

# User manual

## ADC-216-U

### Analog signal 0-10V DC to 1-WIRE Converter



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## 1. GENERAL INFORMATION

### 1.1. WARRANTED INFORMATION

**ADC-216-U converter** is covered by a two year warranty from date of sale. In case of being damaged it will be repair or the damaged component will be replace. The warranty does not cover damage caused from improper use, materials consumption or any unauthorized changes. If the product does not function (is damaged), or not operate 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.

The device can not be used in applications that determine human life and health (eg. Medical).

### 1.3. CE LABEL



CE symbol on organizing the company CEL-MAR a conformity of the device to the directive of the electromagnetic **EMC 2014/30/WE** (Electromagnetic Compatibility Directive). The declaration of the agreement is accessible through the contact with the technical service at the address e-mail: [service@cel-mar.pl](mailto:service@cel-mar.pl) or on the phone at the +48 41 362-12-46.

### 1.4. ENVIRONMENTAL PRESERVATION



This label 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)

### 1.5. 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

### 1.6. PACK CONTENTS

The converter is delivered with: User Manual,

## 2. APPLICATION

ADC-216-U converter is used for measurement of 0-10V DC, and providing measurement results on the 1-Wire bus.

Use of 1-Wire bus allows:

- the cooperation of many sensors connected to the same data lines,
- the deployment of sensors in various locations up to 260m,
- powering the sensors from the bus,
- correct transmission of measurement data secure check sum CRC.

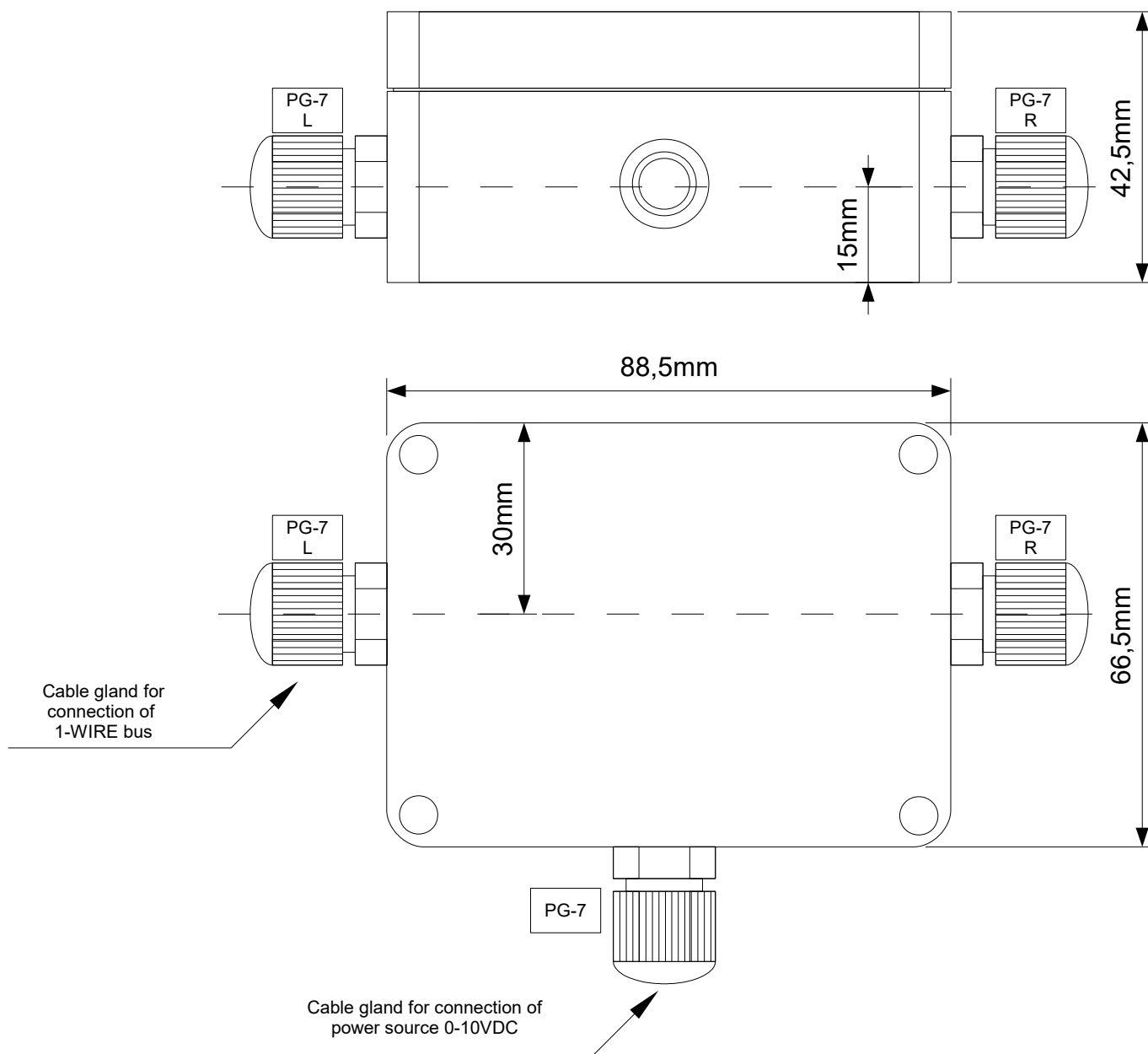
ADC-216-U converter can be installed on the wall inside or outside buildings.

