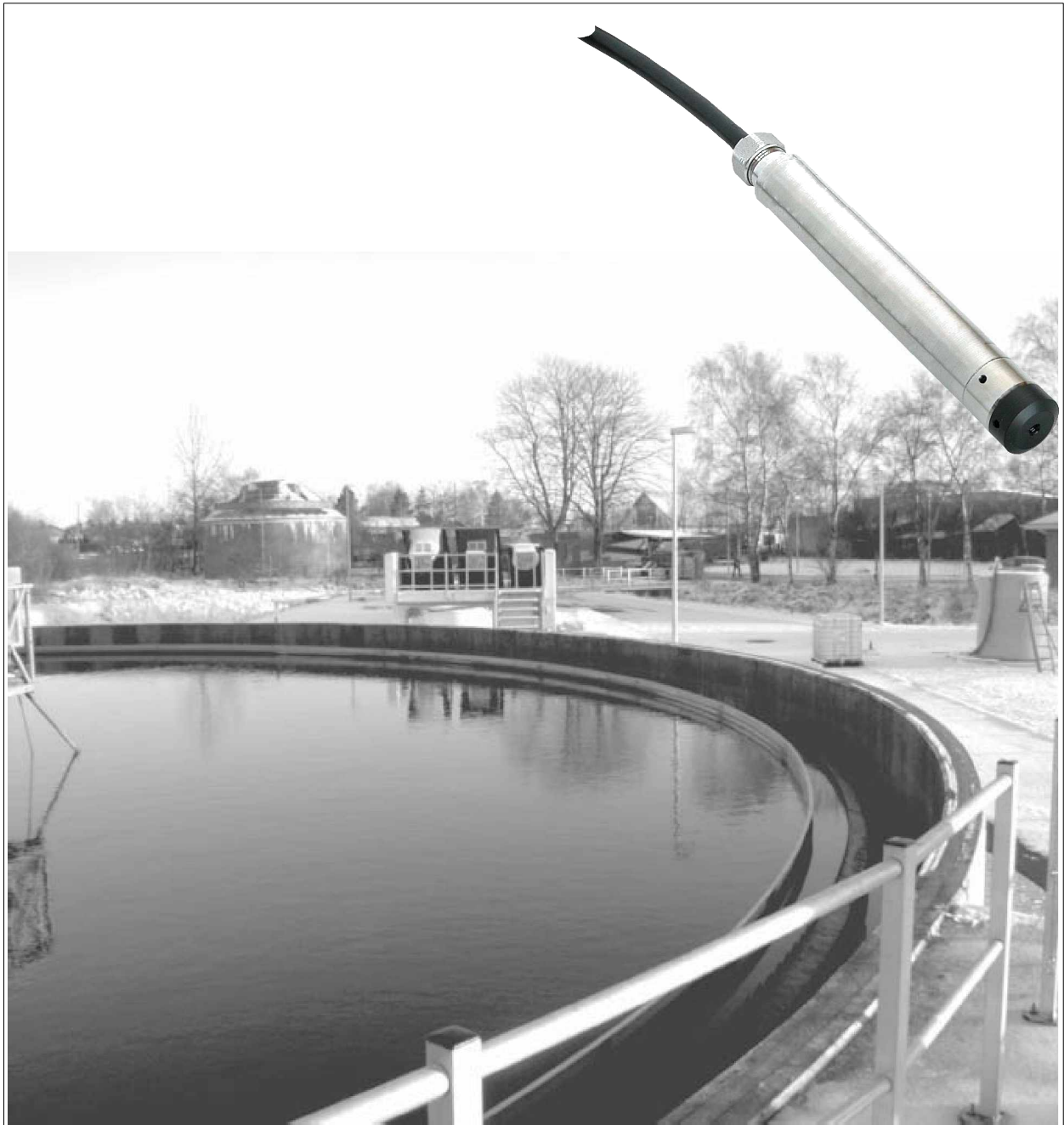


## Expert™ 700 Submersible Hydrostatic Level Transmitters



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## Approvals

## CE Certificate of conformity

This product complies with the requirements concerning electromagnetic compatibility (EMC) stipulated in Council directive no. 89/336/EEC of 3rd May 1989, altered at directive no. 92/31/EEC, on the approximation of the laws of the Member States relating to electromagnetic compatibility.

