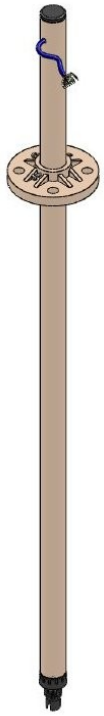
401AA and 401AB

Stopper type conductivity cell for industrial applications, c/w electrodes protection, graphite or stainless steel electrodes, threaded connection for installation into dedicated immersion probe

Conductivity cells with glass fiber filled PP (PP 30% GF) (PVDF or PTFE on request) body and graphite (401AA) or Satinless Steel (401AB) electrodes. These cells are available with K = 1 cm, K = 5 cm, K = 10 cm cell constant and are suitable to measure in the range 0 ÷50000 µS.
These cells can be supplied c/w integral temperature sensor Pt100 or Pt1000 for measure thermo compensation.
These cells have a very simple design that makes quite easy to install them: their upper part is threaded so that they can be installaed in the SI0AA immersion probe.
Typical use of these cells are drinking water plants, wastewater plants.

Advantages

- **Simple, compact and sturdy execution**
- **Simplified installation, into immersion probe SI0AA**
- **No maintenance requirement**
- **Graphite or stainless steel electrodes c/w electrodes protection**
- **Available c/w integral temperature sensor, Pt100, Pt1000 or other upon request**
- **Operating temperature: cell 5÷100 °C Immersioni fitting 5÷70°C**
- **Cell constants: K = 1, K = 5 cm and K = 10 cm**
- **Measuring ranges from 0 to 50000 µS**



Correspondence between measuring ranges and cell constants for 401AA (graphite)

K = 1 cm.....0÷50000 µS
K = 5 cm.....2÷200 µS
K = 10 cm.....2÷200 µS

Correspondence between measuring ranges and cell constants for 401AB (SS)

K = 1 cm.....0÷2000 µS
K = 5 cm.....2÷200 µS
K = 10 cm.....2÷200 µS

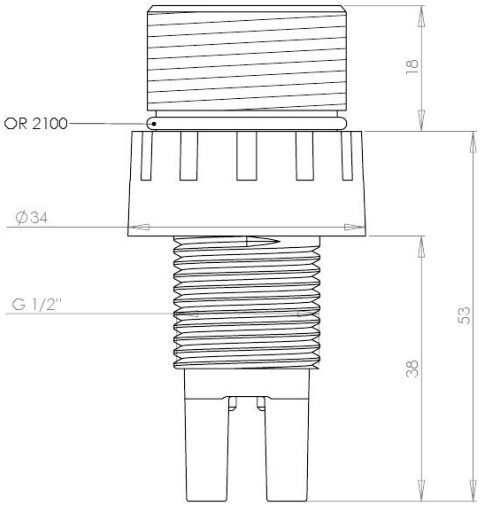
401AA and 401AB

Operating principle and realization

The 401AA and 401AB cells have glass fiber filled PP (PP 30% GF) body (PTFE or PVDF upon request), dimensions are shown in figure. The body is threaded in the upper part for direct installation inside the immersion fitting Mod.SI0AA; the body is also threaded, 1/2" G M (this thread is not used in the immersion configuration).
The electrodes are cylindrical, made in graphite (Mod.401AA) or Stainless Steel (Mod.401AB), dimensioned and shaped in order to have K = 1 cm, K = 5 cm or K = 10 cm cell constant that in this configuration correspond to the measuring ranges indicated below.
Cable for the connection to the electronic unit is integral, 1, 5, 10 or 15 m long according to selected cell code.
These cells can be supplied c/w integral temperature sensor Pt100, Pt1000, for measure thermo compensation. When the temperature sensor is installed into the SS sheat the sheath itself is used as the solution ground pin.
Series 401AA and 401AB cells are available with the options listed in the Order Code Breakdown.

Installation, Maintenance and Calibration

Thanks to their design these cells are extremely easy to install and do not require any special positioning. The cells should not be installed in locations with high turbulence.
FS values, cell constant and set-points (min and max) of the instrument are laboratory 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. Install the cell in the process, then measure process liquid conductivity with a portable conductivity meter recently calibrated and with proper accuracy, then calibrate the slope to obtain the correct reading.
If the portable conductivity meter is not available 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). (Keep in mind that the cell constant value can vary a little when the cell is not installed into its working position).
The electrodes of this sensors are very sturdy and can be mechanically cleaned with a brush.