### 3. FUNCTIONING WITH OTHER 1-WIRE DEVICES

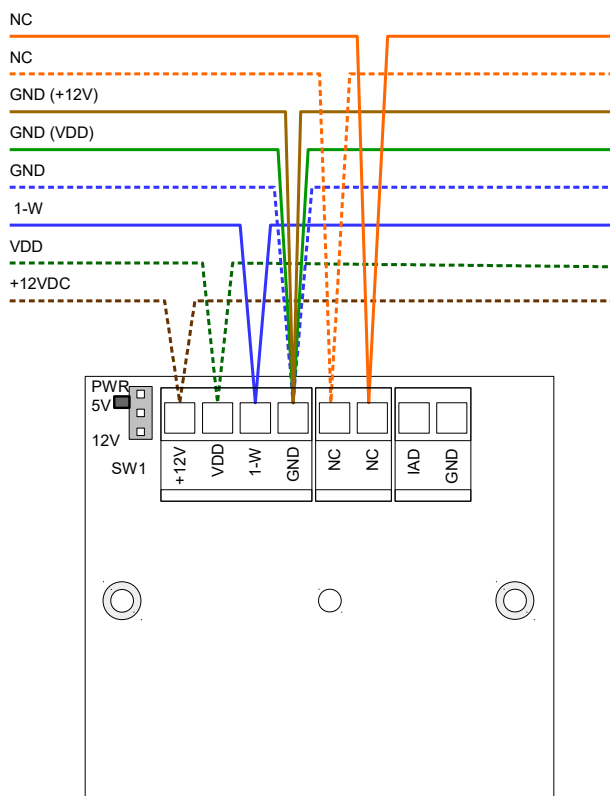
ADC-216-U converter works with 1-WIRE devices used for creation of monitoring and control systems for environmental parameters:

- 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-216, ADC-216, DES-300.

### 4. CONVERTER VIEW



## 5. CONNECTION OF 1-WIRE BUS



Example connection of 1-WIRE bus and power supply 12VDC, made by UTP 4x2x0,5 cable Cat.5, to the converter.

