



Manual EDS-C

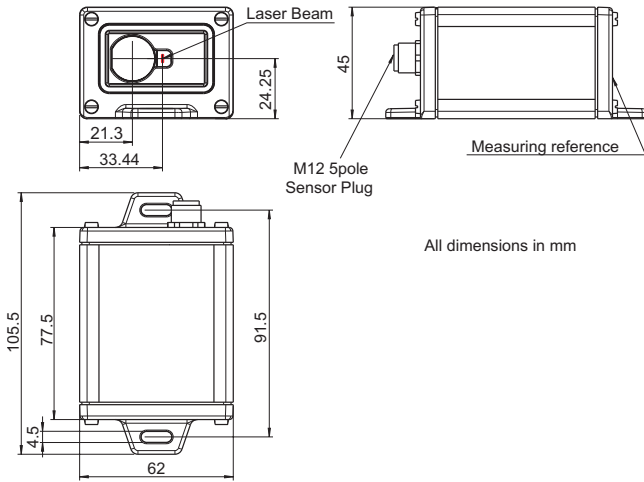
V1.2

Congratulations on the purchase of your Dimetix EDS-C distance sensor.

1 Overview



2 Dimensions



CAUTION



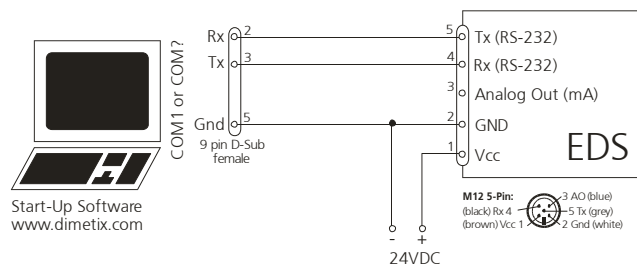
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

3 First Start-Up

To configure the EDS-C, you need the sensor, a connection cable (see chapter 11 accessories), a 24VDC power supply and the easy to apply "EDS Start-Up" Software. The "EDS Start-Up" Software for configuration is available as free ware on our web-page: www.dimetix.com
Connect the EDS-C to a PC/Laptop using the RS-232 interface, define and download your configuration and install the sensor in your application.

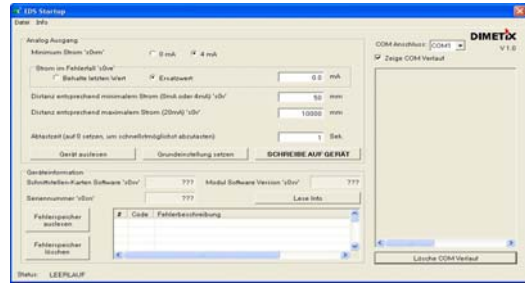
4 Connection for configuration

We propose to use our standard configuration cable (see Accessories). Please note, that some "USB to RS-232 converter" can cause problems.



5 EDS Start-Up Software

On the sensor you can configure the following by using the "EDS Start-Up" Software" (www.dimetix.com)



6 Configuration of the EDS-C

To achieve the maximum possible analog output accuracy, we suggest to configure the span as short as possible. For example, if you measure distances of 12 to 19 meters, you should configure a span of 10m to 20m (corresponding to 0/4...20mA)

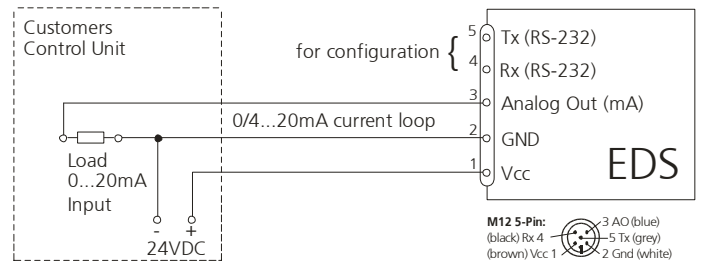
Sensor Configuration:

	Default sensor configuration	Configuration limits
minimum output current	4mA	0 or 4mA
Error output current	0mA	0...20mA
minimum Distance	0mm	0...30'000mm
maximum Distance	10'000mm	1000...30'000mm
Measurement sample rate	1s	0...65'000s

Command Set (if not using the free "EDS Start-Up" Software)

Baud Rate: 19'200; Data Bits: 7; Parity: even; Stopbits: 1
Command Terminator is: <CR> <LF> (Carriage return, Line feed)
The first two characters in the commands are s0 (s, zero)
For further information about the command-set read the COM- trace in our "EDS Start-Up" Software.

7 Connection diagram EDS-C to control unit



The load resistor must be less than 500Ω for a power supply of 24V. If the power supply is less then 24V, the max load resistor is reduced. At 12V the load resistor must be less than 350Ω.

