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# Datasheet Omniport 40

Multifunctional Hand-Held Meter



# Omniport 40

## Multifunctional Hand-Held Meter

The Omniport 40 is a multifunctional hand-held measuring device which accommodates E+E hand-held probes and process probes for various measurands such as temperature, humidity, moisture in oil, volume flow, dew point and CO<sub>2</sub>. It is ideal for portable on-spot measurement, as well as for process monitoring and predictive maintenance. Two M12 connections enable the simultaneous measurement of different probes.

## Outstanding Measurement Performance

The Omniport 40 compatible hand-held probes and process probes offer the well proven E+E accuracy, outstanding long-term stability, and resistance to environment influences. The probes can also be adjusted directly via the Omniport 40. With properly calibrated probes, the Omniport 40 is appropriate as reference device for the check and calibration of field sensors. For such purpose, the hand-held probes as well as the process probes can be supplied with an optional, traceable accredited calibration certificate.

## Data Management Modes

The hand-held meter automatically recognizes the connected probes, and immediately displays the measured data. The device features various operation modes.

- In the on-spot measurement mode, the measured data is shown on the dot-matrix display
- In data logging mode, up to 1 million data sets are stored in the hand-held memory
- As data collector, the device gathers data from predefined measurement locations for off-line monitoring and predictive maintenance.

## Robust and Easy to Use

With IP67 protection rating in combination with IK04 shock and impact resistance, the Omniport 40 is suitable for demanding, harsh industrial environment. The push buttons allow for the Omniport 40 to be operated even while wearing gloves. The measured values are indicated on the display in different modes depending on the applications.

The keypad and the self-explanatory symbols support intuitive operation, while the favourites function provides quick access to frequently used features. The user interface is available in 5 languages.

## User Configurable

The user can easily setup the Omniport 40 using an PC, a USB-C cable and the free PCS10 Product Configuration Software. The setup includes for example the oil library and the data collecting settings.

The USB-C interface is also used to download log .csv files without a software.



HA040909 Carrying case for Omniport 40, hand-held probes, process probes and accessories



Omniport 40 with hand-held probe AVP301H

# Features

## M12 probe connection

- Large selection of manual and process sensors
- Automatic detection of different probes
- Connection of up to 2 sensors, remote for
  - Process probes up to 1 m
  - Hand-held probes up to 2 m

## Functions

- On-spot measurement
- Data logging
- Data collecting
- Oil library
- Alarm with upper/lower thresholds and optional hysteresis
- Favourites function
- Hold function
- Relative function

## User interface

- Dot-matrix / plain text display (backlit)
- Visible area 42 x 50 mm (1.65 x 1.97")
- Selection of display layouts:
  - Large-digit single values
  - Multi-line
  - Statistical values (min. / avg. / max.)
  - Diagram view
- Status bar
- Languages (selectable)



## Power supply

- 4x AA rechargeable NiMH batteries (supplied)
- USB-C interface

# Features

## On Spot Measurement

Various display layouts include actual measured data and a freeze of these, the deviation from a reference level or the min/max/avg values. The user configurable graph provides a quick overview of the measurement history.

## Data Logging

In data logging mode, the Omniport 40 stores the measured data together with the time stamp in a .csv file. The file can be downloaded to a PC without any additional software. The data logger settings include the logging interval and the selection of the variables to be recorded. The data recording is started and stopped manually with push buttons of the hand-held meter.

## Data Collecting

The data collecting mode is ideal for off-line monitoring and predictive maintenance. In this mode, the Omniport 40 stores data from different measuring locations along a predefined route. The route can be defined on the PC and uploaded to the hand-held meter. The actual value can be measured at the different locations with hand-held probes or with fix installed process probes. The collected data can be downloaded to the PC with the free PCS10 Product Configuration Software.

## Moisture-in-Oil Measurement and Oil Library

With moisture in oil hand-held probes or process sensors, the Omniport 40 measures water activity, water content and temperature in transformer, lubrication and hydraulic oils. For correct measurement of the water content (ppm) and fast change between several oils, the Omniport 40 supports an oil library. The oil library can be easily created and maintained by adding and removing oil parameters on the PC and upload it to the hand-held meter with the PCS10 Product Configuration Software.

## Alarm Function

The threshold values and hysteresis for alarm purposes can be set via the push buttons. Alarms are indicated acoustically and optically.

## Power Supply

The NiMH rechargeable batteries included in the scope of supply can be charged via the USB-C cable. Additionally, the Omniport 40 can be operated with 4 AA batteries or permanent power supply. The display parameters such as backlight on/off, backlight intensity and sleep mode can be set for increasing battery life.

