

General

Quick Start details the minimum recommended start up procedure for most HYDRORANGER PLUS installations. Refer to the individual product instruction manuals for complete installation and interconnection instructions for the:

- HYDRORANGER PLUS
- Ultrasonic Transducers
- TS-3 Temperature Sensors (if used)
- DOLPHIN interface (if used)

Note:

Ensure all process control equipment is disabled until satisfactory HYDRO+ performance is verified.

Initial Start Up

Apply power; the unit rapidly takes measurements verifies repeatability, and calculates Readings.

As preset, the HYDRO+ displays transducer face to monitored level distance up to 8.00 m + 20% (9.6 m) max. With the programmer aimed at the HYDRO+ display window within 0.3 m (1 ft)...

Press to enter the program mode, stop measuring, and display...



During the following procedure:

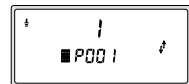
1. If the selection desired is already displayed, no entry is required. (Advance to the next step.)
2. If an entry error is made press and try again.

Step 1 (P001)

Which type of Operation is desired?

- 0 = off (point out of service)
- 1 = level (how full the vessel is)
- 2 = space (how empty the vessel is)
- 3 = distance (from the transducer face)

e.g. Press for level



Press to advance.

Step 2 (P002)

Which Material is being monitored?

- 1 = liquid* (flat level surface)
- 2 = solid (uneven sloped surface)

e.g. liquid, no entry required



Press to advance.

Step 3 (P003)

Which Measurement Response is desired?

- 1 = slow (0.1 m/min)
- 2 = medium* (1 m/min)
- 3 = fast (10 m/min)

e.g. 0.5 m/min, no entry required



Press to advance.

Step 4 (P004)

Which Transducer is connected (check nameplate)?

Ultrasonic

- 0 = none
- 1 = ST-25
- 2 = ST-50
- 100 = STH*

Ultrasonic/temperature

- 101 = XCT-8
- 102 = XPS-10
- 103 = XCT-12
- 104 = XPS-15
- 111 = XKS-6
- 112 = XRS-5

e.g. Press for XPS-10



Press to advance.

Step 5 (P005)

Which measurement Units are desired?

- 1 = metres (m)*
- 2 = centimetres (cm)
- 3 = millimetres (mm)
- 4 = feet (ft)
- 5 = inches (in)

e.g. Press for feet



Press to advance.

Step 6 (P006)

Where is Empty (transducer face to vessel bottom)?

Presets Span to the maximum recommended value 0.000 to 9999

e.g. Press for 15 feet (Step 5 units)



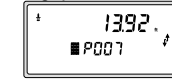
Press to advance.

Step 7 (P007)

What is the Span (Empty to highest material level)?

0.000 to 9999

e.g. preset to 13.92 ft (Step 6), no entry required.



Press to advance.

Step 8 (P008)

What is the DATE (YY.MM.DD format)?

00.00.00 to 99.12.31

e.g. Press for March 2, 1997.



Press to advance.

Step 9 (P009)

What Time is it (24 hour format)?

00.00.00 to 23.59.59

e.g. Press for 2:15 P.M.



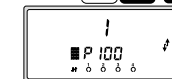
If relays are not required, proceed to OPERATION.

Relays

A) For wet well (2 pumps, pump down) control, to...

- energize RL1 (start lead pump) at 70% level,
- energize RL2 (start lag pump) at 80% level,
- de-energize RL1 & 2 (stop and shift lead) at 20% level,
- de-energize RL3 (HI alarm) at 90% level,
- de-energize RL4 (LO alarm) at 10% level . . .

Press



B) For reservoir (2 pumps, pump up) control, to...

- energize RL1 (start lead pump) at 30% level,
- energize RL2 (start lg pump) at 20% level,
- de-energize RL1 & 2 (stop and shift lead) at 80% level,
- de-energize RL3 (HI alarm) at 90% level,
- de-energize RL4 (LO alarm) at 10% level . . .

Press



When complete, proceed to OPERATION.

Operation

When the Quick Start procedure is complete:

1. Press to enter RUN mode.

---- is displayed briefly.

The HYDRO+ rapidly takes measurements, verifies repeatability, and calculates Readings.

