

Instruction

Pressure Transmitters

This instruction applies to installation and use of pressure transmitters for immersion. Pressure transmitters is available in the following standard types:

Pressure transmitter for relative (gauge) pressure:

Measuring range:	Ceramic capacitive:	Ceramic piezoresistive:	Piezoresistive:	
			dia. 60 mm	dia. 23 mm
0 - 30 cm	7062-1423	-	-	-
0 - 100 cm	7062-1413	-	-	-
0 - 3 m	7062-1433	7065-1423	7060-1413	7070-1413
0 - 5 m	-	-	7060-1443	7070-1443
0 - 10 m	-	7065-1433	7060-1423	7070-1423
0 - 30 m	-	-	7050-1433	7070-1433

Pressure transmitters for absolute pressure:

0 - 10 m (Calibrated: 0 - 20 m)	7050-1413	-
------------------------------------	-----------	---

Function

Level measurement with pressure transmitters are based on the following principle: A pressure transmitter is immersed into liquid and measures the hydrostatic pressure. The pressure transmitter produces a current signal that is proportional to the level. The pressure transmitters is designed for the 2-wire principle where the two wires are supplied with a voltage between 15 and 35 V DC. The pressure transmitter produces a level-proportional 4-20 mA output signal and has a built-in signal amplifier.

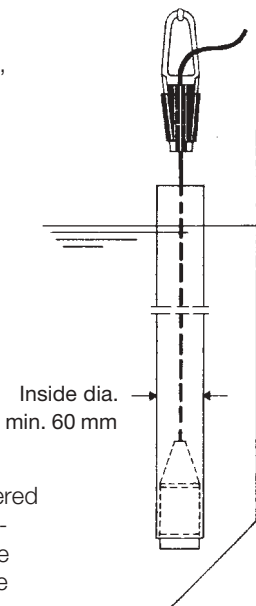
Pressure transmitter 7060, 7062, 7065 and 7070

These transmitters have a pressure equalizing tube in the cable for air pressure compensation so the 4-20mA signal is directly level proportional. When mounting the pressure transmitter with an equalizing tube, assure that no moisture or condensation water gets in the tube (see section: *connection box*).

Pressure transmitter 7050 measures absolute pressure. There is no equalization tube in the cable, but it requires an electronic air-pressure compensation. MJK delivers pump controllers and level transmitters with built-in electronic compensation. The type number of these units all end with 3, i.e. Level Converter type 721-1113.

Mounting

Immerse the pressure transmitter into the liquid. In case of turbulence, it can be immersed in a pipe. The pressure transmitter is fastened either with the enclosed cable bracket or fitted on a tube with 1" WG female thread (if the pressure transmitter is delivered with threaded connection). Removal, cleaning and immersion will be easier if the pressure transmitter is fitted in a pipe.



Electric connection

The pressure transmitters are delivered standard with 12 m cable. (7060/70-1433: 35 m). If the cable needs to be lengthened, normal installation cable can be used. At the connection, ensure that the joint is absolutely waterproof (by potting). When assembling cables to relative pressure transmitters, ensure that no moisture or water get into the equalizing tube. We recommend the use of connection box type 202922 or 202923. The cable can be lengthened to:

$$R_L = \frac{U_F - (U_B + 15) V}{20}$$

where: R_L is the resistance in K ohm of the wires in the cable which is lengthened (remember the resistance in both wires)

U_F The supply voltage which is approx. 24 V DC in most PLCs.

U_B is the voltage drop at the input of a PLC.

Example:

A MJK Pump Controller has a voltage supply to the pressure transmitter U_F of approx. 24 VDC. If a loop supplied indicator like MJK type 531 with a voltage drop of approx. 3,5V is connected to the circuit, 5,5V will still be available in order to compensate for voltage drop in the cable. After calculation this gives a approx. 275 ohm. In a cable with a wire gauge of 1,5 mm² the resistance is approx. 12 ohm/1000m.

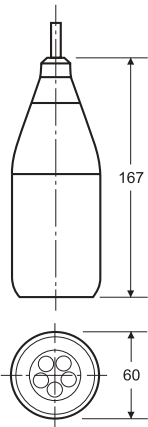
The signal is not noise sensitive but we recommend carefulness close to cables with high current or recommend the use of shielded cable when there is a risk of electrical disturbance.

The two wires are connected as follows:

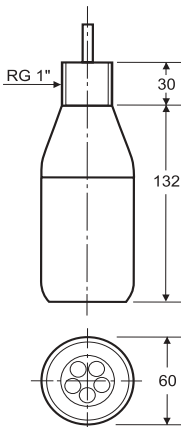
- Wire no. 1 + 15-35 VDC
- Wire no. 2 - (negative)
- Wire no. 3 Screen

If connection box with connector for programming unit is used, the 4 thin programming wires are connected according to the colour scale in the connection box. Do not extend the programming conductors, it may cause changes in the programming of the pressure transmitter.

Pressure transmitter type 7050-60



Pressure transmitter type 7062-65

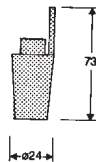
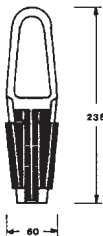


Cable fitting for type 7050-65

Pressure transmitter type 7070



Cable fitting for type 7070



Maintenance

When the pressure transmitter is constantly immersed, no further maintenance is required. In installations with very dirty water with a tendency to sedimentation or drying out, cleaning may be necessary. Be careful with the fragile diaphragms - they cannot stand cleaning with sharp or pointed objects, only use a soft brush. A 10% hydrochloric acid solution might be used as degreasing agent.

Part numbers:

Part no.:	Type no.:	Measuring range:
202912	7050-1413	0 - 10 m (absolute pressure)
202930	7060-1413	0 - 3 m
202930	7060-1443	0 - 5 m
202935	7060-1423	0 - 10 m
202940	7060-1433	0 - 30 m
202942	7062-1413	0 - 0,3 m
202943	7062-1423	0 - 1 m
202944	7062-1433	0 - 3 m
202972	7065-1423	0 - 3 m
202979	7065-1433	0 - 10 m
202950	7070-1413	0 - 3 m
202955	7070-1423	0 - 10 m
202960	7070-1433	0 - 30 m

Pressure transmitters can on request be delivered with special measuring range from 20 cm to 200 m

Options:

202915	Special material 7050/60/62
202916	Special material 7070
202917	Platinum diaphragm 7050/60
202918	Copper ring 7050/60/62
202919	Without silicone 7050/60/62/70
202920	Non-standard cable length
202921	Threaded connection 7050/60/62
202925	Non-standard measuring range 7050/60/62/65/70

Accessories and spare parts:

202922	Connection box for cable with pressure equalisation hose
202923	Connection box as above with socket for programming unit
200126	Type 531 Display insert for 202922 and 202923, 4-20 mA loop supplied, IP65 enclosure.
202926	Programming unit
560915	Cable fitting for 7050/60/62
560916	Cable fitting for 7070
691010	Cable for 7050
691014	Cable for 7060/62/65
691018	Cable for 7070