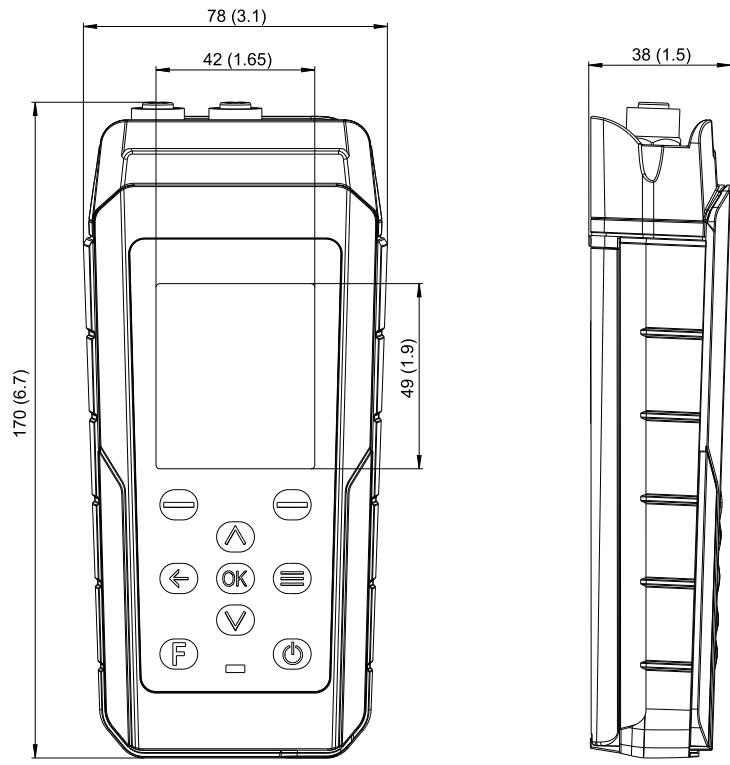
## Accessories

The carrying case is used to safely transport and store the hand-held meter, probes and accessories. This prevents mechanical damage or contamination of the probes and ensures the optimum performance of the Omniport in the long term. The E+E humidity calibration kit is a simple method of calibrating humidity measuring devices and can be stored directly in the carrying case. For more information, see the E+E humidity calibration kit datasheet at [www.epluse.com](http://www.epluse.com).

# Dimensions

Values in mm (inch)

## Omniport 40



# Technical Data

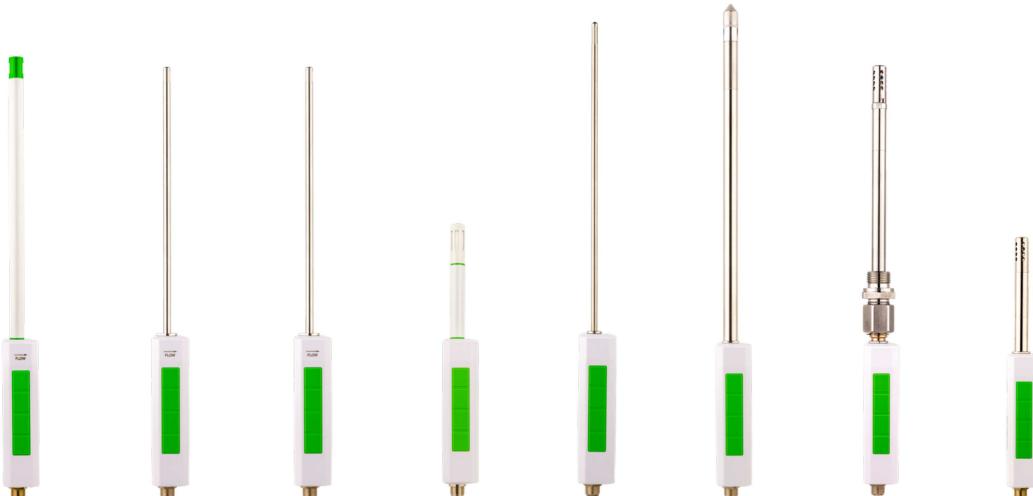
## Hand-Held Meter

<b>Power supply</b>	4x AA rechargeable NiMH batteries (included in the scope of supply)				
<b>Optional power supply</b>	External 5 V DC via USB C (Power supply unit or PC-USB connection)				
<b>Power consumption, typ.</b>	10 mA (excluding probes)				
<b>Battery runtime, typ.</b>	>100 h continuous operation (fully charged, backlight switched off, hand-held probe). The battery runtime depends on the number and type of connected sensors.				
<b>Automatic switch-off</b>	Configurable. Automatically deactivated when an external power supply is connected				
<b>Connections</b>	2x 5-pin M12 connection				
<b>PC connection</b>	USB-C				
<b>Internal memory</b>	Up to 1 million measuring points. A time and date stamp is assigned to each measuring point.				
<b>Type of logging</b>	Automatic with manual start/stop				
<b>Logging interval</b>	1, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 20, 30 min / 1 hour				
<b>Sensor query</b>	2 measurements/s				
<b>Real-time clock</b>	Max. deviation 1 min/month at 25 °C (77 °F)				
<b>Display</b>	140 x 160 dot-matrix LCD with backlight / visible area 42 x 50 mm (1.65 x 1.97") Choice of display layouts: <ul style="list-style-type: none"><li>▪ Large-digit single values</li><li>▪ Multi-line</li><li>▪ Statistical information (min./avg./max.)</li><li>▪ Diagram view</li></ul>				
<b>User interface</b>	Selectable in the menu (de, en, it, fr, es)				
<b>Dimensions</b>	170 x 78 x 38 mm (6.69 x 3.07 x 1.50")				
<b>Weight</b>	Approx. 370 g (approx. 13.05 oz)				
<b>Operating and storage conditions</b>	<table border="0"> <tr> <td><b>Operation</b></td> <td>-5...+50 °C (+23...+122 °F), 0...85 %RH non-condensing</td> </tr> <tr> <td><b>Storage</b></td> <td>-25...+65 °C (-12...+149 °F) (without rechargeable battery)</td> </tr> </table>	<b>Operation</b>	-5...+50 °C (+23...+122 °F), 0...85 %RH non-condensing	<b>Storage</b>	-25...+65 °C (-12...+149 °F) (without rechargeable battery)
<b>Operation</b>	-5...+50 °C (+23...+122 °F), 0...85 %RH non-condensing				
<b>Storage</b>	-25...+65 °C (-12...+149 °F) (without rechargeable battery)				
<b>Enclosure</b>	<table border="0"> <tr> <td><b>Material</b></td> <td>ABS (acrylonitrile butadiene styrene) TPE side protection (thermoplastic elastomers) Polyester front panel</td> </tr> <tr> <td><b>Protection rating</b></td> <td>IP67 (except for the probe connection)</td> </tr> </table>	<b>Material</b>	ABS (acrylonitrile butadiene styrene) TPE side protection (thermoplastic elastomers) Polyester front panel	<b>Protection rating</b>	IP67 (except for the probe connection)
<b>Material</b>	ABS (acrylonitrile butadiene styrene) TPE side protection (thermoplastic elastomers) Polyester front panel				
<b>Protection rating</b>	IP67 (except for the probe connection)				
<b>Impact test</b>	IK04 according to EN 60068-2-75				
<b>Drop test, 1m @ ±25 °C (3.28 ft @ ±45 °F)</b>	EN 61010-1				
<b>Electromagnetic compatibility</b>	EN IEC 61326-1:2021				
<b>Conformity</b>	 				
<b>Configuration software</b>	PCS10 Product Configuration Software and USB-C connection cable Free download from <a href="http://www.epluse.com/pcs10">www.epluse.com/pcs10</a>				

