terminals (15) within the enclosure according to the wiring diagram and terminal labelling.

NOTE: The Type AQ/IQ Transmitter is factory set to provide position information over a 90 Degree span.

Drive the actuator to the position intended to indicate the 'low' signal. Set the zero point for the transmitter either locally (when available) or using suitable configuration software.

Drive the actuator to the position intended to indicate the 'high' signal. Set the span point for the transmitter either locally (when available) or using suitable configuration software.

Once completed, verify that indication is required by fully stroking the actuator. Then refit cover (12). NOTE: On flameproof enclosures, the cover lock screw (13) must be retightened.

**SPECIAL CONDITIONS FOR FLAMEPROOF ENCLOSURES - ATEX**

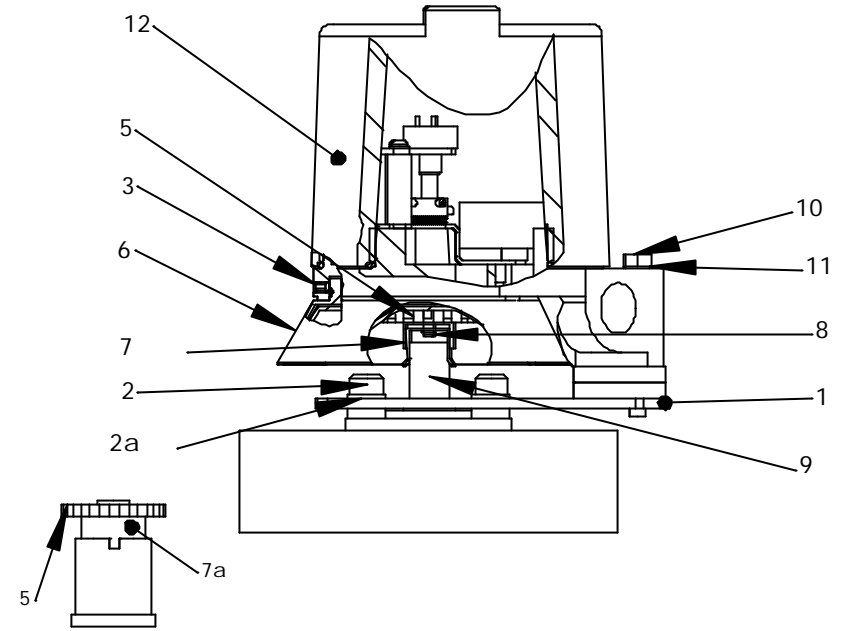
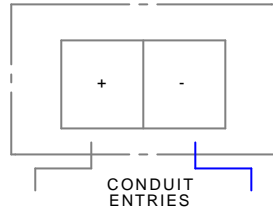
Only certified cable glands and blanking plugs are permitted for use with ATEX certified, flameproof enclosures.

Monitor must be disconnected from the power supply and the cover screw (13) loosened before opening.

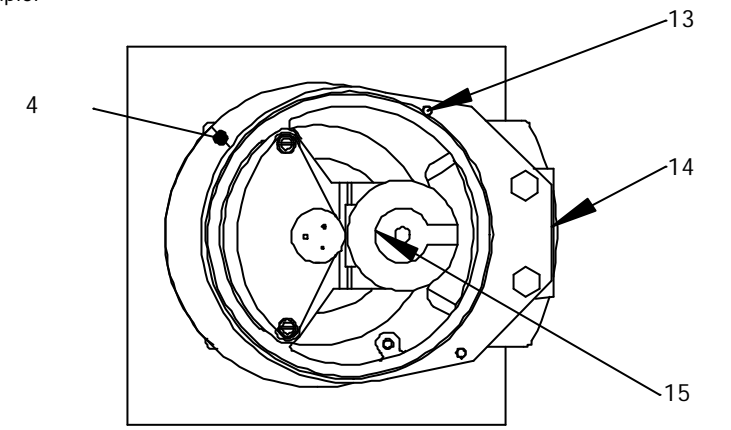
**Maintenance**

The Type AQ & IQ should offer years of reliable service, if installed correctly. However, it is advisable to check mounting screws/bolts, o-rings and terminal wiring for signs of loosening or corrosion as part of the routine plant maintenance to ensure continued trouble free operation.

