

# Conductivity

**INGOLD**

Leading Process Analytics

- WideRange™ technology
- Exceptional measurement ranges
- Stable measurement signals
- Vario Pin® connector (IP 68)
- MaxCert™

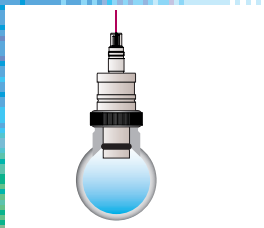


**For very low to medium/high conductivity:  
Where optimal performance is essential.**

**METTLER TOLEDO**

# Safety first.

The new conductivity sensors from METTLER TOLEDO are designed for high process safety, rapid sensor replacement and quick and easy installation. Due to WideRange™ technology, ranges of measurement can now be covered that were previously possible only with the use of toroidal (electrodeless) sensor systems.



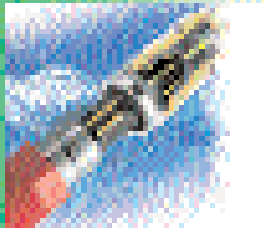
**Always one step ahead:**

**WideRange™ technology – saving costs and increasing measurement accuracy.**

WideRange™ technology keeps the sensor design small and easy to install.

METTLER TOLEDO conductivity sensors provide you with all the benefits of advanced technologies, such as:

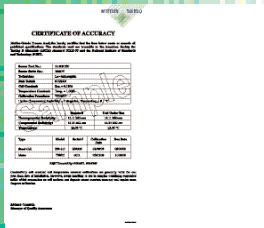
With WideRange™, METTLER TOLEDO opens up new dimensions in measurement technology. Superior electrode surface finish now make it possible to venture to measurements in applications that previously have been possible only with toroidal sensor systems. Moreover, the sensors have been miniaturized, decreasing the cost of process adaption and allowing installation in pipes with very small diameters.



**Vario Pin® connector (IP 68) – high process safety and rapid sensor replacement.**

Water tight Vario Pin® connector

In tests, the Vario Pin® connector (VP) was immersed in water for 1000 hours at 1 bar overpressure (corresponding to a depth of 10 meter). The results showed that the VP connector remains absolutely watertight. The Vario Pin® connector avoids all the awkward handling associated with fixed cable sensors.



**MaxCert™ – plant validation and qualification made easy.**

Certificate of Accuracy is part of MaxCert™.

MaxCert™ supports you in fulfilling even the most stringent process requirements of the pharmaceutical or food & beverage industries. Cell constants are determined and documented individually, and are traceable to NIST/ASTM standards. All stainless steel and Hastelloy parts which come into contact with sample media are accompanied by a relative test certificate 3.1B. All polymer parts, including O-rings, are made of materials in compliance with FDA requirements. And best of all, these certificates are included in the sensor package – no hidden costs for our customers!

# Specially for very low conductivity values...

The 2-electrode sensors from METTLER TOLEDO reliably meet the demands placed on measurement technology today in respect of quality control in water conditioning/preparation in the chemical and food & beverage industries. These sensors provide both improved process safety and enhanced support for the validation and qualification procedures of your plant. And of course, the sensors are fully compatible with METTLER TOLEDO housings and transmitters.

## Distinctive features of our 2-electrode sensors

	InPro 7000-VP / InPro 7005-VP	InPro 7001-VP	InPro 7002-VP
Sterilizable	–	131 °C/268 °F	155 °C/311 °F
WideRange™ technology	•	–	–
Vario Pin®, certified IP 68	•	•	•
MaxCert™	•	•	•
Test certificate according to EN 10204 3.1B	–	•	•
Accuracy of cell constant (± 1 %)	•	•	•
<b>Process connection</b>			
3/4" NPT	•	–	–
PG 13.5	–	•	–
Tri-Clamp (1.5" and 2")	–	–	•
<b>Application range in water conditioning</b>			
Chemical industry	•	–	–
Food & beverage industry	–	•	•

### 2-electrode sensors – where accuracy counts!

**Highest measurement accuracy**  
Precisely precalibrated and documented cell constants are your assurance of highest measurement accuracy, reduced costs and increased process safety.

### Wide range of applications

Our extensive selection of process adaption accessories is designed to ensure optimal installation of the appropriate sensor for any specific application - and this includes your process, too!

