ANEXO 4

ESPECIFICACIONES TÉCNICAS DE LOS INSTRUMENTOS

Anemometer Thies First Class Advanced II S11101 / S11101H

Classified acc. to IEC 61400-12-1 Edition 2.0 (2017-03)

Optically-scanned cup anemometer

Thies First Class Advanced gives outstanding performance. The sensor has been classified acc. to IEC 61400-12-1 Edition 2.0. It gives optimal dynamic performance with the following characteristics:

- High accuracy
- Minimal deviation from cosine line
- Excellent behaviour to turbulences
- Minimum overspeeding
- Small distance constant
- Low start up value
- Low power consumption
- Digital output

The sensor is designed for measuring the horizontal wind velocity in the field of meteorology, climate research, site assessment, and the measurement of capacity characteristics of wind power systems (power curves). The patented design is the result of long testing in the wind tunnel. The sensor features dynamic behaviour also at high turbulence intensity, minimal overspeeding, and a low starting values. It requires only low maintenance thanks to its low-inertia and ball-bearing cup star. The anemometer is equipped with electronically regulated heating to guarantee smooth running of the ball bearings and prevent icing of shaft and slot during winter operation.

Calibration

Wind speed is determined by the linear function of the frequency output f:

wind speed [m/s] = slope [m] × f [Hz] + offset [m/s] (Manufacturer instructions: Slope = 0.0462 m, Offset = 0.21 m/s)

For wind resource assessment, anemometers have to be calibrated acc. to MEASNET. We recommend calibrating anemometers in the wind tunnel of Ammonit Wind Tunnel GmbH (ammonit-windtunnel.com).

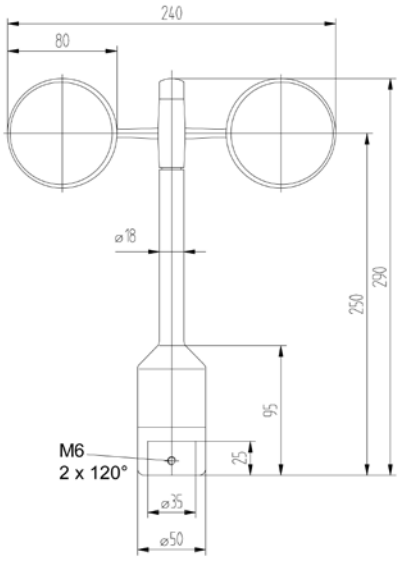
Classification acc. to IEC 61400-12-1 Edition 2.0 (2017-03)

The driving and braking forces used in the numerical model have been derived from the measured step response of the tested anemometer according to IEC 61400-12-1 Edition 2.0. The direct influence of air density was measured using a specially designed variable air density wind tunnel, instead of calculating the influence of air density by using torque measurements.

	Class A	Class B	Class C	Class D
Heating ON	1.8	2.0	1.8	2.0
Heating OFF	2.3	2.7	4.4	4.6

Source: Summary report AK 151023-1.2 Cup Anemometer Classification, Deutsche WindGuard Tunnel Services GmbH, Varel, Germany, 2017.

Dimensional drawing



Operational standard uncertainty acc. to IEC 1400-12-1

The operational standard uncertainty describes the maximum deviation of the wind speed measured by the anemometer compared with the real wind speed. The table indicates the operational standard uncertainty at 10 m/s:

	Class A	Class B	Class C	Class D
Heating ON	0.10 m/s	0.12 m/s	0.10 m/s	0.12 m/s
Heating OFF	0.13 m/s	0.16 m/s	0.25 m/s	0.27 m/s

Linearity (MEASNET)

The MEASNET required linearity for anemometers is r > 0.999 95.
The Thies First Class Advanced II offers r > 0.999 99 (4 ... 20 m/s).

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Specification

Characteristics	
Physical functionality	Optically-scanned cup anemometer
Delivered signal	Frequency output (pulse)
Accuracy	
Accuracy	0.3 ... 50 m/s 1% of meas. value or < 0.2 m/s
Linearity	Correlation factor *r* between frequency *f* and wind speed *y* y = 0.0462 × f + 0.21 typical r > 0.999 99 (4 ... 20 m/s)
Starting velocity	< 0.3 m/s
Resolution	0.05 m wind run
Distance constant	< 3 m (acc. to ASTM D 5096 - 96) 3 m acc. to ISO 17713-1
Turbulent flow	Deviation Δv turbulent compared with stationary horizontal flow -0.5 % < Δv < +2 % Frequency < 2 Hz
Inclined flow - mean deviation from cosinus line - Turbulence effect	 < 0.1 % (in range of ±20°) < 1 % (in the range up to 30% turbulence intensity)
Wind load	Approx. 100 N @ 75 m/s
Operating range	
Measuring range	0.3 ... 75 m/s
Survival speed	80 m/s (mind. 30 min)
Permissible ambient conditions	-50 ... +80 °C, all occuring situations of relative humidity
Electrical data	
Output signal	Form rectangle, 1082 Hz @ 50 m/s, supply voltage max. 15 V
Electrical supply for optoelec. scanning	Voltage: 3.3 ... 48 VDC (galvanic isolation from housing) Current: 0.3 mA @ 3.3 V (w/o external load) < 0.5 mA @ 5 V (w/o external load)
Electrical supply for heating*	Voltage: 24 V AC/DC (galvanic isolation from housing) Idling voltage: max. 30 V AC, max. 48 VDC Power consumption: 25 W
General	
Connection	8-pole plug-connection for shielded cable in the shaft
Mounting	on mast tube R1"
Dimensions	290 x 240 mm
Fixing boring	35 x 25 mm
Weight	approx. 0.5 kg
Material Housing Cup star	Anodised aluminiun Carbon-fibre-reinforced plastic
Type of bearings	Metallic ball bearings
Protection	IP 55 (DIN 40050)
Patent	EP 1 398 637 DE 103 27 632 EP 1 489 427
EMC	EN 61000-6-2:2001 (immunity) EN 55022:2001, Class B (interfering transmission)
Manufacturer	Thies

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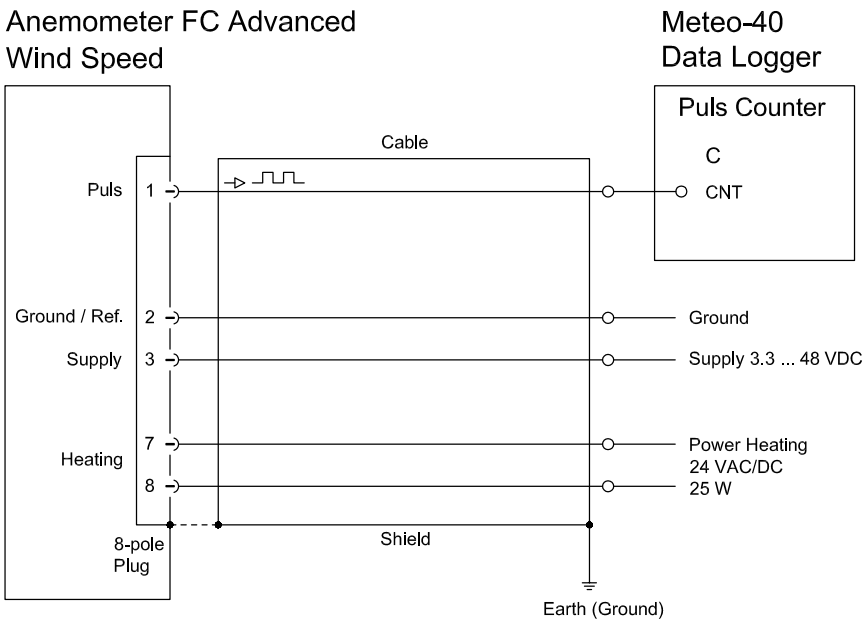
Sensor connection to Ammonit Meteo-40 data logger

Sensor	Plug Pin No.	Ammonit Cable Wire Colour	Meteo-40 Counter	Supply Sensor
Wind speed Pulse output	1	white	CNT	
Supply	3	red		9 ... 36 V*
Ground	2	black		Main Ground
Heating	7	orange, orange		24 V AC/DC
	8	violet, violet		

* Supply voltage for usage with Meteo-40 data loggers.

Cable type without heating: LiYCY 3 x 0.25 mm²
Cable type with heating wires: LiYCY 7 x 0.25 mm²

Sensor connection diagram to Ammonit Meteo-40 data logger



Connection recommendations for the cable shield

Sensor carrier	Sensor	Shielding / Ground
Metallic met mast, grounded	**Non-isolated** mounting on the met mast (e.g. by using metallic brackets, holders, etc.)	Connect cable shield **only** at the side of the data logger to ground.
Metallic met mast, grounded	**Isolated** mounting at the met mast (e.g. by using non-metallic brackets, holder etc. or metallic brackets, holders etc. with isolated plastic adapters)	Connect cable shield at sensor plug **and** at the side of the data logger to ground.
Metallic met mast, non-grounded	**Non-isolated** mounting on the met mast (e.g. by using metallic brackets, holders etc.)	

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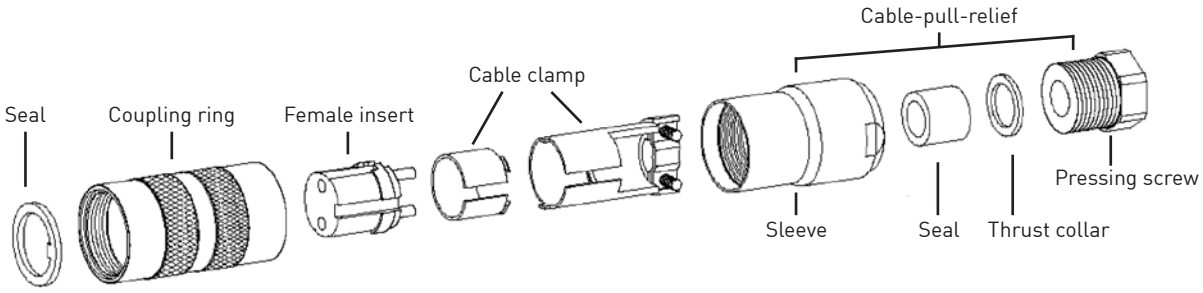
Plug and cable assembly

Coupling socket, Type: Binder, Serial 423, EMC with cable clamp



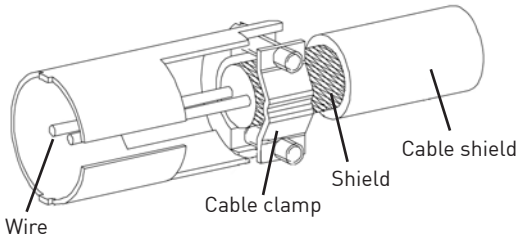
Cable connection: WITH cable shield

1. Stringing parts on cable acc. to plan given above.
2. Stripping cable sheath 20 mm
   Cutting uncovered shield 15 mm
   Stripping wire 5 mm

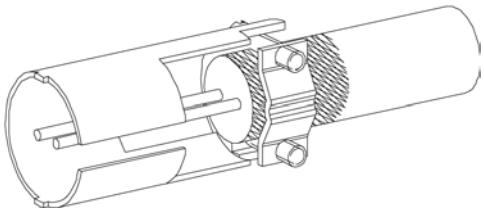
   A) Putting shrink hose or insolation tape between wire and shield

   B) If cable diameter permits, put the shield backward on the cable sheath.
3. Soldering wire to the insert, positioning shield in cable clamp.
4. Screwing-on cable clamp.
5. Assembling remaining parts acc. to plan above.
6. Tightening pull-relief of cable by screw-wrench (SW16 and 17).