# Hand-Held Probes

The hand-held probes are optimized for portable on-spot measurement. They combine the E+E outstanding measuring performance with low power requirements for long battery lifetime.

The hand-held probe fits ergonomically and is connected to the hand-held meter via the cable HA010813.




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AVP201H    AVP301H    AVP401H    HTP201H    HTP401H    HTP701H    MOP301H    MOP302H

Hand-held probes

AVP201H - Air Velocity and Temperature Hand-Held Probe for HVAC Applications

AVP301H - Air Velocity and Temperature Hand-Held Probe up to 20 m/s (4 000 ft/min)

AVP401H - Air Velocity and Temperature Hand-Held Probe up to 2 m/s (400 ft/min)

HTP201H - Humidity and Temperature Hand-Held Probe for HVAC Applications

HTP401H - Humidity and Temperature Hand-Held Probe up to 100 °C (212 °F)

HTP701H - Humidity and Temperature Hand-Held Probe up to 180 °C (356 °F)

MOP301H - Moisture-In-Oil Immersion Hand-Held Probe up to 120 °C (248 °F)

MOP302H - Short Moisture-In-Oil Hand-Held Probe up to 120 °C (248 °F)

All hand-held probes are supplied with a test report in accordance with DIN EN 10204-2.2.

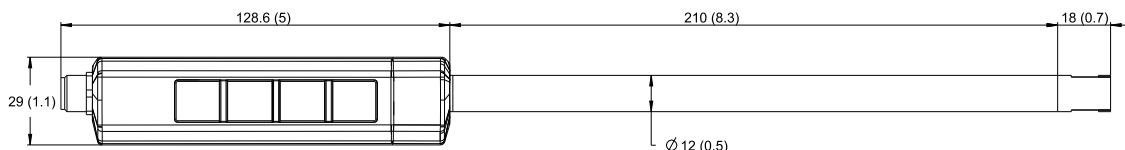
For dimensions and technical data of the hand-held probes, see the following pages.

# AVP201H

## Air Velocity and Temperature Hand-Held Probe for HVAC Applications

### Dimensions

Values in mm (inch)



### Technical Data

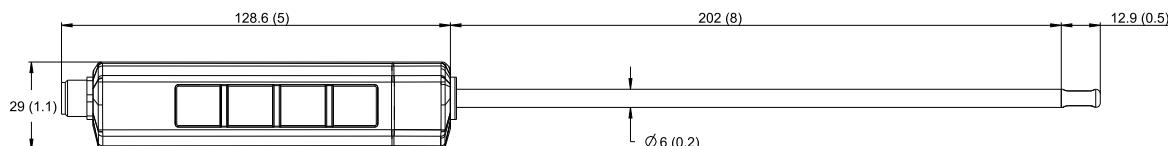
<b>Measuring range</b>	0.4...20 m/s (80...4000 ft/min) 0...+50 °C (+32...+122 °F)	
<b>v accuracy</b>	±(0.2 m/s (40 ft/min) + 3 % of mv)	mv = measured value
<b>T accuracy</b>	±1 °C (±1.8 °F) (0...+50 °C (+32...+122 °F))	
<b>v response time <math>\tau_{90}</math></b>	≤1.5 s	
<b>Temperature range (Probe handle)</b>	0...+50 °C (+32...+122 °F)	
<b>Operation Storage</b>	-20...+60 °C (-4...+140 °F)	
<b>Probe handle</b>	<b>Enclosure material</b>	ABS (Acrylnitril-Butadien-Styrol)
	<b>Side protection material</b>	TPU (Thermoplastisches Polyurethan)
	<b>Protection rating</b>	IP40
<b>Probe</b>	<b>Material</b>	PC (Polycarbonate)
<b>Electromagnetic compatibility</b>	EN 61326-1:2013	EN 61326-2-3:2013
<b>Conformity</b>		

# AVP301H

Air Velocity and Temperature Hand-Held Probe up to 20 m/s (4 000 ft/min)

## Dimensions

Values in mm (inch)



