

Instructions

Type AQ 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 & Switch Setting

Once the monitor is fitted to the actuator, remove cover (12). NOTE: If fitted, 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 IP6x rated cable glands, blanking plugs and thread adaptors must be used to maintain monitor IP rating.

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

For monitors fitted with standard cam/spline activated switches/sensors, drive the actuator to the first required indication position and set the bottom switch by lifting and rotating the bottom cam (16). Secure the cam by allowing it to fully re-engage with the spline (17). Repeat the process for each switch in-turn by lifting/pushing down the appropriate cam, rotating and re-engaging as desired position is reached.

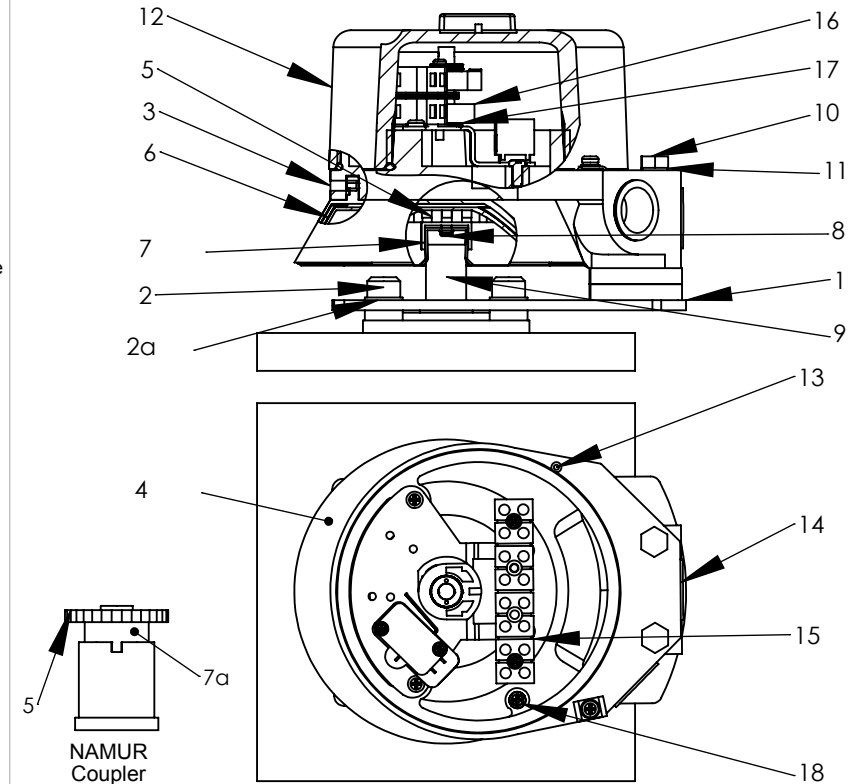
For monitors with barrel or slotted sensors, or with a transmitter, consult page 2 of these instructions for 'Further Setting Instructions'.

Once completed, verify that indication is required by fully stroking the actuator. Then refit cover (12).

Maintenance

The Type AQ requires no servicing during normal working life, 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 operation. Ensure safety warnings are observed during maintenance.

Reference Diagram



REV	DRAWN	DATE	CHK'D	ECO
	PT	14.8.14		14-2270
A	PT	14.2.17		17-2618

Intex Controls Limited
Deeside - United Kingdom

Website: www.imtex-controls.com

TITLE:

Installation, Operating & Maintenance

AQ - Non-Hazardous

DWG NO.

A190360

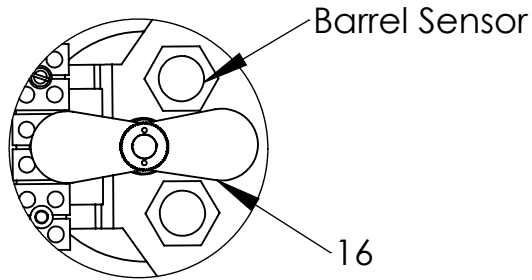
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Further Setting Instructions

Barrel/Slot Sensor Setting

Drive the actuator to the first required indication position and set the first switch by pushing round the lower metal shim on the shaft (16) to cover the sensor.