A)

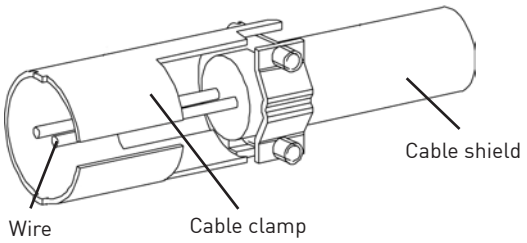


B)



Cable connection: WITHOUT cable shield

1. Stringing parts on cable acc. to plan given above.
2. Stringing cable sheath 20 mm
3. Cutting uncovered shield 20 mm
4. Stripping wire 5 mm
5. Soldering wire to the insert.
6. Positioning shield in cable clamp.
7. Screwing-on cable clamp.
8. Assembling remaining parts acc. to plan above.
9. Tightening pull-relief of cable by screw-wrench (SW 16 and 17).



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Abstract: Summary of cup anemometer classification

Acc. to IEC 61400-12-1 Edition 2.0 [2017-03] Classification Scheme

Reference:
Deutsche WindGuard Wind Tunnel Services GmbH AK 151023-1.2
Measuring period: 04.2014 - 05.2017
Test site: Varel, Germany
Wind Tunnel: Deutsche WindGuard Wind Tunnel Services GmbH, Varel

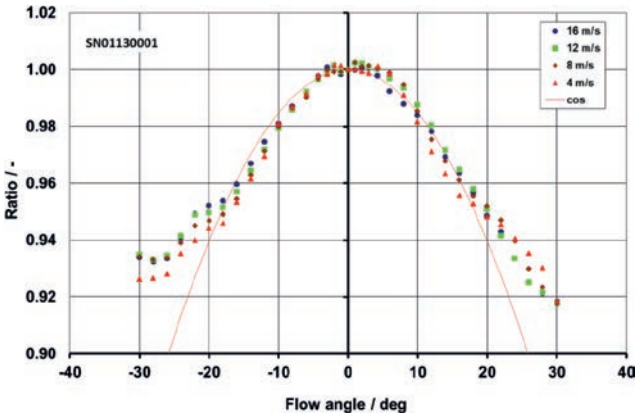
Tilt Angular Response

According to:

- *IEC 61400-12-1 Edition 2.0*
  Wind Turbine Power Performance Testing 2017-03
- *WindGuard Quality System Procedure for Calibration of Wind Speed Sensors at non-horizontal inflow conditions: D 5832*

Result:

Figure showing the of axis response of Thies First Class Advanced anemometer for wind tunnel speeds of 4 m/s, 8 m/s, 12 m/s and 16 m/s.



Class A Classification

According to:

- *IEC 61400-12-1 Edition 2.0*
  Wind Turbine Power Performance Testing 2017-03

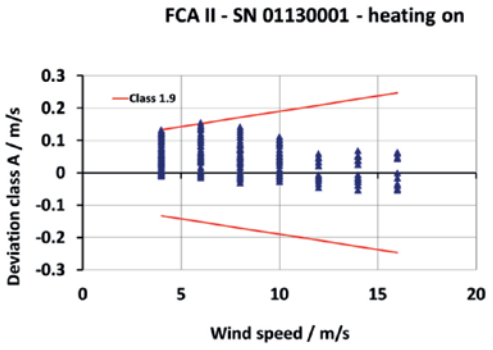
Influence parameter range:

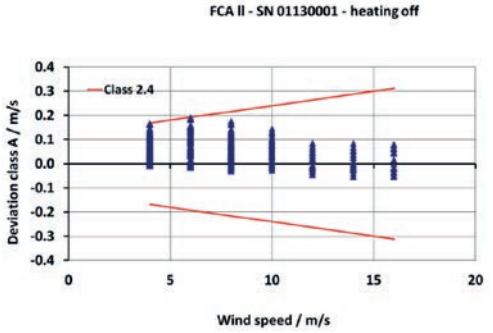
Wind speed range:	V = 4 ... 16 m/s
Turbulence intensity range:	0.03 - 0.12+0.48/V
Turbulence structure:	1.0/0.8/0.5
Air temperature:	0 ... +40 °C
Air density:	0.9 ... 1.35 kg/m³
Flow angle:	-3° ... 3°
Wind simulation:	Kaimal wind spectrum with longitudinal turbulence length scale of 350m

Result:

Classification Index: **A 1.8** (Internal shaft heating: ON)
Classification Index: **A 2.3** (Internal shaft heating: OFF)

Source: Summary of Cup Anemometer Classification, Adolf Thies GmbH & Co.KG, Deutsche WindGuard Tunnel Services GmbH, Varel, 2017.





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Wind Vane Thies First Class TMR — S21110 / S21110H

- New and improved version of First Class wind vane
- High level of measuring accuracy (0.5°) and resolution (0.35°)
- Output: 10-bit serial-synchronous (compatible with Ammonit Meteo-40 data loggers)
- Measurement range 0 ... 360°
- Low current consumption (3.3V @ 1.4 mA)

Description

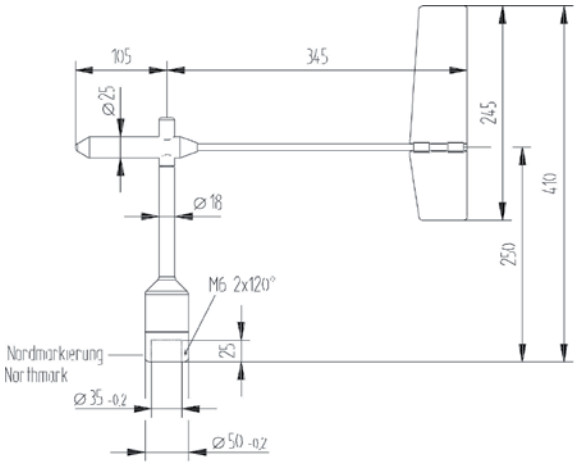
The wind vane serves for the detection of the horizontal wind direction in the field of meteorology and environmental protection. The axis of the wind vane is running in ball bearings and carries a diametrically magnetized magnet at the inner end. The angle position of the axis is scanned contact-free by a magnetic angle sensor (TMR-Sensor, Tunnel Magneto Resistance) through the position of the magnet field. As the sensor is operated the magnetic saturation, effects by external magnetic fields can almost be eliminated. The connected electronics calculated the angle position of the axis and provides the respective serial-synchronous output signal.

Benefits of Thies TMR wind vanes

Thies TMR wind vanes have a clear advantage towards potentiometer wind vanes in terms of accuracy and reliability.

Wind vane	Accuracy
Thies First Class TMR	± 0.75°
Thies First Class Potentiometer	± 1°

Dimensional drawing



Additionally TMR wind vanes do not have a north gap and thanks to their solid state design they are subject to less mechanical wear that potentiometer wind vanes. TMR wind vanes do not have moving parts, except the bearings.

Mounting

Mount the wind vane onto a pipe socket of 1" (Ø 33.4 mm) and a length of at least 25 mm. The pipe socket must have an inner diameter of at least 25 mm depending on the plug. The wind vane is connected electrically with a plug. Set the sensor onto the pipe socket, and fix it on the mast or tube (2x M6 Allen head screws, female hexagon).

To avoid damage due to lightning, a protection rod, adapters of POM for isolated mounting and proper grounding of all metal parts is recommended.

Refer to the next page for connection recommendations for the cable shield.

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Specifications

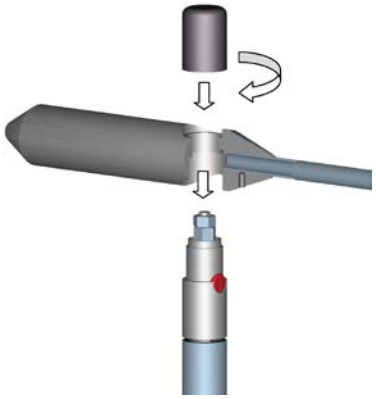
Characteristic	Description / Value
Measurement principle	Magnetic
Measurement range	0 ... 360°
Accuracy	± 0.75°
Resolution	0.35°
Survival speed	max. 85 m/s, 30 min
Starting threshold	< 0.5 m/s at 10° amplitude (acc. to ASTM D 5366-96) < 0.2 m/s at 90° amplitude (acc. to VDI 3786 Part 2)
Delay distance	< 1.8 m (acc. to ASTM D 5366-96)
Damping ratio	D > 0.3 (acc. to ASTM D 5366-96)
Quality factor	K > 1
Output	10-bit serial-synchronous (compatible with Ammonit Meteo-40 data loggers)
Operating voltage	3.3 ... 42 VDC
Operating voltage heating	24 V DC/AC, 45 ... 65 Hz (galvanically isolated from housing), max. 25 W
Ambient temperature	-50 ... +80 °C
Connection	8-pole plug connection for shielded cable in the shaft
Mounting	Mounting on mast 1" (DIN EN 10255; 1"= Ø 33.4 mm) 1 ½" with separate adapter (optional)
Material	Aluminum
Type of ball bearings	Metallic ball bearings
Weight	approx. 0.7 kg
Protection	IP 55
Manufacturer	Thies

Wind vane assembly

Before the sensor can be installed at its selected site, it has to be assembled.

Tools are not required!

1. Remove the wind vane housing from the packaging
2. Remove cap by counter-clockwise rotation.
3. Remove wind vane from packaging.
4. Assemble the wind vane on the housing as shown in the picture.
5. Wind vane rotate until it falls into the guide.
6. Put the cap on the thread, and tighten it manually by strong clockwise rotation.
   Do not use tools!



Remark
The wiring has to be prepared in a way that plug and cable will be pushed through the instrument carrier, mast, traverse etc. and can be connected to the sensor at mechanical mounting.

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Connection recommendations for the cable shield

Sensor carrier	Sensor	Shielding / Ground
Metallic met mast, grounded	**Non-isolated** mounting on the met mast (e.g. by using metallic brackets, holders, etc.)	Connect cable shield **only** at the side of the data logger to ground.
Metallic met mast, grounded	**Isolated** mounting at the met mast (e.g. by using non-metallic brackets, holder etc. or metallic brackets, holders etc. with isolated plastic adapters)	Connect cable shield at sensor plug **and** at the side of the data logger to ground.
Metallic met mast, non-grounded (not recommended by Ammonit)	**Non-isolated** mounting on the met mast (e.g. by using metallic brackets, holders etc.)	

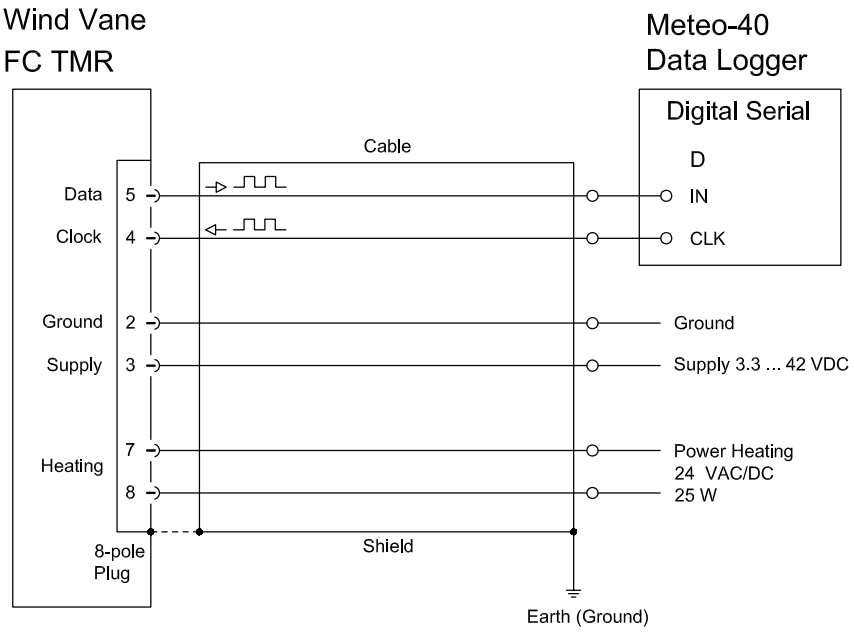
Sensor connection to Ammonit Meteo-40 data logger

Sensor	Plug Pin No.	Ammonit Cable Wire Colour	Meteo-40 Digital	Supply Sensor
Wind Direction Data	5	white	IN	
Clock	4	blue	CLK	
Supply	3	red		9 ... 36 V*
Ground	2	black		Main Ground
Heating	7	orange, orange		24 V AC/DC
	8	violet, violet		

* Supply voltage for usage with Meteo-40 data loggers.

