

## 401Uxxxx0x0A

### Conductivity cell, PSU body, graphite electrodes, industrial applications

Conductivity cells for industrial applications, suitable for direct installation in pressurized pipelines and tanks. These cells can withstand temperatures up to 120°C with pressures up to 2 bar (up to 6 bar at ambient temperature). Mod.401U sensors are made of PSU with graphite electrodes, and are available with 2 different cell constants to cover a wide range of measurement applications. The Mod.401U2... with 0,1 cm cell constant is available with PVDF body and with PSU body: the PSU is not suitable for the use in solutions with NaCl concentration higher than 0,1 %: in such applications it is required to use PVDF body (Mod.401Ux4...). On the other hand the PVDF is not suitable for applications where sodium hydroxide is present: in such applications it is recommended to use PSU body. 401U2... cell is also available with PEEK body. All the cells include an integral temperature sensor, Pt100 for measurement thermo compensation and temperature indication. Typical applications of these cells are in electric power plants, pharmaceutical industry, food and beverage industry, drinking water plants.



#### Advantages

- Sturdy and compact execution, cell with K = 1 cm has PSU body cell with K = 0.1 cm has PSU or PVDF or 5 PEEK body
- Graphite electrodes
- Suitable for direct insertion into closed pipelines and tanks
- Threaded process connections, ½" G or 1" G, sanitary type DN50, Clamp 1", according to model
- Version for direct immersion installation down to 1,5 m
- c/w integral temperature sensor, Pt100, Pt1000, TC100 or other upon request
- Operating temperature up to 120°C
- Operating pressure up to 6 bar
- Constant cells 0.1 and 1 cm
- Measuring ranges from 0,05 to 200 mS

#### Operating principle and realization

Mod.401U3 cells have PSU body; Mod.401U2 cells have PSU or PVDF or PEEK body (dimensions depend upon the chosen model, see figure) and graphite electrodes.

**Attention !** The **Mod.401U2... with 0,1 cm cell constant** is available with PVDF body and with PSU body: **the PSU is not suitable** for the use in solutions with NaCl concentration higher than 0,1 %: in such applications it is required to use PVDF body (Mod.401Ux4...). On the other and **the PVDF is not suitable** when sodium hydroxide is present: in such applications it is recommended to use PSU body.

Cell Mod.401U2... with 0,1 cm cell constant is also available with PEEK body (Mod.401U2x7...).

Available cell constants are K = 0.1 cm and K = 1 cm, and measuring ranges are 0÷50000 µS (K = 1 cm) and 10÷200 mS (K = 10 cm).

These cells include temperature sensor, Pt100, Pt1000 or TC100 (other upon request) for automatic thermo compensation of measure.

Process connection are: threaded, ½" for 401U3xxC0x0A; threaded, 1" for 401U2xxE0x0A; sanitary type, DN 50 for 401UxxxL0x0A; Clamp 1" for 401UxxxM0x0A; these cells can be directly inserted into closed tanks or pipelines. Mod.401UxxxO0x0A is suitable for the installation into Mod.S10U immersion fitting (suitable for immersions down to 1500 mm).

The cells are supplied with shielded connecting cable, c/w sealed connector; 401UxxxO0x0A cells are supplied c/w integral cable.

The cells are designed to be directly inserted into pressurized pipelines or tanks and can withstand temperatures up to 120 °C and pressures up to 6 bar @ 20°C and 2 bar @ 120°C.

Series 401U cells are available with the options listed in the Order Code Breakdown.