## Technical Data

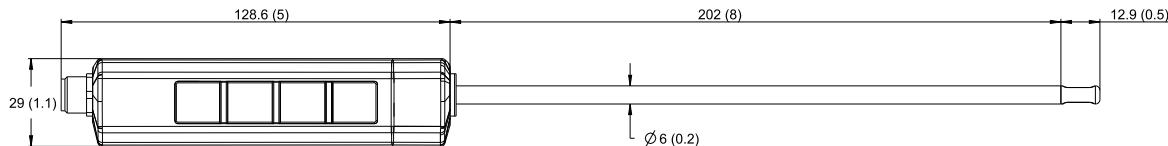
<b>Measuring range</b>	0.4...20 m/s (80...4 000 ft/min) -20...+70 °C (-4...+158 °F)
<b>v accuracy</b> @ 20 °C (68 °F) and 1013 hPa (14.7 psi), 45 %RH	±(0.2 m/s (40 ft/min) + 2 % of mv) mv = measured value
<b>T accuracy</b>	±0.7 °C (±1.26 °F), v > 0.5 m/s, 0...+50 °C (+32...+122 °F)
<b>v response time <math>\tau_{90}</math></b>	≤1.5 s
<b>Temperature range (Probe handle)</b>	0...+50 °C (+32...+122 °F)
<b>Operation Storage</b>	-20...+60 °C (-4...+140 °F)
<b>Probe handle</b>	<b>Enclosure material</b> ABS (Acrylonitrile butadiene styrene) <b>Side protection material</b> TPU (Thermoplastic polyurethane) <b>Protection rating</b> IP40
<b>Probe</b>	<b>Material</b> Stainless steel 1.4404
<b>Electromagnetic compatibility</b>	EN 61326-1:2013 EN 61326-2-3:2013
<b>Conformity</b>	

# AVP401H

Air Velocity and Temperature Hand-Held Probe up to 2 m/s (400 ft/min)

## Dimensions

Values in mm (inch)



## Technische Daten

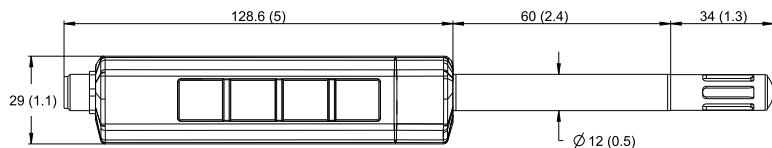
<b>Measuring range</b>	0.12...2 m/s (24...400 ft/min) -20...+70 °C (-4...+158 °F)
<b>v accuracy</b> @ 20 °C (68 °F) and 1013 hPa (14.7 psi), 45 %RH	± (0.04 m/s (8 ft/min) + 1 % of mv) mv = measured value
<b>T accuracy</b>	±1.2 °C (±2.16 °F), v = 0.2...0.5 m/s, 0...+50 °C (+32...+122 °F)
<b>v response time <math>\tau_{90}</math></b>	≤1.5 s
<b>Temperature range (Probe handle)</b>	0...+50 °C (+32...+122 °F)
<b>Operation Storage</b>	-20...+60 °C (-4...+140 °F)
<b>Probe handle</b>	<b>Enclosure material</b> ABS (Acrylonitrile butadiene styrene) <b>Side protection material</b> TPU (Thermoplastic polyurethane) <b>Protection rating</b> IP40
<b>Probe</b>	<b>Material</b> Stainless steel 1.4404
<b>Electromagnetic compatibility</b>	EN 61326-1:2013 EN 61326-2-3:2013
<b>Conformity</b>	

# HTP201H

## Humidity and Temperature Hand-Held Probe for HVAC Applications

### Dimensions

Values in mm (inch)



### Technical Data

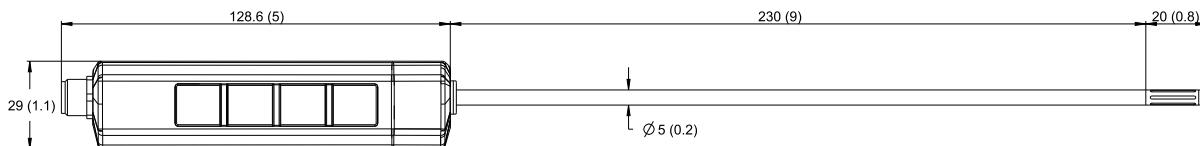
<b>Measuring range</b>	0...100 %RH -20...+70 °C (-4...+158 °F)	
<b>RH accuracy</b> @ 20 °C (68 °F)	<b>0...90 %RH</b>	±2 %RH
	<b>90...100 %RH</b>	±3 %RH
<b>T accuracy</b>	@ 20 °C (68 °F) -20...+70 °C (-4...+158 °F) max.	
	±0.2 °C (±0.36 °F) ±0.5 °C (±0.9 °F)	
<b>RH response time <math>\tau_{90}</math></b>	≤7 s	
<b>RH temperature dependency, typ.</b> <b>Probe Electronics</b>	±0.03 %RH/°C (±0.0054 %RH/°F) ±0.05 %RH/°C (±0.09 %RH/°F)	
<b>T dependency, typ.</b> <b>Electronics</b>	±0.005 °C/°C (±0.005 °F/°F)	
<b>Temperature range (Probe handle)</b> <b>Operation Storage</b>	0...+50 °C (+32...+122 °F) -20...+60 °C (-4...+140 °F)	
<b>Probe handle</b> <b>Enclosure material</b> <b>Side protection material</b> <b>Protection rating</b>	ABS (Acrylonitrile butadiene styrene) TPU (Thermoplastic polyurethane) IP40	
<b>Probe</b> <b>Material</b>	PC (Polycarbonate)	
<b>Electromagnetic compatibility</b>	EN 61326-1:2013	EN 61326-2-3:2013
<b>Conformity</b>		