Repeat the process for each sensor in-turn by driving the actuator to the indication position and adjusting the appropriate shim to cover the corresponding sensor.



Transmitter Setting

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

To reset the zero and 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 either locally (where applicable) or using suitable configuration software.

To set the switches/sensors supplied in the enclosure with the transmitter, if supplied, refer to page one of these instructions.

Referenced Standards

Cable Entries

The number and type of cable entry on the Monitor can be determined by reference to the 6th digit of the monitor part number. For example, in part number -

AQ16S5SR

the sixth digit is a '5' which corresponds to the monitor having 2 off M20 x 1.5 cable entry. Refer to table below for details.

CABLE ENTRY GUIDE	
DIGIT	ENTRIES SUPPLIED
5	(2) M20 x 1.5
6	(3) M20 x 1.5
8	(1) 3/4" NPT (central entry) (1) 1/2" NPT (offset entry)
9	(1) 3/4" NPT (central entry) (2) 1/2" NPT (offset entry)
B	(2) 1/2" NPT
C	(3) 1/2" NPT

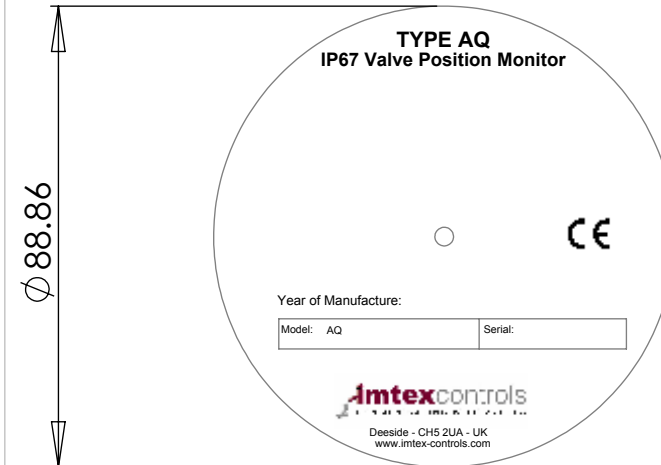
NPT Threads conform to ANSI/ASME B1.20.1 and shall be made up wrench tight

Metric Thread tolerance to ISO 965-1 and ISO 965-3

Certification

Product Markings

The label on the monitor should be similar to the below:



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ELECTRICAL CHARACTERISTICS ('X' Indicates the applicable Rating(s))

AQ16 & 55 - Mechanical w/ Silver Contacts

Electrical Ratings: 10.0A @ 125/250VAC
 0.5A @ 125 VDC
 Temp Range: -40 to +60 °C
 Operating Life: 400,000 Cycles

Not recommended for circuits operating less than 20mA @24VDC

AQ17 & 56 - Mechanical w/ Gold Contacts

Electrical Ratings: 1.0A @ 125VAC
 0.5A @ 30 VDC
 Temp Range: -40 to +60 °C
 Operating Life: 100,000 Cycles

Recommended for use in 24VDC computer input circuits

AQ40 & 59 (A140077-SU) - SPST(Hermetically Sealed Reed - w/ Choke)

Electrical Ratings: 0.15A @ 125VAC / 30VDC
 Inductance: 680 µH
 Resistance: 10 Ohms
 Temp. Range: -40 to +60°C (T6) or +85 °C (T4)
 Operating Life: 5,000,000 Cycles

AQ25 & 58 (A140088) - High Power SPDT(Hermetically Sealed Reed - Tungsten)

Electrical Ratings: Max Current: 3 Amps
 Max Power: 100 Watts/VA
 Min Power: 2 Watts
 Temp. Range: -40 to +60°C (T6) or +85 °C (T4)
 Operating Life: 5,000,000 Cycles
 Not recommended for use in 24VDC operating at <20mA