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## Correspondence between measuring ranges and cell constants for Series 401Uxxx0x0A cells

K = 0.1 cm.....	10÷200 mS
K = 1 cm.....	0÷50000 µS

### Installation, Maintenance and Calibration

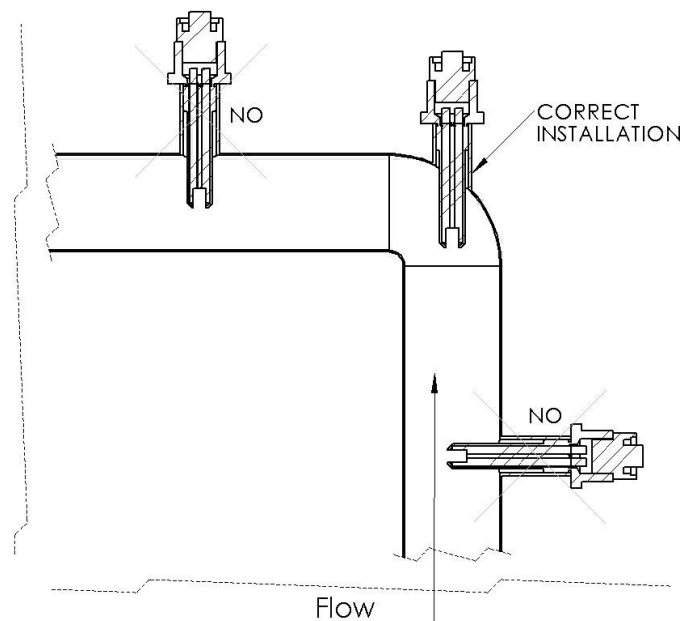
The cells Series 401U cells should be installed so that the sample flow is directed against the cell bottom: in this way no air bubble will get trapped into the cell. These cells should not be installed in locations with high turbulence. Refer to the following drawing.

FS values, cell constant and set-point (min and max) of the instrument are factory calibrated. In any case all these values can be modified by the user, as stated in the user manual pertinent to conductivity transmitter.

The cell K correction is the only calibration to be performed at start up.

Insert the cell in a solution with known conductivity and calibrate the slope to obtain the correct reading (the instrument should read the calibration solution conductivity value) or, in the instruments provided with this option, insert the known value of the cell constant (it is indicated on the cell data tag).

Conductivity cells Series 401U can be easily cleaned with a smooth brush, but also with water or with diluted acid or detergent.



### Accessories

Cable for the connection to the electronic unit, 7 wires, c/w connector on cell side.

**Mod.CV1-xCN35-11** where x = 3, 5, 10 (cable length in meters)

NOTE: cells Mod.401Uxxx00x0A are only available with integral cable, standard length 5 m, max.length 10 m (specify length at order).

### Optional accessories

Additional length cable for the connection to the electronic unit, to be used in conjunction with a junction box.

**Mod.CV1-x** where x = cable length in meters.

Known conductivity standard solution, 250 ml bottle.....T/401-A

Specify desired conductivity value at order; typical values are: 1,278 mS, 11,67 mS e 102,09 mS, however solution with other conductivity values are available upon request.

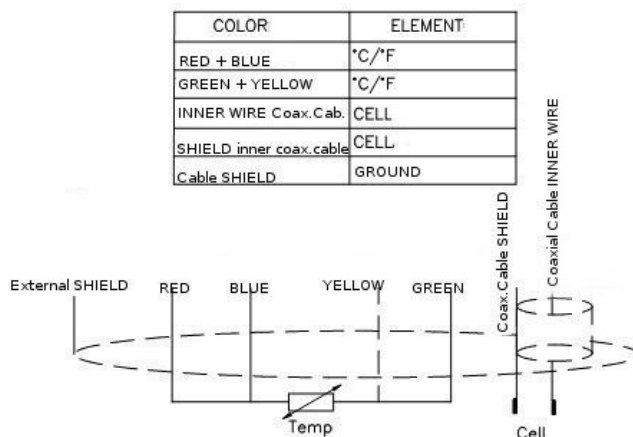
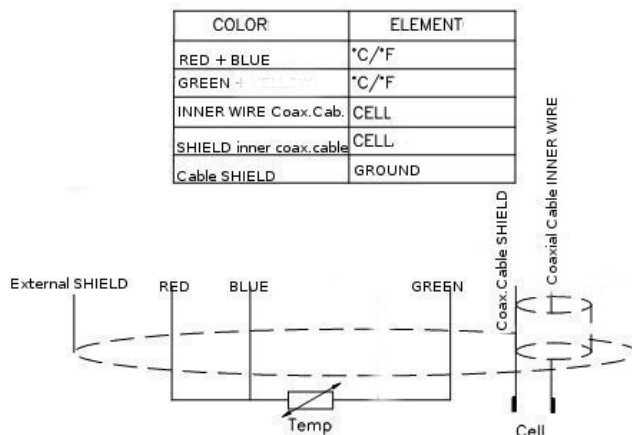
# 401Uxxx0x0A

