

User manual

DES-300

Digital environmental parameters sensor



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1. GENERAL INFORMATION

1.1. WARRANTED INFORMATION

CEL-MAR Company gives a two-year warranty on the **DES-300 sensor**. The warranty does not cover damage caused from improper use, materials consumption or any unauthorized changes. If the product does not function in accordance with the instructions, will be repaired or replaced.

All warranty and no warranty repairs must be returned with paid transport and insuring to the **CEL-MAR Company**.

CEL-MAR Company under no circumstances won't be responsible for ensuing damage from improper using the product or as a result of random causes: the lightning discharge, the flood, the fire and the like.

CEL-MAR Company is not be held responsible for damages and loss including: loss of profits, loss of data, pecuniary losses ensuing from using or the impossibility of using this product.

In specific cases **CEL-MAR Company** discontinue all warranties and in particular do not follow the user manual and do not accept terms of warranty by the user.

1.2. GENERAL CONDITIONS FOR SAFE USE

The device should install in the safe and stable place, the connecting cable should be arranged this way isn't exposed to treading, catching or tear out from sensor

Do not put device on the wet surface.

Do not connect devices for nondescript powering sources,

Do not damage or crush powering wires.

Do not make connection with wet hands.

Do not adapt, open or make holes in casings of the device!

Do not immerse device in water or no other liquid.

Do not put the fire opened on device sources: candles, an oil lamps and the like.

1.3. ENVIRONMENTAL PRESERVATION



This sign on the device inform about putting expended device with other waste materials. Device should send to the recycling. (In accordance with the act about the Electronic Appliance Expended from day 29 of July 2005)

1.4. SERVICE AND CONSERVATION

It is recommended to check the status of cases and sensor connecting cables, to eliminate the effect of mechanical damage on the quality of measurement.

Technical support at the number: +48 41 362-12-46 in 8.00-16.00, from Monday to Friday

2. APPLICATION

DES-300 sensor is used to for measurement of environmental parameters like temperature, relative humidity, atmospheric pressure, illumination, concentration of CO₂ in :

- offices with the use of structured cabling
- flats
- houses

via the serial 1-WIRE Bus.

Application of 1-Wire bus enables:

- the cooperation of many sensors connected to the same data lines,
- the deployment of sensors in various locations up to 300m,
- powering the sensors from the bus,
- correct transmission of measurement data secure check sum CRC.