Cable type without heating: LiYCY 4 x 0.25 mm²
Cable type with heating wires: LiYCY 8 x 0.25 mm²

Sensor connection diagram to Ammonit Meteo-40 data logger



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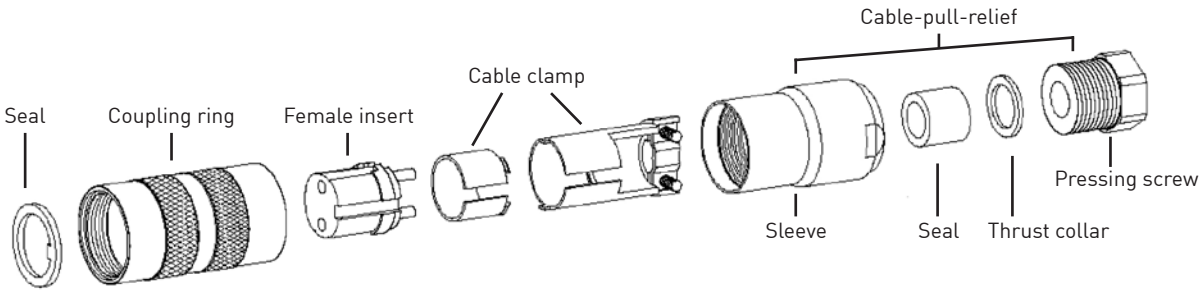
Plug and cable assembly

Coupling socket, Type: Binder, Serial 423, EMC with cable clamp



Cable connection: WITH cable shield

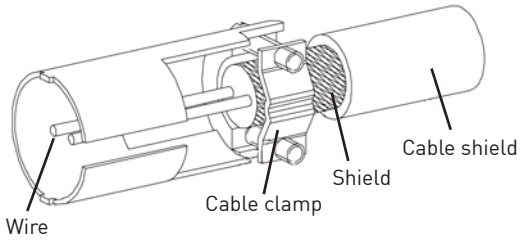
1. Stringing parts on cable acc. to plan given above.
2. Stripping cable sheath 20 mm
   Cutting uncovered shield 15 mm
   Stripping wire 5 mm

   A) Putting shrink hose or insolation tape between wire and shield

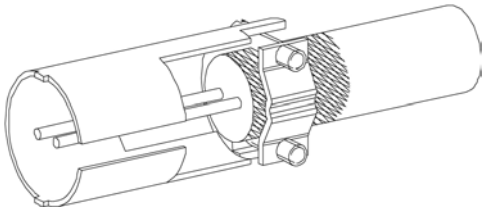
   B) If cable diameter permits, put the shield backward on the cable sheath.

3. Soldering wire to the insert, positioning shield in cable clamp.
4. Screwing-on cable clamp.
5. Assembling remaining parts acc. to plan above.
6. Tightening pull-relief of cable by screw-wrench (SW16 and 17).

A)



B)



Cable connection: WITHOUT cable shield

1. Stringing parts on cable acc. to plan given above.
2. Stringing cable sheath 20 mm
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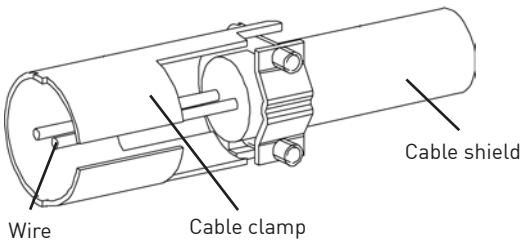

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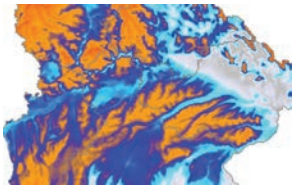
Ammonit

Wind and Solar Energy Assessment. SCADA. Power Curve Measurement.

Ammonit Meteo-40 Data Logger

Accurate. Reliable. Efficient.

Wind and Solar Maps



Wind Resource Assessment

Solar Resource Assessment

Solar Power Plant Monitoring

Wind Farm Monitoring (SCADA)

Climate Research

Site Assessment in Cold Climate

Power Curve Measurement

Benefit from latest technology

Various inputs and outputs for different measurement purposes

USB | Ethernet connection
USB-A ports for modem, wireless adapter or memory device; USB-B port for PC; Ethernet port for LAN or SCADA

Display & Keys
User-friendly menu to configure and check certain data logger settings

Analog Current
for sensors with output current

RS485 master / RS485 slave
for ultrasonic anemometers and smart sensors; SCADA applications

Analog Voltage
for barometric pressure sensors, temperature humidity sensors, pyranometers, etc.

5V | Switches
for modem and sensor heating, etc.

Pulse Counter
for anemometers, precipitation sensors, etc.

Digital / Serial / Status
for serial wind vanes (e.g., Thies TMR), precipitation monitor, ext. activation, etc.

User-friendly configuration via protected web interface

You can easily configure measurement devices and communication methods using wizards in the Meteo-40 web interface. Conveniently access the web interface in your browser via **encrypted HTTPS connection**.

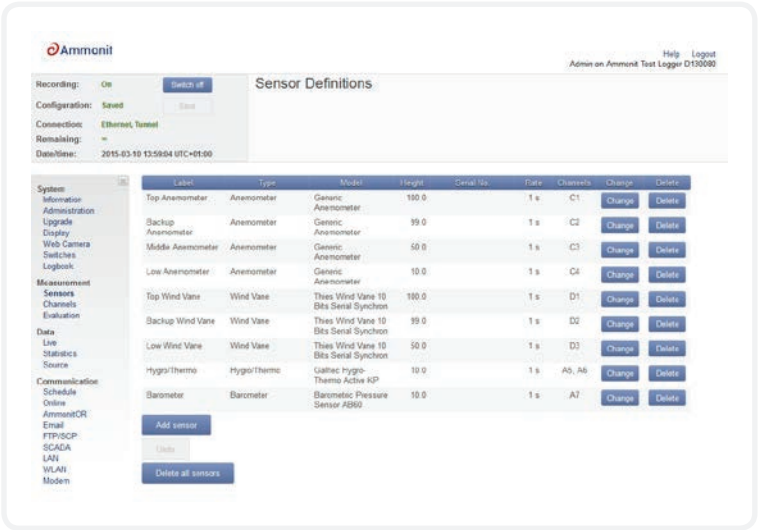
System configuration
- System administration, e.g., time
- Heating manager

Sensor library and channel overview
- Sensor configuration via wizards
- Real-time electric values

Statistics and source data
- Configuration of statistics interval
- 1-sec data list

Data transfer and online availability
- Scheduler for data transmission
- Modem configuration via wizard

SCADA integration
- Configurable Modbus register map
- Selectable statistics interval

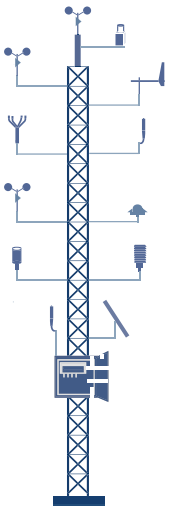


All you need for reliable and secure communication and data transfer

Various communication and data transfer options

Select your preferred communication method with Meteo-40: wired or wireless, via GSM or SAT modem, local or remote. You can choose from a range of different options for data transfer, e.g., statistics file upload to a server of your choice or sending files via e-mail.

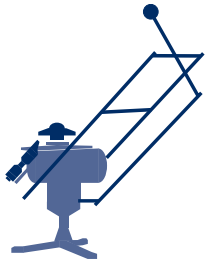
Individually decide which communication and data transfer method you prefer.



Local communication
- **LAN, link-local** or **USB**
- **Wireless** access via WiFi USB stick

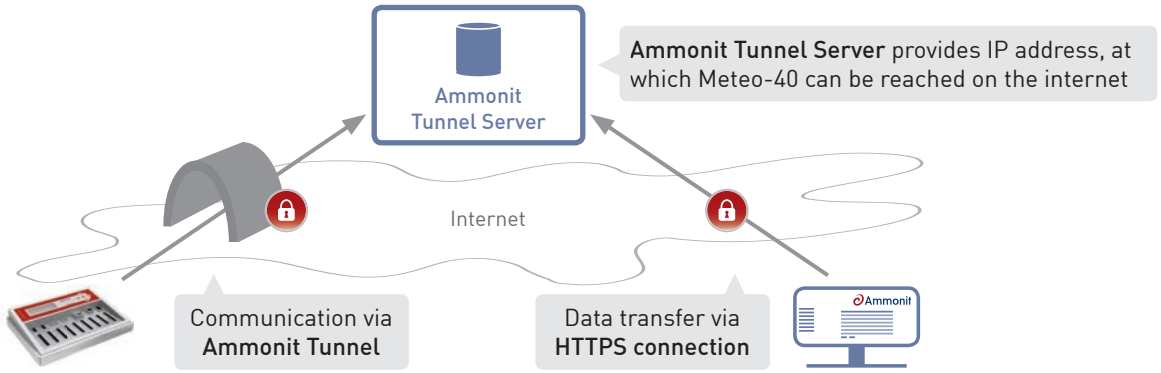
Remote communication
- **UMTS**, **GSM** or **SAT modem**
- **SMS**
- **RS485** or **Ethernet** e.g. for SCADA applications

Reliable and secure data transfer
- Data upload via **FTP / SCP** to your server
- Data upload via **SCP** to **AmmonitOR**
- **E-mail** data to your account
- Data retrieval via **Modbus TCP/IP** or **RTU**
- Data download on **USB memory stick**



Working cost-effective and secure in the field with the Ammonit tunnel server

Securely work on your Meteo-40 in the field via our **Ammonit Tunnel Server** using an **encrypted HTTPS connection**, which cannot be accessed illegally. Thus Meteo-40 automatically obtains a **unique subdomain** from the tunnel server. You can use a standard SIM card with dynamic IP address in your modem. The **tunnel server automatically manages the subdomains**. Just enter the subdomain, e.g., https://serialnumber.tunnel.ammonit.com, to access the Meteo-40 web interface. An expensive **SIM card with static IP address is not necessary**.



Ammonit Tunnel Server: Advanced technology for higher security and cost effectiveness.

