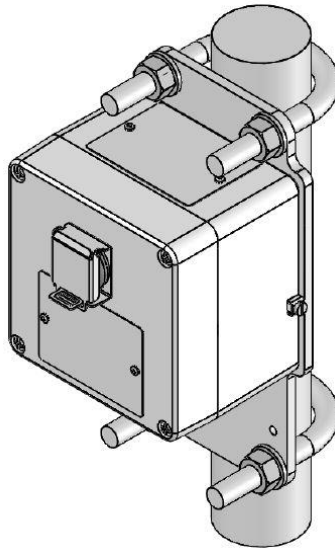


Metso LOCAL TEST BUTTON LTB91HX

User's manual

FOR YOUR SAFETY
READ THESE INSTRUCTIONS FIRST!



1. ND9000H AND PST START BUTTON

General

The PST start button can be used with the ND9000H model to start a partial stroke test (PST). This device option is made for applications where an emergency trip will be done with a solenoid valve, see figure 1. The positioner will do only partial stroke tests to test and ensure that the valve is moving as required.

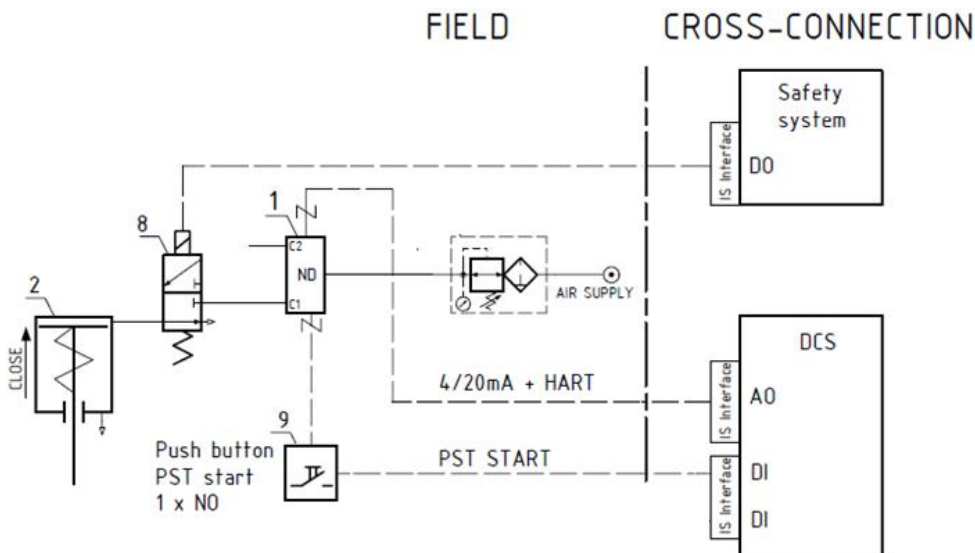


Figure 1.

Safety

This user guide explains ND9000 option (with PST start button) related function and connections. To see all safety precautions, warnings, Ex notes, approvals and all other ND9000 related information, please see the complete ND9000 Installation, Maintenance and Operating instructions.

2. Electrical connections

Connect wires as shown in picture 2.

- The PST start button is pre-connected to the unmarked screw terminal.
- The positioner terminal will be connected to the position transmitter connector in the ND9000H
- Connect the NAMUR isolated barrier to the connector marked 'DCS'. See details about barrier type.
- The 4-20 mA control signal from the DCS system will be connected to the ND9000H.

PST START BUTTON

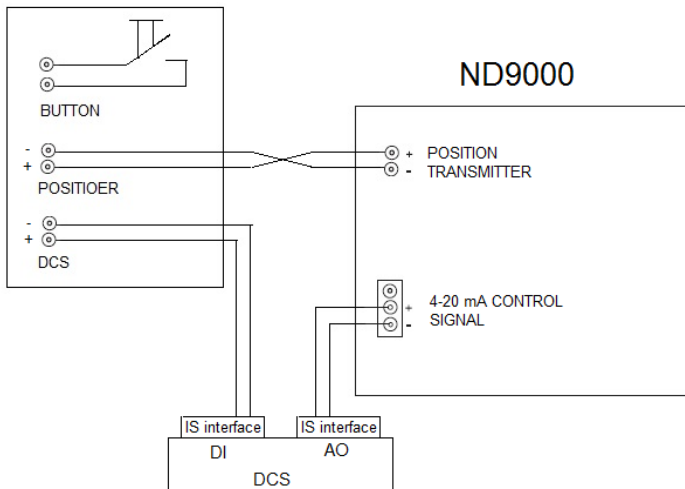


Figure 2.

The PST start button connection is a NAMUR type connection, so a cable cut is detected in the DCS DI channel:

- Switch open (nominal): $I = 0,75\text{mA}$ ($<1,2\text{mA}$)
- Switch closed (nominal): $I = 4,05\text{mA}$ ($>2,1\text{mA}$)

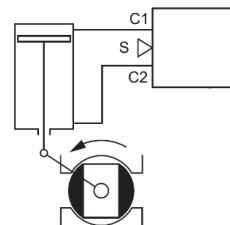
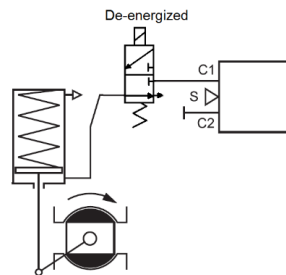
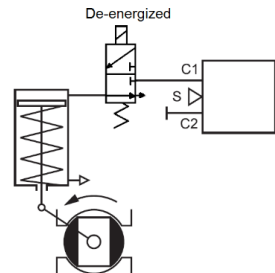
Application is tested with three different types of isolated barriers:

- Pepperl+Fuchs HiC2831
- Pepperl+Fuchs KCD2-SON-EX1
- MTL 4514N

3. Pneumatic connection

There are some differences in piping and parametrization compared to the standard device. In normal condition ND is in fail safe position (4mA position), in that case C1 channel is pressurized.