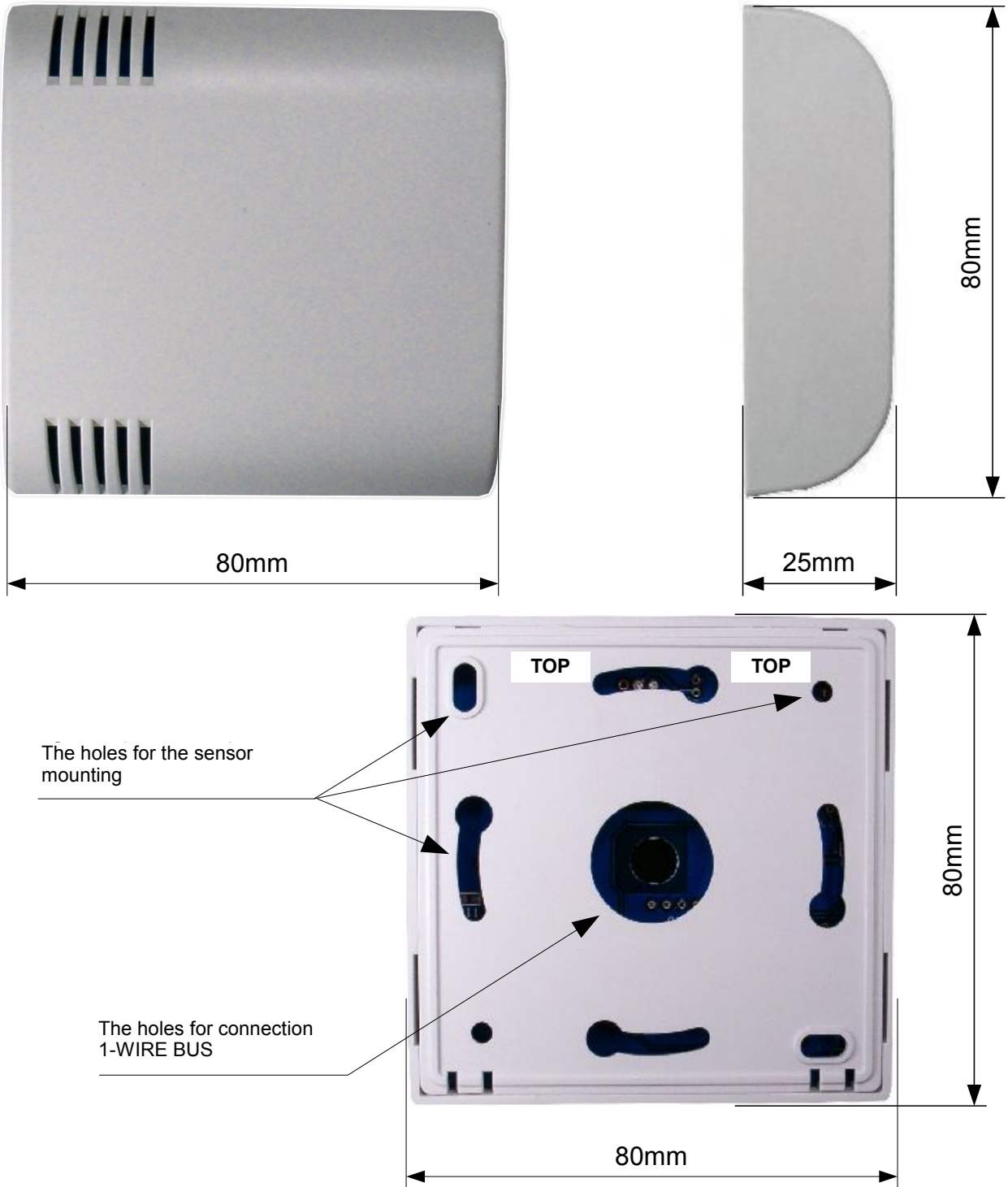
DES-300 sensor can be installed on wiring recessed cans or on the walls.

3. COOPERATION WITH OTHER 1-WIRE DEVICES

DES-300 sensor cooperates with 1-WIRE devices used for creation of monitoring and control systems for environmental parameters:

- ADA-401WP Measuring Module 1-WIRE to MODBUS-RTU,
- DNB-400 Passive 1-WIRE Bus Splitter,
- DNB-215 Passive 1-WIRE Bus Splitter,
- DNB-200 Passive 1-WIRE Bus Splitter,
- other 1-WIRE sensors eg. DTS-RJ45, DTS-103, DTS-107, DES-200, DES-215, DES-300.