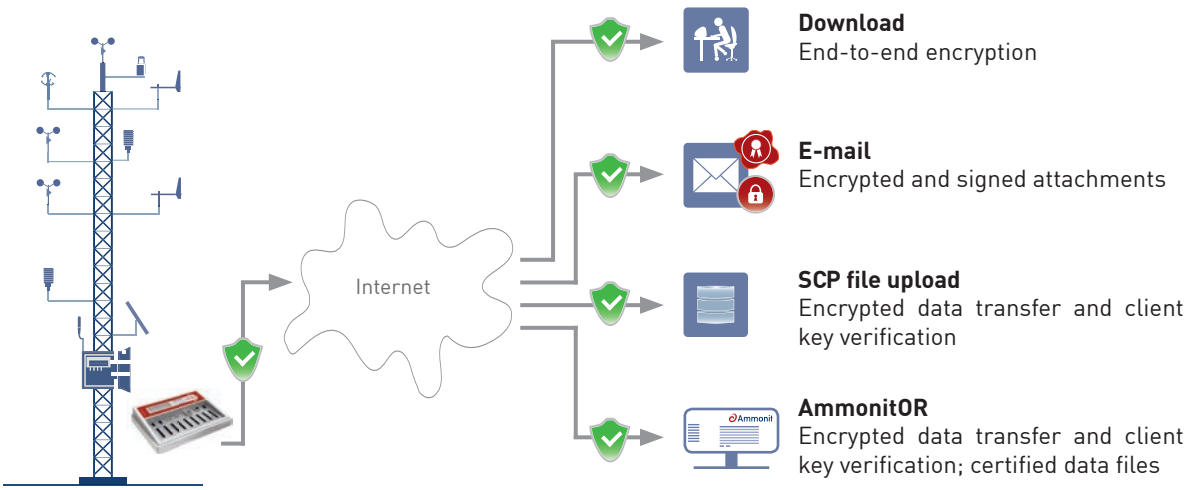
Ammonit Meteo-40 Data Logger: 100% Traceability. 100% Protection.

Ensuring data authenticity and integrity by using digital signatures and encryption

Measurement data is valuable and irreplaceable. To protect your data, we use **public key cryptography** acc. to the **OpenPGP standard** on Meteo-40 data loggers. Hence, Meteo-40 can encrypt and digitally sign data.

A valid digital signature indicates that the message was created by a known sender (authentication) and that the message was not manipulated on transit (integrity).

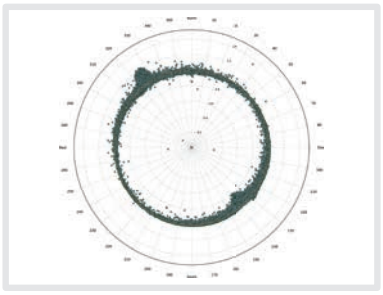
Encryption is a process of encoding information in a way that only authorized parties can read it. Only an authorized recipient can easily decrypt the message with the key provided by the originator.



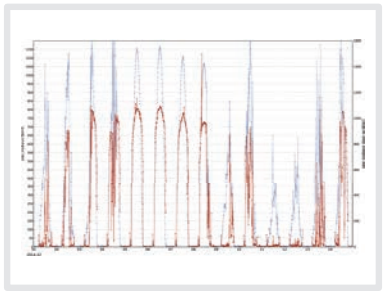
Transparency and traceability to fulfil data quality standards according to IEC, MEASNET and Germany's TR6.

AmmonitOR: Effective MEASNET-compliant campaign monitoring

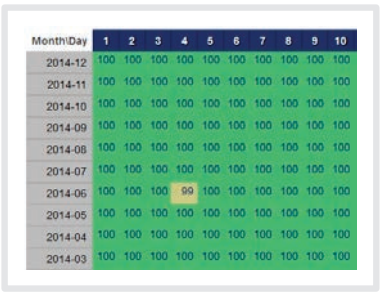
AmmonitOR (Ammonit Online Report) simplifies managing your measurement campaigns. Connect your Meteo-40 with AmmonitOR to conveniently monitor the quality of your measurement data according to the MEASNET site assessment guideline.



Shadow zone plot



XY plot



Data calender for completeness check

Your advantages

- Data verification using diagrams and curves
- Data plausibility check with customisable filters
- Data completeness check with calendar
- Campaign documentation in PDF reports
- Efficient problem detection
- Configurable alert messages, e.g., low power supply
- Configurable data exports for further data processing
- Certified data files and encrypted data transfer

Effective monitoring of measurement systems - 24/7 wherever you are.

Ammonit

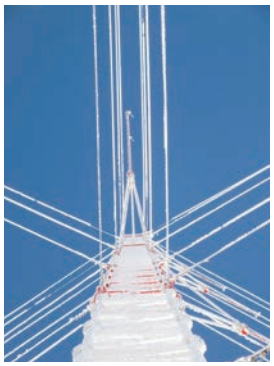
Ammonit measurement systems perform reliably around the world

Benefit from full-service packages provided by our global partner network


Wind energy assessment in Kenya


Solar measurement station in Brazil


Solar energy assessment in Turkey

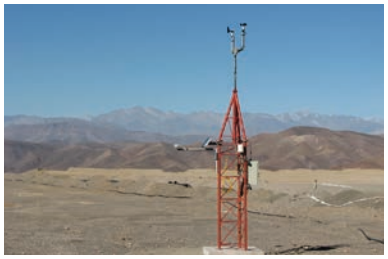

Wind measurement in Bulgaria


Wind measurement in Austria

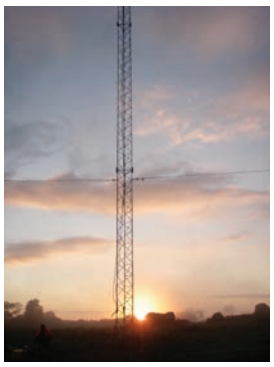

Wind farm monitoring in Spain


Wind farm monitoring in Portugal


Wind measurement in Antarctica


Solar resource assessment in Chile


Wind resource assessment on Aruba


Wind measurement in Australia


Solar measurement in Mexico


Wind resource assessment on Curaçao


Wind energy assessment in Turkey

Thanks to our partners Australian Radio Towers, CLIMATIK, DESAMD, Ecosem, Energiewerkstatt, ENISOLAR, Eunivy Resources, IEM, SME Wind and WindUp for providing the photos for this brochure. For further Ammonit partners refer to www.ammonit.com

Ammonit Meteo-40 Data Logger: Specifications

		Meteo-40S	Meteo-40M	Meteo-40L	Description
Order Number		M11010	M21010	M31010	
Input Channels	**Pulse Counters**	4	8	12	Anemometers, precipitation sensors
	Digital Serial (Status)	2	4	8	Wind vanes serial, precipitation monitors, ext. activation
	Analog Voltage	4 ± 0.1V, ± 1V, ± 10V 16bit	8 ± 0.1V, ± 1V, ± 10V 16bit	12 ± 0.1V, ± 1V, ± 10V 16bit	Barometric pressure, temperature, humidity sensors, pot. wind vanes, pyranometers, pyrheliometers
	Analog Current	1 ± 1mA, ± 10mA, ± 100mA 16bit	1 ± 1mA, ± 10mA, ± 100mA 16bit	2 ± 1mA, ± 10mA, ± 100mA 16bit	Sensors with DC output, e.g., temperature humidity sensor (0 ... 20mA)
	RS485 (M)	(1) RS485 Master for up to 8 smart sensors			Ultrasonic anemometers
Output Channels	**RS485 (S)**	(1) RS485 Slave			SCADA monitoring software
	5V | Switches	2	4	8	Sensor supply, relay for modem, heating supply.
	Current Source	1	1	2	Pt1000, Pt100
Connectivity	**USB**	(2) USB-A host (1) USB-B device			PC, modem, memory stick, Ethernet, WiFi, GPS, web cam
	Ethernet	(1) Ethernet			LAN, router, media converter, sat.modem, outdoor camera
Storage Size	**Source Data (1-sec data)**	1 GB	2 GB	2 GB	
	CSV Data (10-min data)	> 50 MB			
Display & Keys		(20x4) LC display with backlight, five keys			
Power Supply		9 ... 36 V DC			
Operat. temperature		-40 ... +65 °C			
Protection (Housing)		IP65			
Housing Dimensions		260x194x50mm			
Weight		950g			
Accessories		External modules, plug connector, mounting kit, steel cabinet			

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Modem UMTS / GPS PHS8-P

M76400 / M71400

Order-No: **M76400 - UMTS/HSPA/GSM/GPRS/EDGE and GPS system with modem and omni-directional antenna**
M71400 - Modem

- **Five Band UMTS/HSPA: 850/800, 900, 1900 and 2100 MHz**
- **Quad-Band GSM/GPRS/EDGE: 850, 900, 1800, 1900 MHz**
- **GPS**
- **SMS**
- **USB 2.0 high speed interface**

The modem provides worldwide coverage and reliability even while roaming across different wireless network technologies. Two antenna pads enable diversity support allowing PHS8 to provide improved dataspeeds even under fluctuating 3G network conditions.

Air Interface	**UMTS/HSPA/GSM/GPRS/EDGE**
Frequency Bands	850 / 800, 900, 1900, 2100 MHz
GPRS	class 12
GPRS data rate	max. 85.6 kbps (DL & UL)
Power	
Supply Voltage	10 ... 60 V
Electrical connection	6-pole Western jack (use accessory cable)
Interfaces	
USB	USB 2.0 high speed, type B
Control	AT commands
Antennas	
UMTS/GSM/GPRS antenna interface GPS antenna interface	FME SMA
Impedance	50 Ω
General	
Operational temperature	-30 °C ... +75°C
Dimensions and weight	65 x 74 x 33 mm / approx. 110g
Accessories	
GPS antenna USB cable Supply cable	Article No. M72400 Article No. M01210 Article No. M71041

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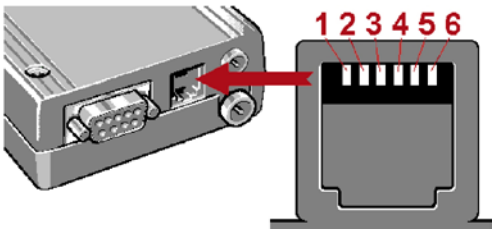
PIN assignment of power supply jack

Signal	Plug Pin No.	Ammonit Cable Wire Colour
Power Supply	1	white, green → +V
Ignition	4	
Supply Ground	6	blue
	2, 3, 5	Not connected



Please note: Ammonit offers directional and Yagi antennas as accessories.

LED status information

LED signal	Description
Permanent yellow light	Modem is powered. No USB connection available.
Permanent white light	Modem is powered. USB connection established between modem and PC / data logger (with or without SIM card / with or without PIN entry). White LED light indicates a successfully established a data connection. The LED is not an indicator of proper communication behaviour of the modem.

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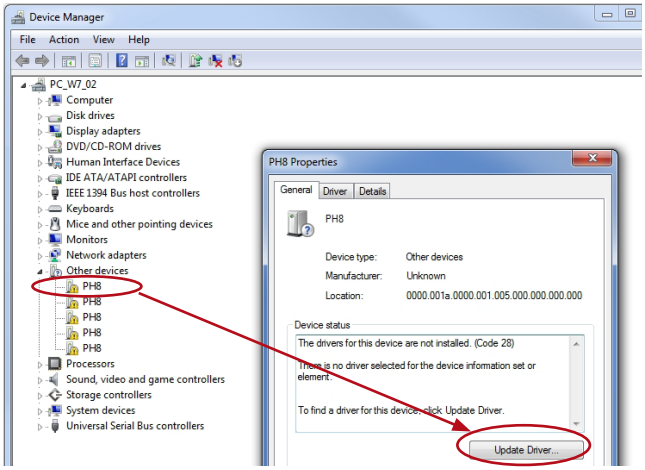
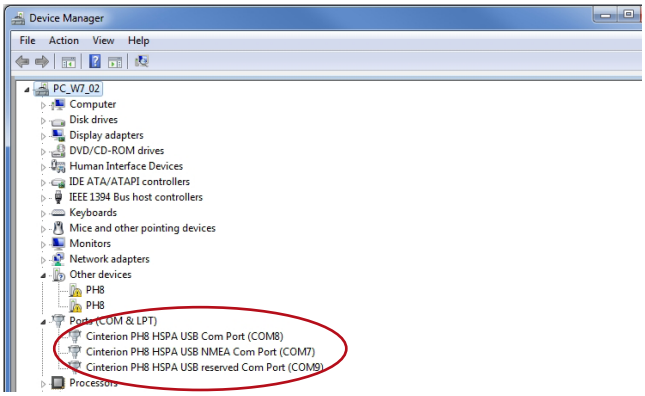
Configuration of frequency bands

The PHS8-P modem is a five band programmable gateway supporting 850 / 900 / 1800 / 1900 / 2100 MHz. If the modem has been purchased separately, it might be configured for working properly with Meteo-40.

