

# User manual

## ADA-7200

### Multidrop Fiber Optic Repeater



## Contents

1. GENERAL INFORMATION.....	3
1.1. WARRANTED INFORMATION.....	3
1.2. GENERAL CONDITIONS FOR SAFE USE.....	3
1.3. CE LABEL.....	3
1.4. ENVIRONMENTAL PRESERVATION.....	3
1.5. SERVICE AND MAINTENANCE.....	3
1.6. PACK CONTENTS.....	3
2. PRODUCT INFORMATION.....	3
2.1. PROPERTIES.....	3
2.2. DESCRIPTION.....	4
2.3. ISOLATION.....	4
3. INSTALLATION.....	5
3.1. CONNECTION FIBRE-OPTIC BUS.....	5
3.2. WIRING TOPOLOGY FIBER OPTIC BUS.....	5
3.3. EXAMPLES OF CONNECTION THE CONVERTER TO FIBER OPTIC BUS.....	6
3.4. POWER SUPPLY CONNECTION.....	7
4. ACTIVATION.....	7
4.1. DESCRIPTION OF SIGNALLING LEDS.....	7
5. VERSIONS.....	7
6. SPECIFICATION.....	7

## 1. GENERAL INFORMATION

Thank you for your purchase of **CEL-MAR Company** product. This product has been completely tested and is covered by a two year warranty on parts and operation from date of sale.

If any questions or problems arise during installation or use of this product, please do not hesitate to contact Technical Support at +48 41 362-12-46 or e-mail [support@cel-mar.pl](mailto:support@cel-mar.pl).

### 1.1. WARRANTED INFORMATION

**ADA-7200 repeater** 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 be installed in a safe and stable places (eg, electroinstallation cabinet), the powering cable should be arranged so as not to be exposed to trampling, attaching, or pulling out of the circuit.

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.

Complete disable from the supply network is only after disconnecting the power supply circuit voltage.

Do not carry out the assembly or dis-assembly of the device if it is enabled. This may result to short circuit and damage the device.

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



#### ATTENTION!!!

**The device is equipped in the laser transmitter.**

**The radiation emitted by the laser transmitter is harmful to the eyes!**

**Under no circumstances should never look to at the uncovered slot, to which it is not connected the fiber optic connector.**

**The manufacturer is not responsible for used not in accordance with the instruction manual.**

**The user manual is an integral part of the device and with it is delivered to users.**

### 1.3. CE LABEL



The CE symbol on the device CEL-MAR means compatibility with electromagnetic compatibility Electromagnetic Compatibility Directive **EMC 2014/30/WE**.

Declaration of Conformity is delivered with purchased device.

### 1.4. 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)

### 1.5. SERVICE AND MAINTENANCE

ADA-7200 repeater does not require the servicing and maintenance.

Technical support is available at number +48 41 362-12-46 in 8.00-16.00, from Monday to Friday or e-mail [support@cel-mar.pl](mailto:support@cel-mar.pl).

### 1.6. PACK CONTENTS

ADA-7200 repeater; user manual; CE declaration.

## 2. PRODUCT INFORMATION

### 2.1. PROPERTIES

- Regeneration of Fiber Optic signal – Fiber Optic repeater,
- Fibre-Optic connection via fore fibre connectors type: ST® \* or SC – transmitter and receiver for an optical wavelength from 792nm to 865 nm or SMA – transmitter and receiver for an optical wavelength from 640nm to 675nm.
- Fibre Optic line: 2 multimode optical fibres eg. type 50/125 µm, 62,5/125 µm, 100/140 µm, 200 µm HCS, 1mm POF,
- Baud rate up to 5Mbps,
- Transparent for all protocols: MODBUS, DNP, PROFIBUS and other,
- External power supply 10 - 30 VDC stable min. 3W,
- 1kV= or 3kV= galvanic isolation between FO interface and power supply,
- Connection power supply via screw terminal block,

- Connection Fiber Optic network via fibres optic connectors type: ST® \*(850nm), SC(850nm), SMA(650nm),
- Protection against power supply reverse connection,
- DIN 43880 standard - mounting in typical electro-installation unit,
- Rail mounting according to DIN35 / TS35 standard,
- Dimensions of casing contour (W x H x D) 71mm x 90mm x 58mm,

## 2.2. DESCRIPTION

Fiber Optic ADA-7200 repeater is a device that allows for extension of fiber optic networks to connect devices in places far away from each other such as halls, buildings and other objects. Optic signal regeneration there is without interference of data format. The use of fiber optics provides complete isolation between connected devices and resistance to interference on the transmission bus. The fiber connection is implemented by a line consisting of two fibers. Using ADA-7200 extend fiber optic bus by a distance 2500m. ADA-7200 repeater transmits and receives data at speeds up to 5Mbps through two multimode optical fiber in full duplex mode or half duplex mode. The converter is equipped with screw terminal block for power connections. It is possible to extend the bus by any number repeaters.