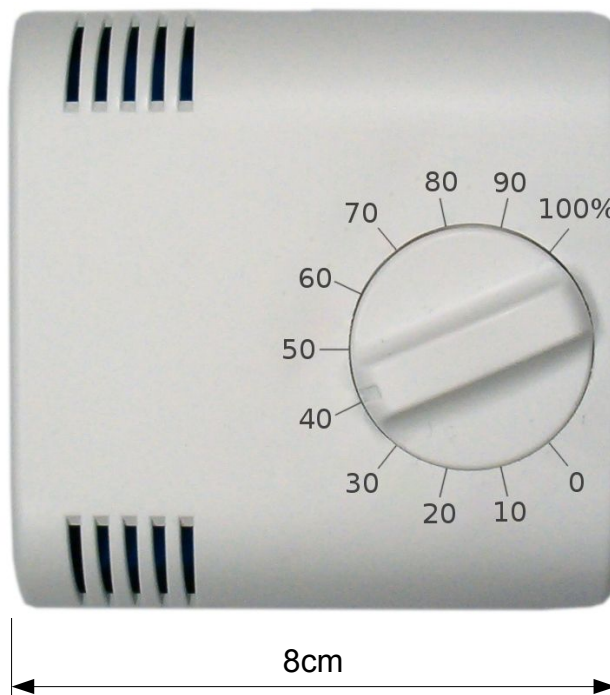
4. DES-300 VIEW



5. VIEW OF TEMPERATURE SENSOR WITH TEMPERATURE ADJUSTER DES-300-T-TA



6. VIEW OF RELATIVE HUMIDITY SENSOR WITH PERCENT ADJUSTER DES-300-H-PA



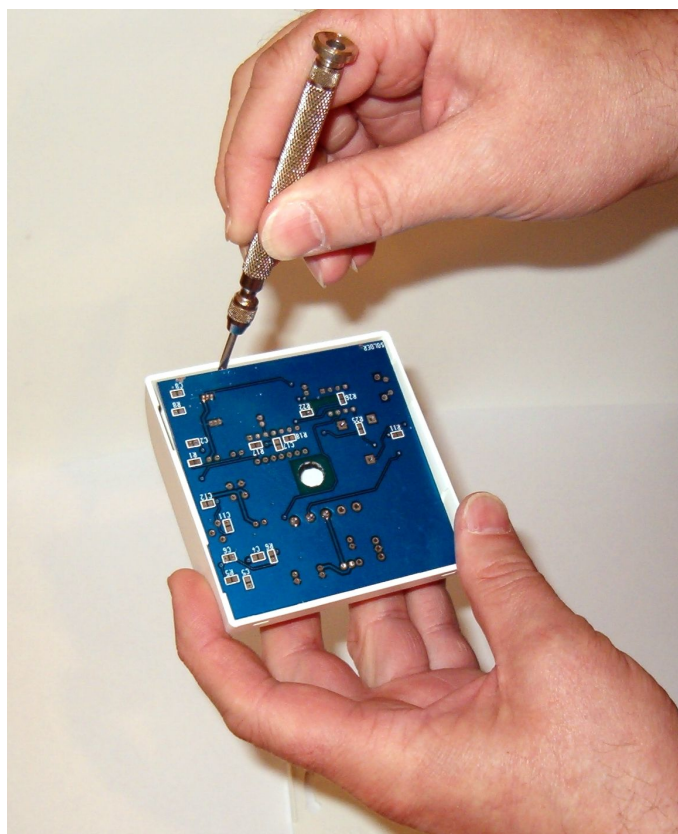
7. CONNECTION OF 1-WIRE BUS

In the purpose of connection the sensor to the bus you should:

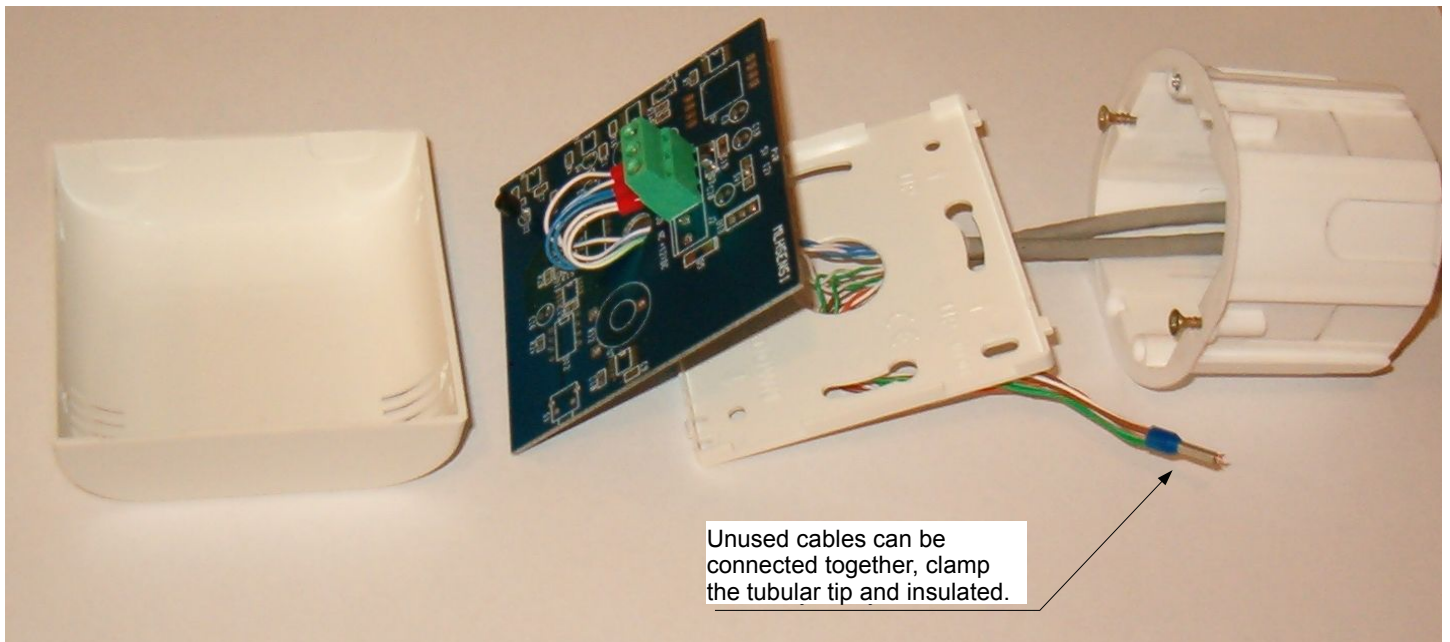
a) by the use of small screwdriver disassemble the rear panel as shown below



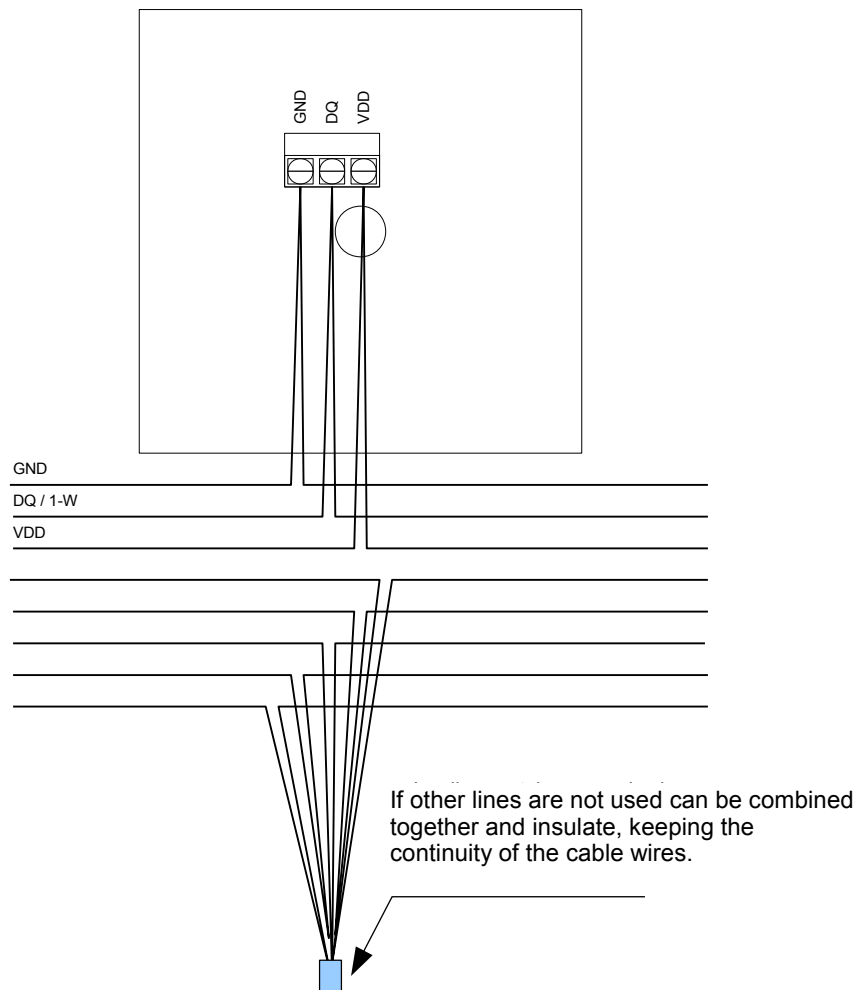
b) by the use of small screwdriver removed from the cover the PCB as shown below



