



Features

- Contactless sensor
- Non-Destructive measurement
- Real-time thickness control
- Compact optical probes
Down to 64 mm and 150g
- Measurable thickness from 10 nm up to 1 mm

Applications

- Industrial coating
- Automotive industry
- Aerospace coatings
- Medical coatings
- Consumer electronics
- Semiconductor coatings

Key values¹

Parameter	Symbol	Value	Unit
Measurable thickness range	E_p	0.01 - 1000	μm
Accuracy	σ_{E_p}	< 3% of the measured thickness	μm
Measurement duration	t_m	10 – 1000	ms
Measurement distance range	d_m	15 – 150	mm

Safety Level

Parameter	Symbol	Value	Unit
Mean time to dangerous failure	MTTFd	1454	Years
Diagnostic Coverage	DCavg	>99%	%

References

Maximum power ² (W)	Wavelength (nm)	Reference
1	455	C3-W455P1
1	1470	C3-W1470P1
3	1550	C3-W1550P3
1	980	C3-W980P1
4	980	C3-W980P4
10	980	C3-W980P10

Repeatability by thickness range¹

Thickness range (μm)	Typical RMS repeatability in 1 point (μm)		Application process
	Paint, Adhesives, polymer coatings...	Metallic, ceramic... coatings	
0.01-0.1	± 0.01	± 0.01	PVD, CVD, PACVD, Electroplating
0.1-1	± 0.05	± 0.05	PVD, CVD, PACVD, Electroplating, Screen printing
1-5	± 0.1	± 0.3	PVD, CVD, PACVD, Electroplating, Anodizing, Spray, Screen printing
5-50	± 0.3	± 1	Anodizing, Electroplating, Galvanizing, Spray, Screen printing
50-300	± 1	± 2	Thermal spray, Cold spray, Galvanizing, Spray
300-1000	± 3	± 5	Thermal spray, Cold spray

Absolute maximum rating ($T_a = 23^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Supply voltage	V_p	+24	V
Maximum supply current	I_p	3	A
Operating temperature	T_n	-5 to +50	$^\circ\text{C}$

Mechanical and optical characteristics ($T_a = 23^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Optical power	P	0.01 - 150	W
Wavelength	λ	455 - 1550	nm
Dimensions of computing unit	$L_c \times W_c \times H_c$	123 x 200 x 85	mm
Weight of computing unit	m_c	1.7	Kg
Dimensions of optical probes	$L_h \times W_h \times H_h$	93 x 66 x 66 (T33) 64 x 35 x 35 (T60)	mm
Weight of optical probes	m_h	400 (T33) 150 (T60)	g

Available spot sizes and measurement distances

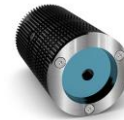
Spot diameter (mm)	Measurement distance d (mm)	Reference of the front lens	Typical tolerances on distance (mm) ¹	
			Paint, adhesives, polymer coatings...	Metallic, ceramic... coatings
0.3	20	SP03-FL-WD20-SD0.3	± 2	± 0.5
0.7	20	SP03-FL-WD20-SD0.7	± 2	± 0.5
2.5	20	SP03-FL-WD20-SD2.5	± 2	± 0.5
4.9	20	SP03-FL-WD20-SD4.9	± 2	± 0.5
6.5	20	SP03-FL-WD20-SD6.5	± 2	± 0.5
0.8	40	SP03-FL-WD40-SD0.8	± 4	± 1
2.3	40	SP03-FL-WD40-SD2.3	± 4	± 1
3.3	40	SP03-FL-WD40-SD3.3	± 4	± 1
10	40	SP03-FL-WD40-SD10.0	± 4	± 1
12	40	SP03-FL-WD40-SD12.0	± 4	± 1
8.8	100	SP03-FL-WD100-SD8.3	± 10	± 4
11.8	150	SP03-FL-WD150-SD11.8	± 20	± 10