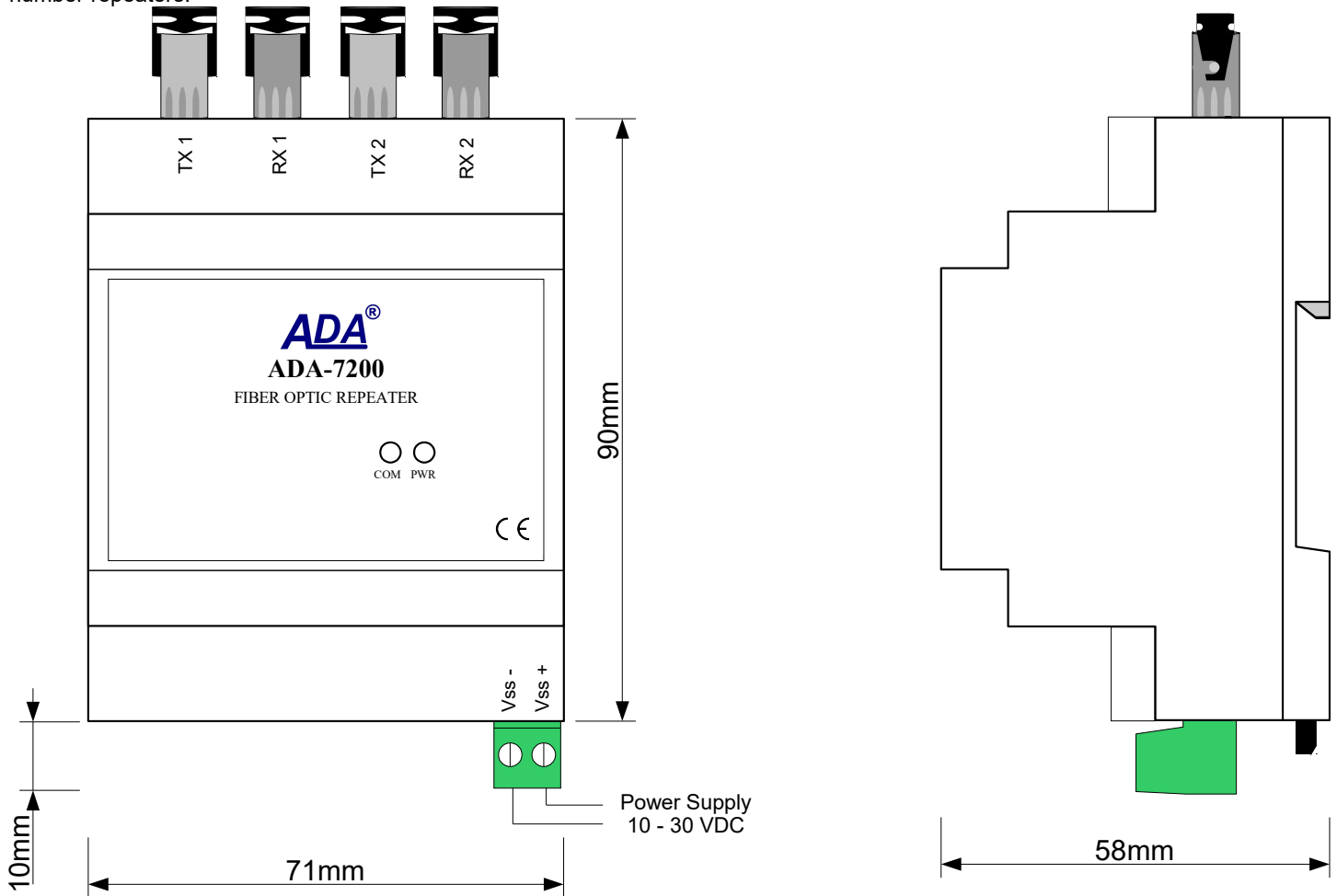


Fig. 1. View of ADA-7200

## 2.3. ISOLATION

Converter ADA-7200 has galvanic isolation between power circuit and Fiber Optic interface on the level 1kV= or 3kV=, depend on version described in section VERSIONS.

