# Laser Distance

DIGITAL ADVANCED SENSORS **DAS**

DLD-420

Compact and high reliable industrial laser distance meter DLD-420 out distance data as electrical signal from measured distance by emitting visible laser. Maximum measurable distance with a target(reflector) is 80 meters and without a target is 20 meters.

- *High precise industrial laser distance sensor*
- *Non-target(reflector) for maximum 20 meters*
- *Analog+digital output and alarm function*
- *High strength aluminum compact housing*
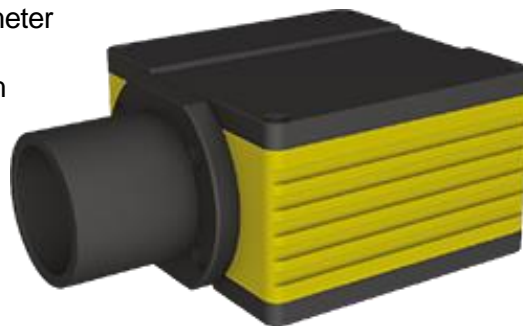
General Specifications

Item	Specification
Range	0 ... 80m
Accuracy	+/-1mm
Laser Class[1]	Class 2 (IEC60825:2007)
Laser Type	635nm
Laser Output	<1mW
Laser Diameter	6mm @10m
Data Output	4 ... 20mA + RS485
Power Source	10 ... 30VDC
Current Drain	<50mA @12Vdc
Operating Temp.	-10 ... +50 celsius
Waterproof	IP65
Dimensions[2]	W65 x H40 x D65mm
Weight	150g

[1] Laser Class
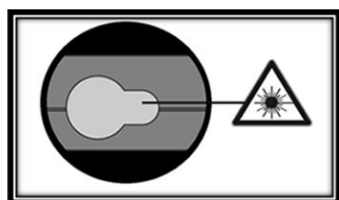
[2] Without mounting and tube

Wiring Connections

The image as below shows pinmap of the gland.

Image	No.	Description
	1	Output+
	2	V+
	3	RS485 A (T+)
	4	RS485 B (T-)
	5	NC
	6	GND (COM)

Analog Data Descriptions

$$= \left\{ \left(\frac{Distance\ Range}{Output\ mA\ Range} \right) \times (Output\ mA - 4mA) \right\} + Min.\ Distance$$

Distance Range : max distance – min distance
Output mA Range : 20mA – 4mA

e.g. Distance range 0...10m, Output 12mA,

$$= \left\{ \left(\frac{10m - 0m}{16mA} \right) \times (12mA - 4mA) \right\} + 0m = 5m$$

Laser Features

- Reflexibility is 100% at white target, low light and 25 celsius.
- Accuracy may lower within +/-2mm at over 30 meters of distance.

RS485 Protocol

1) Communication Standards

Baudrate	115,200	Data Bits	8
Stop Bits	1	Parity	None

✓ *Baudrate in the table is default value.*

2) Data Format (ASCII)
= [ID=nn VALUE= nnnnn]

✓ *ID has 2 digits.*
✓ *Value has 1...5 various digits and mm of unit.*

RS485 Commands

Carriage Return and Line Feed must be attached to end of commands.

e.g. <1 RUN>+CR+LF

(@ is ID of the sensor and # is set value.)

<0 ID>
ID checking

<@ ID_SET #>
Set ID from @ to #

<@ RUN>
Measure data once.

<@ RUNNING>
Measure data continuously.

<@ STOP>
Stop measuring.

<@ LENGTH_MIN #>
Set minimum distance to #.
Minimum distance can be set within 1...79999 and cannot exceed maximum distance.
This command affects only for analog output. (RS485 output is fixed in full-scale.)

<@ LENGTH_MAX #>
Set maximum distance to #. (unit is millimeter.)
Maximum distance can be set within 2...80000 and cannot be less than minimum distance.

<@ INTERVAL #>
Set out-rate to # within 500...30000.
(unit is millisecond.)

<@ CAL 1234>
Set current measured distance to zero.
(1234 is the number of protection.)

<@ BAUD_RATE #>
Set baudrate to #.
 # can be 115200 / 57600 / 38400 / 19200 / 9600 / 4800.

<@ OUTPUT_VIEW #>
Set output data format to # within 0...2 as below.

Value	Data Format
0	[ID=XX VALUE=nnnnn]
1	[# nnnnn]
2	[VALUE=nnnnn]

<@ ON_RUNNING #>
Set function of automatically start measuring when power is on.

Value	Data Format
0	Manual start
1	Automatic start

<@ SAVE 1234>
Save ID and configurations. ID and any configurations not saved will be initialized when shut power off.
(1234 is the number of protection.)

<@ FACTORY_RESET 1234>
Factory reset. (1234 is the number of protection.)

NOTES

1) *Keep lens clean as DLD-420 is a device emitting visible laser.*
2) *Do not look laser directly or aim a person.*
3) *Do not look laser directly with any optical instruments.*
4) *RS485 protocol may cause delay or crash by internal processing time and other reasons. If commanding is not in real-time, repeat sending the command.*
5) *12 months warranty is provided after released. Warranty provided only in case of using for designed purpose correctly.*
6) *Specifications, design and components can be changed without prior notice to improve its performances.*