## Technical Specifications

Cell body:.....PSU  
 ..ONLY for cell with K= 0,1 cm (Mod.401U2...) the body is available in PSU in PVDF (See Note 1) or in PEEK  
 Measuring electrodes:.....graphite  
 Cell constants (cm):.....K = 0.1 cm, K=1 cm  
 Measuring ranges:..... (K = 1 cm) 0÷50000 µS; (K = 0.1 cm) 10÷200 mS  
 Operating temperature limits:.....-20÷120 °C  
 Pressure limits:.....max 6 bar @ 120 °C, 2 bar @ 20 °C  
 Process connections, Mod.401U3xC0x0A.....threaded, ½”  
 Process connections, Mod.401U2xE0x0A.....threaded, 1”  
 Process connections, Mod.401UxxL0x0A.....sanitary type, DN50  
 Process connections, Mod.401UxxM0x0A.....Clamp 1”  
 Process connections, Mod.401UxxO0x0A: .....threaded for the installation on  
 .....Mod.SIOU immersion fitting  
 Electrical connections: .....cells are supplied c/w cable connector; cable is integral for 401UxxxO0x0A;  
 .....separate shielded cable, c/w water tight connector on cell side, length: 3m., 5m., 10m  
 .....to be ordered separately  
 Dimensions and insertion depth: .....refer to dimension drawing

**Note 1: Attention !** The Mod.401U2... with 0,1 cm cell constant is available with PVDF body and with PSU body: **the PSU is not suitable** for the use in solutions with NaCl concentration higher than 0,1 %: in such applications it is required to use PVDF body (Mod.401Ux4...). On the other and **the PVDF is not suitable** when sodium hydroxide is present: in such applications it is recommended to use PSU body.