Available optical probes references

Reference

T33

T60



Size (mm) $L_c \times W_c \times H_c$

D66 x 93

D35 x 64

Weight (g)

400

150

AS06-OM-TS-MN –
Orthogonal module
static available

Yes

Yes

AS06-OM-TD-MW –
Orthogonal module
dynamic available

Yes

No


Shift (mm) to apply to
front lens indication \underline{d}
to determine effective
measurement
distance \underline{D}

-6.5

-0.5

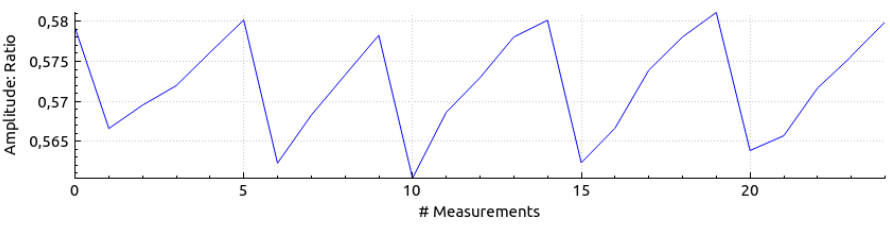
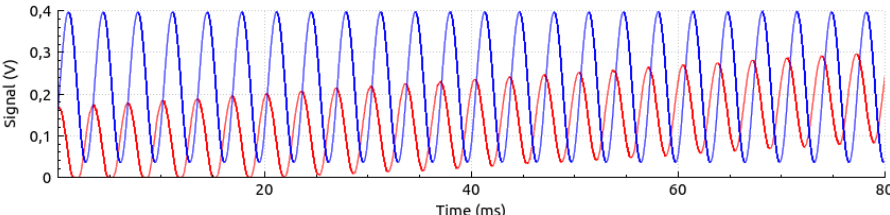
$\underline{D} = \underline{d} + \text{shift}$

Signal testing software view



enovasense
BEHIND THE INVISIBLE

BACK



TEN100 (10.42.0.100) Add modules

Frequency: 300 Hz

Voltage: 0.35 V watts?

Heating time: 60 ms

Measuring time: 80 ms

Pause time: 10000 ms

Phaseshift: -71.31

Phaseshift stability: 0.071868

START


STOP

RESET

LOAD...


EXPORT...

Fast calibration software view



enovasense
BEHIND THE INVISIBLE

BACK



Selected Module: 1

LOAD CONFIG...