8 Measuring conditions

The EDS is an optical instrument, whose operation is influenced by environmental conditions. Therefore, the measuring range may vary. The following conditions may influence speed and range of the measurements:

Key	Factors increasing range and/or distance	Factors reducing range and/or distance
Target surface	Bright and/or reflective surfaces such as our target plates	Matt and/or dark surfaces green / blue / black surfaces
Airborne particles	Clean air	Dust, fog, heavy rainfall, heavy snowfall
Sunshine	Darkness	Bright sunshine on the target



9 Product specifications

Measuring accuracy EDS-C 30	± 3.0mm @ 2sigma Analog Output 0.3% full scale, including temperature drift and target property
Typical repeatability	approx. 1.5mm
Measuring range (on natural surfaces)	0.05 to 30 m (matt, dark surfaces up to about 20m)
Measuring reference	from front edge (see picture schematic)
approx. Ø of laser spot	6mm @5m; 7mm @10m; 15mm @30m
Time for a measurement	0.4 to approx. 4 sec
Light source	Laser diode visible 620-690 nm (red) IEC 60825-1:2001; Class 2 FDA 21CFR 1040.10 and 1040.11 Beam divergence:0.16 x 0.6 mrad Pulse duration: 0.45x10 ⁻⁹ s Maximum radiant power: 0.95 mW
Laser Life Time ¹⁾	> 50'000h @ 20°C
ESD	IEC 61000-4-2 : 1995 +A1 +A2
EMC	EN 61000-6-4; EN 61000-6-2
Power supply	24V DC +/- 10%, 0.1A max.
Dimensions	106 x 62 x 45 mm
Operating Temperature ²⁾	-10 °C to +50 °C
Storage Temperature	-40 °C to +70 °C
Environment	Humidity 0..80%RH non-condensing; no aggressive vapors
Degree of Protection	P65; IEC60529 (protected against ingress of dust / water)
Weight	280g
Interface	1 RS-232 Interface to configure the sensor 1 program. analog output 0/4 .. 20mA

¹⁾ Use minimum possible sample rates to save laser life time
²⁾ In case of fast continuous measurement, the max. temp. is reduced to about 48°C

10 Error codes

No.	Format	Meaning and elimination
200	@E200	Device startup information (only for error stack), successful power on cycle or power-line not stable
203	@E203	Wrong syntax in command, prohibited parameter in command entry or non-valid result, check command
210	@E210	Not in tracking mode, start tracking first
211	@E211	Sampling too fast for the used target, configure a slower sampling rate (or use a more reflective target)
212	@E212	In Tracking Mode, command not executable, Stop tracking first with s0c-command
220	@E220	Error on serial communication, check com settings
234	@E234	Distance out of range, Measure a distance within the specified limits
252	@E252	Temperature too high, cool down the sensor
253	@E253	Temperature too low, heat up the sensor
255	@E255	Received signal too low, use a brighter target or a target plate
256	@E256	Received signal too high, use a darker target, mind reflective parts along the laser beam
257	@E257	Too much background light, cover bright light sources, use a darker target, mind reflective parts along the laser beam
260	@E260	Strange distance result, maybe distance jump during measuring cycle, measure to a defined target
not listed		contact your Distributor or DIMETIX

11 Accessories

On our web-page www.dimetix.com you can find some helpful accessories for the EDS-C.

- configuration cable 3m (500 204)
- Connection cable 5m (500 205)
- Accessory for Starter Kit (500 592)
- Alignment jig (500 213)

12 Quality certificate

We hereby certify, that the EDS-C has been tested and complies with the specifications as stated in this manual. The test equipment used is traceable to national standards, which are established by our Quality Management System. The EDS-C is made in Switzerland.



13 Labeling

Location:

The device label is placed on the top of the device, while the type label can be found on the back.

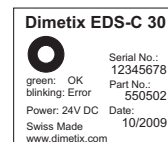


Fig. 2: Type Label



Fig. 1: Device label

14 Safety instructions

The following instructions are to enable the person responsible for the EDS-C, and the user of the instrument, to anticipate and avoid operational hazards.

The EDS-C is made to be integrated into technical systems. Basic technical training is therefore essential. This device may only be operated by trained personnel.

The person responsible for the instrument must ensure that all users understand these instructions and adhere to them.

If the EDS-C is part of a system, the manufacturer of such a system is responsible for all safety-related issues, such as the manual, labeling and instruction.

15 Laser classification

The EDS-C produces a visible laser beam, which emerges from the front of the instrument. It is a Class 2 laser product in accordance with:

- 1) IEC60825-1 (2001) "Radiation safety of laser products"
- 2) EN60825-1 (2001) "Radiation safety of laser products"

It is a Class II laser product in accordance with:

- 1) FDA 21CFR 1040.10 and 1040.11 (US Department of Health and Human Service, Code of Federal Regulations)

Laser Class 2/II products:

Do not stare into the laser beam or direct it towards other people unnecessarily. Eye protection is normally afforded by aversion responses including the blink reflex.

WARNING: Looking directly into the beam with optical aids (binoculars, telescopes) can be hazardous.

Precautions: Do not look into the laser beam. Make sure the laser is aimed above or below eye level. (particularly with fixed installations, in machines, etc.).

CAUTION: Looking into the laser beam may be hazardous to the eyes.

Precautions: Do not look into the laser beam. Make sure the laser is aimed above or below eye level (particularly with fixed installations, in machines, etc.).

16 Service information

All warranty returns and repairs have to be returned with a RMA Report provided on our web-page www.dimetix.com.

17 Disclaimer

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