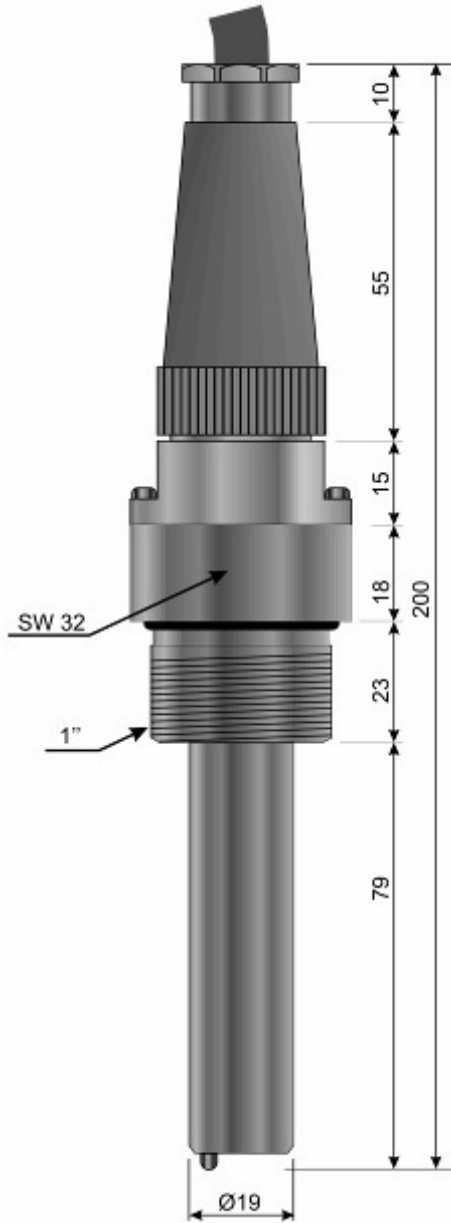
## Wiring



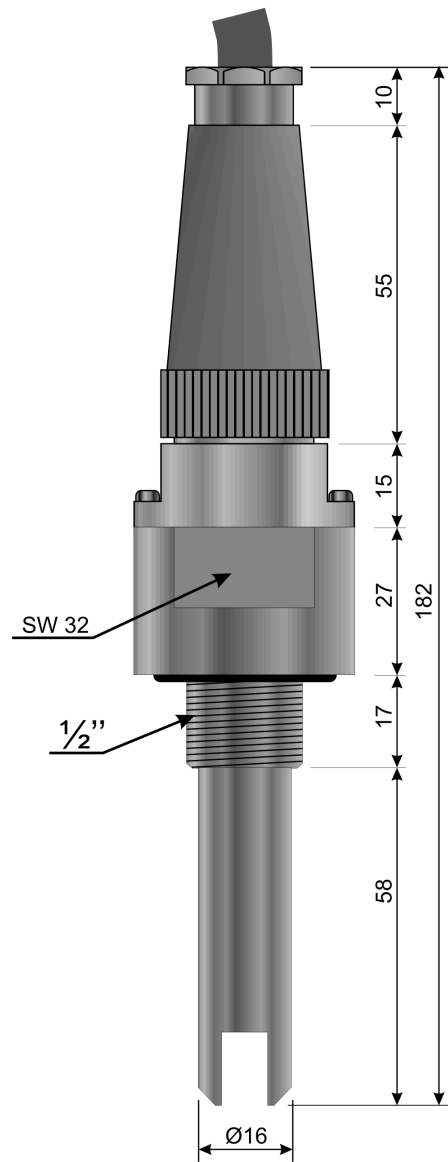
# 401Uxxxx0x0A

## Outline Dimensions

### Cell 401U2xxE0Y0A



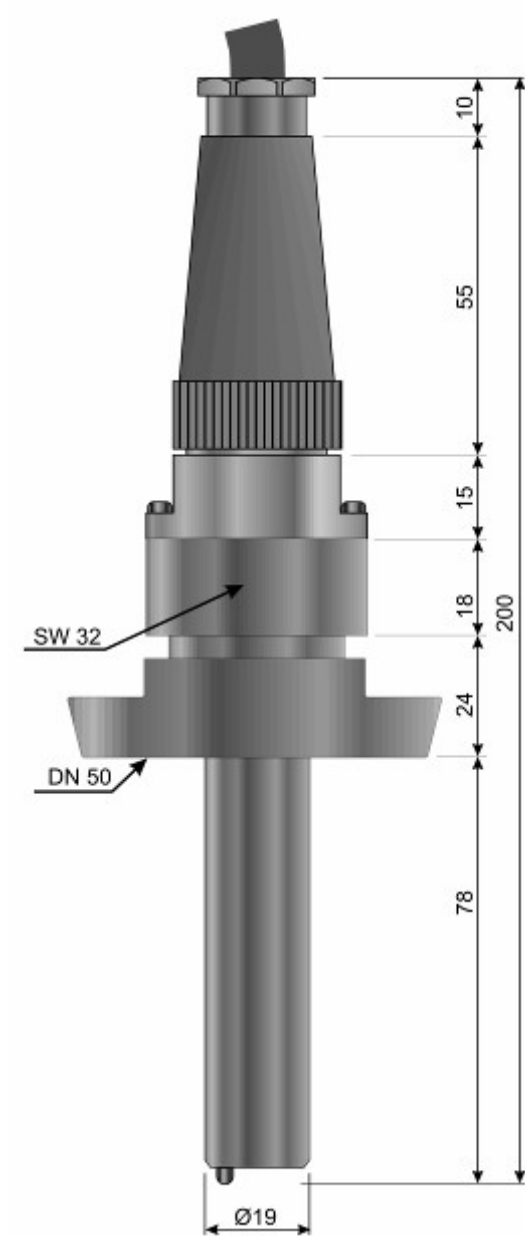
### Cell 401U3xxC0Y0A



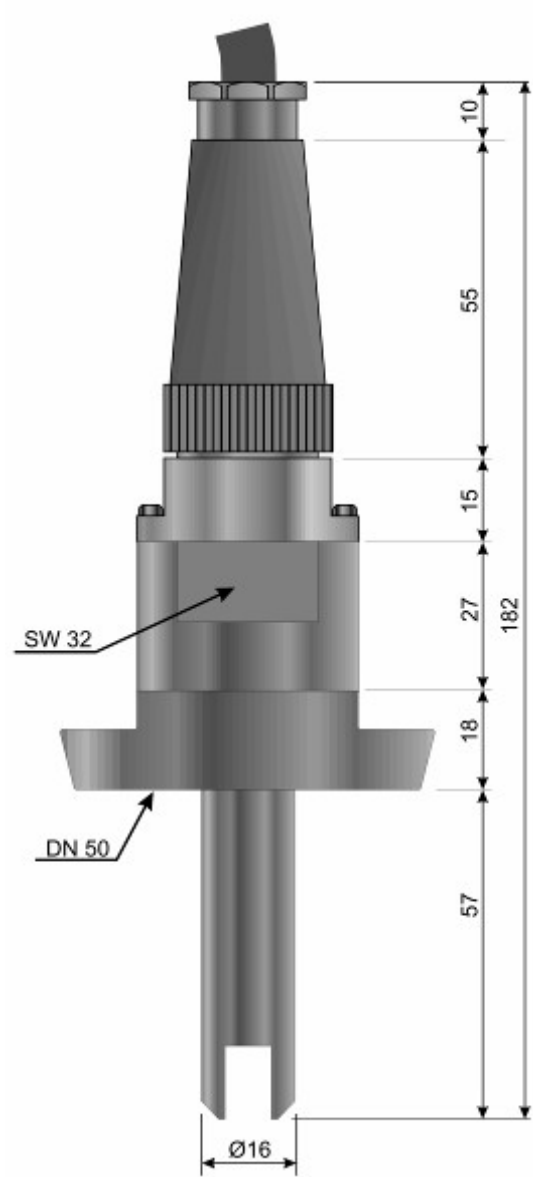
# 401Uxxx0x0A

## Outline Dimensions

### Cell 401U2xxL0Y0A



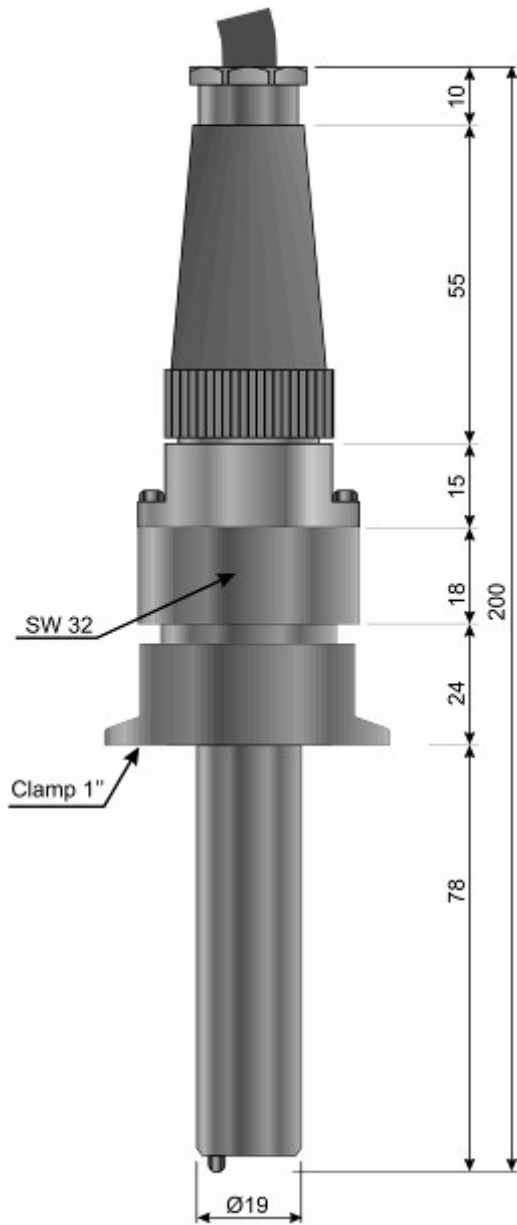
### Cell 401U3xxL0Y0A



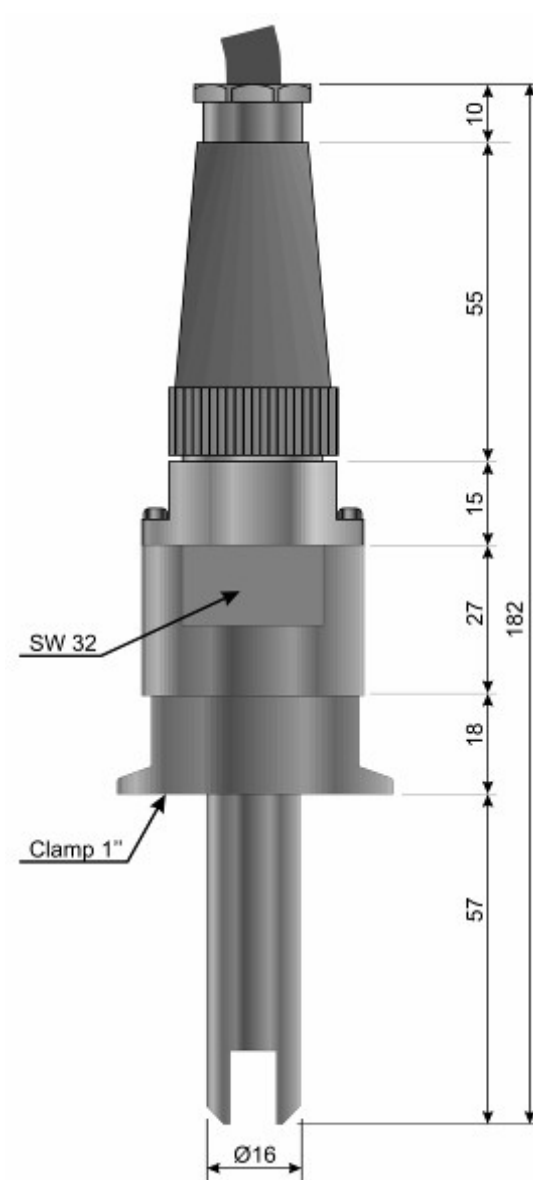
# 401Uxxx0x0A

## Outline Dimensions

Cell 401U2xxM0Y0A



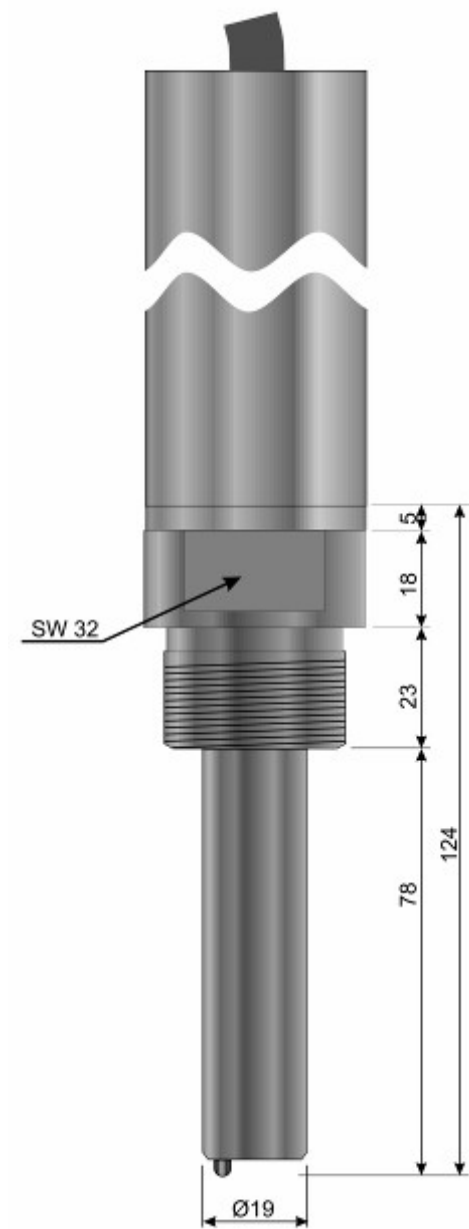
Cell 401U3xxM0Y0A



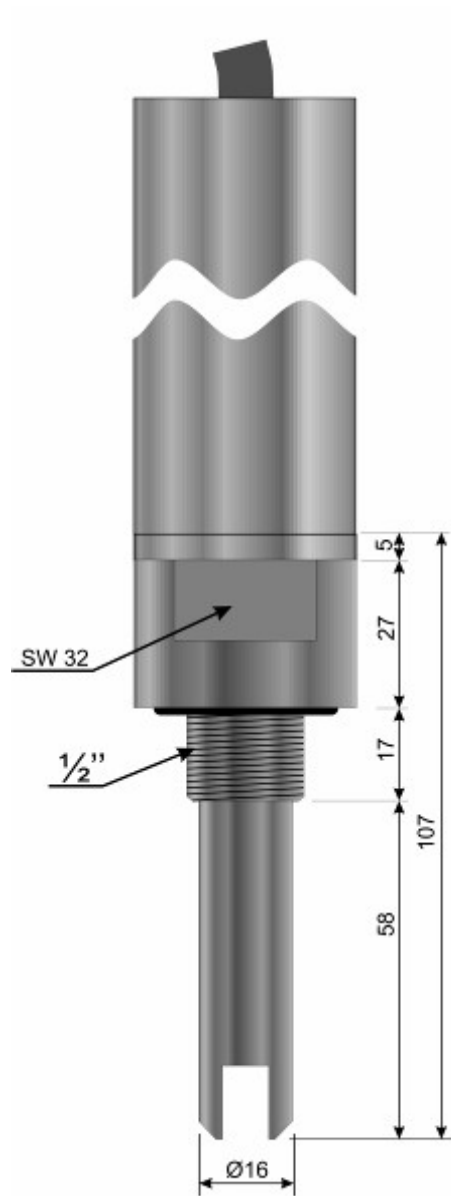