MONITOR - TRANSMITTER - AQ/IQ70



NAMUR Coupler



**AQ/IQ70 - Analogue/Digital Transmitter**

Supply Voltage:	8 to 30VDC
Internal Consumption:	25mW to 0.8W
Voltage Drop:	8VDC
Warm Up Time:	5 min
Comms Link:	Loop
Signal / Noise Ratio:	min 60 dB
Min Response Time:	0.33 s
Calibration Temp:	+20 to +28 Deg C
Op Temp Range:	-40 to +60 Deg C

REV	DRAWN PT	DATE	CHK'D	ECO
		7.2.07		06-474

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS ARE IN MILLIMETERS  
SURFACE FINISH:  
TOLERANCES:  
LINEAR:  
ANGULAR:

TITLE:  
**Installation, Operating & Maintenance**  
  
**AQ/IQ70**

DEBUR AND BREAK SHARP EDGES  
  
MATERIAL:  
  
WEIGHT(g):

DWG NO. **A190123**  
  
SCALE:1:5  
SHEET 1 OF 1

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# Programming:

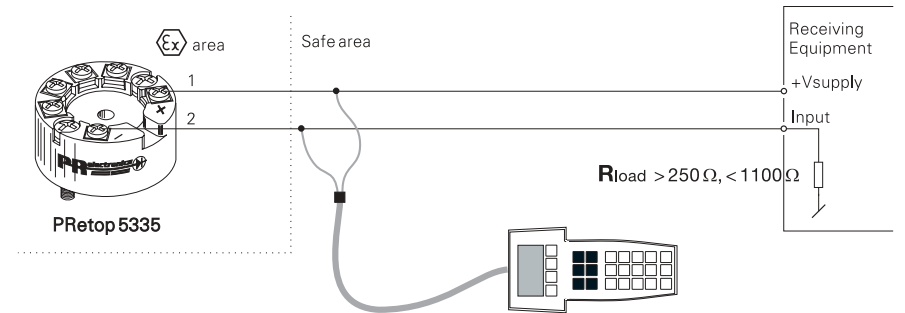
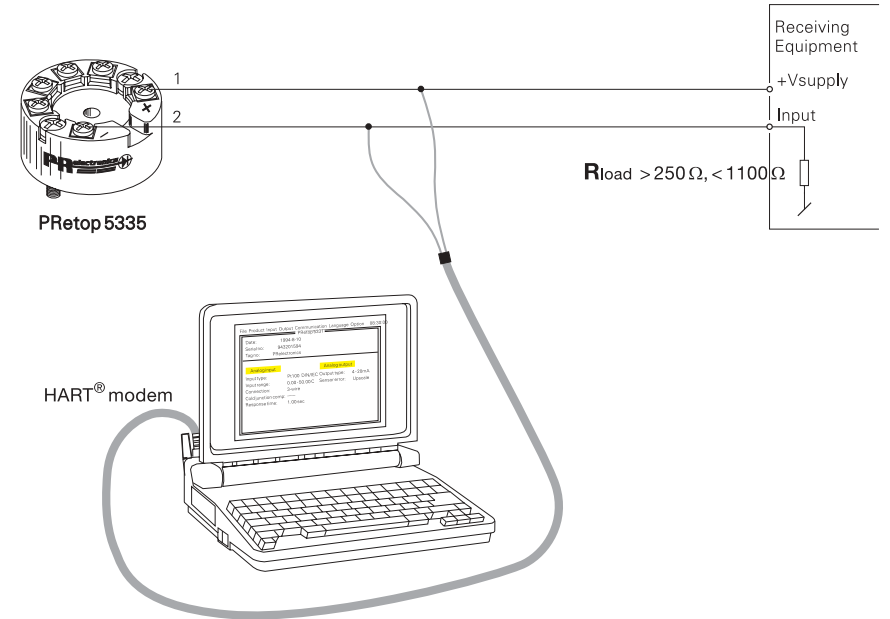
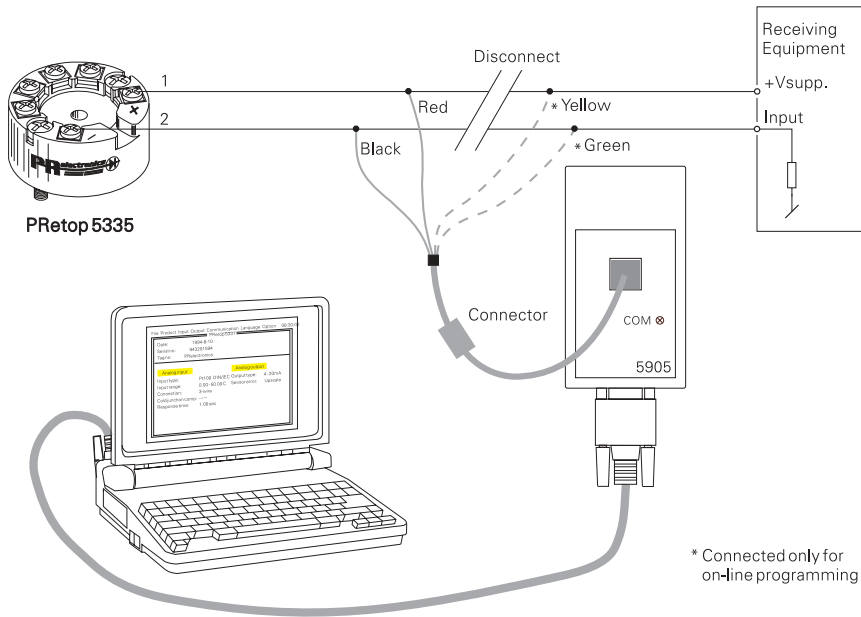
**PRetop 5335 can be configured in the following 3 ways:**