AQ25 & 58 (A140077-SU) - SPDT(Hermetically Sealed Reed)- w/ Choke

Electrical Ratings: 0.15A @ 125VAC / 30VDC
 Inductance: 680 µH
 Resistance: 10 Ohms
 Temp. Range: -40 to +60°C (T6) or +85 °C (T4)
 Operating Life: 5,000,000 Cycles

AQ25 & 58 (A140077) - SPDT (Rhodium) Reed Switch

Electrical Ratings: 0.5A (Switching Current)
 1.0A (Steady State Current)
 120V Max (Voltage)
 10W/VA Max (Power)
 Temp. Range: -50 to +60°C (T6) or +85 °C (T4)
 Operating Life: 5,000,000 Cycles

AQ42 & 52 - NAMUR Proximity Sensor

Current Ratings: Target Present - Current < 1.0mA
 Target Absent - Current > 3.0mA
 Voltage Range: 5 to 25VDC (nominal 8VDC)
 Temp. Range: -25 to +60°C (T6) or +72 °C (T4)
 Operating Life: Unlimited Cycles

Use with intrinsically safe repeater barrier. Namur sensors fully conform to EN60947-5-6 (VDE0660 Part 212) standard.

AQ43 & 53 - NAMUR Proximity Sensor

Current Ratings: Target Present - Current < 1.0mA
 Target Absent - Current > 3.0mA
 Voltage Range: 5 to 25VDC (nominal 8VDC)
 Temp. Range: -50 to +60°C (T6) or +85 °C (T4)
 Operating Life: Unlimited Cycles

Use with intrinsically safe repeater barrier. Namur sensors fully conform to EN60947-5-6 (VDE0660 Part 212) standard.

AQ70 - Analogue Transmitter - PCB Style

Supply Voltage: 10 to 40VDC
 Max Loading: 700 Ohms @ 24VDC
 Linearity Error: ±0.85° (max) - Standard
 ±0.35° (max) - High Performance
 Op Temp Range: -40 to +82 Deg C

AQ70 - Analogue Transmitter - Non-Contact Style

Supply Voltage: 12 to 24VDC
 Load Impedance: R< (U - 9) / 0.02
 Linearity: < 1% of FS
 Repeatability: < 0.36°
 Op Temp Range: -40 to +85 Deg C

AQ70 - Analogue/Digital Transmitter - Programmable

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

Other Details (see Individual Specification Sheet)

SPECIAL NOTE:

Installation of Reed Switches (without Choke): Where reed switches (particularly low power, Rhodium contact versions) are installed at the end of long cable runs, it is the responsibility of the installer to ensure suitable precautions are taken to ensure cable capacitance does not induce premature switch failure. Consult Imtex for further information