c) insert the wires of 1-WIRE BUS through the holes of rear panel and PCB as shown below

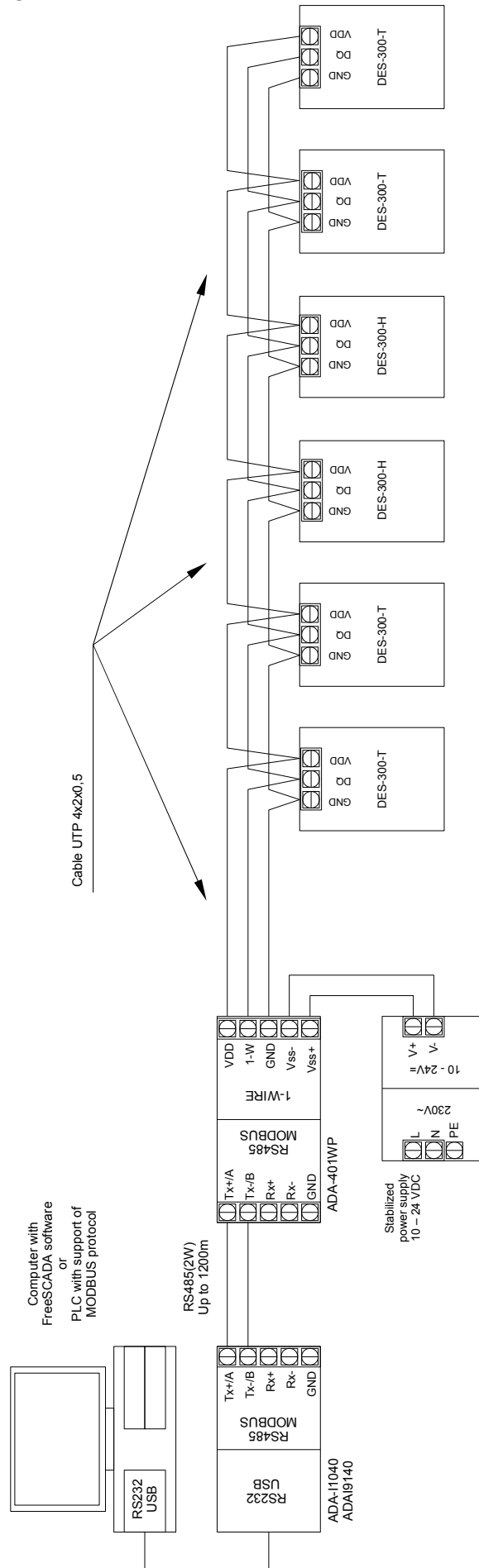


d) connect the BUS to screw terminal block (as shown below): Vdd - bus power supply, +5VDC, DQ – transmission of the 1-WIRE data, GND – signal ground.



e) after connection 1-WIRE BUS to terminals Vdd, DQ, GND :
 - fix the rear panel of sensor on electro-installation box or a wall,
 - insert the PCB to the cover, terminals to inside,
 - put the cover on rear panel.

