



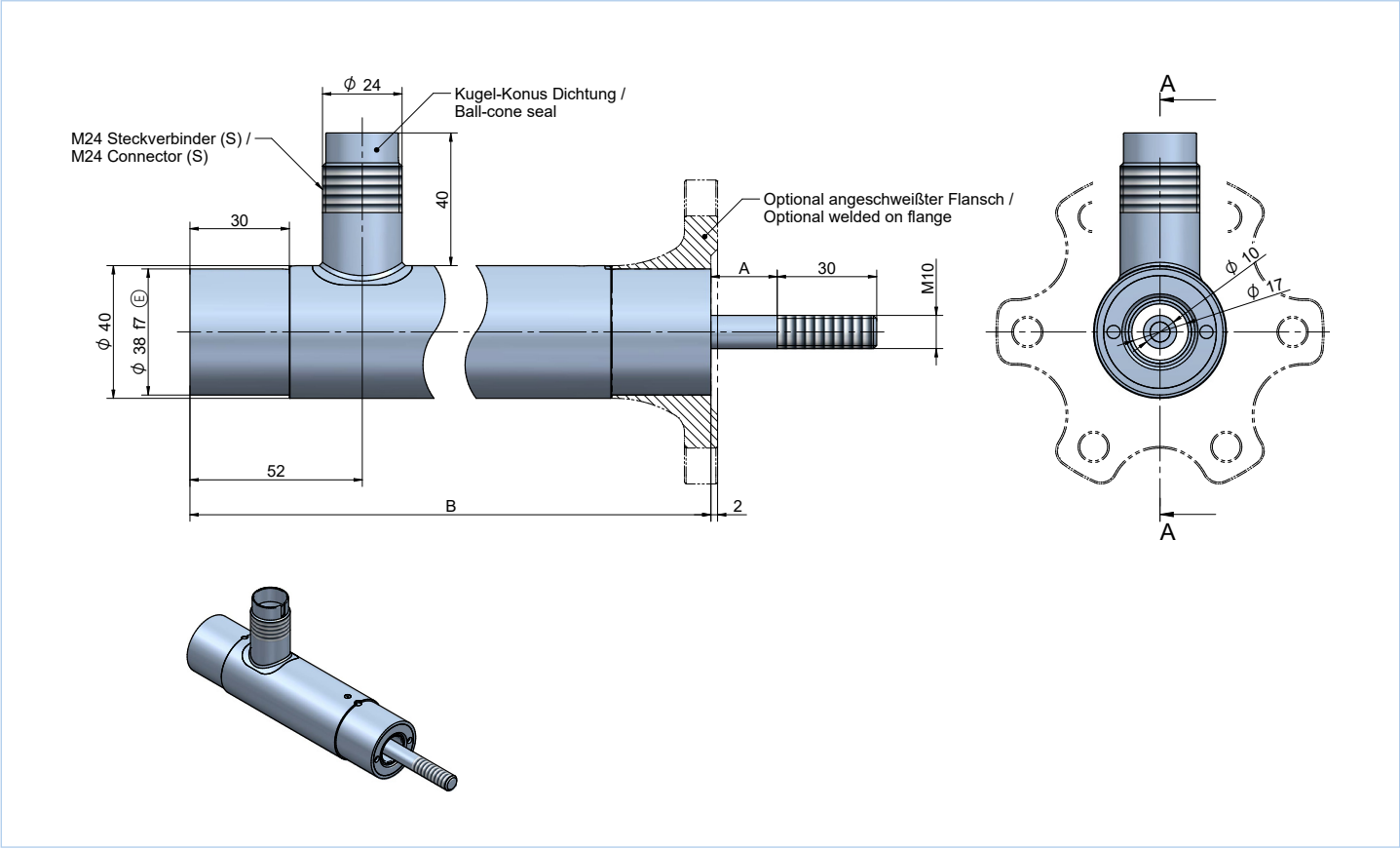
SXL SERIES | LVDT

The SXL series offers an extreme-robust measuring chain. Predestined for use in high temperature and high radiation environments.