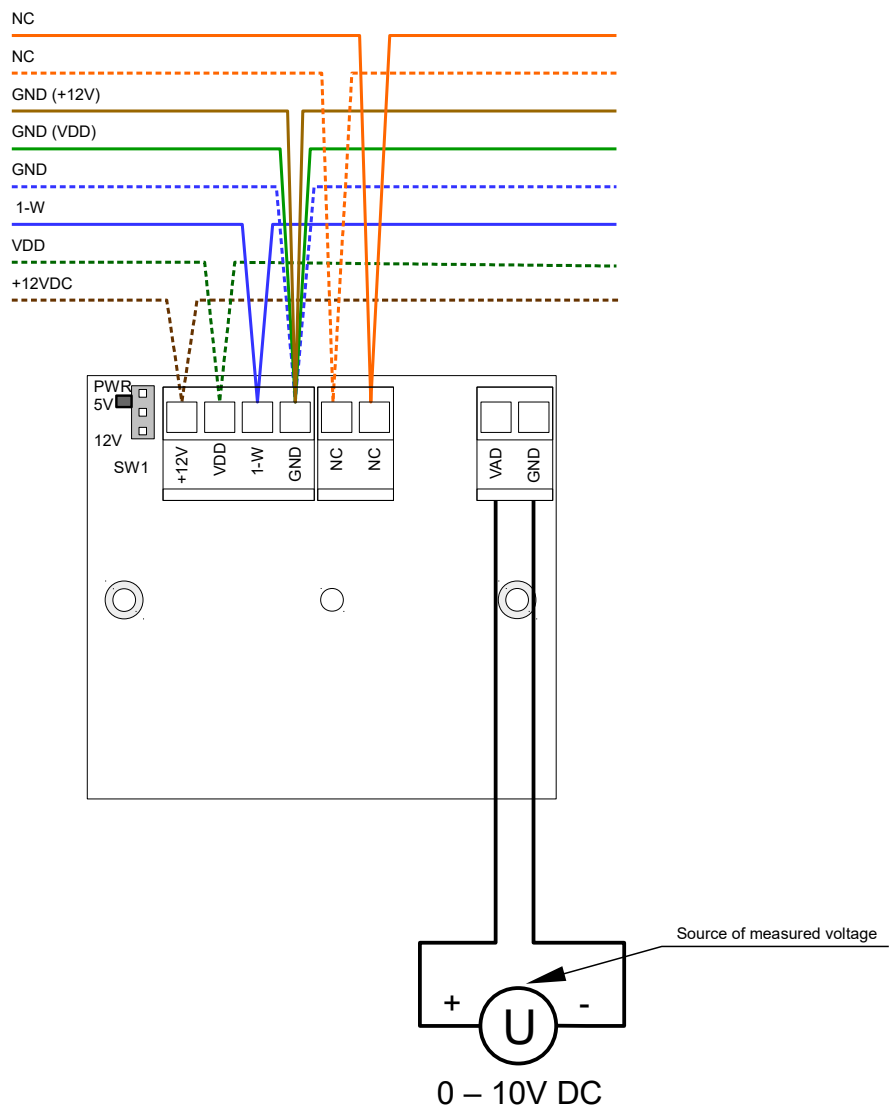
## 6. CONFIGURATION OF POWER SUPPLY

ADC-216-U converter can be powered of 5VDC from VDD line of 1-WIRE bus or from additional switching power supply 12DC. Power supply method depend on connection of 1-WIRE bus, and setting of SW1 switch, like in the table below.

SW1 switch setting	Description
5V	Sensor powering of 5VDC eg. from VDD line.
12V	Sensor powering of 12VDC eg. from additional switching power supply