Current config: LIBRATION/TOY-980-SS-A-N

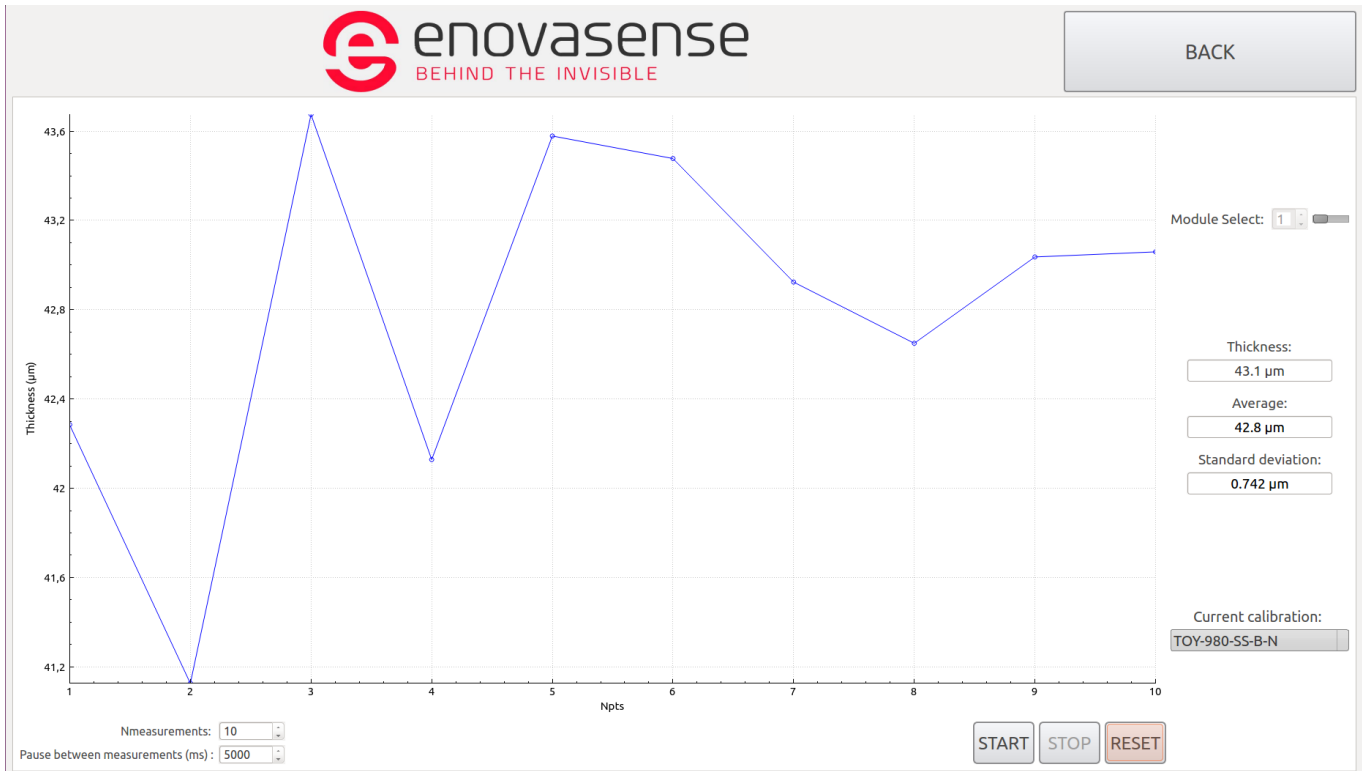
FAST_CALIBRATION TOY-980-SS-A-N


ADD...