- Measurement range nominal 50...400 mm
- High temperature resistance
- Stainless steel housing
- Hermetically sealed
- Analogue output & USB-Interface
- High resolution
- High dynamics
- High noise immunity

SENSOR

TECHNICAL DRAWING SENSOR

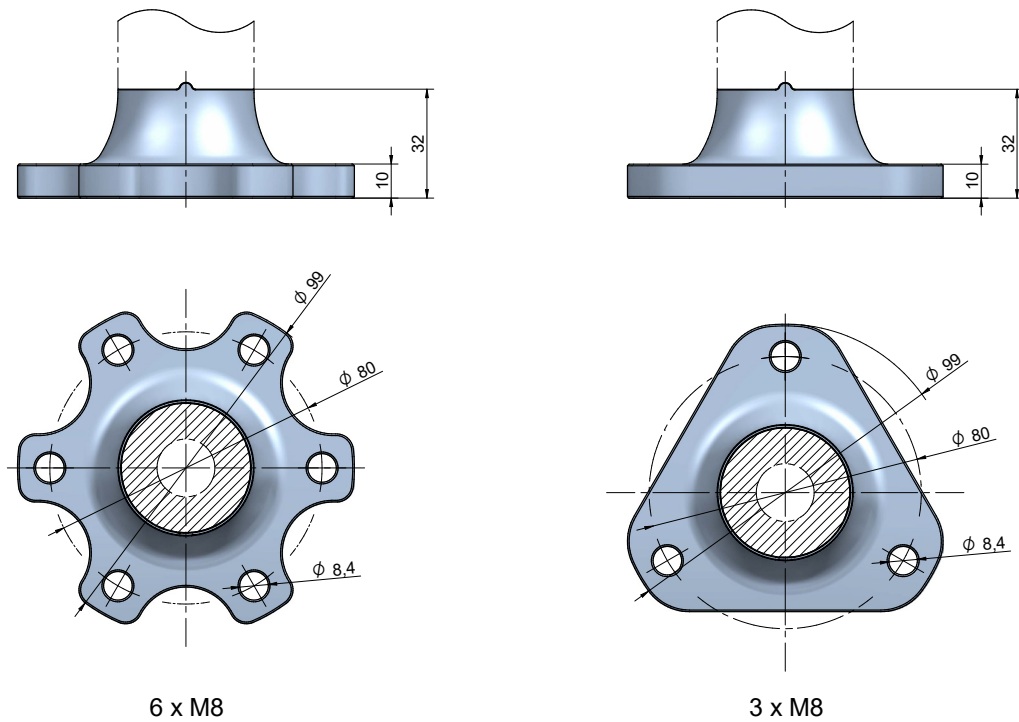


TECHNICAL DATA SENSOR

SENSOR	SXL50	SXL100	SXL200	SXL300	SXL400
General					
Material housing	Stainless steel, 1.4301				
Construction	Hermetically sealed stainless steel housing, open ended tube design, unguided push rod				
Mounting method	Clamping onto 38 f7 outer diameter or bolting via the optional welded on flange (p. 3)				
Connector	4-pole connector, self sealing threaded connection				
Humidity	up to 100 %				
Operating temperature range	-25...+400 °C				
Vibration ZPA (Zero Period Acceleration)	10 g				
Shock	30 g/ 11 ms				
Protection class	IP68				
Pressure resistance	10 bar				
Radiation	250 kGy / 1 kGy/h				
Radiation LOCA	600 kGy / 1 kGy/h				
Weight sensor (approx.) [g]	1000	1480	2440	3400	4400
Weight push rod (approx.) [g]	105	150	240	330	420
Dimension A [mm]	20...70	20...120	20...220	20...320	20...420
Dimension B [mm]	157	232	382	532	682
Electrical characteristics					
Nominal measurement range [mm]	0...50	0...100	0...200	0...300	0...400
Linearity	0.1 % of measurement range with DEEneo-3U controller				
Rated voltage level	Nominal 3 Vrms, max. 10 Vrms				
Rated frequency range	500...2000 Hz				
Max. insulation voltage	50 VDC acc. IEEE-43-2000				