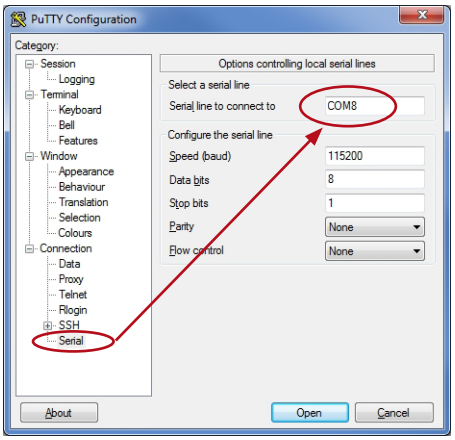
In order to check the configuration of the frequency bands, connect the modem directly to your computer via USB. If you are using a Windows™ PC and the modem is not displayed in the *Device Manager* under *Modems*, you require a driver file, which can be downloaded from our website (http://www.ammonit.com/) in the support section. On Linux™, in general no driver file needs to be installed.



After installing the driver files, the *Cinterion USB Modem* should be displayed under *Ports (COM & LPT)* in the *Device Manager*. Disconnect the modem from your PC. After connecting the modem again, further *COM* ports are used by the modem.



Open a standard terminal program like *PuTTY* (http://www.putty.org/). Enter the COM port number from the *Cinterion PH8 HSPA USB Com Port* as *Serial line* and change *Parity* and *Flow control* to *None*. Open the PuTTY command window.



For listing the configuration enter: **at^sdport?**

Default setting of the modem should be: **at^sdport=6**

To work properly with Meteo-40, all interfaces have to be available, enter: **at^sdport=3**

Press *Enter* to finish the configuration. Restart the modem.

Testing GPS

Open a second PuTTY command window and connect the COM port number of the *Cinterion PH8 HSPA USB NMEA Com Port*. Go to the PuTTY command window of the *Cinterion PH8 HSPA USB Com Port* and enter: **at^sgpsc="Engine",1**

In the PuTTY command window of the *Cinterion PH8 HSPA USB Com Port* the GPS data is listed.

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Omnidirectional Antenna GSM / UMTS M72110

- GSM 890-960 MHz
- UMTS 1710 - 2150 MHz

Description

An omnidirectional antenna radiates radio wave power uniformly in all directions. The radiation pattern is often described as "doughnut shaped". The omnidirectional antenna is designed for GSM and UMTS bands.

Specifications

Characteristic	Description / Value
Antenna type	Omnidirectional
Frequency range	GSM: 890 - 960 MHz UMTS: 1710 - 2150 MHz
Gain	3dBi (890 - 960 MHz) 5dBi (1710 - 2150 MHz)
Impedance	50 Ω
Max. input power	10 W
Operating temperature	-40 ... +80°C
Connector	FME (female)
Cable	RG58 - 3.5 m
Dimensions	Height: 341 mm Base: Ø 70 mm (magnetic)
Weight	215 g
Manufacturer	MC Technologies

Last Modification: 04 May 2016

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Temperature Humidity Sensor S42100 / S52100 / S50050

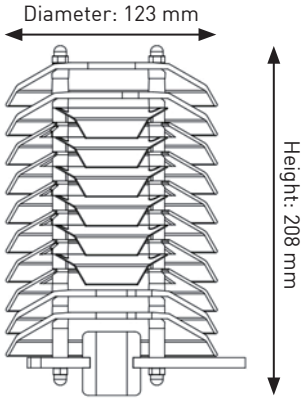
Order-No.: S42100 – Temperature Sensor TP
S52100 – Temperature Humidity Sensor KP
S50050 – Weather- and Radiation Shield

Measurement principle

The temperature humidity sensors are compact sensors in a rod-design with plug-in connection to measure relative humidity and temperature (individually or together) with high precision in air an other non-aggressive gases. The delivery includes the coupling plug.

The relative humidity is measured by a capacitive sensing element and the value will be placed at the output as analog output as well.

Dimensional drawing



Overall height including bracket: 300 mm
Weight: 1.01 kg

Mounting

The sensors are to be mounted at a climate representative spot. For protection against rain and direct radiation a weather and radiation shield should be used, which can be simply fixed to a mast.

Please order the weather and radiation shield separately!

Take care of a good ventilation of the sensing element. any mouting position is possible. Avoid penetration of water. Dew-formation does not do any harm to the element, but faulty measurements will occur until total drying.

Maintenance

The temperature sensor is maintenance-free. Only check the output after long use with a precise reference thermometer.

It is possible to make functional gauging of the humidity sensor. To do this, the sensor has to be exposed to a known reference humidity, e.g., the available "humidity-standard" calibration set. If you unscrew the protection filter, keep in mind never to touch the element with fingers or any tool.

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Specifications

Type	Temperature Sensor	Humidity Sensor
Measurement principle	Pt100 1/3 DIN acc. DIN EN 60751	Capacitive
Measurement range	-30 ... +70 °C	0 ... 100% RH
Slope (Data Logger Meteo-40)	100	100
Offset (Data Logger Meteo-40)	-30	0
Accuracy		
Accuracy	± 0.2 K (-27 ... +80 °C)	± 2% RH (5 ... 95% RH @ 10 ... 40 °C)
Additional error	± 0.007 K/K (<10 °C, >40 °C)	< 0.1 %/K (<10 °C, >40 °C)
Operating range		
Ambient temperature	-40 ... +80 °C	
Minimum air speed (across sensor)	≥ 0.5 m/s	
Electrical data		
Output signal	0 ... 1 V	0 ... 1 V
Operating supply	6 ... 30 VDC	
Power consumption	<1 mA	
General		
Connection	7-pol plug for shielded cable	
Dimensions	Sensor: 155 x Ø 20 mm Weather and radiation shield: see dimensional drawing	
Weight	Sensor: approx. 0.1 kg Weather and radiation shield: 1.01 kg	
Protection Sensor	IP 30	
Protection Electronic	IP 65	
Protection Coupling	IP 67	
Manufacturer	Galltec	

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Sensor connection to Ammonit Meteo-40 data logger

TP (temperature only!) - Meteo-40
Order-No. S42100

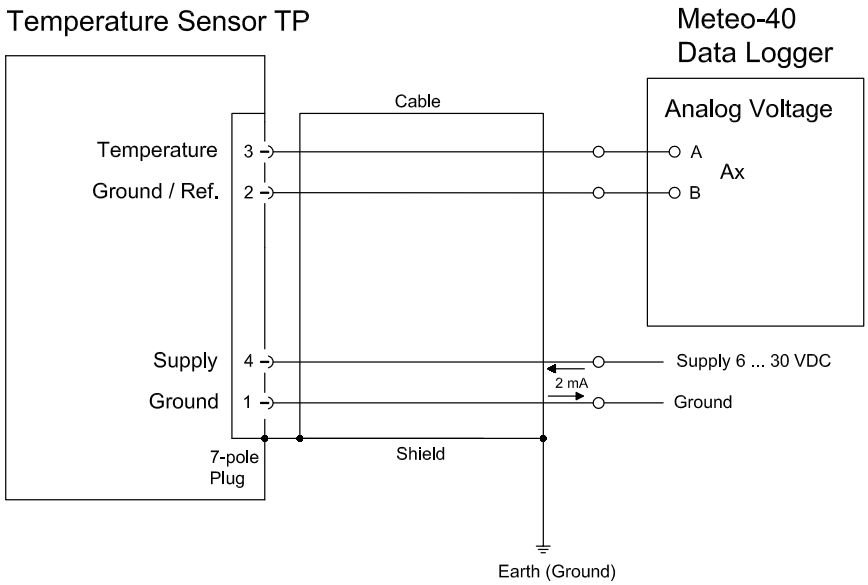
Sensor	Plug Pin No.	Ammonit Cable Wire Colour	Meteo-40 Analog Voltage	Supply Sensor
Temperature Output Voltage	3	white	Ax	
Ground	2	blue	Bx	
Supply	4	red		9 ... 30 VDC*
Ground	1	black		Main Ground

*Supply voltage for usage with Meteo-40 data loggers

Cable type: LiYCY 4 x 0.25 mm²

Connect the shield logger-sided to Ground (GND)

Sensor connection diagram to Ammonit Meteo-40 data logger



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Sensor connection to Ammonit Meteo-40 data logger

KP (temperature + humidity) - Meteo-40
Order-No. S52100

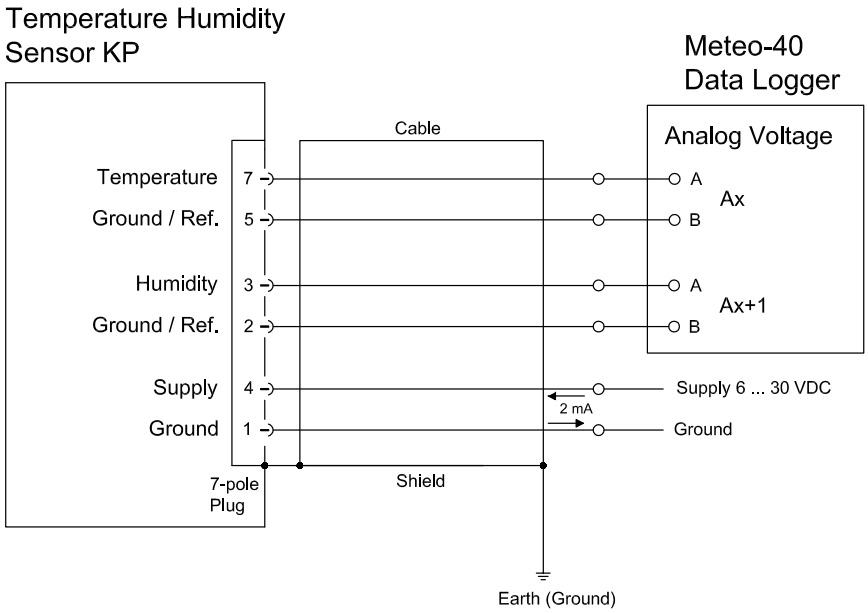
Sensor	Plug Pin No.	Ammonit Cable Wire Colour	Meteo-40 Analog Voltage	Supply Sensor
Temperature Output Voltage	7	white	Ax	
Ground	5	blue	Bx	
Humidity Output Voltage	3	brown	Ax+1	
Ground	2	pink	Bx+1	
Supply	4	red		9 ... 30 VDC*
Ground	1	black		Main Ground

*Supply voltage for usage with Meteo-40 data loggers

Cable type: LiYCY 6 x 0.25 mm²

Connect the shield logger-sided to Ground (GND)

Sensor connection diagram to Ammonit Meteo-40 data logger



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Nueva MAXX/360

Baliza de baja intensidad

Características técnicas

Cumple FAA (Federal Aviation Administration) AC Nº: 150/5345-43F
-Cumple OACI (Organización de Aviación Civil Internacional)
Anexo 14, Cap. 6
- Ensayos obligatorios aprobados: Baja temperatura / Alta temperatura/ /Lluvia / Fotométrico / Cromaticidad
-Uso: Baliza de baja intensidad OACI, tipo B (rojo fijo > 32 candelas)
FAA Clase L-810 (rojo fijo > 32,5 candelas)
- Fuente lumínica: 5 ultra-bright Lens.
- Vida útil: superior a 120.000 hs en uso normalizado
- Libre de mantenimiento.
- Consumo aproximado: 6 watts (24vcc)
-Tensión de trabajo: 24vcc/ 32vca/48vcc
- Protección por picos de sobretensión de hasta el 100%
- 98% AHORRO de consumo y mantenimiento (vs. Incandescencia)
- 93% MENOS emisión de CO2 a la atmósfera (50grs. x Watt/hora).
- Lente de cobertura esférica con protección UV.
-Angulo horizontal: 360º
-Angulo de dispersión vertical: > 10º
-Base en aluminio de alta resistencia.
-Anclaje: rosca 1" gas estándar.
-Grado de protección: IP65.
-Medida aproximada: 95mm x 80mm
-Peso: 0,6 kg

Cabo 1º Moreno 2285 - Parque Industrial Almirante Brown, Bs As, Argentina - 011 4238 9184

ANAC
Administración Nacional de Aviación Civil

NOTA DGIySA Nº 1215/2015

REF: EXP-ANC: 0032238/2015
Solicitud revalidación homologación Baliza Baja Intensidad "Modelo NUEVA MAXX/360".