We declare that the product complies to the values stipulated in EN61000-6-1/ to 6-4

## Introduction

Thank you for choosing Expert™ Level Transmitter. We have done everything possible to make a level transmitter that can fulfil all your demands.

Expert™ Level Transmitter is suitable for all kinds of level measurements. It can control and supervise levels in wells and tanks - including aggressive and polluted media.

The Expert™ Level Transmitter is both easy to install and put into service, but read this manual first - then you will get the most benefits from the Expert™ Level Transmitter right from the beginning.

You can always contact your representative or the MJK Service Hotline for advice and guidance. Also, take a look at <http://www.mjk.com>

Expert™ Level Transmitter is registered trademark of MJK. Thank you for choosing MJK Automation A/S as your supplier of hydrostatic level transmitter.

## Product identification

It is very important for the overall measuring accuracy that the pressure transmitter has the correct pressure range. Check that the item(s) delivered corresponds to the ordered item(s) by means of the information on the label on the packing:



On the model Expert 700 transmitters, the pressure ranges together with the corresponding part numbers are printed on a label on the transmitter housing. For all versions the pressure range is indicated on the label.

### Safety instructions

- 1: Read this manual carefully.
- 2: Be aware of the environment on the installation site. Wear necessary protective equipment and follow all current safety regulations.
- 3: Do not operate the equipment outside the specified electrical, thermal and mechanical parameters (see datasheet). Install the device only in media for which the wetted materials have sufficient durability. (See datasheet for housing material)  
Max. supply voltage is 30 VDC.

### Hazardous areas

Expert™ 700 Level I Transmitter is NOT approved for explosion hazardous areas.

### Repair

- 1: Repair of THE equipment must only be made by MJK or by a service representative approved by MJK.

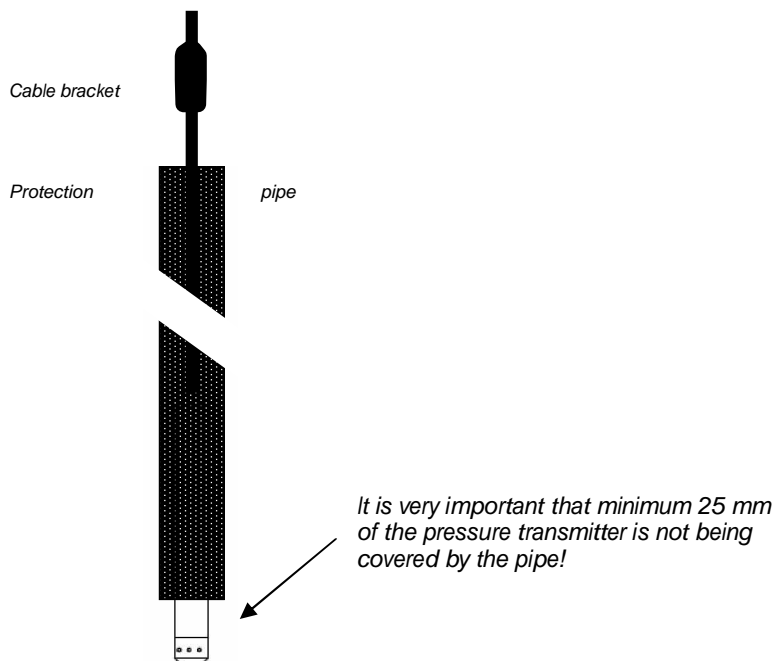
### Mechanical mounting

#### Model 700

- 1: Mount a suitable hook over the desired measuring location. Note the weight of the cable.
- 2: Remove the inner conical sleeve from the cable fitting and pull the cable through the outer part. Open the inner sleeve and fit it around the cable at the desired fixation point and press the inner sleeve into place in the outer part. Secure the cable fitting by pulling the cable downwards.
- 3: Lower the pressure transmitter into the wellpipe.