- 1 With communications interface Loop Link 5905 or 5909 and PReset PC configuration software.
2. With a HART® modem and PReset PC configuration software.
3. With a HART® communicator with PR DDL driver.

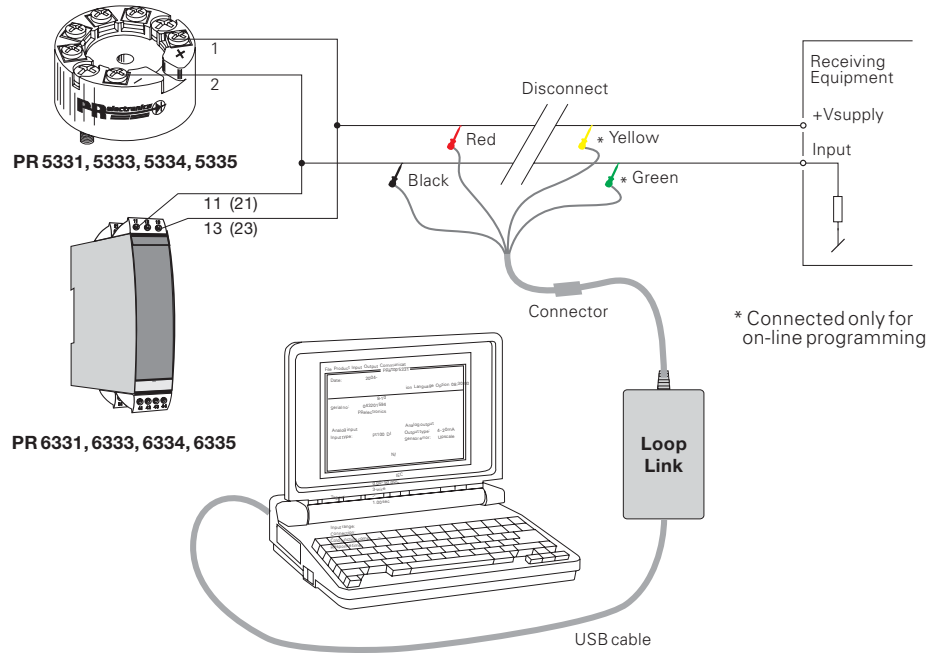
## 1: Loop Link 5905A:

For programming please refer to the drawing below and the help functions in PReset.

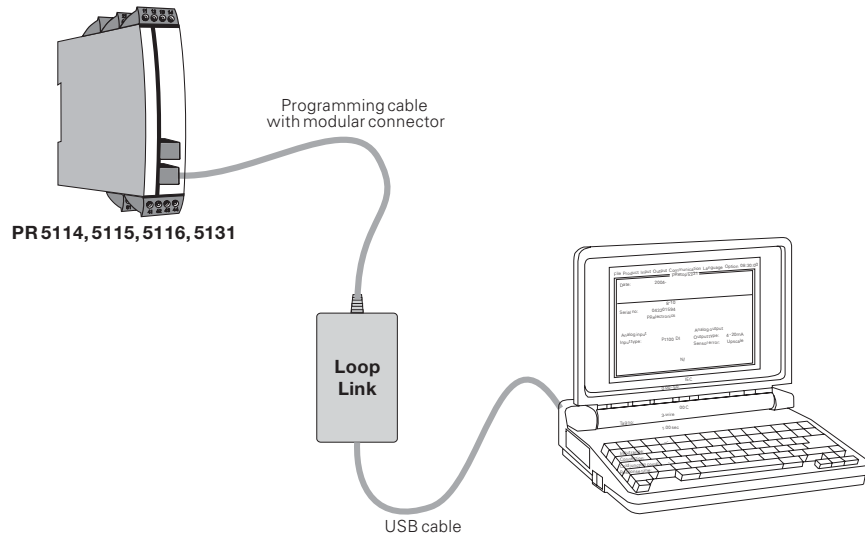
Loop Link 5905A is not approved for communication with modules installed in hazardous (Ex) areas.



## 2: 5909 Loop Link - Connection of PR modules using EZ-Mini-Hooks:



## Connection of PR modules using a modular connector:



### PRetop Module (5333 or 5335 HART) Standard Set-up Configuration.

The PRetop transmitter is normally configured using the type 5905 Loop Link configuration Interface and the PReset configuration software (Available on request) via a standard PC.

As standard the AQ/IQ Transmitter is fitted with a 10k $\Omega$  potentiometer with or without rotation stops. (Other potentiometer values are available on request.) The input range of the PRetop transmitter is 0 - 10k $\Omega$ . The minimum input span is 30 $\Omega$ .

Once the PReset software has been loaded onto the PC, Connect the Looplink 5909 interface unit to the positive(+) and Negative (-) terminals of the transmitter unit using the cables provided. (Depending on the model of the transmitter unit, this may be via a terminal block or directly to the PRetop Module.)

Each Transmitter Assembly leaves the factory with an initial calibration setup, this information is stored within the PRetop transmitter module and contains data such as input and output type, and manufacturers serial number. It is recommended that before proceeding with re-calibration, this initial data is downloaded to the PC and saved. This will enable the user to revert to factory settings should this be necessary. To do this, use the following procedure:

- From the "Tools" dropdown menu select the "Receive" option (or alternatively use *Ctrl+R* on the keyboard).
- When the Calibration data has downloaded successfully, select "OK" to close the dialogue box.
- From the "File" dropdown menu, select "Save" (or alternatively use *Ctrl+S* on the keyboard).