Buenos Aires, 30 de septiembre de 2015

SEÑOR APODERADO:

Me dirijo a usted, con relación al expediente de referencia, en el cual solicita la revalidación correspondiente para el artefacto de balizamiento de obstáculos de baja intensidad, Tipo L-810 Modelo "NUEVA MAXX/360".

Considerando que el artefacto mencionado, fue aprobado mediante Nota DGIySA N° 586/2013, en el marco del expediente N° S01:0339530/2012 y que de acuerdo a lo manifestado en su nota de fecha 25 de agosto de 2015, el citado artefacto, no ha sufrido modificaciones durante el tiempo transcurrido desde su homologación, se otorga la reválida por el término de DOS (2) AÑOS.

Asimismo se informa que, antes de expirar el plazo antes mencionado, se deberá realizar una presentación, para la reválida de la misma, con las actualizaciones pertinentes por modificación de esta Circular Técnica o de las Normas que la componen, si las hubiere, o en caso contrario se presentarán las certificaciones anteriores para ser aprobadas por dos años más.

Saludo a usted atentamente.

Dr. DAMIAN A. BOCCACCIO
DIRECTOR GENERAL
DIRECCIÓN GENERAL DE INFRAESTRUCTURA Y SERVICIOS AEROPORTUARIOS
ADMINISTRACIÓN NACIONAL DE AVIACIÓN CIVIL

SR. SEBASTIÁN GOROSTIDI
APODERADO COGALL S.R.L.
ARAGÓN 311 (1836)
LAVALLOL, PROVINCIA DE BUENOS AIRES

Barometric Pressure Sensor AB 60 / AB 100 S31100 / S31200

- Piezoelectric barometric pressure sensor
- Low power consumption
- Operating pressure:
  AB 60 (S31100) 800 ... 1100 hPa (mbar)
  AB 100 (S31200) 600 ... 1100 hPa (mbar)

Measurement principle and mounting

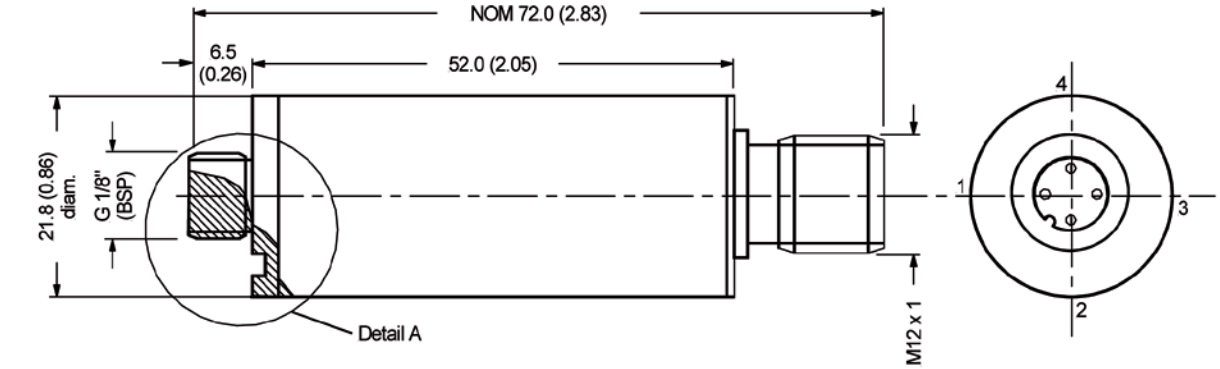
The piezoelectric pressure sensor's signal is electronically amplified to provide an output signal of 0...5 VDC. The sensor is mounted in a stainless steel housing, protection class IP64 when the connector is plugged in.

The connecting cable is included in delivery. If required it will be ready for connection in an Ammonit steel cabinet.

When mounted outside the central steel cabinet we recommend protective housing with pressure compensation.

In measurement operation the sensor needs an extern supply of at least 9 VDC.

Dimensional drawing



mass: appr. 80g

dimensions in mm

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Specifications

Characteristics	AB 60	AB 100
Order-No.	S31100	S31200
Operating pressure	800 ... 1100 hPa (mbar) (Altitude: ≤ 1400 m)	600...1100 hPa (mbar) (Altitude: ≤ 3700 m)
Slope	60 hPa/V	100 hPa/V
Offset	800 hPa	600 hPa
Temperature operation range	-40 ... 85 °C	
Humidity range	0 ... 98 %RH	
Accuracy		
Total accuracy (-10 ... 60 °C)	±1 % FSO* (±3 hPa; FSO is 300 hPa)	±1 % FSO* (±5 hPa; FSO is 500 hPa)
Repeatability	±0.1 % FSO*	±0.2 % FSO*
Long term stability	±0.1 % FSO*	±0.1 % FSO*
Electrical data		
Output voltage	0 ... 5 VDC	
Supply voltage	9 ... 32 V	
Current consumption	5 mA	
General		
Dimensions	Length 72 mm, diameter 22 mm	
Weight	80 g	
Housing	Stainless steel	
Connection	4-pole plug (M12)	
Protection class	IP 64 - when connector is plugged in	
Vibration (5 ... 500 Hz)	2 gRMS	
Mechanical shock	50 g	
Atmosphere	non-ionic, non-corrosive	

* FSO (Full Scale Output) describes the difference of the upper and the lower limit of the pressure range.

Ammonit
Measurement GmbH

Wrangelstrasse 100, D-10997 Berlin, Germany
T: +49 30 6003188-0, E: info@ammonit.com

measuring wind and solar power
www.ammonit.com

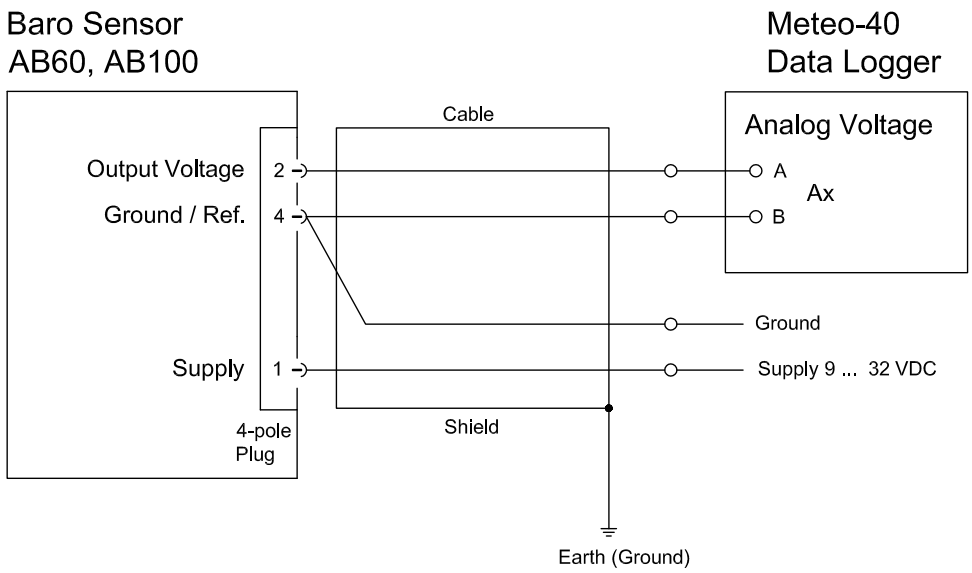
Sensor connection to Ammonit Meteo-40 data logger

Sensor	Plug Pin No.	Ammonit Cable Wire Colour	Meteo-40 Analog Voltage	Supply Sensor
Air Pressure Output Voltage	2	white	Ax A	
Ground	4	blue	Ax B	
Supply	1	red		9 ... 32 VDC
Ground	4	black		Main Ground

Cable type: LiYCY 4 x 0.25 mm²

Connect the shield logger-sided to Ground (GND)

Sensor connection diagram to Ammonit Meteo-40 data logger



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SOLARTEC®

KS50T

MODULO FOTOVOLTAICO POLICRISTALINO DE ALTO RENDIMIENTO

POTENCIA NOMINAL 50 Wp

INDUSTRIA ARGENTINA

CARACTERISTICAS GENERALES

Los módulos Solartec son fabricados en base a celdas fotovoltaicas de silicio policristalino de alta eficiencia. La eficiencia de conversión de estas celdas es superior al 14%.

Para protegerlas de los agentes atmosféricos y aislarlas eléctricamente, las celdas son encapsuladas con material plástico EVA (etil-vinil-acetato) estable a la radiación ultravioleta. El frente expuesto al sol es de vidrio templado de alta transparencia (bajo contenido de hierro) y de 3 mm de espesor, lo que le otorga una mayor resistencia al impacto. La cara posterior es de TPE, una lámina plástica compuesta de elevada resistencia mecánica y eléctrica.

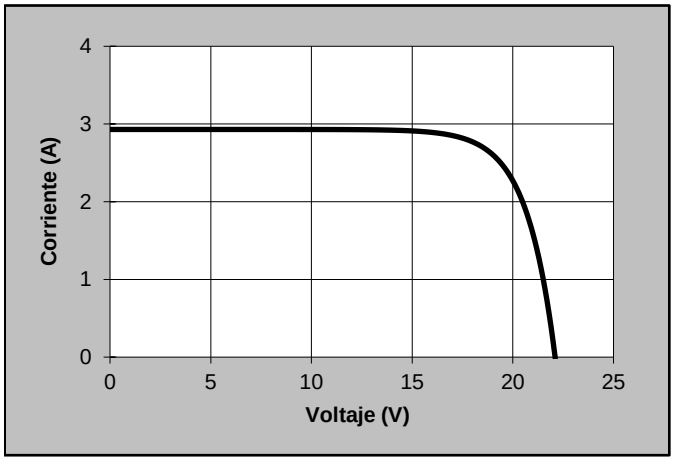
El marco de aluminio anodizado asegura la rigidez estructural y facilita su instalación. La caja de conexiones fijada a la cara posterior permite la interconexión con los otros componentes del sistema.