# HTP401H

## Humidity and Temperature Hand-Held Probe up to 100 °C (212 °F)

### Dimensions

Values in mm (inch)



### Technical Data

<b>Measuring range</b>	0...100 %RH -40...+100 °C (-40...+212 °F)
<b>RH accuracy</b> @ 20 °C (68 °F)	0...90 %RH 90...100 %RH
<b>T accuracy</b>	@ 20 °C (68 °F) -40...+100 °C max.
<b>RH response time <math>\tau_{90}</math></b>	$\leq 15$ s
<b>RH temperature dependency, typ.</b>	<b>Probe Electronics</b>
	$\pm 0.03 \text{ %RH/}^{\circ}\text{C}$ ( $\pm 0.0054 \text{ %RH/}^{\circ}\text{F}$ ) $\pm 0.05 \text{ %RH/}^{\circ}\text{C}$ ( $\pm 0.09 \text{ %RH/}^{\circ}\text{F}$ )
<b>T dependency, typ.</b>	<b>Electronics</b>
<b>Temperature range (Probe handle)</b>	<b>Operation Storage</b>
	0...+50 °C (+32...+122 °F) -20...+60 °C (-4...+140 °F)
<b>Probe handle</b>	<b>Enclosure material</b>
	TPU (Thermoplastic polyurethane)
	IP40
<b>Side protection material</b>	
<b>Protection rating</b>	
<b>Probe</b>	<b>Material</b>
	Stainless steel 1.4301, 1.4305
<b>Electromagnetic compatibility</b>	EN 61326-1:2013      EN 61326-2-3:2013
<b>Conformity</b>	

# HTP701H

## Humidity and Temperature Hand-Held Probe up to 180 °C (356 °F)

### Dimensions

Values in mm (inch)



### Technical Data

<b>Measuring range</b>	0...100 %RH -40...+180 °C (-40...+356 °F)
<b>RH accuracy</b> @ 20 °C (68 °F)	0...90 %RH 90...100 %RH.
<b>T accuracy</b> -40...+180 °C (-40...+356 °F) max.	@ 20 °C (68 °F) ±0.2 °C (±0.36 °F) ±0.6 °C (±1.08 °F)
<b>RH response time <math>\tau_{90}</math></b>	≤30 s
<b>RH temperature dependency, typ.</b>	<b>Probe Electronics</b> ±0.03 %RH/°C (±0.0054 %RH/°F) ±0.05 %RH/°C (±0.09 %RH/°F)
<b>T dependency, typ.</b>	<b>Electronics</b> ±0.005 °C/°C (±0.005 °F/°F)
<b>Temperature range (Probe handle)</b>	<b>Operation Storage</b> 0...+50 °C (+32...+122 °F) -20...+60 °C (-4...+140 °F)
<b>Probe handle</b>	<b>Enclosure material</b> <b>Side protection material</b> <b>Protection rating</b> ABS (Acrylonitrile butadiene styrene) TPU (Thermoplastic polyurethane) IP40
<b>Probe</b>	<b>Material</b> Stainless steel 1.4404
<b>Electromagnetic compatibility</b>	EN 61326-1:2013      EN 61326-2-3:2013
<b>Conformity</b>	

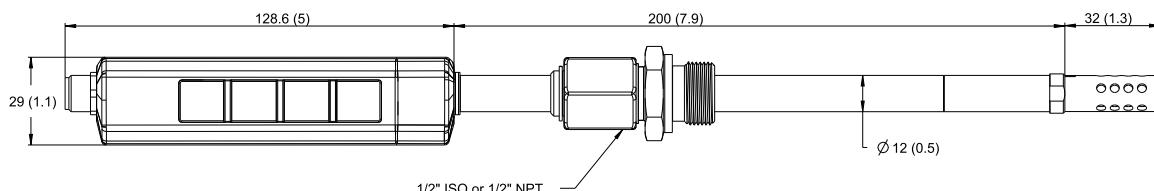
# MOP301H

**Moisture-in-oil immersion hand-held probe up to 120 °C (248 °F)**

(with G 1/2" ISO or 1/2" NPT-slide fitting)

## Dimensions

Values in mm (inch)



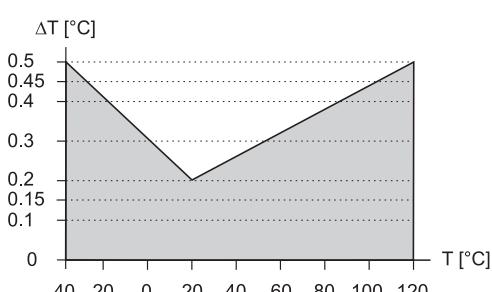
## Water activity (aw) / water content (x)

<b>Measuring range</b>	<b>max.</b>	0...1 aw 0...100 000 ppm; actual range depends on the oil type, for non-mineral transformer oil, specific solubility parameters are needed (ppm output is valid in the range 0...+100 °C (+32...+212 °F))
<b>Accuracy<sup>1)</sup> (without hysteresis) @ 20 °C (68 °F)</b>	<b>(0...0.9 aw) (0.9...1 aw)</b>	±0.02 aw ±0.03 aw
<b>Aw temperature dependency, typ.</b>	<b>Probe Electronics</b>	<±0.0003 [-]/°C (<±0.00017 [-]/°F) <±0.0005 [-]/°C (<±0.00028 [-]/°F)
<b>Response time <math>\tau_{90}</math>, typ.</b> @ 20 °C (68 °F) in still oil		10 min.
<b>Resolution</b>		0.001 aw

1) Traceable to international standards, administrated by NIST, PTB, BEV...