Alternatively, to configure the transmitter from scratch, use the following procedure:

- From the left hand side of the PReset Software screen, select the transmitter type that corresponds to the unit being calibrated, eg: "PReset 5333"
- On the **Input** tab, from the "Type" dropdown menu select "RTD Elements" and under General section, select "Linear Resistor".
- On the **Output** tab, from the "Type" dropdown menu select "Current" and under the General section, select the output required. For example, for a clockwise to close actuator where 4mA corresponds to the CLOSED position and 20mA to the OPEN position, it is necessary to select "20..4mA" where 0% = 20mA and 100% = 4mA.
- From the "Limits" and "Sensor Error Action" dropdown menus, select the required options. (The factory default for these settings is *Limits = Max* and *Sensor Error Action = Off*)

To perform the travel calibration it is necessary to enter the input resistance values from the potentiometer corresponding to the travel limits of the actuator, the following procedure describes calibration of a Clockwise to Close actuator:

**Note:** To ensure accurate and trouble free calibration, it is suggested that the initial values be at least 1000 $\Omega$  outside of the actual resistance range being used.

- DISCONNECT the Looplink 5909 interface unit before making the resistance measurements.**
- Connect a resistance meter between the BLUE and YELLOW wires on the potentiometer.
- Drive the Actuator to the fully CLOSED position and note the measured resistance, (eg: 5638 $\Omega$ ) Drive the Actuator to the fully OPEN position ensuring that the Resistance value **DECREASES** smoothly throughout the stroke and that at no point does it read "Open Circuit". Note the measured resistance at the "OPEN" position (eg: 2934 $\Omega$ )
- Subtract 1000 from the OPEN value (eg: 2934 - 1000 = 1934 $\Omega$ ) and enter this figure into the 0% box in the "Input Resistance" section on the **Input** tab.
- Add 1000 to the CLOSED value (eg: 5638 + 1000 = 6638 $\Omega$ ) and enter this figure into the 100% box in the "Input Resistance" section on the **Input** tab.
- RE-CONNECT the Looplink 5909 interface unit.**
- From the "Tools" dropdown menu select the "Transmit" option (or alternatively use *Ctrl+T* on the keyboard). And select "Yes" to overwrite the device configuration, when the Calibration data has been transmitted successfully, select "OK" to close the dialogue box.
- From the "View" dropdown menu select the "Monitor" option.
- When the monitor setup has loaded, drive the actuator to the fully CLOSED position. From the Device Values section of the monitor screen, note the "Input:" value at the top of the list, eg: 5625 $\Omega$ . (*Note: This is the actual resistance in Ohms that the PRetop Module is reading from the potentiometer and may differ from the measured value*)
- Drive the actuator to the fully OPEN position and note the "Input:" value again eg: 2930 $\Omega$ .
- From the "View" dropdown menu select the "Tabbed" option.
- When the Device setup screen has re-loaded, in the "Input Resistance" section on the **Input** tab. enter the new OPEN value (2930 $\Omega$ ) into the 0% box and the new CLOSED value (5625 $\Omega$ ) into the 100% box.
- From the "Tools" dropdown menu select the "Transmit" option (or alternatively use *Ctrl+T* on the keyboard). And select "Yes" to overwrite the device configuration, when the Calibration data has been transmitted successfully, select "OK" to close the dialogue box.
- From the "View" dropdown menu select the "Monitor" option.
- When the monitor setup has loaded, drive the actuator to the OPEN and CLOSED positions and ensure that the 4 to 20mA Output is working correctly.
- Finally, return once again to the Device setup screen and from the "File" dropdown menu, select "Save" (or alternatively use *Ctrl+S* on the keyboard). And Save the device configuration for future use.

**Note:** PRetop 5335 HART Module can also be configured using an Approved HART modem and PReset PC configuration software or HART communicator with PR DDL driver.