

Pulsar Quick Start Manual - Blackbox Series



Congratulations on your purchase of a Pulsar Blackbox!

This quality system has been developed with the latest digital ultrasonic technology for liquids, slurries, and solids. No more noise and beam angle issues.

It provides non-contacting level (volume included with the keypad/display version) with 2 user-defined relays. Comes standard with 110VAC, 12VDC and 24VDC power. Options: 4-20mA, 0-5VAC, Modbus RTU, Profibus dP, and Ethernet output versions are available.



Blind Version

TRANSDUCER INSTALLATION

LIQUIDS and SOLIDS

- Mount the transducer away from any obstructions, falling water/solids, rough walls, pumps, switches, etc...
- Visualize looking down the echo path of the transducer and seeing a nice clear shot (2'+ dia.) to the very bottom during fill and empty cycles.
- Ensure the maximum level does not come within the minimum dB blanking distance.
- Confirm the inside of the standpipe is smooth and does not have any protrusions at the weld.
- Do not hang the transducer by the cable.
- Typically, mount the dB transducer 1/2 the tank radius.

TROUBLESHOOTING

(Call Pulsar Technical Support for Special Service Passcode and Instructions 850-609-1777.)

LIQUIDS

- Dome top tanks will require Gain & Algorithm change.
- If reading false level, use P21 and set true distance

SOLIDS

- Consult factory if the silo is extremely dusty—we can increase the return signal strength (even during fill).
- DATEM may map-out the true echo. Use P21 to set true distance and turn "Update Datem" off!
- If acoustically noisy, change Algorithm to Largest.



TRANSDUCER WIRING

TERMINAL

RED = POWER

WHITE = SIGNAL

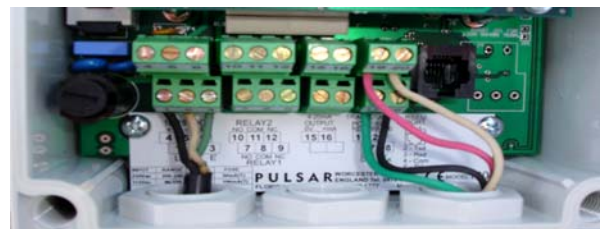
BLACK & GREEN = 0V

IF SPLICING

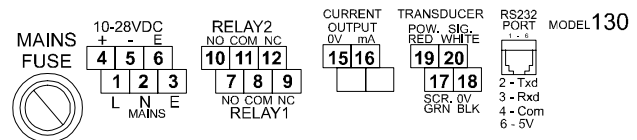
RED = BLACK

WHITE = WHITE

BLACK & GREEN = SHIELD



- Use any standard, 2 conductor/shielded pair for splicing (recommend 18 AWG gauge, UV protected)
- Use 16 AWG gauge if going 500 - 3,000 ft cable run.
- Transducer shield is required - do not cut or float!
- Confirm Mains Voltage Selector is set to 115VAC.



PROGRAMMING

(using either Keypad, Handheld Programmer, Handheld Software, or Blackbox PC Software)

1. Enter Program Mode

(press and hold each button until the dash appears)



2. Choose "Application" (pg. 41 in manual)



3a. Choose "Operation"



"Press "ENTER" after choosing each value and confirm by seeing "SAVED")

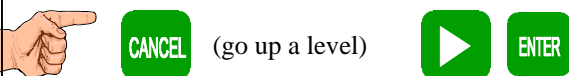
Choose "Mode of Operation (P100)"

1=Distance 2=Level 3=Space

Choose "Transducer (P101)"

1=dB3 2=dB6 3=dB10 4=dB15 5=dB25 6=dB40

3b. Choose "Dimensions"



Choose "Measurement Units (P104)"

1=meters 2=cm 3=mm 4=feet 5=inches

Choose "Empty Level (P105)"

(distance from face of transducer to empty level (bottom of vessel/pump station) - automatically sets 4mA)

Choose "Span (P106)"

(distance from empty level (bottom of vessel) to 100% level - automatically sets 20mA)

4. Calibration is done, go into Run Mode!!!



Handheld Programmer



Handheld Software

To Program a Relay (pg. 44 of the manual)



Choose to program **Relay 1** or scroll right to **Relay 2** and Enter

Choose "Relay Type" (P210, 220)

0=Not in Use 1=Alarm (will de-energize ON, de-energize OFF)

Choose "Relay Function" (P211, 221)

0=Off 1=Level 2=Temp. 3=Loss of Echo 4=Loss of Clock

Choose "Relay Alarm ID" (P212, 222)

1=General 2=High 3=HiHi 4=Low 5=LoLo 6=In Bounds
7=Out of Bounds

Choose "Relay Setpoint 1" (P213, 223)

This is the ON setpoint.

Choose "Relay Setpoint 2" (P214, 224)

This is the OFF setpoint.

Read Only "Relay Closures" (P217, 227)

This tells you how many times the relay has activated.

Choose "Relay Fail Safe" (P218, 228)

0=Default 1=Hold 2=De-Energize 3=Energize

To program Relay 2, hit "Cancel" until you see "Relay 1". Now scroll to the right until you see "Relay 2". Hit Enter and start again from the top.

To go to Run Mode, follow Step 4.

אלקטרוניקה
ובקרה בע"מ



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