The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation). The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

## Temperature (T)

<b>Measuring range</b>	-40...+120 °C (-40...+248 °F)	
<b>Accuracy<sup>1)</sup></b>		
<b>T dependency, typ.</b>	<b>Electronics</b>	<±0.005 °C/°C (<±0.005 °F/°F)
<b>Resolution</b>		0.1 °C (32.18 °F)

1) Traceable to international standards, administrated by NIST, PTB, BEV...

The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation).

The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

# MOP301H

**Moisture-in-oil immersion hand-held probe up to 120 °C (248 °F)**

(with G 1/2" ISO or 1/2 NPT-slide fitting)

## General

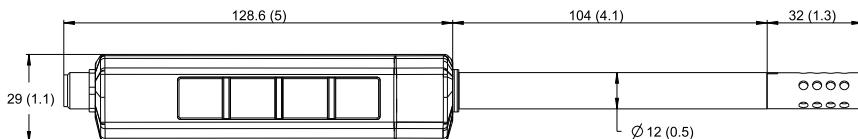
Temperature range (Probe handle)	Operation Storage	0...+50 °C (+32...+122 °F) -20...+60 °C (-4...+140 °F)
Pressure rating		0.01...20 bar (0.15...290 psi)
Probe handle	Enclosure Material	ABS (Acrylonitrile butadiene styrene)
	Side protection material	TPU (Thermoplastic polyurethane)
	Protection rating	IP40
Probe	Material	Stainless steel 1.4404

# MOP302H

**Short moisture-in-oil hand-held probe up to 120 °C (248 °F)**

## Dimensions

Values in mm (inch)



## Water activity (aw) / water content (x)

<b>Measuring range</b>	<b>max.</b>	0...1 aw 0...100 000 ppm; actual range depends on the oil type, for non-mineral transformer oil, specific solubility parameters are needed (ppm output is valid in the range 0...100 °C (32...212 °F))
<b>Accuracy<sup>1)</sup> (without hysteresis)</b> @ 20 °C (68 °F)	(0...0.9 aw) (0.9...1 aw)	±0.02 aw ±0.03 aw
<b>Aw temperature dependency, typ.</b>	<b>Probe Electronics</b>	<±0.0003 [-]/°C (<±0.00017 [-]/°F) <±0.0005 [-]/°C (<±0.00028 [-]/°F)
<b>Response time <math>\tau_{90}</math>, typ.</b> @ 20 °C (68 °F) in still oil		10 min.
<b>Resolution</b>		0.001 aw

1) Traceable to international standards, administrated by NIST, PTB, BEV...

The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation). The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

## Temperature (T)

<b>Measuring range</b>	-40...+120 °C (-40...+248 °F)	
<b>Accuracy<sup>1)</sup></b>		
<b>T dependency, typ.</b>	<b>Electronics</b>	<±0.005 °C/°C (<±0.005 °F/°F)
<b>Resolution</b>		0.1 °C (32.18 °F)

1) Traceable to international standards, administrated by NIST, PTB, BEV...

The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation). The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

<b>Temperature range (Probe handle)</b>	<b>Operation Storage</b>	0...+50 °C (+32...+122 °F) -20...+60 °C (-4...+140 °F)
<b>Probe handle</b>	<b>Enclosure Material</b> <b>Side protection material</b> <b>Protection rating</b>	ABS (Acrylonitrile butadiene styrene) TPU (Thermoplastic polyurethane) IP40
<b>Probe</b>	<b>Material</b>	Stainless steel 1.4404

# Process Probes

The Omniport 40 compatible process probes open up a wide range of industrial applications beyond the scope of the hand-held probes. Depending on their type and measurand, the process probes can be used for portable on-spot measurement or can be installed in the process. The process probes can be connected to the Omniport 40 with the cable HA040908.



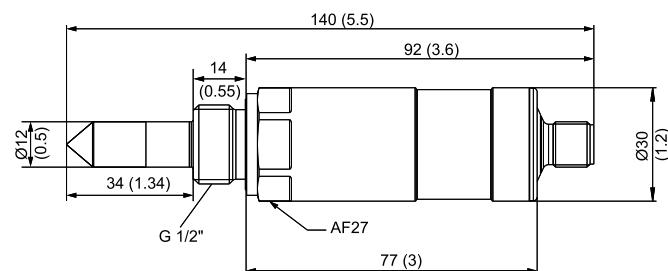
Process probes

- EE671 - Air Velocity Probe: [www.epluse.com/ee671](http://www.epluse.com/ee671).
- EE680 - Air Velocity and Temperature Probe for Laminar Flow: [www.epluse.com/ee680](http://www.epluse.com/ee680).
- EE872 - Modular Probe for CO<sub>2</sub>, Humidity, Temperature and Ambient Pressure: [www.epluse.com/ee872](http://www.epluse.com/ee872).
- TDS401H - Dew Point Sensor down to -60 °C (-76 °F): refer to the Omniport 40 Manual [www.eplus.com/omniport40](http://www.eplus.com/omniport40).
- EE072 - Humidity and Temperature Probe: [www.epluse.com/ee072](http://www.epluse.com/ee072).
- HTP501 - Humidity and Temperature Probe up to 120 °C (248 °F): [www.epluse.com/htp501](http://www.epluse.com/htp501).
- MOP301 - Digital Moisture in Oil Probe up to 120 °C (248 °F): [www.epluse.com/mop301](http://www.epluse.com/mop301).
- EE074 - Temperature Probe: [www.epluse.com/ee074](http://www.epluse.com/ee074).