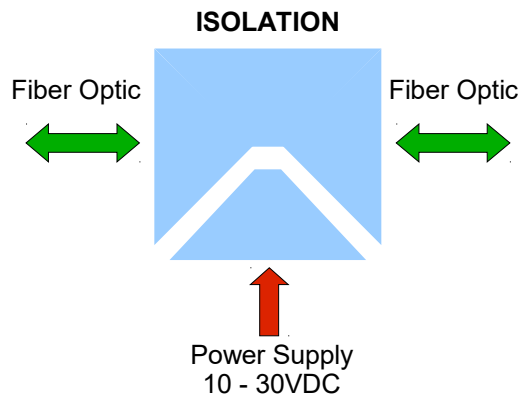


Fig. 2. Isolation structure.

**3. INSTALLATION**

This chapter will show how to connect ADA-7200 to Fibre-Optic and power supply and how to use it.

**3.1. CONNECTION FIBRE-OPTIC BUS**

The multimode Fibre-Optic with connectors type: ST®, SC or SMA, connect into their corresponding converter's connectors type: ST®, SC or SMA like on the figure below. Connecting the fiber optic cables should be cautious and careful not to damage them or dirty. If it is necessary to lay the cable at an angle, must be created the appropriate bends.



**ATTENTION!!!**

The device is equipped in the laser transmitter.

The radiation emitted by the laser transmitter is harmful to the eyes!

Under no circumstances should never look to at the uncovered slot, to which it is not connected the fiber optic connector.

**3.2. WIRING TOPOLOGY FIBER OPTIC BUS**

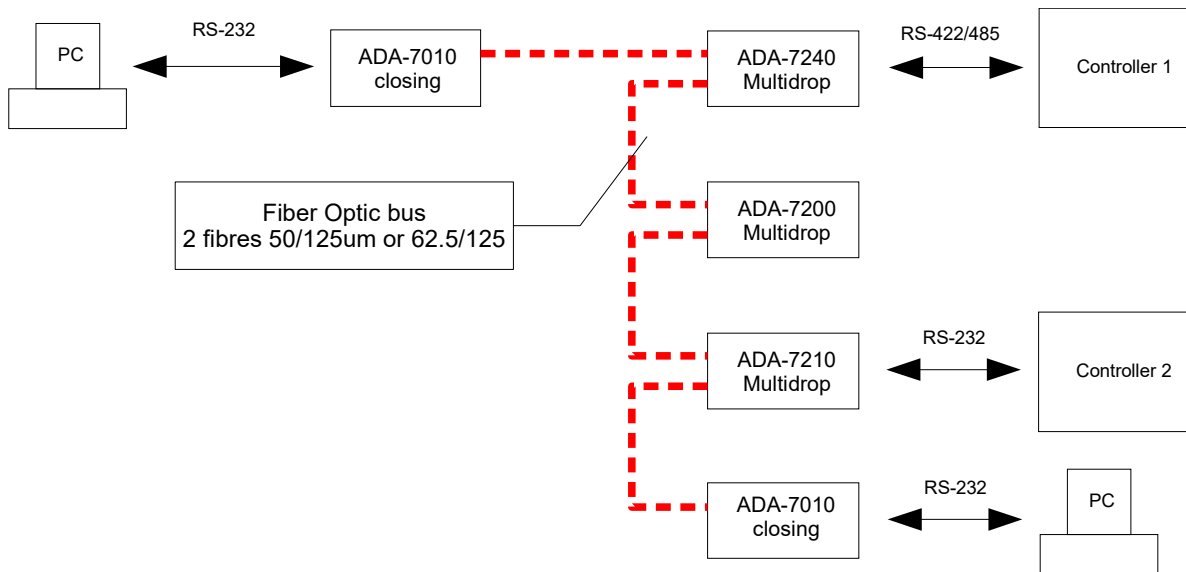


Fig. 3. Examples of fiber optic bus connection.