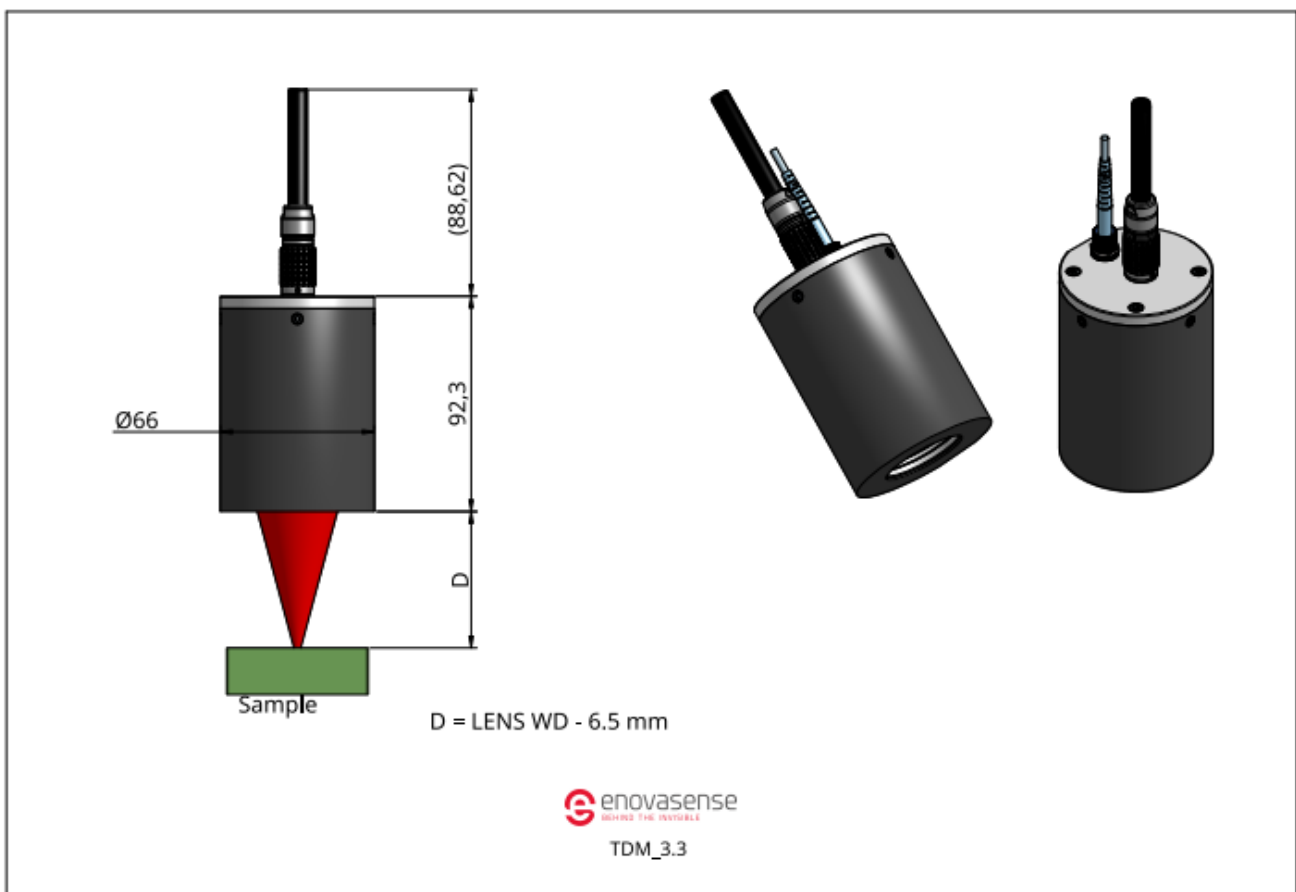
TRAIN

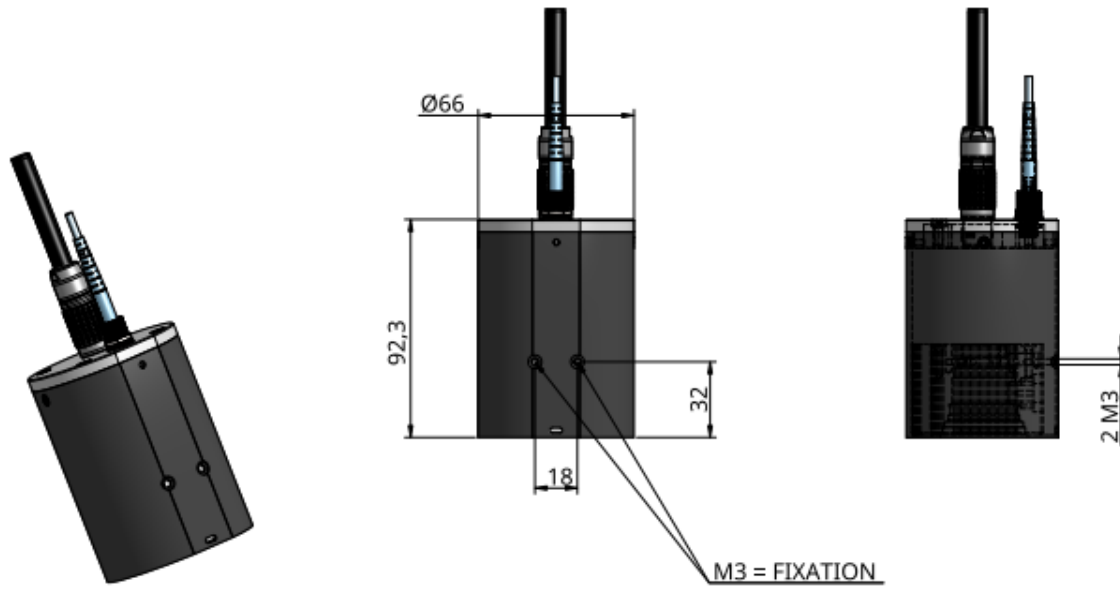
SAVE AND EXPORT

Input number:

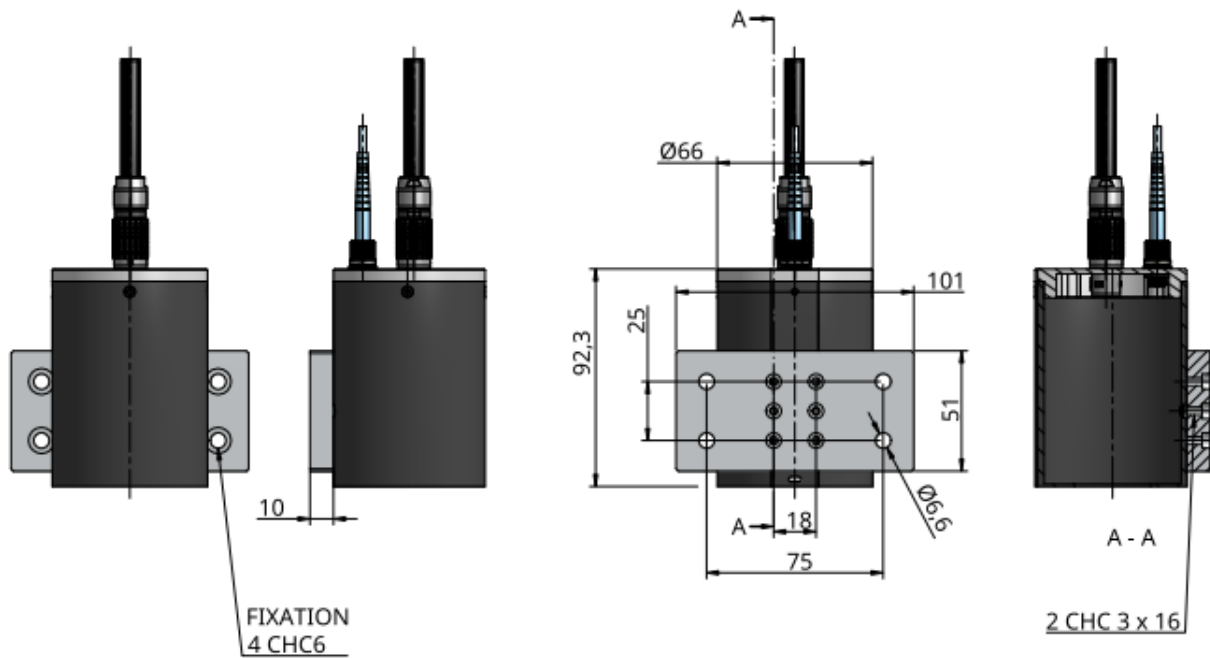


 Optical probe T33




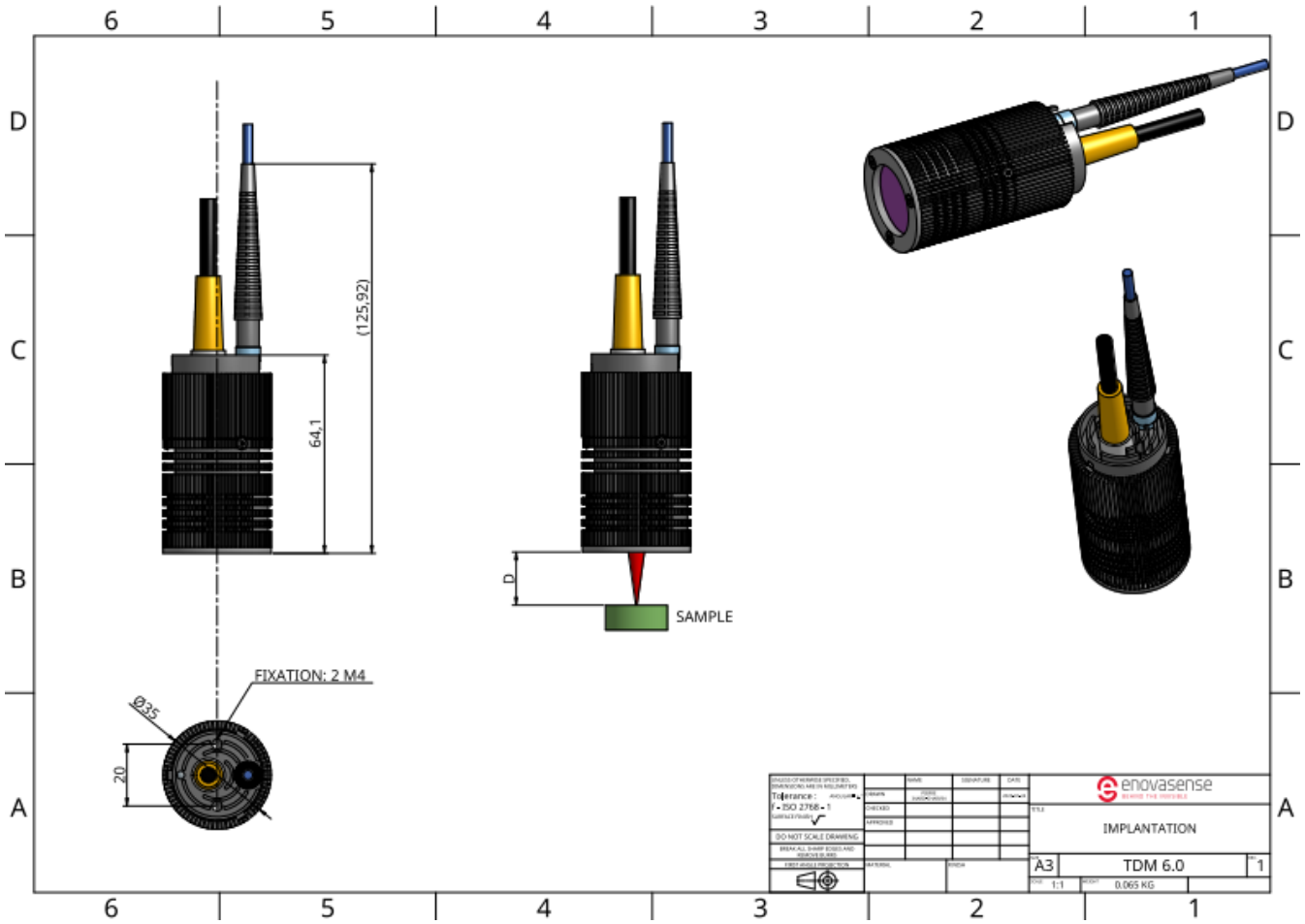


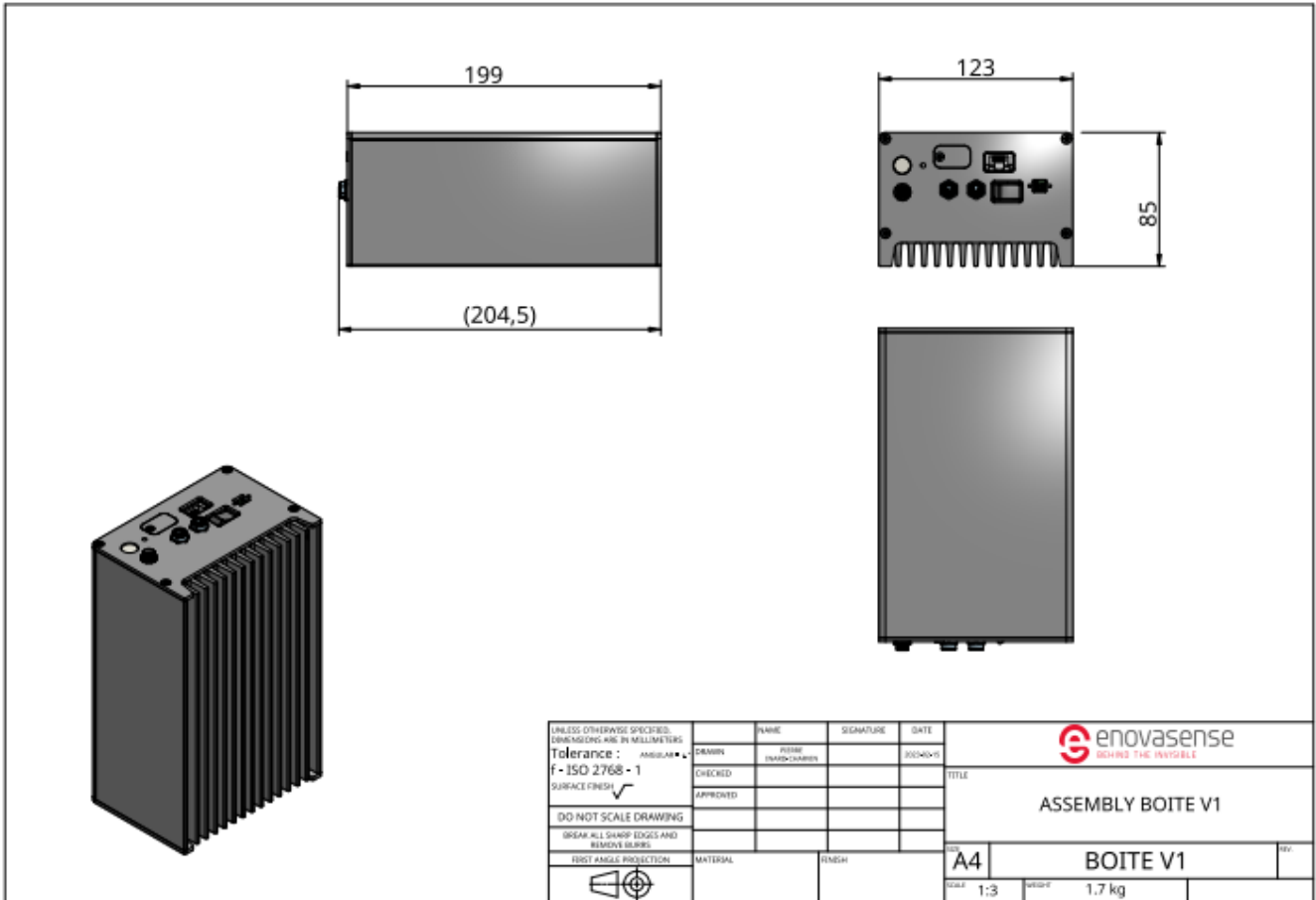
TDM_3.3_Fixation



TDM_3.3_Fixation

 Optical probe T60





Package content

Designation	Quantity
Computer with EU power adaptor	1
Enovasense TPS computing unit	1
EU Power cable	1
HDMI cable	1
Optical fiber	1
LEMO cable	1
Enovasense Optical probe T33 or T60	1
Front lens SP03-FL	1
Enovasense standard software	1
1-year warranty	1
CE certificate	1
Quality control certificate	1

¹Performances values given in this document are typical values obtained with this device but can vary from one application to another. For a diagnosis of those performances on specific samples, please contact Enovasense.

²For each source, the value provided is the maximum possible emitted power provided. Depending on the laser supplier, this maximum can vary of 30% under the maximum value.

Contact

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