SENSOR

■ TECHNICAL DRAWING OPTIONAL WELDED ON FLANGE

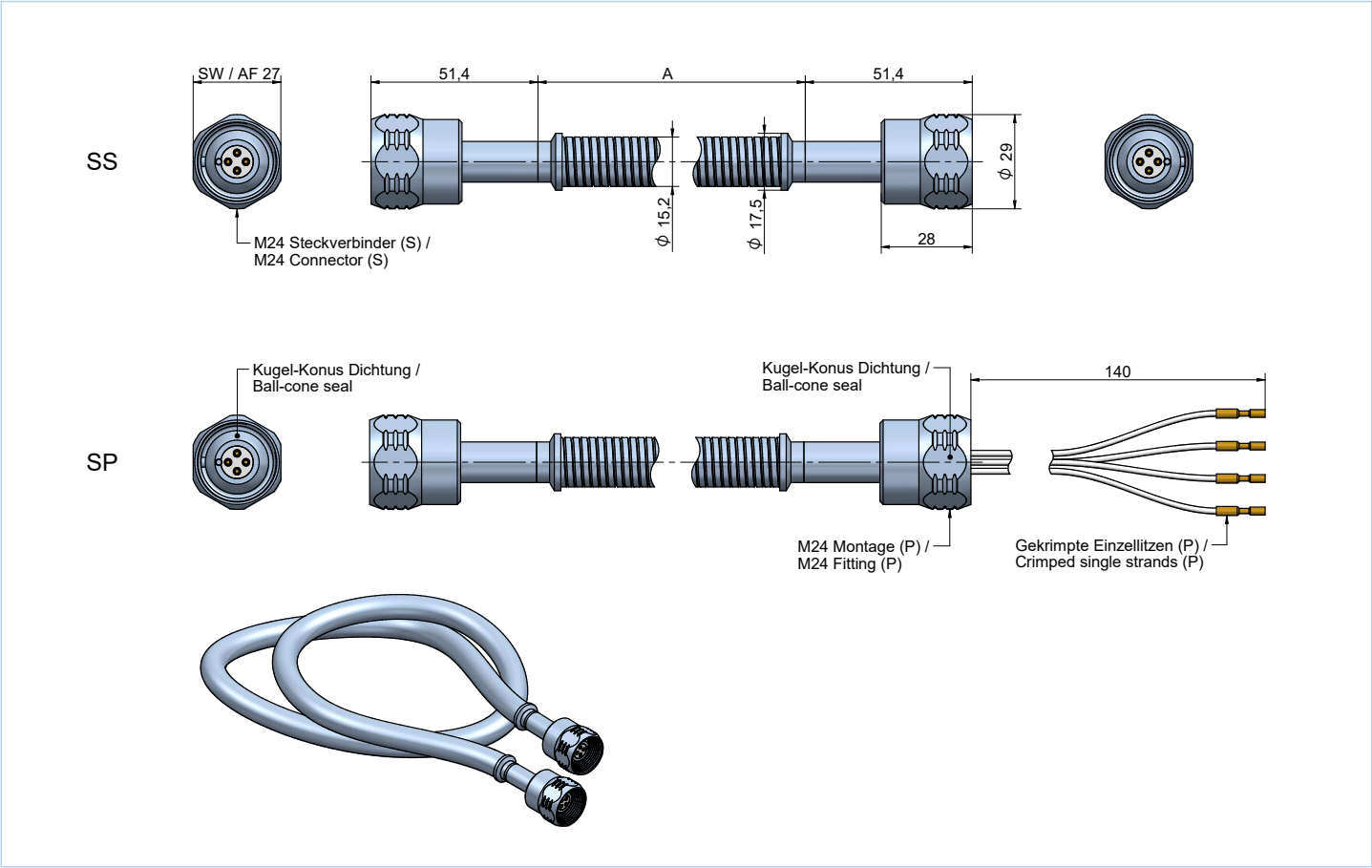


■ TECHNICAL DATA OPTIONAL WELDED ON FLANGE

FLANGE	FLANGE 6 X M8	FLANGE 3 X M8
Material	Stainless steel, 1.4301	
Mounting method	6 x M8 Screw	3 x M8 Screw
Screw type	Hexagon Socket Head Cap Screw ISO 4762 - M8 x 30	
Washer type	Nord-Lock wedge-locking washer	
Compatibility	SXL50, SXL100, SXL200, SXL300, SXL400	SXL50, SXL100
Weight flange (approx.) [g]	400	400