3.3. EXAMPLES OF CONNECTION THE CONVERTER TO FIBER OPTIC BUS

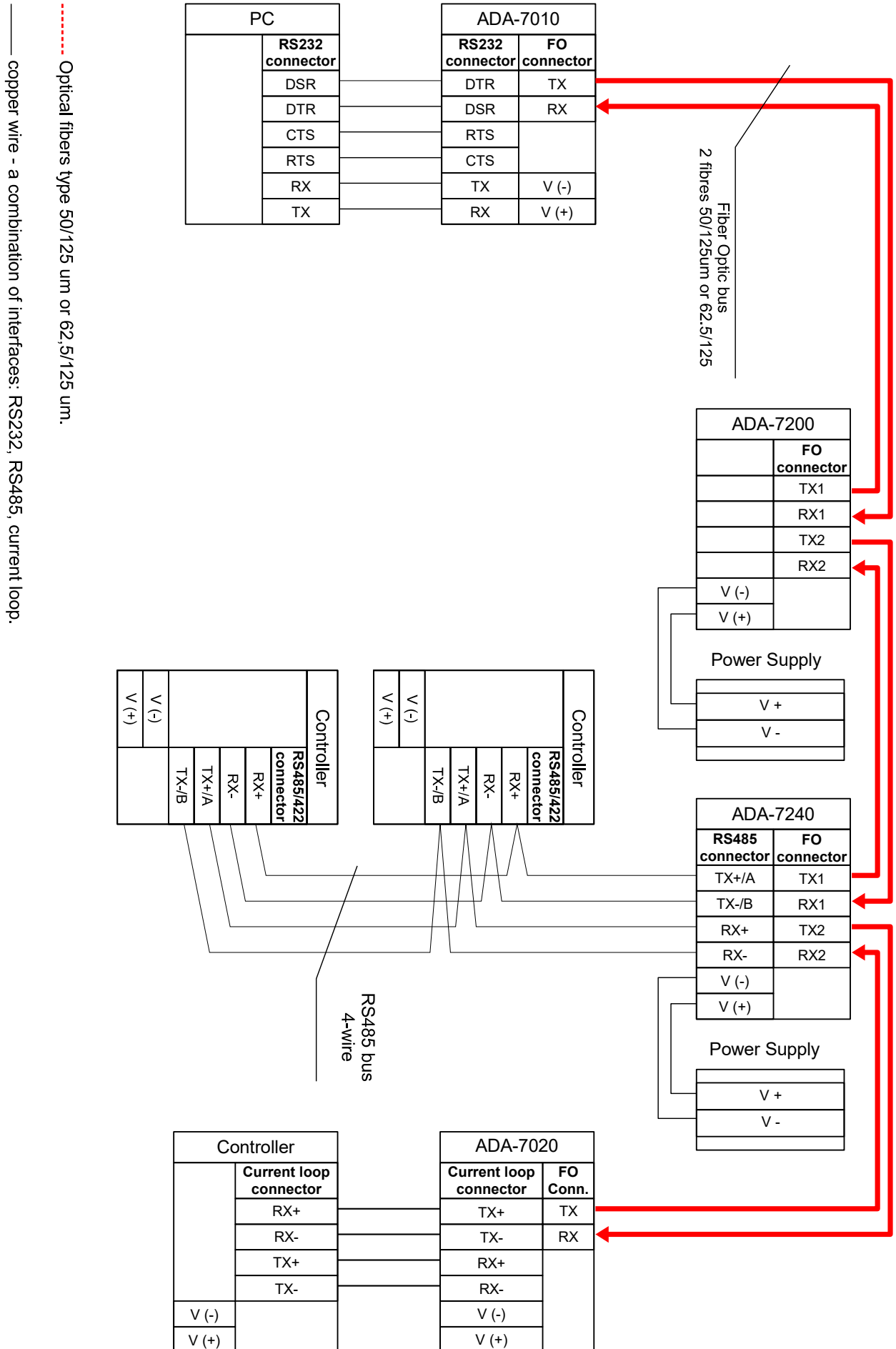


Fig. 4. Example connection of ADA-7200 to fiber optic bus

**3.4. POWER SUPPLY CONNECTION**

The power supply to the ADA-7200 repeater should be DC (regulated) from 10 V= to 30V=. Nominal power is typically 3W, e.g. ZS-12/250 or DR-15-24. Power cable from DC power supplies to device must not be longer than 3m. Observe the polarity, connect positive (+) of DC power supplies to V+ and negative (-) end to V- screw terminal block. ADA-7200 has the protection from opposite connection power supply. If after power, on the front panel is not lit green LED PWR, check the power connection (polarity).

**4. ACTIVATION**

The converter can be power on after properly connection according to section above. If after connection power supply on front panel will not light green led PWR, check correctness of power supply connecting (polarization). When data is present the LEDs COM should blink.