### Worldwide calibration service

To meet ongoing requirements for qualification and validation after the initial installation of the sensor METTLER TOLEDO specially developed an ultrapure water rig for the recalibration and recertification of all 2-electrode sensors.



InPro 7000-VP



InPro 7005-VP



InPro 7001-VP



InPro 7002-VP





# ...for medium to high conductivity values.

The 4-electrode sensors from METTLER TOLEDO provide you with the highest degree of safety during CIP and SIP processes. These sensors are specially designed and ruggedly built to withstand most rigorous cleaning procedures. Installed in optimally suited INGOLD weld-in sockets from METTLER TOLEDO for CIP procedures, thorough, safe and easy cleaning is ensured. These robust sensors are also highly suitable for applications in the chemical industry and in the treatment of industrial wastewater.

## Distinctive features of our 4-electrode sensors

	InPro 7108/25-VP	InPro 7108-TC-VP	InPro 7108-VP/ PEEK	InPro 7108-VP/ CPVC
WideRange™ technology	•	•	•	•
Vario Pin®, certified to IP 68	•	•	•	•
MaxCert™	•	•	•	•
Sterilizable (140 °C/284 °F)	•	•	•	–
Accuracy of the cell constant (± 1 %)	•	•	•	•
<b>Process connection</b>				
Ring nut G 1 1/4"	•	–	–	–
Tri-Clamp 1.5" and 2"	–	•	–	–
1" NPT	–	–	•	•
<b>Application areas</b>				
Phase separation in the food & beverage and pharmaceutical industry	•	•	–	–
Monitoring of CIP/SIP	•	•	–	–
Chemical industry	–	–	•	–
Flushing and cleaning	–	–	•	–
Chemicals concentration	–	–	•	–
Industrial wastewater	–	–	–	•

### 4-electrode sensors – where hygiene counts!

#### WideRange™ technology

- Compact design meets the highest hygienic requirements.
- Suitably for CIP/SIP procedures.
- Wide measuring range – ideal for phase separation and CIP/SIP processes.

#### Low maintenance and reliability

- Withstands well over 200 sterilization cycles (standard conditions).
- Vario Pin®, IP 68 certified, watertight connector.
- Surfaces with enhanced resistance to fouling.

#### MaxCert™

- All standard certificates included with the product.
- Individual cell constants, traceable to NIST/ASTM.
- Medium-wetted parts FDA-compliant, with certification.



InPro 7108/25-VP



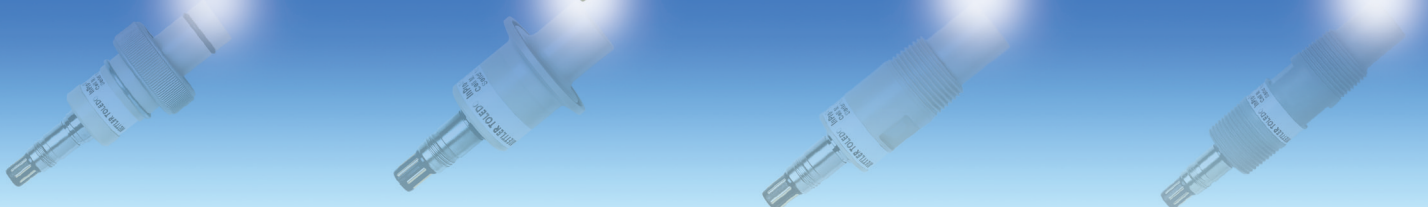
InPro 7108-TC-VP



InPro 7108-VP/PEEK



InPro 7108-VP/CPVC



# To meet every measuring requirement.

InPro® conductivity sensors together with the appropriate transmitters and housings from METTLER TOLEDO comprise a complete measurement system. Suitable housings can be found in our «Technical Data» sheet (order no. 52 002 183).

METTLER TOLEDO offers a large selection of transmitters to meet every application and every budget. This allows a complete system to be tailored to the needs of each specific measurement requirement. Instruments in 4-wire technology as well as 2-wire units, including Ex-proof versions, are available. HART® communication is now a standard feature of several instruments. In addition, the transmitter Cond 7100 is available with a Profibus® interface.