The Bar Graph indicates material level (0 to 100%), regardless of the Operation (Step 1) value selected.

If relays are used and ▲ is displayed, the level has exceeded 90% and not yet fallen below 85% (HI alarm).

If relays are used and ▼ is displayed, the level has fallen below 10% and not yet exceeded 15% (LO alarm)

2. Press ▲ %

Readings are displayed in % per Operation (Step 1).

level space or distance ¹
Empty to Span = 0 to 100% Empty to Span = 100 to 0%

3. Press 5 mA

View mA output values in the Auxiliary Reading display.

level space or distance
Empty to Span = 4 to 20mA Empty to Span = 20 to 4mA

4. Press 2 1 or 2 2

View pump 1 or 2 total running time (in hours)

5. Press 2 press and hold 1 or 2 for 4 seconds.

View total pump 1 or pump 2 starts

6. Press 6 ↓

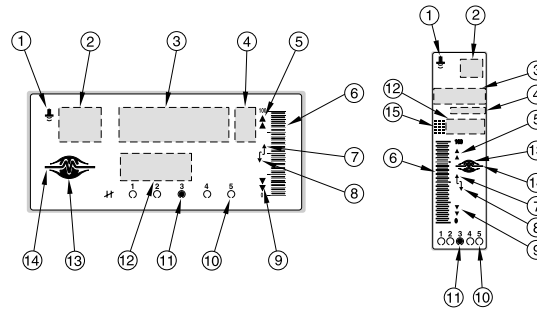
View transducer / TS-3 temperature (in °C).




As preset, if Failsafe operation is activated, the HYDRO+ de-energizes pump / control relays and "holds" the display (LOE flashes), mA output, and alarm relay status at last known values.

Operation continues when valid measurement is regained.


















¹ less than 0.3 m (1 ft) cannot be measured; 0% Reading (4 mA) cannot be achieved during "distance" Operation.

Run Mode Display Functions



- | | |
|-------------------------|--|
| 1 Transducer | 9 ▼ Lo or ▼ Lo Lo Alarm |
| 2 Transducer Number | 10 ○ Relay Programmed |
| 3 Reading | 11 ● Pump / Alarm On |
| 4 Units | 12 Auxiliary Reading |
| 5 ▲ Hi or ▲ Hi Hi Alarm | 13  Normal Operation |
| 6 Level Bar Graph | 14  Failsafe Operation |
| 7 Filling Indicator | 15  Programmer interface enable (rack or panel) |
| 8 Emptying Indicator | |

Run Mode Keypad Functions

-  5 mA Display mA output in Auxiliary Reading area (12)
 -  6 ↓ Display temperature in Auxiliary Reading area
 -  7  ↓ Display Emptying/Filling Rate in Auxiliary Reading area
 -  8  ↓ Display Failsafe time left in Auxiliary Reading area
 -  9  ↓ Display time (HH:MM) in Auxiliary Reading area
 -  0  ↓ Display date (DD:MM) in Auxiliary Reading area
 -  P... Enter Parameter to display in Auxiliary Reading area
 -  Pxxx Display material level in Auxiliary Reading area
 -  ↓ Display distance in Auxiliary Reading area
 -   ↓ Initiate program mode access (see  ▲ %).
 -  ▲ % Display Units to % in 3.-complete program mode access
- (other functions available dependant upon programming)

Performance Evaluation

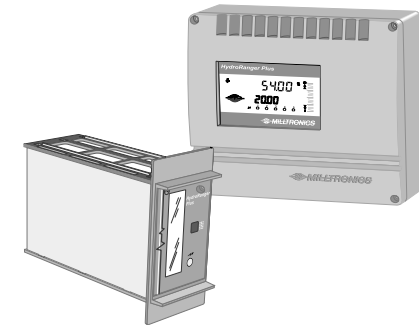
Monitor system performance, under all operating conditions. If alternate display, relay, mA output, or failsafe operation is required, see instruction manual.

Connect (or enable) alarm/control equipment only after satisfactory performance is verified.

MILLTRONICS

HYDRORANGER PLUS WATER/WASTE WATER LEVEL MONITOR

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HYDRORANGER PLUS