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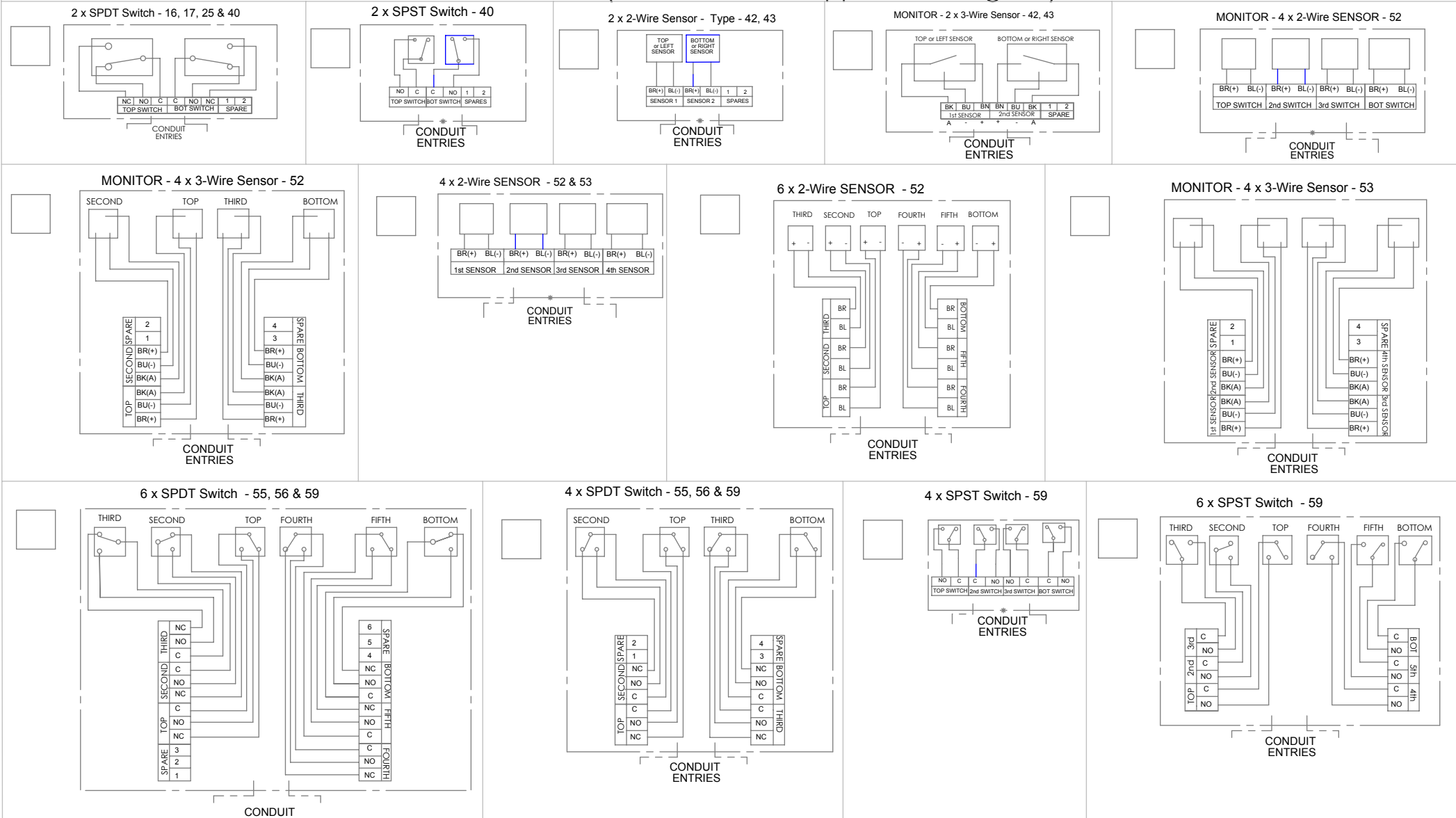
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WIRING DIAGRAMS ('X' Indicates the applicable Diagram)