## Distinctive features of our transmitters

Transmitter	Cond 7050/ Cond 7050 e	CR 7300/ CR 7350	Cond 7100/ Cond 7100 e	7220 X	7500
4-wire	•	•	•	–	•
2-wire, Ex	–	–	•	•	–
Communication	–	RS 232 / 422	HART / Profibus	HART	RS 485
Controller	•	–	– / •	•	•
Current output	1 / 2	2	1 / 2	2	2
<b>Compatibility</b>					
2-electrode sensors	• / •	• / •	• / •	•	•
4-electrode sensors	– / •	– / •	• / •	•	•

The transmitter Cond 7050 e, available in mid 2002, can also be used in conjunction with the sensors of the InPro 7100-VP Series. The Cond 7100 e will become available during the 4<sup>th</sup> quarter 2002. The measuring range of a system depends on both the material and characteristics of the sensor, and the characteristics of the electronics of the associated transmitter.

For the measurement of extremely high conductivity values, METTLER TOLEDO offers a range of inductive measuring systems. Further details can be found in our brochure «Inductive measuring systems for industrial processes».

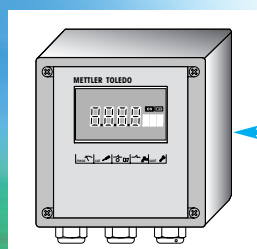
## Ranges of measurement

### InPro 7000-VP Series

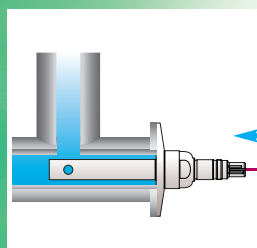
The 2-electrode sensors are suitable for measurement applications from very low (ultrapure water) to low (drinking water) conductivity. The upper measuring limit depends on the transmitter used.

### InPro 7100-VP Series

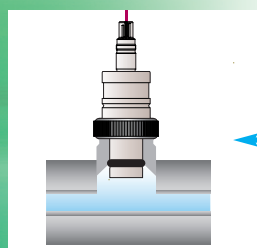
The 4-electrode sensors are appropriate for the measurement of medium to high conductivity values, from 0.02 up to approx. 800 mS/cm.



Transmitter



Side installation



Top installation

# Fast and competent.



A professional worldwide distribution and service network is available to provide you with the best possible technical and application support. METTLER TOLEDO offers a high level of customer service, from consulting through to trouble-shooting.

For 2-electrode sensors, METTLER TOLEDO offers a recertification/recalibration service. Renewed calibration and recertification of the sensor is carried out in a specifically developed ultrapure water rig.

METTLER TOLEDO is the first and foremost in the field of customer-oriented application support. Our local sales organization will only be too pleased to be of assistance.

## For the new sensors is the following information available:

		Order no.
InPro 7000-VP / InPro 7100-VP	Technical data sheet	52 002 183
Please contact your local METTLER TOLEDO sales representative for the technical data sheets of all other sensors.		

## Other available documentation material for products and systems:

Parameter/ content of documentation	Description	Order no.
<b>pH</b>		
Gel / polymer electrodes	Low maintenance and high accuracy	52 121 120
Liquid electrodes	High-end products, the problem solvers	*
Non-glass electrodes	Special electrodes for food applications	pending
Polymer body electrodes	Well adapted for abrasive wastewater	52 001 377

<b>O<sub>2</sub></b>		
Value sensors	Designed for water and wastewater	52 200 249
Advanced sensors	Sterile / hygienic conditions and low detection limit	52 200 957
Portable instruments	Off-line measuring in the industry	52 200 263

<b>Conductivity</b>		
Value sensors	Designed for water and wastewater	52 001 726
2/4-electrode sensors	For low and medium conductivity	52 002 180
Inductive sensors	For highest conductivity under harsh conditions	52 120 960

<b>Turbidity</b>		
Back scatter sensors	Low/medium to high turbidity	00 724 432
Forward / 90 ° sensors	Low and medium turbidity	pending

## For all parameters:

<b>Transmitters</b>		
Value line	If best price / performance counts	52 121 135
Advanced line	In demanding applications for high performance	52 121 129
Premium line	For high-end and challenging applications	*

<b>Housings</b>		
For gel and polymer electrodes	For pH, O <sub>2</sub> and conductivity applications	*
For liquid electrolyte electrodes	For pH applications	*

<b>Cleaning systems</b>		
Cleaning and calibration system	For any application with non-Ex / Ex and automatic process	52 500 180

\* for documentation, please ask your METTLER TOLEDO sales representative.

Sales and Service:



Management System  
certified according to  
ISO 9001 / ISO 14001