Outline Dimensions

Technical Specifications

Cell body:.....glass fiber filled PP (PP 30% GF); optionally PVDF and PTFE
Measuring electrodes:.....2, cylindrical, graphite (401AA) or SS (401AB)
Cell constants and measuring ranges, 401AA, graphite electrodes:.....
.....K = 1 cm: 0÷50000 uS; K = 5 cm: 2÷200 uS; ; K = 10 cm: 2÷200 uS;
Cell constants and measuring ranges, 401AB, Stainless Steel electrodes:.....
.....K = 1 cm: 0÷2000 uS; K = 5 cm: 2÷200 uS; ; K = 10 cm: 2÷200 uS;
Operating temperature limits:.....5÷100 °C
Operating pressure limits:.....suitable for immersion installation; immersion depth depends on probe length
Integral temperature sensor:.....Pt100 or Pt1000
Connections for Mod.SI0AA immersion probe:.....threaded, in the upper part of 401AA and 401AB body
Process connections:.....threaded, 1/2" G M on the cell body (not used in the immersion configuration)
Dimensions : .....see drawing
Cable:.....integral, length 1, 5, 10 m

CLR Srl viaPapa Giovanni XXIII, 49 20090 Rodano Millepini, Milan, ITALY Ph.+39 (0)2 95328005 FAX +39 (0)2 95320020 - clrnet@tin.it - www.clritalia.com

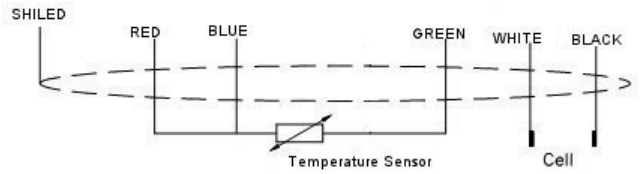
401AA and 401AB

Wiring, cell without temperature sensor

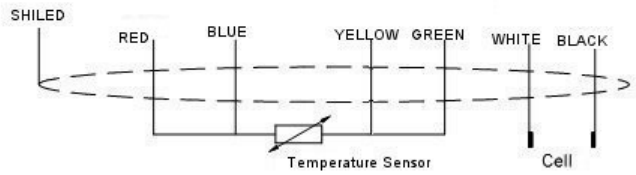
The cell has two wires, brown and blue. Connect them to the terminals for conductivity cell in the electronic unit in use.

Wiring, cell with temperature sensor embedded into cell body, 3 or 4 wires

COLOR	ELEMENT
RED + BLUE	Pt 100
GREEN	Pt 100
WHITE	CELL
BLACK	CELL
SHIELD	GROUND

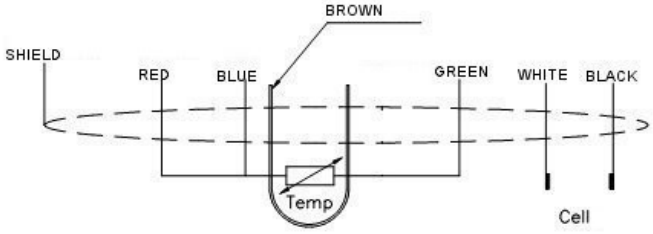


COLOR	ELEMENT
RED + BLUE	Pt 100
YELLOW + GREEN	Pt 100
WHITE	CELL
BLACK	CELL
SHIELD	GROUND

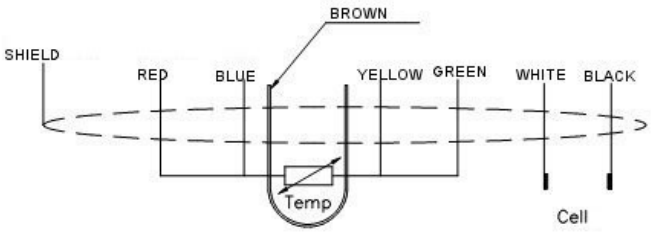


Wiring, cell with temperature sensor into stainless steel sheath, 3 or 4 wires

COLOR	ELEMENT
RED + BLUE	°C/°F
GREEN	°C/°F
WHITE	CELL
BLACK	CELL
BROWN	EARTH
SHIELD	GROUND



COLOR	ELEMENT
RED + BLUE	°C/°F
GREEN + YELLOW	°C/°F
WHITE	CELL
BLACK	CELL
BROWN	EARTH
SHIELD	GROUND



Brown wire il connected to the SS sheath of the temperature sensor. It can be used for solution ground contact by wiring it to the instrument ground terminal.

401AA and 401AB

Order code breakdown

Conductivity cells 401	x	x	x	x	x	x	x	x	x
Type of cell									
Stopper type c/w electrodes protection, graphite electrodes, threaded connections for immersion probe SI0AA	AA								
Stopper type c/w electrodes protection, stainless steel electrodes, threaded connections for immersion probe SI0AA	AB								
Cell constant									
k = 1 cm		3							
k = 5 cm		4							
k = 10 cm		5							
Temperature sensing element									
Not included			A						
Pt100 sensor inside SS sheath			B						
Pt100 sensor embedded inside cell body			E						
Pt1000 sensor embedded inside cell body			F						
Other sensor on request embedded inside cell body			X						
Cell body material									
PTFE				2					
PVDF				4					
PP 30% GF				5					
Other				9					
Process connections									
Threaded 1/2" GAS M (not in use in the immersion configuration)					C				
Other upon request					Z				
Fixed code						0			
Cable and connector									
Integral cable, length 1 m							A		
Integral cable, length 5 m							B		
Integral cable, length 10 m							C		
Other upon request							Z		
Connector on intrusmemt side									
No connector								0	
Other on request								9	
Fixed code									A

Optional accessories

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.