8. CONNECTION EXAMPLE



9. VERSIONS

DES-300 -		The basic sensors can be mixed Order example: Product symbol: DES-300-T-H T-H - Sensors: temperature and relative humidity Product symbol: DES-300-T-H-AP T-H-AP - Sensors: temperature and relative humidity and atmospheric pressure
Sensor Type:		
Temperature sensor (-30°C ... +70°C)	T	
Relative humidity sensor (0% ... 100%)	H	
Atmospheric pressure sensor (150hPa ... 1150hPa)	AP	
Temperature adjuster (+5°C ... +40°C)	TA	
Percentage adjuster (0% ... 100%)	PA	
IN PREPARING - CO2 concentration sensor	CO2	
IN PREPARING – Sunlight sensor	SL	
IN PREPARING - Lighting sensor	L	

10. SPECIFICATIONS

<i>Parameters</i>	<i>Data</i>
Parameters of Temperature Sensor	
Measuring range of temperature	-30°C ... +70°C
1-WIRE Transducer	DS18B20
Measuring accuracy of temperature transducer	+/-0,5°C in the scope -10°C...+85°C
Temperature transducer resolution	12 bits (0,06°C)
Operating temperature	-30°C ... +70°C
Parameters of Humidity Sensor	
Measuring range of relative humidity	0% ... 100% RH
Measuring accuracy of relative humidity	+/-3,50% RH
Operating temperature	-30°C ... +70°C
Parameters of Atmospheric Pressure Sensor	
Measuring range of atmospheric pressure	150 hPa ... 1150 hPa
Measuring accuracy of atmospheric pressure	+/-15 hPa
Operating temperature	-30°C ... +70°C
Parameters of Temperature Adjuster	
Range of temperature adjuster	+5°C ... +40°C
Accuracy of temperature adjuster	+/-1 °C
Operating temperature	-30°C ... +70°C
Parameters of Percent Value Adjuster	
Range of values adjuster	0% ... 100%
Accuracy of values adjuster	+/-1 %
Operating temperature	-30°C ... +70°C
(IN THE PREPARING) Parameters of Sunlight Sensor	
Measuring range of sunlight	---
Measuring accuracy of sunlight	---
Operating temperature	-30°C ... +70°C
(IN THE PREPARING) Parameters of Lighting Sensor	
Measuring range of lighting	---
Measuring accuracy of lighting	---
Operating temperature	-30°C ... +70°C
(IN THE PREPARING) Parameters of CO₂ concentration Sensor	
Measuring range of CO ₂ concentration	---
Measuring accuracy of CO ₂ concentration	---
Operating temperature	-30°C ... +70°C

<i>Parameters</i>	<i>Data</i>
General Parameters	
Supply voltage	from the 1-WIRE BUS, VDD=5VDC
Max. power	10mW – 600mW (depend on version)
Protection from reverse power polarization	YES Warning! for reverse power on is shorted VDD to GND
Bus cabling	Recommended UTP 4x2x0.5 AWG24 twisted cable
Cover	
Operating temperature	from -30°C to +70°C
Material	ABS
Protection degree	IP20
Dimensions	80 x 80 x 25 mm
Weight	0,05 kg
Storing and Transportation	
Storage temperature	-30°C ÷ +70°C
Humidity	5 ÷ 95% - non-condensing

Dear Customer,

Thank you for purchasing **CEL-MAR Company** products.

We hope that this user manual helped you to connect and start up the purchased device. We also wish to inform you that we are a manufacturer of: data transmission converters with interface RS232, RS485, RS422, USB, Current Loop, Fiber Optic Converters, 1-Wire, ETHERNET, Wi-Fi; digital sensors as: temperature, humidity, pressure, illumination; power supply

Please express your opinion by e-mail or phone on this product, and advise us how we can satisfy you present and future of expecting.

CEL-MAR sp.j.

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