

Data Sheet | Force Transducer Series UB

Nominal Force
20 - 500 kN



Key Facts

- ▶ Optimised for dynamic compression and tensile forces
- ▶ Accuracy class: 0.2 to 0.3
- ▶ Fatigue endurance limit: >100 million load cycles
- ▶ Very compact & robust design | cost-effective
- ▶ Easy mounting: Internal threads

Options | Accessories

- ▶ Second axial measuring circuit for redundancy
- ▶ Fixed connector sockets or fixed cable in various lengths on the sensor
- ▶ In case of fixed cable on load cell: different connector types (e.g. D-Sub 9/15, MS, M12) or free ends

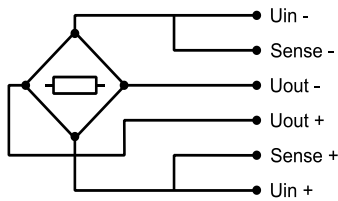
Technical Data | 20 – 500 kN

Nominal force compression/tension		$\pm F_{nom}$	kN	20	50	100	200	500
Metrological Data	Accuracy class			0.2		0.3		
	Linearity error	d_{lin}	%	0.2		0.3		
	Hysteresis	h	%	0.05		0.07		
	Repeatability (f.s.)		%	0.01				
	Zero error	f_0	%	0.02				
	Creep		%	0.05				
	Temperature effect on characteristic value per 10 K	TK_C	%/10 K	0.2				
	Temperature effect on zero signal per 10 K	TK_0	%/10 K	0.2				
	Eccentricity effect		%/mm	0.05				
	Lateral force effect		%/(0,1·F _{nom})	0.1				
	Torque effect		%/(mm·F _{nom})	0.1				
	Characteristic value difference, tension/compression force	d_{ZD}	%	max. 2				
	Rated characteristic value	C_{nom}	mV/V	2				
Characteristic value tolerance	dc	%	0.25					
Electrical Data	Zero signal deviation	$d_{S,0}$	%	0.5				
	Input resistance	R_e	Ω	350 - 450				
	Output resistance	R_a	Ω	200 - 300		250 - 350		300 - 400
	Insulation resistance	R_{is}	Ω	>10 ⁹				
	Operating range of excitation voltage	$B_{U,G}$	V	5 - 12				
	Protection (DIN EN 60529)			54				

Technical Data | 20 – 500 kN

Mechanical Data	Nominal force compression/tension	$\pm F_{nom}$	kN	20	50	100	200	500
	Rated Displacement	s_{nom}	mm	0.04	0.07	0.09	0.12	0.21
	Spring rigidity	c_{ax}	kN/mm	500	710	1100	1650	2350
	Mass	m	kg	0.3		1	1.5	8
	Proportionate moving mass	m_{mess}	kg	0.1		0.3	0.6	3.5
	Fundamental resonant frequency	f_G	kHz	7	8.5	6		3
	Permissible oscillation stress		%	100				
Limits	Force limit		%	150				
	Breaking force		%	300				
	Lateral force limit		%	80				
	Permissible eccentricity	e_G	mm	10				
	Rated temperature range	$B_{T,nom}$	°C	-10 - +60				
	Operating temperature range	$B_{T,G}$	°C	-10 - +80				

Cable connection | 20 – 500 kN



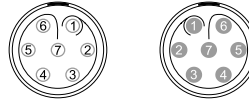
Permanent connection
end connected¹⁾

7-pin LEMO Series 1
Male



Connection
pluggable¹⁾²⁾

7-pin LEMO Series 0
Female: - Male:



Permanent connection
end not connected

SMC: grey | Ø 6.5 mm | twisted in
pairs |
3 x 2 x 0.25 mm² | -35 °C to +90 °C

Connection		Pin	Pin	Wire Color
Supply voltage (+)	U _{in+}	3	3	SMC: blue
Supply voltage (-)	U _{in-}	2	2	SMC: black
Measurement signal (+)	U _{out+}	1	1	SMC: white
Measurement signal (-)	U _{out-}	4	4	SMC: red
Sense (+)	Sense+	5	5	SMC: green
Sense (-)	Sense-	6	6	SMC: grey
Shielding		Housing	Housing	SMC: yellow

