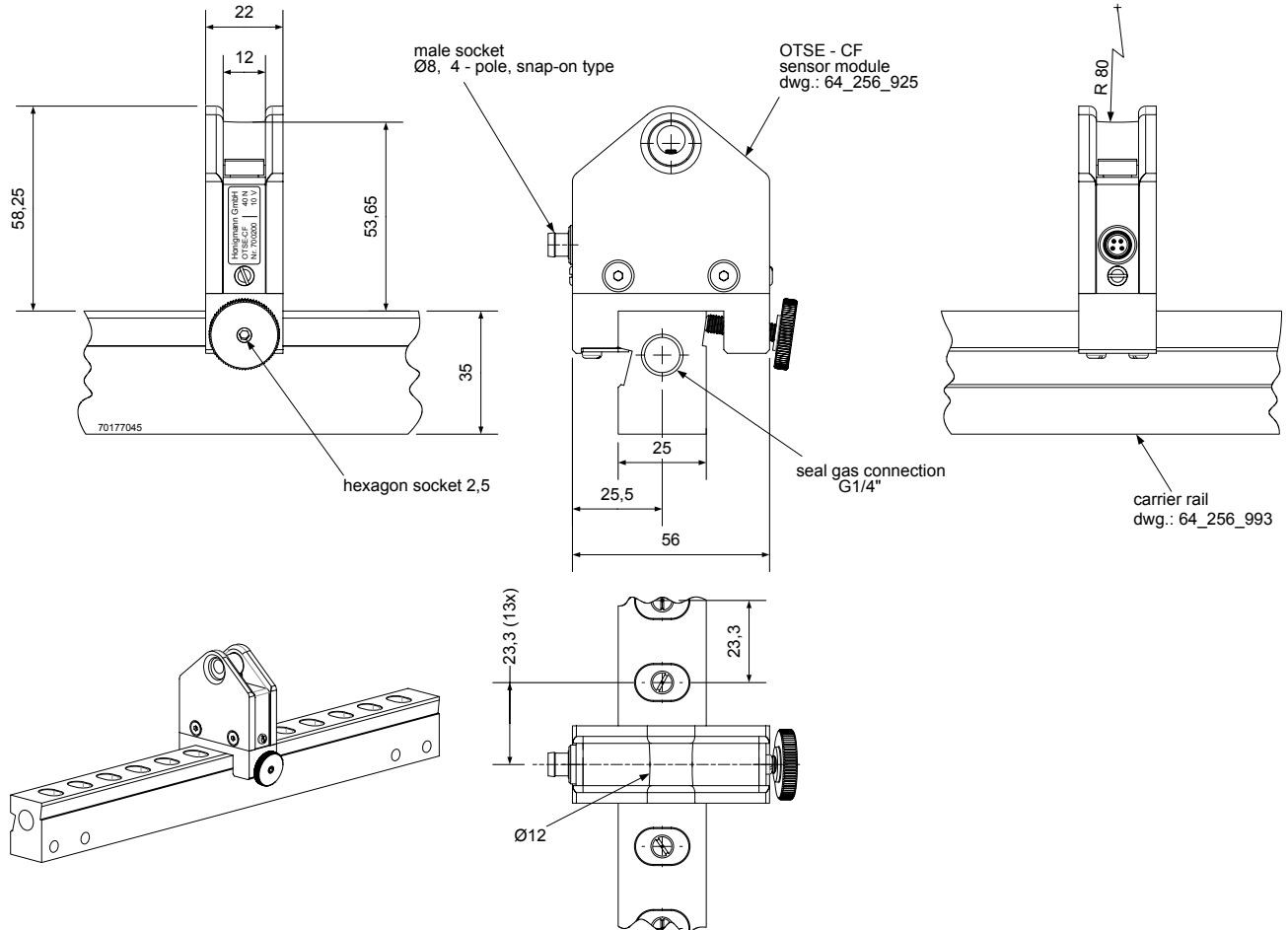


OTSE-CF

On-line Tension Sensor for Carbon Fibers with built-in measuring amplifier

Scale drawing



All dimensions in mm

Rated measuring ranges

Nominal force [N]									
40									

The measuring range of the sensor begins at the force's zero point.
 Nominal forces differing from the list are available.