*Take care not to hit the bottom hard since it may damage the transmitter!*

- 4: If the transmitter is to be used in a wetwell or other locations with turbulence or other disturbance, it is advisable to install a pipe (min. nominal diameter = 25 mm) to protect the transmitter from bumping into the wall or other components.



Maintenance

The black cover is pulled off to clean the pressure sensor. The sensor can then be rinsed off with water.

Under no circumstances must pressure be applied to the delicate pressure sensor membrane, as this can destroy this element!!

**Caution:**

The pressure sensor membrane is extremely delicate. The membrane must therefore never be touched!!

Pressure sensor



Protective sensor sleeve

DAMAGE FROM TOUCHING THE MEMBRANE OR HIGH PRESSURE WATER JETS ON THE MEMBRANE IS NOT COVERED UNDER WARRANTY!

**Caution:**

**The pressure sensor membrane is extremely delicate.  
The membrane must therefore never be touched!!**



## Electrical mounting

### Cable length vs. supply voltage

The cable can be lengthened with any type of cable using connection box 202922.

Although the measuring signal is generally not sensitive to electrical noise, we recommend the use of a screened cable. This is especially important around VFD's and motor power cables.

Ensure that no moisture can enter the pressure compensation tube inside the cable.

The length of the cable is only limited by the total resistance (A) of the cable conductors + the input impedance of the analog input on the MJK 704, MJK 713, PLC etc. (typically 10 to 100  $\Omega$ ) and the available supply voltage (typically 24 V DC).

### Designation of wires, cutting & stripping the cable

The factory delivered cable has the wires marked with colours as to the table below.

Do NOT connect any of the programming wires as it may damage the transmitter. The programming wires should be cut off in different lengths to prevent them from short circuit.

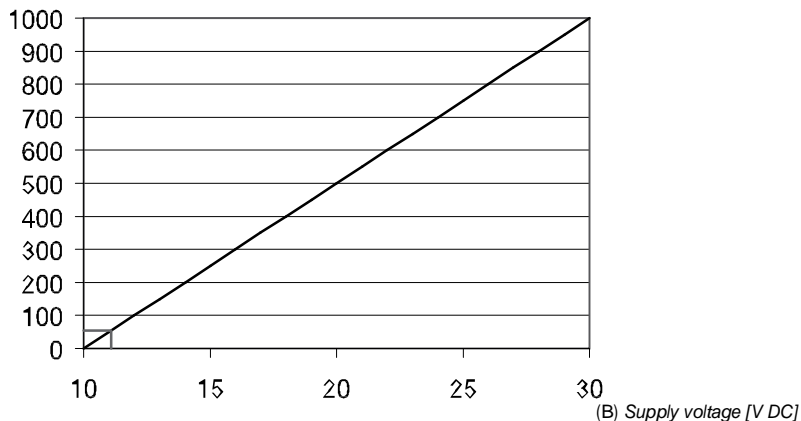
Take care not to block or squeeze the air pressure compensation tube

#### Example:

The nominal resistance for 1 conductor in a transmitter cable is 0,036  $\Omega$ /m. A standard 12 m cable will therefore add  $2 \times 0,036 \times 12 = 0,86 \Omega$  to the loop resistance. If the analog input has an impedance of 50 $\Omega$ , the total resistance will be approx. 51 $\Omega$ .