Características Eléctricas

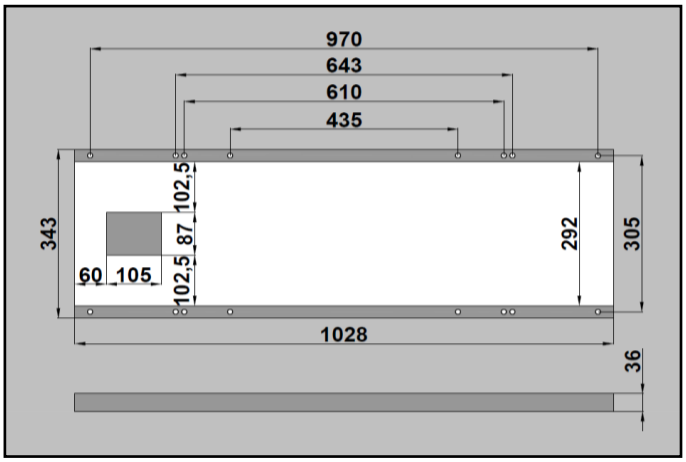
Potencia Nominal (PN)	50	Wp
Tensión a PN	18,3	V
Corriente a PN	2,73	A
Tensión de circuito abierto	22,1	V
Corriente de corto circuito	2,93	A

Características Mecánicas

Largo	1028	mm
Ancho	343	mm
Espesor	36	mm
Peso	4,50	Kg



Los valores y la curva están dados para las condiciones de insolación de 1 KW/m2, masa atmosférica 1.5 y temperatura de celda de 25ºC.
Potencia Mínima Garantizada = Potencia Nominal - 10 %



Todas las distancias están expresadas en mm.

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SOLARTEC ®

KS100T-24V

MODULO FOTOVOLTAICO POLICRISTALINO DE ALTO RENDIMIENTO

POTENCIA NOMINAL 100 Wp

INDUSTRIA ARGENTINA

CARACTERISTICAS GENERALES

Los módulos Solartec son fabricados en base a celdas fotovoltaicas de silicio policristalino de alta eficiencia. La eficiencia de conversión de estas celdas es superior al 14%.

Para protegerlas de los agentes atmosféricos y aislarlas eléctricamente, las celdas son encapsuladas con material plástico EVA (etil-vinil-acetato) estable a la radiación ultravioleta. El frente expuesto al sol es de vidrio templado de alta transparencia (bajo contenido de hierro) y de 3 mm de espesor, lo que le otorga una mayor resistencia al impacto. La cara posterior es de TPE, una lámina plástica compuesta de elevada resistencia mecánica y eléctrica.

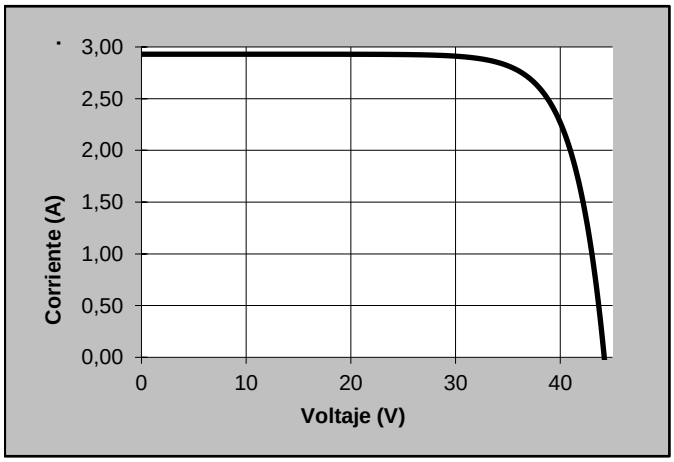
El marco de aluminio anodizado asegura la rigidez estructural y facilita su instalación. La caja de conexiones fijada a la cara posterior permite la interconexión con los otros componentes del sistema.

Características Eléctricas

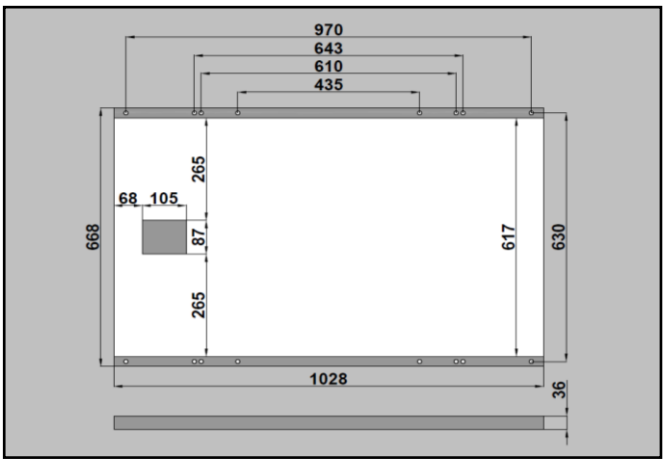
Potencia Nominal (PN)	100	Wp
Tensión a PN	36,60	V
Corriente a PN	2,73	A
Tensión de circuito abierto	44,20	V
Corriente de corto circuito	2,93	A

Características Mecánicas

Largo	1.028	mm
Ancho	668	mm
Espesor	36	mm
Peso	8,00	Kg



Los valores y la curva están dados para las condiciones de insolación de 1 KW/m2, masa atmosférica 1.5 y temperatura de celda de 25ºC.
Potencia Mínima Garantizada = Potencia Nominal - 10 %



Todas las distancias están expresadas en mm.

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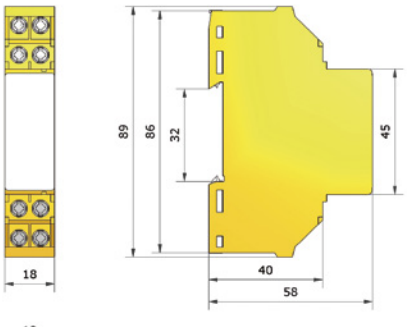
Surge Protective Devices for Mounting Rail [C2+C1]

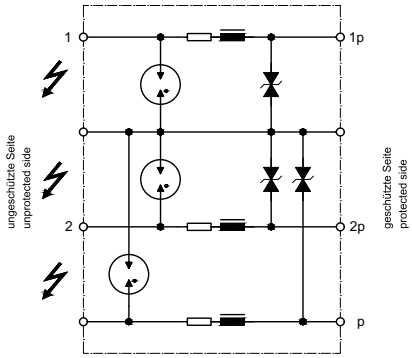
SPD of the Test Category C2+C1

DataPro3x1 for mounting rail

Surge voltage protection for dc operating voltages between 12 V and 150 V. Surge voltage protector for protection of three single wires with longitudinal and transverse voltage protection, applicable at the LPZ transition point 0_B-2 and higher.

- **Signal and data line protection with low-pass filter**
- **High performance surge protector**
- **Maximum nominal current 500 mA**
- **Mounting on DIN rail**





Basic circuit diagram

Technical Data	DP3x1-12V/12V-Tr	DP3x1-15V/15V-Tr	DP3x1-24V/24V-Tr	DP3x1-30V/30V-Tr	DP3x1-36V/36V-Tr
Nominal direct voltage (UN)	12 V=	15 V=	24 V=	30 V=	36 V=
Max. continuous operating direct voltage (Uc)	13.6 V=	17 V=	28 V=	33 V=	40 V=
Max. continuous operating alternating voltage (Uc)	10 V~	12 V~	20 V~	22 V~	29 V~
Nominal current (IN)	0.5 A	0.5 A	0.5 A	0.5 A	0.5 A
C2 nominal discharge current (8/20 µs) total (In)	20 kA	20 kA	20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 µs) per line (In)	10 kA	10 kA	10 kA	10 kA	10 kA
Protection level at In (line-earth) (Up)	≤ 18 V	≤ 23 V	≤ 36 V	≤ 45 V	≤ 55 V
Leakage current at Umax dc (IL)	≤ 5 µA	≤ 5 µA	≤ 5 µA	≤ 5 µA	≤ 5 µA
Max. operating frequency (< 3 dB) (fg)	600 kHz	600 kHz	600 kHz	600 kHz	600 kHz
dc restistance (R)	4.6 Ω	4.6 Ω	4.6 Ω	4.6 Ω	4.6 Ω
Longitudinal inductance, typ. (L)	28 µH	28 µH	28 µH	28 µH	28 µH
Capacitance wire-earth (C)	≤ 2.3 nF	≤ 1.5 nF	≤ 1.3 nF	≤ 1 nF	≤ 1 nF
Operating temperature range (TU)	-25 – +85 °C	-25 – +85 °C	-25 – +85 °C	-25 – +85 °C	-25 – +85 °C
Conductor cross section	2.5 solid or 1.5 flexible with sleeve (screw-type terminals) mm^2				
Enclosure material / colour	polycarbonate (halogen-free) UL94-V0 / yellow				
Casting compound	polyurethane	polyurethane	polyurethane	polyurethane	polyurethane
Net weight / pc	80 g	80 g	80 g	80 g	80 g

Order Data					
Product	DP3x1-12V/12V-Tr	DP3x1-15V/15V-Tr	DP3x1-24V/24V-Tr	DP3x1-30V/30V-Tr	DP3x1-36V/36V-Tr
Ordering part no.	28 12 12	28 15 15	28 24 24	28 30 30	28 36 36

DB00079.01_EN 20111116

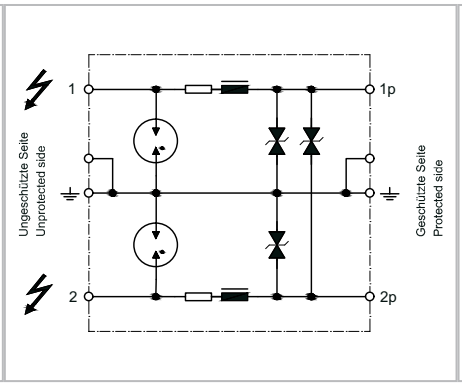
Surge Protective Devices for Mounting Rail [C2+C1]

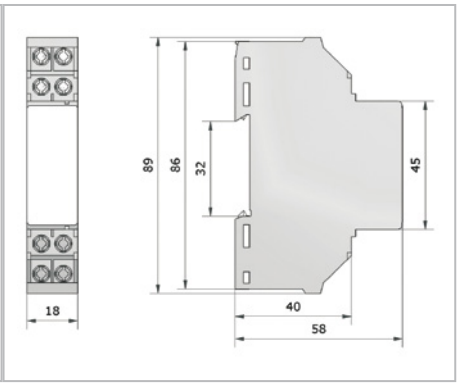
SPD of the Test Category C2+C1

Technical Data	DP3x1-48V/48V-Tr	DP3x1-60/60V-Tr	DP3x1-150V/150V-Tr
Nominal direct voltage (UN)	48 V=	60 V=	150 V=
Max. continuous operating direct voltage (Uc)	53 V=	64 V=	160 V=
Max. continuous operating alternating voltage (Uc)	37 V~	45 V~	112 V~
Nominal current (IN)	0.5 A	0.5 A	0.5 A
C2 nominal discharge current (8/20 µs) total (In)	20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 µs) per line (In)	10 kA	10 kA	20 kA
Protection level at In (line-earth) (Up)	≤ 72 V	≤ 90 V	≤ 250 V
Leakage current at Umax dc (IL)	≤ 5 µA	≤ 5 µA	≤ 5 µA
Max. operating frequency (< 3 dB) (fg)	600 kHz	600 kHz	600 kHz
dc restistance (R)	4.6 Ω	4.6 Ω	4.4 Ω
Longitudinal inductance, typ. (L)	28 µH	28 µH	28 µH
Capacitance wire-earth (C)	≤ 0.8 nF	≤ 0.7 nF	≤ 1 nF
Operating temperature range (TU)	-25 – +85 °C	-25 – +85 °C	-25 – +85 °C
Conductor cross section	2.5 solid or 1.5 flexible with sleeve (screw-type terminals) mm^2		
Enclosure material / colour	polycarbonate (halogen-free) UL94-V0 / yellow		
Casting compound	polyurethane	polyurethane	polyurethane
Net weight / pc	80 g	80 g	80 g

Order Data			
Product	DP3x1-48V/48V-Tr	DP3x1-60/60V-Tr	DP3x1-150V/150V-Tr
Ordering part no.	28 48 48	28 60 60	28 04 04

EMC filter with integrated surge protection





EMC filter for data and signal lines combined with surge protection enables smooth operation of sensitive electronic equipment in rough environment. Lightning current and surge voltage protection for particularly long signal and bus lines. Thanks to the extremely low volume resistance (impedance only 0.3Ω) no noteworthy signal losses occur. It is a combined arrester to protect two single wires. Applicable at the LPZ transition point 0A-1 and higher.