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## Outline Dimensions

Cell 401U2xx00x0A



Cell 401U3xx00x0A



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## Order code breakdown

Conductivity cells	401	x	x	x	x	x	x	x	x	x
<b>Type of cell</b>										
PSU/graphite 401/U		U								
<b>Cell constant</b>										
k = 0.1 cm			2							
k = 1 cm			3							
Special execution			9							
<b>Temperature sensing element</b>										
Not included				A						
Pt100 sensor				B						
Pt1000 sensor				C						
TC100 sensor				D						
Special execution				Z						
<b>Cell construction material</b>										
PSU body, graphite electrodes (See Note 1)					0					
PVDF body, graphite electrodes (ONLY for 401U2, See Note 1)					4					
PEEK body, Graphite electrodes					7					
Special execution					9					
<b>Process connections</b>										
Threaded ½" GAS M (401U3, 401U5)						C				
Threaded 1" GAS M (per 401U2)						E				
Sanitary type DN 50						L				
Clamp 1"						M				
Threaded conn.for insertion into immesrion probes Ø 42 mm SI0U						O				
Special execution						Z				
<b>Fixed code</b>									0	
<b>Cable and connector</b>										
Cable c/w multipolar sealed connector to be separately ordered (CV1-x-CN35-11)									Y	
Integral cable, 5 m for 401UxxxO									B	
Integral cable, 10 m for 401UxxxO									C	
Special execution									Z	
<b>Fixed code</b>										0
<b>Fixed code</b>										

**Note 1: Attention !** The **Mod.401U2...** with **0,1 cm cell constant** is available with PVDF body and with PSU body: **the PSU is not suitable** for the use in solutions with NaCl concentration higher than 0,1 %: in such applications it is required to use PVDF body (Mod.401Ux4...). On the other and **the PVDF is not suitable** when sodium hydroxide is present: in such applications it is recommended to use PSU body.