*Necessary supply voltage in relation to the total loop resistance.*

(A) Total loop resistance [ $\Omega$ ]

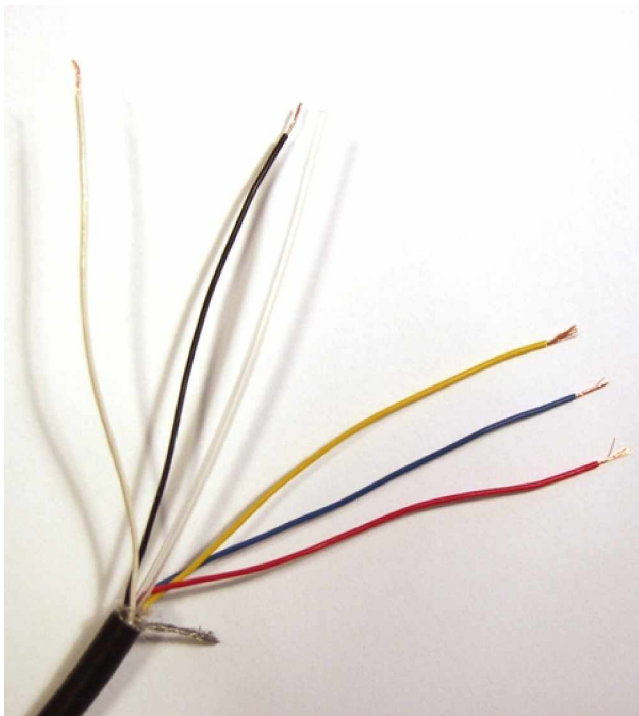


According to the diagram above, approx. 12 V DC will be sufficient

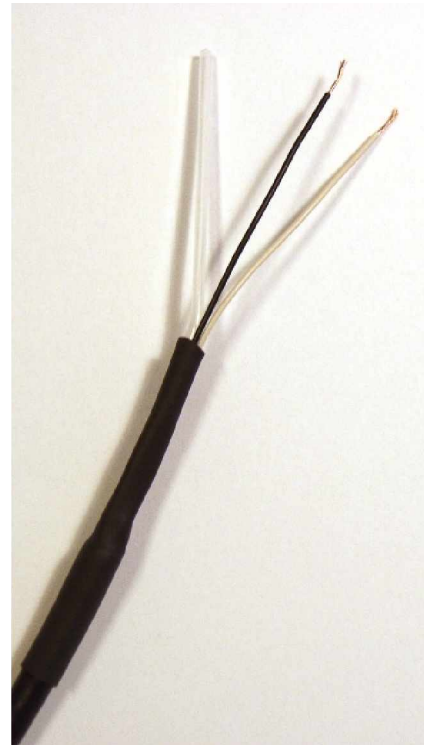
Designations:

Black Vcc + (24VDC) Output 4-20mA  
White GND  
Blue RS 485A  
Yellow RS 485 B  
Red NC  
Air pressure compensation tube  
Screen

*Cutted and stripped*



*Factory delivery*



Please note the following installation instructions:

1. Follow the installation and safety instructions contained in the Operation Instructions.
2. Install according to the manufacturer's instructions and other valid standards and guidelines.
3. Do not operate the sensor outside the specified electrical, thermal and mechanical parameters.
4. Install the device only in media for which the wetted materials have sufficient durability.

Be aware about the environment on the installation site. Use necessary protection equipment and follow all safety regulations.

### Data Sheet for Expert™ 700 Level Transmitter

The MJK Expert™ 700 Level Transmitter has a small external diameter of 16 mm - and is made of 316L stainless steel.

The transmitter is designed for measuring levels in water wells.

The MJK Expert™ 700 is an accurate 2-wire transmitter with a piezoresistive measuring system with direct air pressure and temperature compensation and built-in surge protection.