## TDS401H - Dew Point Sensor down to -60°C (-76 °F)

### Dimensions

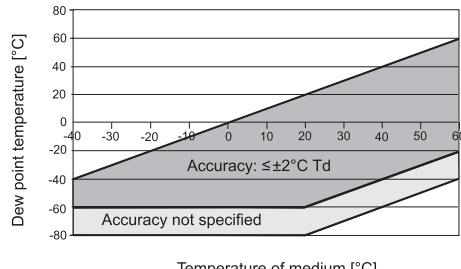
Values in mm (inch)



# TDS401H

Dew Point Sensor down to -60 °C (-76 °F)

## Dew Point Temperature (Td)

<b>Measuring range</b>	-60...60 °C Td (-76...140 °F Td)
<b>Accuracy<sup>1)</sup></b>	
<b>Response time <math>\tau_{90}</math><sup>2)</sup></b>	< 5 min for step -5 °C Td (+23 °F Td) → -50 °C Td (-58 °F Td) < 20 s for step -50 °C Td (-58 °F Td) → -5 °C Td (-23 °F Td)

1) Traceable to international standards, administrated by NIST, PTB, BEV,...

The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation). The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

2) For the response time after each power-on of the sensor, see Omniport 40 User Manual, chapter TDS401H.

## Volume Concentration (Wv)

<b>Measuring range</b> @ 1013 mbar (14.7 psi)	20...200 000 ppm
<b>Accuracy</b> @ 20 °C (68 °F) and 1013 mbar (14.7 psi)	±(5 ppm + 9 % from measured value)

<b>Power supply</b> class III  USA & Canada: Class 2 supply necessary	18 - 28 V DC
<b>Current consumption</b> @ 24 V DC	<20 mA + load current during normal measurement 100 mA + load current during auto-calibration
<b>Electrical connection</b>	M12x1, 4 poles, stainless steel 1.4404, Connection cable for Omniport 40 and process probe (HA040908) required
<b>Filter</b>	Stainless steel sintered
<b>Pressure working range</b>	0...80 bar (0...1160 psi)
<b>Humidity working range</b>	0...100 %RH
<b>Temperature working range</b>	-40...+70 °C (-40...+158 °F)
<b>Storage conditions</b>	-40...+60 °C (-40...+140 °F) 0...95 %RH, non-condensing
<b>Enclosure</b> <b>Material</b> <b>Protection rating</b>	Stainless steel 1.4404 (AISI 316L) IP65/NEMA 4X
<b>Electromagnetic compatibility</b>	EN 61326-1 FCC Part15 Class B EN 61326-2-3 ICES-003 Class B Industrial environment
<b>Conformity</b>	 
<b>Configuration and adjustment</b>	PCS10 Product Configuration Software (free download from <a href="http://www.epluse.com/pcs10">www.epluse.com/pcs10</a> ) and Modbus configuration adapter (HA011018) or via Omniport 40
<b>Inspection certificate</b>	According to DIN EN 10204-3.1

# Ordering Guide

## Position 1 - Omniport 40

Feature	Description	Code
Type		Hand-held probe   Process probe
	Hand-held meter without probe	OMNIPORT40-T30

## Position 2 - Probes

<b>Humidity / Temperature</b>	Humidity and temperature hand-held probe for HVAC applications	HTP201H	
	Humidity and temperature hand-held probe up to 100 °C (212 °F)	HTP401H	
	Humidity and temperature hand-held probe up to 180 °C (356 °F)	HTP701H	
	Humidity and temperature probe		EE072. <sup>1)</sup>
	Humidity and temperature probe up to 120 °C (248 °F)		HTP501. <sup>1)</sup>
<b>Temperature</b>	Temperature probe		EE074. <sup>1)</sup>
<b>Air Velocity</b>	Air velocity and temperature hand-held probe for HVAC applications	AVP201H	
	Air velocity and temperature hand-held probe up to 20 m/s (4 000 ft/min)	AVP301H	
	Air velocity and temperature hand-held probe up to 2 m/s (400 ft/min)	AVP401H	
	Air velocity probe		EE671. <sup>1)</sup>
	Air velocity and temperature probe for laminar flow		EE680. <sup>1)</sup>
<b>Dew point temperature</b>	Dew point sensor down to -60°C (-76 °F)		TDS401H-PA1
<b>CO<sub>2</sub></b>	Modular probe for CO <sub>2</sub> , humidity, temperature and ambient pressure		EE872. <sup>1)</sup>
<b>Moisture-in-oil</b>	Moisture-in-oil immersion hand-held probe up to 120 °C (248 °F) G 1/2" ISO slide fitting	MOP301H-T10PA23	
	Moisture-in-oil immersion hand-held probe up to 120 °C (248 °F) 1/2" NPT slide fitting	MOP301H-T10PA25	
	Short moisture-in-oil hand-held probe up to 120 °C (248 °F)	MOP302H-T7	
	Digital moisture in oil probe up to 120 °C (248°F)		MOP301. <sup>1)</sup>

1) For the order code refer to the corresponding datasheets.