Order code

	OTSE	- CF	- 40	- S
Type				
Design				
Nominal force [N]				
Connection	S: with male socket			

Scope of supply

Sensor according to scale drawing

OTSE-CF

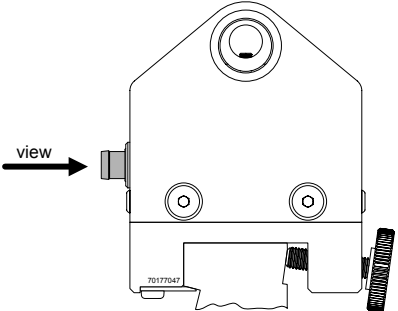
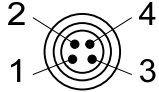
On-line Tension Sensor for Carbon Fibers with built-in measuring amplifier

Technical data

Nominal force (F_N)	N	40
Accuracy class		0,5
max. wrap angle	°	60
Supply voltage range	V	20 to 28
Current consumption (without load)	mA	approx. 36
Output		
- voltage range	V	0 to ± 12 , $R_L \geq 1 \text{ k}\Omega$
- voltage span at F_N	V	10
Cut-off frequency (-3dB)	Hz	16
Zero point (in the range of)	V	-5 to -3
Nominal temperature range	°C	5 to 50
Operational temperature range	°C	-10 to 50
Storage temperature range	°C	-30 to 70
Reference temperature	°C	23
Temperature influence per 10 K		
- on the zero point (TK0)	% F_N	$< \pm 0,2$
- on the calibration (TKC)	% F_N	$< \pm 0,15$
Creep after 30 minutes	% F_N	$< \pm 0,05$
Linear output signal up to	% F_N	approx. 125
Mech. overload protection takes effect at	% F_N	approx. 140
Overload protected ¹	% F_N	> 1000
Typ. deflection at nominal force	mm	0,07
Typ. natural frequency of the sensor	kHz	1,5
Weight	g	approx. 160
Connector	male socket, $\varnothing 8 \text{ mm}$, 4-pole, snap-on type gold-plated contacts	
Sensor housing	aluminium	
Protection class	IP54 in conjunction with sealing gas	

¹ radial incoming force without additional bending or tilting moment

Connections

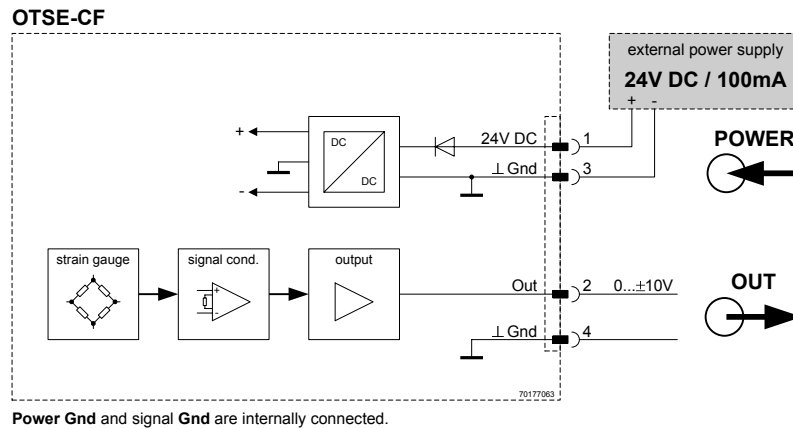
Connector pin assignment	
 <p>view →</p>	 <p>Pin 1: 24V DC Pin 2: Out 0-10V Pin 3: GND Pin 4: GND</p>

Mating connector: female cable connector, angled, $\varnothing 8 \text{ mm}$, 4-pole, snap-on type

OTSE-CF

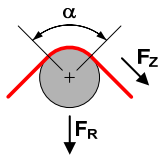
On-line Tension Sensor for Carbon Fibers with built-in measuring amplifier

Block diagram



Calculating the nominal force

$$F_R = 2 \cdot F_Z \cdot \sin \frac{\alpha}{2}$$

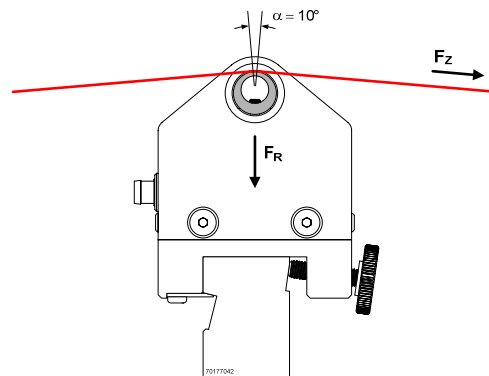


wrap angle α	resulting force F _R
30°	0,5 • F _Z
60°	1,0 • F _Z

α: wrap angle
 F_Z: tension
 F_R: resulting force

Example

α = 10°, F_Z = 40N
 The resulting force is 6,8N.



Accessories

- Connection cable with mating connector
- Carrier rail