- SINGLE-ACTING ACTUATOR, SPRING TO CLOSE
 - *DIR = CLO*
 - *ROT = cC* (close valve to clockwise)
 - *ATYP = 1-A*
 - *PFA = OPE*
 - A0, CUTL and VTYP according to valve type
- SINGLE-ACTING ACTUATOR, SPRING TO OPEN
 - *DIR = OPE*
 - *ROT = cC* (close valve to clockwise)
 - *ATYP = 1-A*
 - *PFA = CLO*
 - A0, CUTL and VTYP according to valve type
- DOUBLE-ACTING ACTUATOR
 - *DIR = CLO*
 - *ROT = cC* (close valve to clockwise)
 - *ATYP = 2-A*
 - *PFA = CLO*
 - A0, CUTL and VTYP according to valve type
- DOUBLE-ACTING ACTUATOR, REVERSED PIPING
 - *DIR = OPE*
 - *ROT = cC* (close valve to clockwise)
 - *ATYP = 2-A*
 - *PFA = OPE*
 - A0, CUTL and VTYP according to valve type



Operation

The PST test can be started via DTM or by bushing the PST start button. If the PST start button is pushed second time during the test, the PST test will be cancelled.

Note:

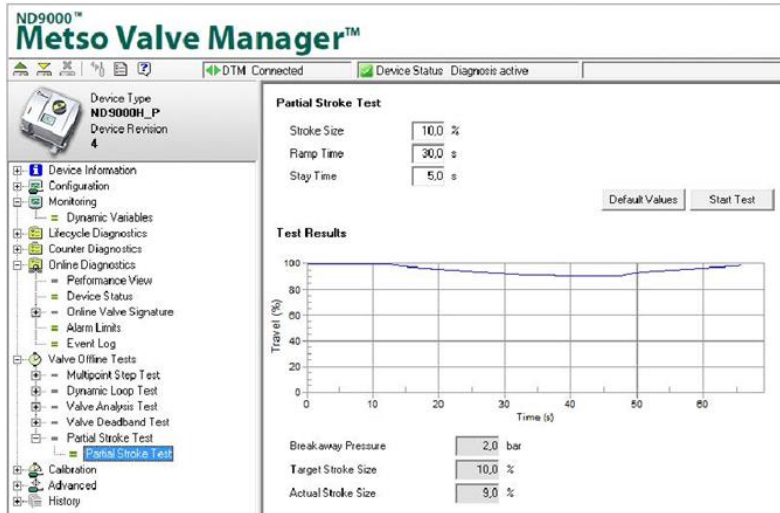
In both cases a continuous push of about 3 seconds is required to confirm the action

The partial stroke step test parameters can be defined from the DTM:

- **Test Stroke Size:** Targeted stroke size. Set target stroke size according to the process application. A larger stroke size means better coverage of valve movement, but often a very large stroke size is not possible due to process flow influence.

4. Ramp time & Stay time

- **Ramp time:** Targeted time to reach defined stroke size.
- **Stay time:** The time how long valve wait before it starts to move back to safe position



In this kind of the application the mA signal to the ND9000H is normally 4 mA. The ND9000 will control position if mA changes, but if it is critical that the valve should not follow a control signal, the mA signal should be locked to 4 mA from the DCS system.

Caution:

When the test starts, the ND9000H will drive the valve automatically to the test start position even if the valve position is elsewhere according to the setpoint

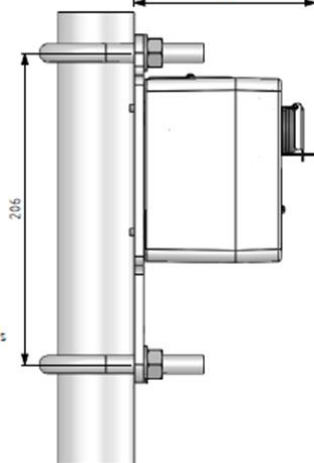
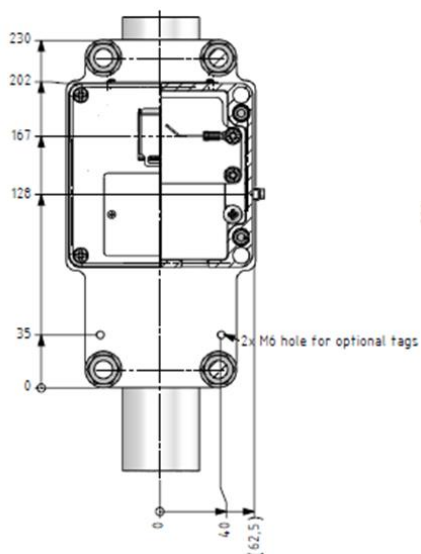
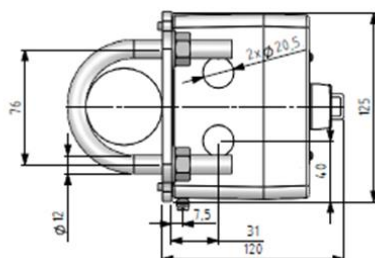
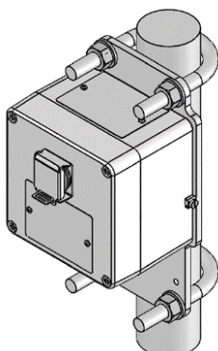
5. Identification plate

Identification plate



6. Dimensions and Mounting

The mounting set is suitable for 2" pole mounting and has to be ordered separately.



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