## Position 3 - Cable

<b>Connection cable for hand-held probe (unshielded)</b>	2 m (6.6 ft)	HA010813	
<b>Connection cable for process probe</b>	1 m (3.28 ft)		HA040908

## Position 4 - Carrying Case

<b>Carrying Case</b>	For Omniport 40, hand-held probes, process probes and accessories	HA040909
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# Order Example

## Hand-Held Probe

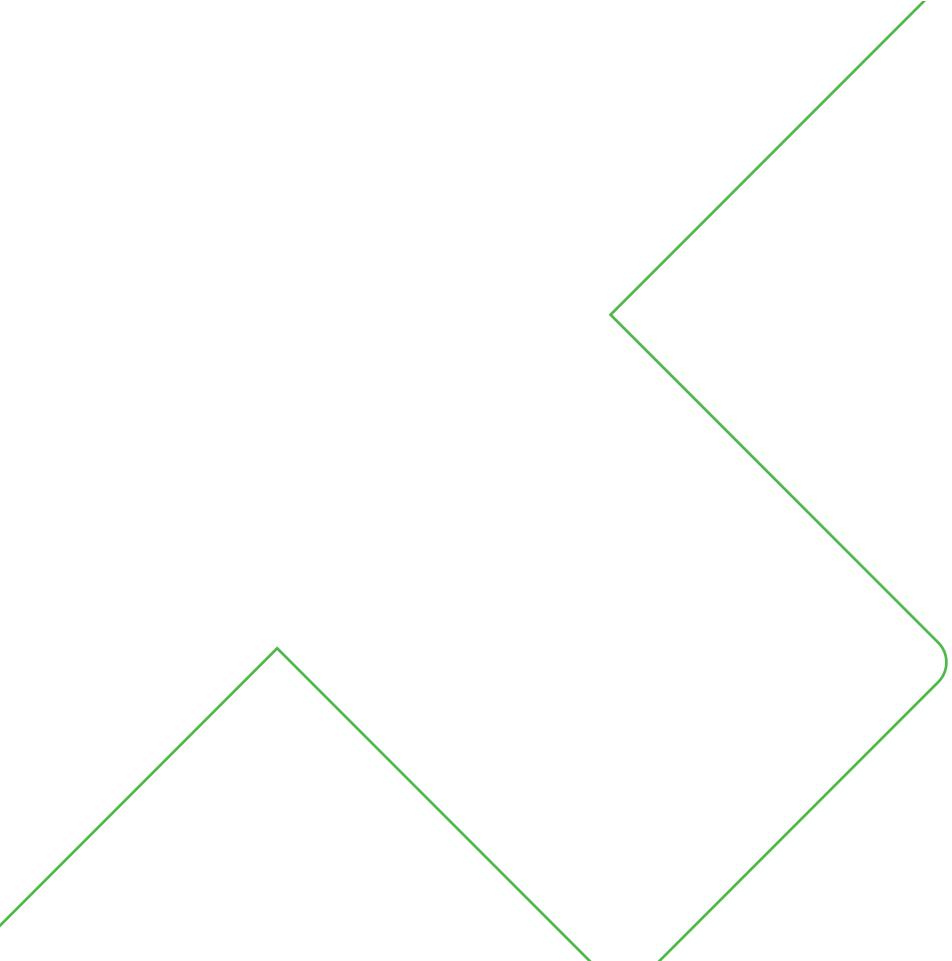
Feature	Code	Description
<b>Position 1</b>	<b>OMNIPORT40-T30</b>	Hand-held meter Omniport 40 without probe
<b>Position 2</b>	<b>HTP201H AVP401H</b>	Humidity and temperature hand-held probe for HVAC applications Air velocity and temperature hand-held probe up to 2 m/s (400 ft/min)
<b>Position 3</b>	<b>HA010813</b>	Connection cable for hand-held probe, unshielded, 2 m (6.6 ft)
<b>Position 4</b>	<b>HA040909</b>	Carrying Case for Omniport 40, hand-held probes, process probes and accessories

# Accessories

For further information please refer to the [Accessories](#) datasheet.

Description	Code
Carrying Case for Omniport 40, Hand-held probes, process probes and accessories	<a href="#">HA040909</a>
Membrane filter (for Ø12 mm (0.47") RH/T probes), Polycarbonate Body Metal grid filter (for Ø12 mm (0.47") RH/T probes), Polycarbonate Body Stainless steel sintered filter (for Ø12 mm (0.47") RH/T probes)	<a href="#">HA010101</a> <a href="#">HA010106</a> <a href="#">HA010117</a>
Connection cable for hand-held probe, unshielded, 2 m (6.6 ft)	<a href="#">HA010813</a>
Connection cable for Omniport 40 and process probe 1 m (3.28 ft)	<a href="#">HA040908</a>
Humidity standards / Calibration device	Refer to data sheet <a href="#">Humidity Calibration Kit</a>
Configuration software	<b>PCS10 Product Configuration Software</b> Free download from <a href="http://www.epluse.com/pcs10">www.epluse.com/pcs10</a>
Ball valve G 1/2" ISO	<a href="#">HA050101<sup>1)</sup></a>
Ball valve 1/2" NPT	<a href="#">HA050104<sup>1)</sup></a>

1) Suitable for MOP301H - Moisture-in-oil immersion hand-held probe up to 120 °C (248 °F)



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