- **Signal and data line protection with low-pass filter**
- **Very low volume resistance**
- **Protective circuit for 2 signal lines with common ground**
- **Maximum operating current 1.5 A**
- **Applicable at the boundaries LPZ 0A - 2 and higher**
- **Mounting on 35 mm DIN rail**
- **Degree of protection according to IEC EN 60529: IP 20**
- **Space required for installation: 17.5 mm**

Technical Data		DP 2x1-24V/24V-0,3Ω -Tr
IEC category/EN type		D1 / C2 / C1 / C3
Nominal direct voltage	UN	24 V=
Max. continuous operating voltage DC	Uc	33 V=
Max. continous operating voltage AC	Uc	22 V~
Nominal current	IN	1,5 A
Series restistance (DC resistance) per line	Z	0,3 Ω
Series inductance, typ. (L)		50 µH
Response time fine protection	tA	≤ 2 ns
C2 nominal discharge current (8/20 µs)	In	10 kA
D1 lightning impulse current (10/350 µs) in total	Itotal	5 kA
D1 lightning impulse current (10/350 µs) per wire	Iimp	2,5 kA
Protection level, residual voltage line-earth at In resp. 1 kV/µs	Up	≤ 36 V
Capacitance, line-earth	C	≤ 1,3 nF
Max. operating frequency (< 3 dB)	fG	< 600 kHz
Insulation resistance	Risol	> 10 GΩ
Operating temperature range	TU	-25 - +85 °C
Type of connection		Screw terminals
Max. conductor cross section		2.5 single-wire / 1.5 flexible with sleeve mm²
Enclosure material / colour		polycarbonate (halogen-free) UL 94-V0 / yellow
Degree of protection (IEC EN 60529)		IP 20

Order Data	
Product	DP 2x1-24V/24V-0,3Ω -Tr
Article-No.	26 24 24

15-09-2014_v02

8G27-DEKA

SPECIFICATIONS

Nominal Voltage (V)	12V
Capacity at C/100	99Ah
Capacity at C/20	88Ah
Weight	62 lbs. (28 kg)
Plate Alloy	Lead Calcium
Posts	Forged Terminals & Bushings
Container/Cover	Polypropylene
Operating Temperature Range	-76°F (-60°C) - 140°F (60°C)

For Charging Parameters please refer to www.mkbattery.com
Click on Technical Data, then on Photovoltaic Charging Parameters in the PV/Solar section

Vent	Self-sealing
Electrolyte	Sulfuric acid thixotropic gel
Terminal	B (T876)

Rated non-spillable by ICAO, IATA and DOT

Made in the U.S.A. by East Penn Manufacturing Co, Inc.

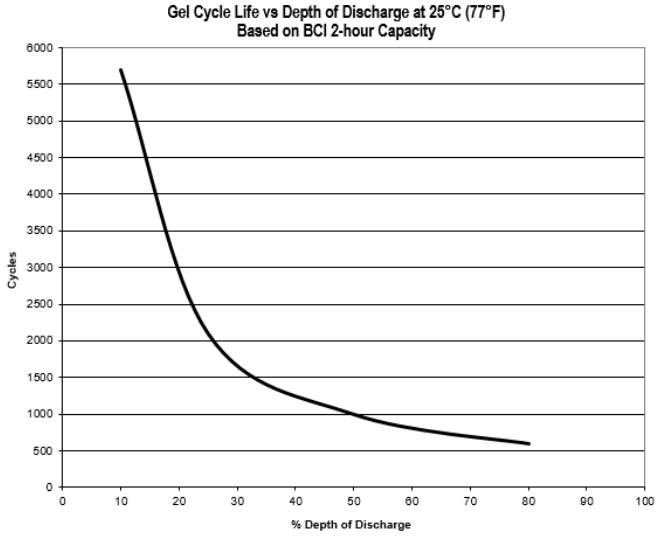
Distributed by:

Valve-Regulated, Gelled-Electrolyte Battery

DIMENSIONS

Inches (mm)

Length	**12.83 (326 mm)**
Width	**6.56 (167 mm)**
Height	**9.33 (237 mm)** *Including terminal*



MK Battery
1631 South Sinclair Street ● Anaheim, California 92806
Toll Free: 800-372-9253 ● Fax: 714-937-0818 ● E-mail: sales@mkbattery.com

EC ARCOMP®

Automatización Industrial

Multipolar blindado - 500 Volt - 80°C - VDE 0812

EC ARCOMP®
Multipolar blindado con cinta + trenza

Aplicaciones

Transmisión de datos, señales digitales y analógicas con protección contra perturbaciones electromagnéticas.

Características

Temperatura máxima: 80ºC de servicio.
Tensión nominal: 500 Volt.
Norma constructiva: VDE 0812.
Norma de fuego: IEC 60332-1 / IRAM NM IEC 60332-1.
Norma de conductores: IEC 60228 / IRAM NM 280.

Descripción

Conductor: Cobre electrolítico recocido estañado en formación clase 2.
Aislación: PVC.
Identificación:

- Bipolar:
- Tripolar:
- Tetrapolar:
- Pentapolar:
- 6 y más conductores: Blancos numerados

Blindaje: Cinta helicoidal de aluminio-poliéster más trenza de cobre estañado con cobertura del 85%.
Cubierta: PVC gris, no propagante de la llama.
Desgarre: Hilo de poliamida bajo la cubierta.

Atributos Destacados

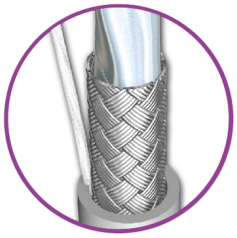
Doble Blindaje | *Marcación Secuencial* | *No propagacion de incendio* | *Protección interferencias electromagnéticas*

Instalación

Montaje: Radio mínimo de curvatura igual a 7 x diámetro exterior del cable.
Tracción máxima: 5daN/mm^2 aplicados sobre los conductores de cobre.
Temperatura de montaje: Igual o mayor a 5ºC.

EC ARCOMP®

Multipolar blindado - 500 Volt - 80°C - VDE 0812



Doble blindaje

Características Eléctricas

Descripción	Unidad	Características				
Sección nominal	mm	0,35	0,50	0,75	1,00	1,50
Resistencia eléctrica a 20ºC	Ohm/km	59,9	40,1	24,8	18,2	12,2
Capacidad	pF/m	97	102	110	117	116

Dimensiones y Pesos

Cantidad de conductores	0,35 mm²			0,50 mm²			0,75 mm²		
	Código	Diámetro mm	Peso kg/km	Código	Diámetro mm	Peso kg/km	Código	Diámetro mm	Peso kg/km
2	EC 0203	5,1	36	EC 0205	5,6	44	EC 0207	6,2	55
3	EC 0303	5,3	42	EC 0305	5,9	53	EC 0307	6,5	67
4	EC 0403	5,7	50	EC 0405	6,3	63	EC 0407	7,0	80
5	EC 0503	6,3	61	EC 0505	7,0	76	EC 0507	7,8	98
7	EC 0703	6,8	74	EC 0705	7,7	97	EC 0707	8,5	125
12	EC 1203	8,8	119	EC 1205	9,9	152	EC 1207	10,7	192
19	EC 1903	10,1	164	EC 1905	11,3	212	EC 1907	12,8	292
24	EC 2403	11,5	200	EC 2405	13,4	280	EC 2407	14,9	367

2do

Cantidad de conductores	1,00 mm²			1,50 mm²		
	Código	Diámetro mm	Peso kg/km	Código	Diámetro mm	Peso kg/km
2	EC 0210	6,6	63	EC 0215	7,8	88
3	EC 0310	6,9	78	EC 0315	8,2	110
4	EC 0410	7,6	98	EC 0415	8,8	134
5	EC 0510	8,2	115	EC 0515	9,6	159
7	EC 0710	9,1	149	EC 0715	10,6	208
12	EC 1210	11,7	237	EC 1215	14,0	349
19	EC 1910	13,7	354	EC 1915	16,6	518
24	EC 2410	16,1	451	EC 2415	19,3	661

LÍNEA GE / Tradicional - IP65

Estos gabinetes han sido diseñados para ser utilizados a la intemperie. No son perjudicados por los efectos nocivos de las cambiantes condiciones atmosféricas y los rayos ultravioletas.

Agujeros de Fijación

Diseño de Bisagra y Borne

CARACTERÍSTICAS GENERALES:

- El cuerpo está construido en una sóla pieza (Monoblock) en chapa de acero y soldada en contínuo.
- El cuerpo está provisto de agujeros de fijación para facilitar el montaje. Para su instalación se deben retirar los tapones de goma de los agujeros de fijación y es aconsejable para mantener el grado IP utilizar nuestras grampas de fijación.
- Previo al pintado se realiza a la chapa un tratamiento de desengrase, fosfatizado y pasivado, para evitar la oxidación.
- Se pinta con pintura del tipo electrostática en polvo de resina de poliéster texturizada al horno de color Beige Ral 7032.
- El burlete de la tapa y las arandelas de las cerraduras son de **"EPDM" ELASTÓMERO DE ETILENO PROPILENO** que garantiza durabilidad y elasticidad (Similares a las utilizadas en la industria automotriz). Las arandelas de las bisagras son de caucho sintético.
- Los bornes de puesta a tierra, soldados por proyección y cobreados con 8/10 micrones, en tapa y cuerpo, al vincularlos con un cable de puesta a tierra se logra una resistencia débil, menor a 0.05 OHMS.
- **Las bisagras y cerraduras son de Zamac** y, al igual que los tornillos de sujeción, están zincados en color negro.
- Las cerraduras son de tipo moneda de 1/4 de vuelta, internamente se engrasan y se coloca un **O'RING DE ACRILO NITRILO** para mejorar su funcionamiento y estanqueidad.
- La bandeja de montaje está fabricada en chapa galvanizada para asegurar conductividad plena sobre la misma y viene despuntada para poder instalar el gabinete sin necesidad de quitarla.
- **Apertura de la puerta a 180°.**

CÓDIGO	ALTO	ANCHO	PROFUNDIDADES			
			120	160	210	260
GE 2015	200	150	✓			
GE 2520	250	200	✓	✓		
GE 3025	300	250	✓	✓		
GE 3030	300	300	✓	✓	✓	
GE 4030	400	300	✓	✓	✓	✓
GE 4545	450	450	✓	✓	✓	✓
GE 5040	500	400	✓	✓	✓	✓
GE 6040	600	400		✓	✓	✓
GE 6050	600	500		✓	✓	✓
GE 6060	600	600		✓	✓	✓
GE 7060	700	600		✓	✓	✓
GE 9060	900	600		✓	✓	✓
GE 12060	1200	600		✓	✓	✓