**4.1. DESCRIPTION OF SIGNALLING LEDS**

<i>LED</i>	<i>Description</i>
PWR	Signalling of Power Supply
COM	Signalling of data transmission

**ATTENTION!**  
**AT BAUD RATE ABOVE 38.4 KBPS THE LED'S TX, RX WILL LIGHT WEAKLY DURING DATA TRANSMISSION**

**5. VERSIONS**

	ADA-7200 -	-	-
<b>Galvanic isolation:</b>			
1kV=		2	
3kV=		3	
<b>Terminal &amp; Terminal Cover:</b>			
Cover without inlets, screw terminal block		1	
Cover with inlets, screw terminal block		2	
Cover without inlets, plug-in screw terminal block		3	
<b>Fibre connectors:</b>			
ST – type 850nm			1
SC – type 850nm			2
SMA – type 650nm			3

Order example:  
Product symbol: **ADA-7200-2-3-1**  
2 - galvanic isolation 1kV=,  
3 – cover without inlets, plug-in screw terminal block,  
1 – ST-type 850nm fibre connectors,

**6. SPECIFICATION**

<b>TECHNICAL DATA</b>	
<b>Transmission Parameters</b>	
<b>Fibre-Optic interface</b>	ST® * type - transmitter and receiver for an optical wavelength from 792nm to 865nm, SC type - transmitter and receiver for an optical wavelength from 792nm to 865nm, SMA type - transmitter and receiver for an optical wavelength from 640nm to 675nm.
<b>Line length</b>	up to 2000m for fibre type 50/125 µm, up to 2500m for fibre type 62,5/125 µm up to 2000m for fibre type 100/140 µm up to 20m for fibre type POF/1mm
<b>Max. number of connected device</b>	Free
<b>Max. baud rate</b>	up to 5MBd for fibre type 50/125 µm, up to 5MBd for fibre type 62,5/125 µm up to 5MBd for fibre type 100/140 µm up to 2MBd for fibre type POF/1mm
<b>Transmission line</b>	Two multimode fibres: - connectors ST-850, fibres type 50/125 µm, 62,5/125 µm, 100/140µm, 200µm HCS. - connectors SC-850 fibres type 50/125 µm, 62,5/125 µm, 100/140µm, 200µm HCS. - connectors SMA-650 plastic fibres type POF/1mm.

<b>Transmission type</b>	Asynchronism full duplex, half duplex.
<b>Optical signalisation</b>	<ul style="list-style-type: none"> <li>• PWR – green LED power supply,</li> <li>• COM - yellow LED data transmission</li> </ul>
<b>Electrical Parameters</b>	
<b>Power requirements</b>	10 - <u>24</u> – 30 V DC
<b>Power Cable</b>	Recommended length of power cable – up to 3m.
<b>Power</b>	3 W
<b>Protection from reverse power polarization</b>	YES
<b>Galvanic Isolation</b>	1kV DC or 3kV DC between power supply and Fiber Optics
<b>Electromagnetic compatibility</b>	Resistance to disruptions according to the standard PN-EN 55024. Emission of disruptions according to the standard PN-EN 55022.
<b>Safety requiring</b>	According to the PN-EN60950 norm.
<b>Environment</b>	Commercial and light industrial.
<b>Environmental Parameters</b>	
<b>Operating temperature</b>	-30°C ÷ 60°C
<b>Humidity</b>	5 ÷ 95% - non-condensing
<b>Storage temperature</b>	-40 ÷ 70 °C
<b>Casing</b>	
<b>Dimensions</b>	71 x 90 x 58 mm
<b>Material</b>	PC/ABS
<b>Degree of casing protection</b>	IP40
<b>Degree of terminal protection</b>	IP20
<b>Weight</b>	0,10 kg
<b>According to standard</b>	DIN EN50022, DIN EN43880
<b>Location during work</b>	Free
<b>Mounting method</b>	On the rail compliant with DIN35 / TS35 standard.

\* ST is a trademark of AT&T.

## Dear Customer,

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

We hope that this user manual helped connect and start up **ADA-7200 repeater**. We also wish to inform you that we are a manufacturer of the widest selections of data communications products in the world such as: data transmission converters with interface RS232, RS485, RS422, USB, Current Loop, Fibre-Optic Converters and Ethernet or Wi-Fi.

Please contact us to tell how you like our products and how we can satisfy you present and future expectation.

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