1) View too weldingside

2) Female LEMO S.A. Typ: EGG.1B.307.CLL; Male: FGG.1B.307.CLA.D72



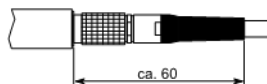
► Pluggable cable connection

All standard variants of the series UB are equipped with a pluggable LEMO socket. Suitable measuring cables S-CAB / C-CAB are available as accessories.



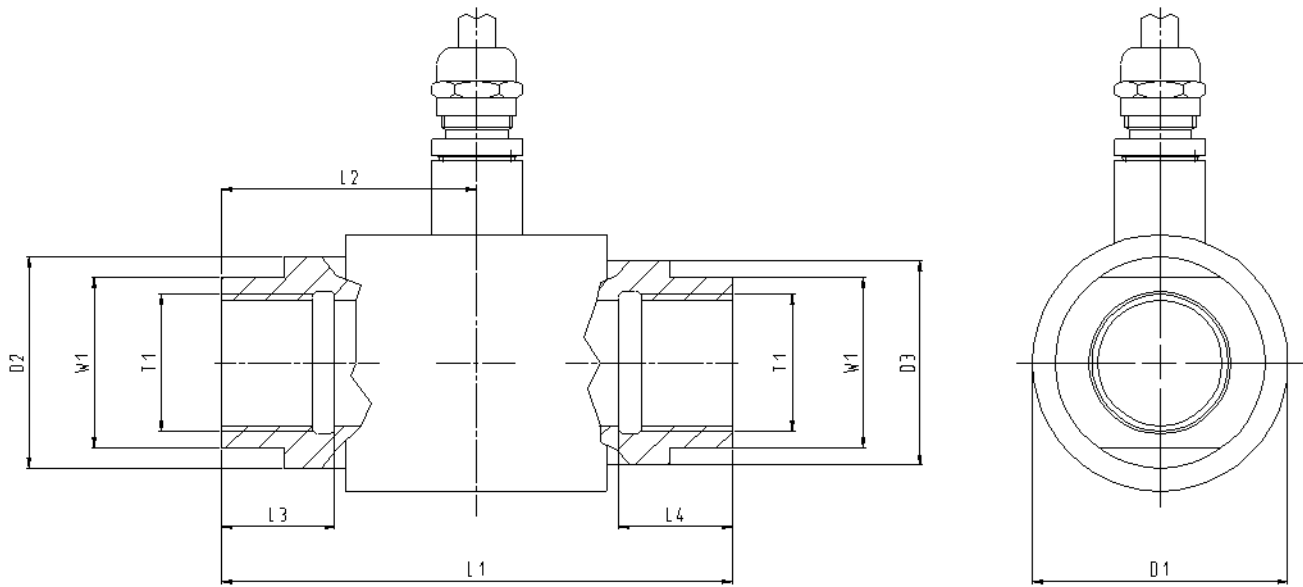
► Fixed measuring cable with open ends

For variants with fixed measuring cable type SMC 5 m and open cable ends, e.g. measuring amplifier plugs of type D-Sub 9; D-Sub 15; M-S 7pol can be additionally assembled on request.