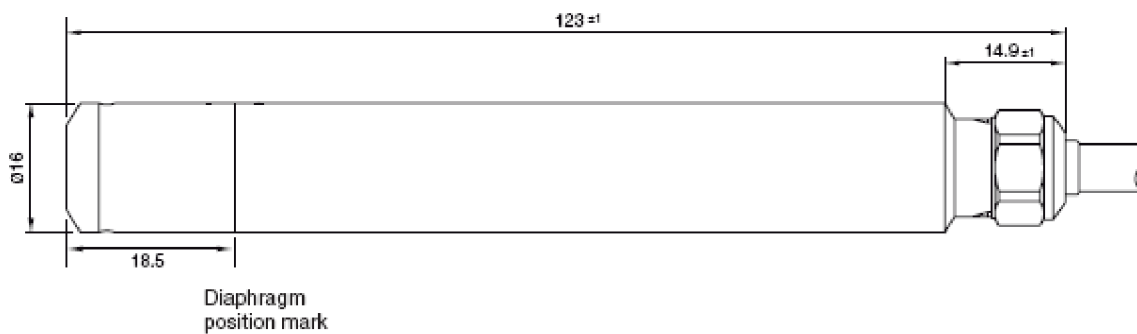
### Specifications

MJK Expert™ 700 Level Transmitter		
Nominal measuring range (mWG)	0 - 30 m	0 - 100 m
Measuring principle	Piezo-resistive (relative pressure)	
Min. programmable range	10 m	30 m
Max. programmable range	30 m	100 m
Non-standard range	Min. 0 - 10 m / Max. 0 - 300 m	
Max. overpressure	5 bar	20 bar
Temperature range	-20 °C to 80 °C	
Temperature deviation, zero point	Better than $\pm 0.02$ % / °C	
Temperature deviation, full range	Better than $\pm 0.02$ % / °C	
Linearity / Stability	Better than $\pm 0.5$ % FS / $\pm 0.1$ % FS	
Measurement accuracy	Better than $\pm 0.25$ % FS @ 10 °C to 30 °C	
Long time stability	Better than $\pm 0.5$ % FS per year	
Materials	Stainless Steel 316L (DIN 1.4435) / Viton® / PE	
Supply voltage	10 - 30 V DC (12 - 30 V DC for cable lengths above 100 m)	
Output signal	2-wire 4 - 20 mA (passive transmitter) / RS485	
Surge protection	Supply and RS485: 200A @ 8/20 $\mu$ s Gnd/case: 2000A @ 8/20 $\mu$ s	
Cable	5 x 0,25 mm <sup>2</sup> , shielded, PE insulation	
Cable length <sup>Ⓢ</sup>	35 m	110 m
Enclosure	IP 68, withstands a static pressure equal to max. overpressure	
Weight (without cable)	0,2 kg	
Approvals	CE Conformity EN61000-6-1 to -6-4	
<sup>Ⓢ</sup> Can be delivered with other cable lengths on request.		

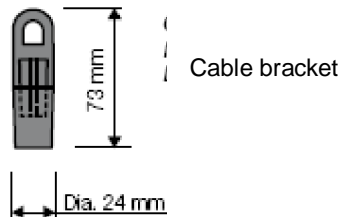
## Order Numbers

Order Numbers	
203816	Expert™ 700, range 0 - 30 m
203817	Expert™ 700, range 0 - 100 m
691110	Cable for Expert™ 700 (PE)
<i>Contact MJK for special requests.</i>	

## Dimensions



## Accessories



Each Expert™ 700 Level Transmitter also integrates a digital interface (RS485 half duplex) which the user can make use of. The transmitter is being connected via a converter RS232-RS485 (Item No. 203992) to a PC or Laptop. The program offered is:

## MJK Read Link

- Information (pressure- and temperature range, version of software etc.)
- Indication of actual pressure value
- Selection of the units
- Setting of a new zero and gain for the transmitter
- Reprogramming of the analog output (i.e. different unit, other pressure range)
- Setting of the instrument address (for Bus-operation)
- Low-Pass Filter adjusting possibility
- Data collection with graphs
- Fast read-out and viewing of the pressure signals in a graph
- Documentation of dynamic measurements
- Up to 16 transmitters on one serial connection (Bus-operation)