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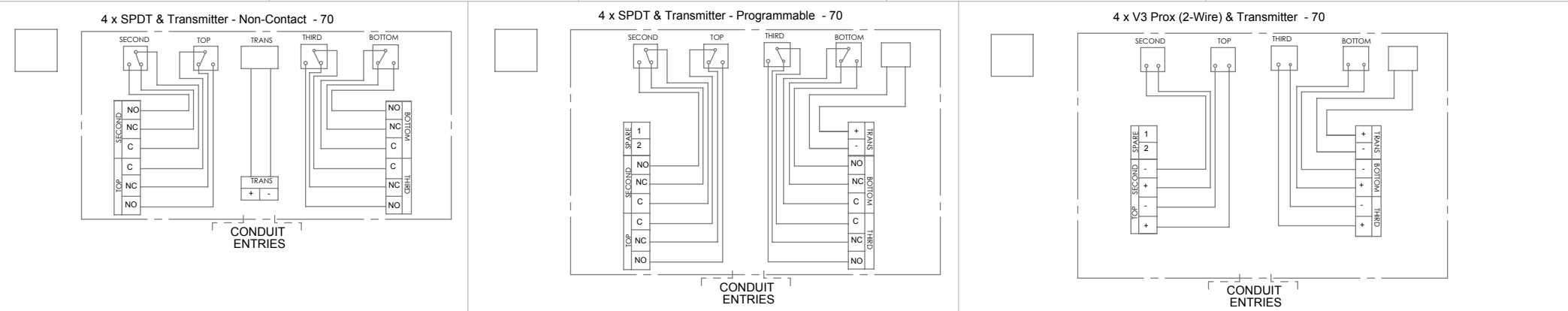
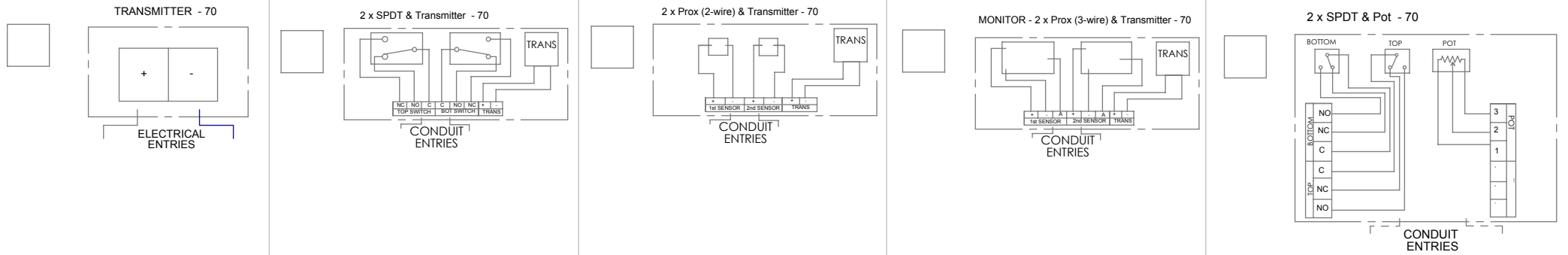
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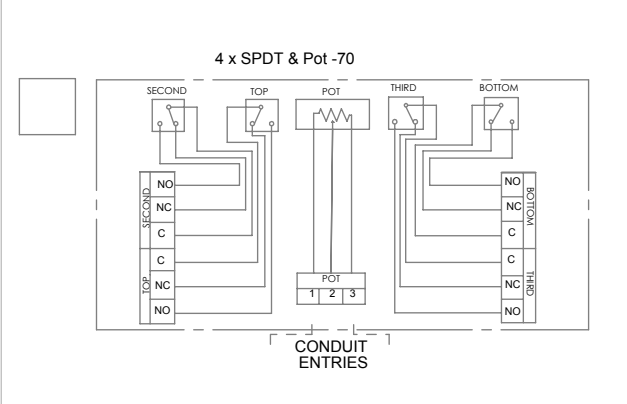
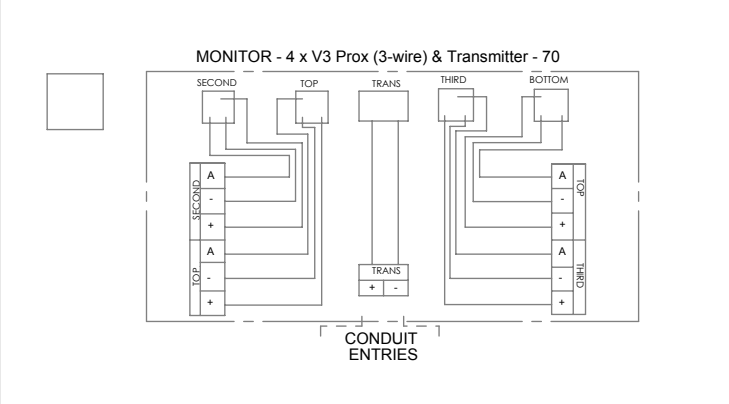
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SPECIAL NOTES:



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