- cable length type SMC 5 m. More cable types and lengths on request
- double measuring bridge on request
- special thread on request
- accessories on request

Mating dimensions



Nominal force compression/tension	$\pm F_{nom}$	kN	20	50	100	200	500
Diameter	$\varnothing D_1$	mm	40	55	65	120	
Diameter	$\varnothing D_2$	mm	30	45	55	110	
Diameter	$\varnothing D_3$	mm	29	44	54	109	
Lenght	L_1	mm	71	95	115	180	
Lenght	L_2	mm	35.5	47.5	57.5	92	
Lenght	L_3	mm	19	22	25	55	
Thread	T_1		M20x1.5	M24x2	M30x2	M56x4	
Width	W_1	mm	24	36	46	85	

Order Numbers | Standard variants

► Force transducer Series UB

Nominal Force	Description			Order number
Variants with pluggable cable connection				
20 kN	Force transducer series UB	20 kN	pluggable cable connection	S-UB-20K0-PLU
50 kN	Force transducer series UB	50 kN	pluggable cable connection	S-UB-50K0-PLU
100 kN	Force transducer series UB	100 kN	pluggable cable connection	S-UB-100K-PLU
200 kN	Force transducer series UB	200 kN	pluggable cable connection	S-UB-200K-PLU
500 kN	Force transducer series UB	500 kN	pluggable cable connection	S-UB-500K-PLU
Variants with fixed measuring cable with open ends				
20 kN	Force transducer series UB	20 kN	fixed measuring cable SMC 5m open cable ends	S-UB-20K0-CAB
50 kN	Force transducer series UB	50 kN	fixed measuring cable SMC 5m open cable ends	S-UB-50K0-CAB
100 kN	Force transducer series UB	100 kN	fixed measuring cable SMC 5m open cable ends	S-UB-100K-CAB
200 kN	Force transducer series UB	200 kN	fixed measuring cable SMC 5m open cable ends	S-UB-200K-CAB
500 kN	Force transducer series UB	500 kN	fixed measuring cable SMC 5m open cable ends	S-UB-500K-CAB

Note: all standard variants always (1) without attachments (2) 2 mV/V (3) single measuring bridge

Order Numbers | Measuring cable

Description	Order number
Measuring cable	
Standard measuring cable grey 5 m shielded and twisted in pairs cable sheath Ø 6.5 mm 6-wire technology transducer connection: straight plug (male) type LEMO 7-pole push-pull cable end amplifier: open	S-CAB-SMC-L-5M-F
Double-shielded measuring cable yellow 5 m double shielded and twisted in pairs cable sheath Ø 6.5 mm 6-wire technology transducer connection: straight plug (male) type LEMO 7-pole push-pull (male) cable end amplifier: open	S-CAB-DMC-L-5M-F
Temperature-resistant measuring cable red 5 m shielded and twisted in pairs cable sheath Ø 7.2 mm 6-wire technology transducer connection: straight plug (male) type LEMO 7-pole push-pull (male) cable end amplifier: open	S-CAB-TMC-L-5M-F
High flexible measuring cable black 5 m double shielded and twisted in pairs cable sheath Ø 2.9 mm 6-wire technology transducer connection: straight plug (male) type LEMO 7-pole push-pull (male) cable end amplifier: open	S-CAB-FMC-L-5M-F
Configurable measuring cable type SMC, DMC, TMC, FMC in different lengths with different connectors	C-CAB-...

Order Numbers | Accessories

Description	Order number
Accessories	
Series UB load button (1 piece)	
Series UB 20 kN load button	S-MA-UB-LB-20K0
Series UB 50 kN load button	S-MA-UB-LB-50K0
Series UB 100 kN load button	S-MA-UB-LB-100K
Series UB 200 kN load button	S-MA-UB-LB-200K
Series UB 500 kN load button	S-MA-UB-LB-500K
Series UB road end (1 piece)	
Series UB 20 kN road end	S-MA-UB-RE-20K0
Series UB 50 kN road end	S-MA-UB-RE-50K0
Series UB 100 kN road end	S-MA-UB-RE-100K
Series UB 200 kN road end	S-MA-UB-RE-200K
Series UB 500 kN road end	S-MA-UB-RE-500K

Subject to change without notice. All information describes our products in general terms. They do not represent agreed quality in the sense of § 434 Para. 1 of the BGB (German Civil Code).



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