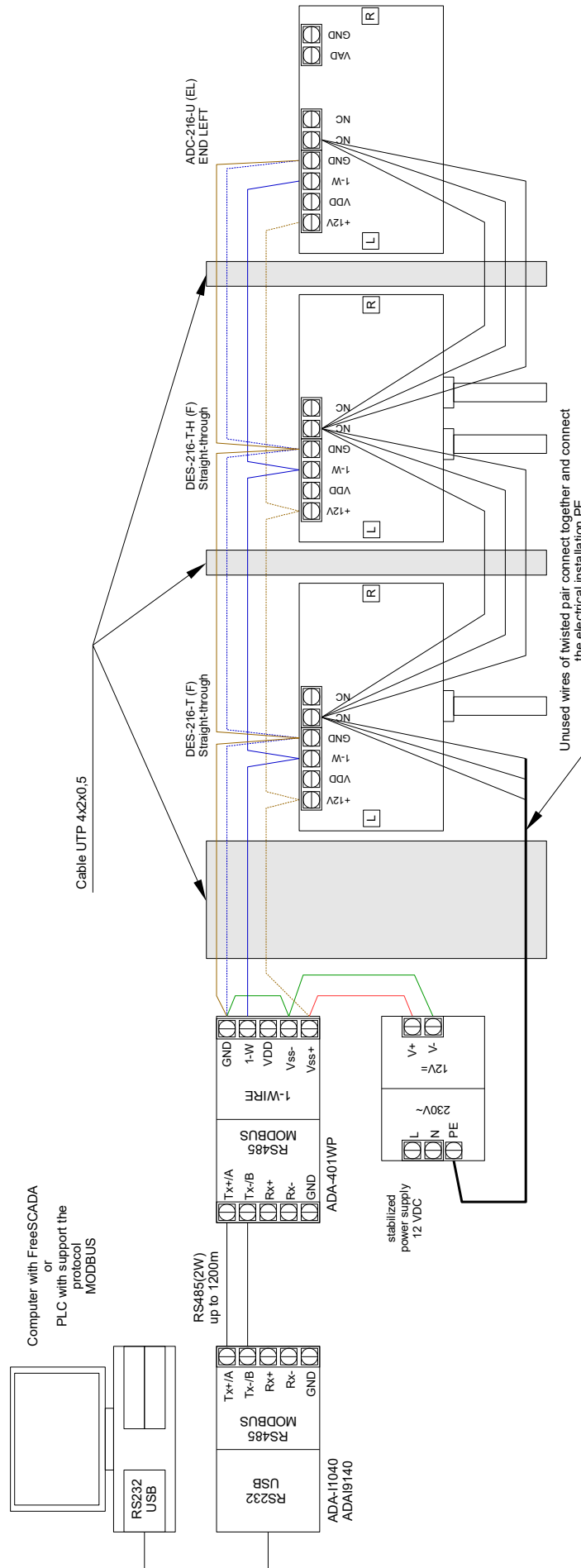
In case of the voltage lower than 4,98 VDC on terminals VDD – GND, we recommend power supply 12DC for sensors: humidity and atmospheric pressure sensor and lighting.

7. CONNECTION OF 0-10VDC





9. EXAMPLE OF SENSORS CONNECTION TO ADA-401WP — POWERING 12VDC





## 10. VERSIONS

ADC-216-U  -

**Signal**

voltage 0 - 10VDC

10

**1-WIRE connection type:**

Straight-through

F

End right

ER

End left

EL

Order example:

Product symbol: **ADC-216-U10-ER**

**U10** – converter voltage 0-10VDC

**ER** – end right (input of 1-WIRE bus from right side of the sensor ).

## 11. PARAMETERS

<i>Parameters</i>	<i>Data</i>
<b>Converter Parameters</b>	
<b>Digital resolution</b>	10 bits
<b>Measuring range</b>	0-10VDC
<b>Measuring accuracy</b>	+/-10mV
<b>Supply voltage</b>	From 1-WIRE bus VDD=5VDC
<b>Max. power</b>	20mW
<b>Protection from reverse power polarization</b>	YES Warning! on reverse power on is shorted VDD to GND
<b>1-WIRE bus cabling</b>	Recommended UTP 4x2x0.5 AWG24 twisted cable
<b>Cover</b>	
<b>Operating temperature</b>	from -30°C to +60°C
<b>Material</b>	Polystyrene
<b>Protection degree</b>	IP65
<b>Dimensions</b>	88,4 x 66,4 x 42,2 mm
<b>Weight</b>	0,05 kg
<b>Storing and Transportation</b>	
<b>Storage temperature</b>	-40°C ÷ +70°C
<b>Humidity</b>	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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