CORRUGATED CABLE

■ TECHNICAL DRAWING CORRUGATED CABLE



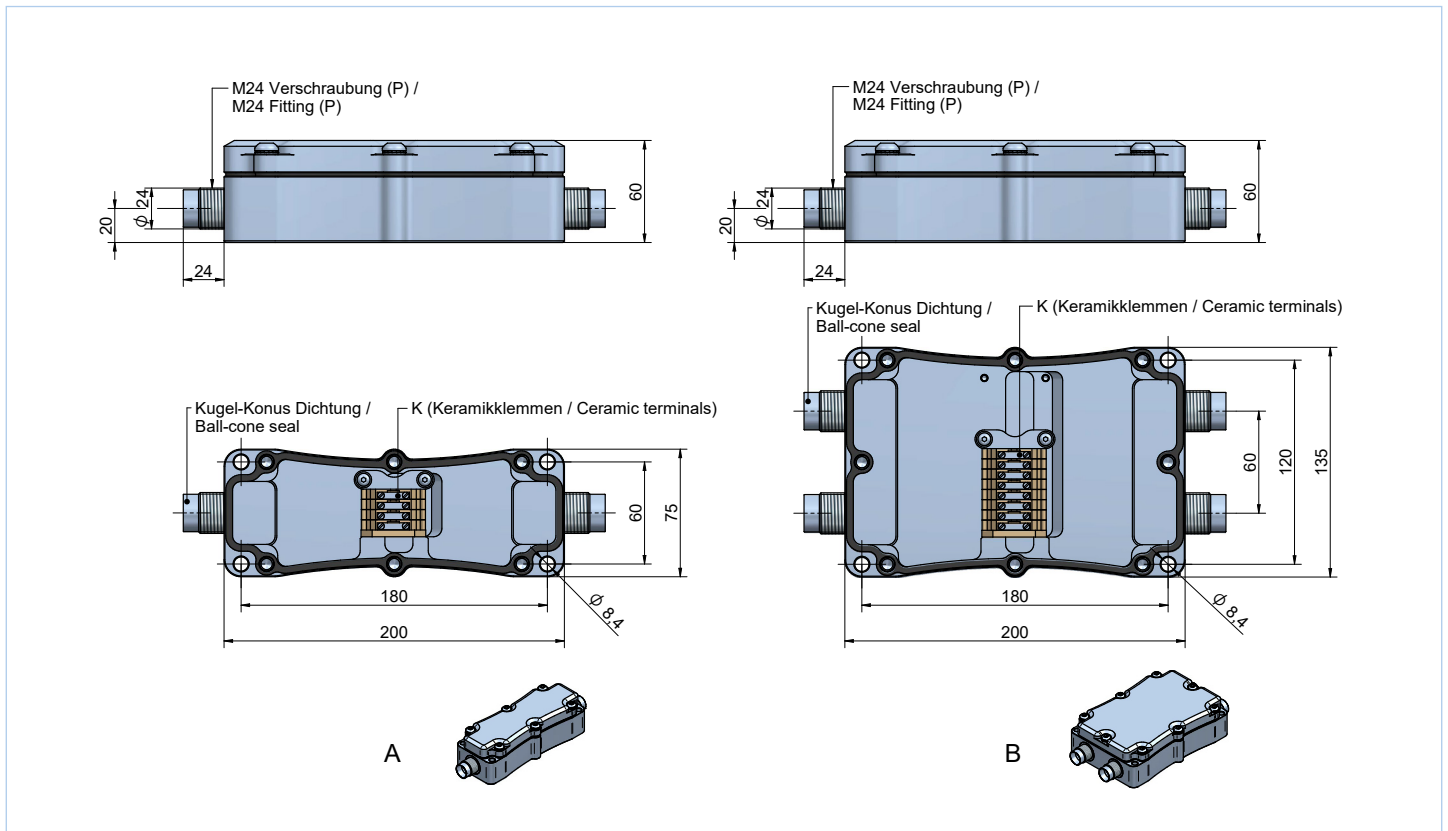
■ TECHNICAL DATA CORRUGATED CABLE

CORRUGATED CABLE	CABLE C 1,0 M SXL	CABLE C 5,0 M SXL	CABLE C 10,0 M SXL
General			
Material housing	Stainless steel, 1.4301 / 1.4404		
Construction	Corrugated hose with stainless steel protective hose		
Connection to sensor / feedthrough (S)	4-pole connector, self sealing threaded connection		
Connection to junction box (P) (only in SP configuration)	Open wires, self sealing threaded connection		
Humidity	up to 100 %		
Operating temperature range	-25...+400 °C		
Vibration ZPA (Zero Period Acceleration)	10 g		
Shock	30 g/ 11 ms		
Protection class	IP68		
Pressure resistance	10 bar		
Radiation	250 kGy / 1 kGy/h		
Radiation LOCA	600 kGy / 1 kGy/h		
Bending radius (static)	≥120 mm		
Dimension A [mm]*	1000	5000	10000
Weight (approx.) [g]	480	1600	3000

*Customized versions available on request

JUNCTION BOX

■ TECHNICAL DRAWING JUNCTION BOX

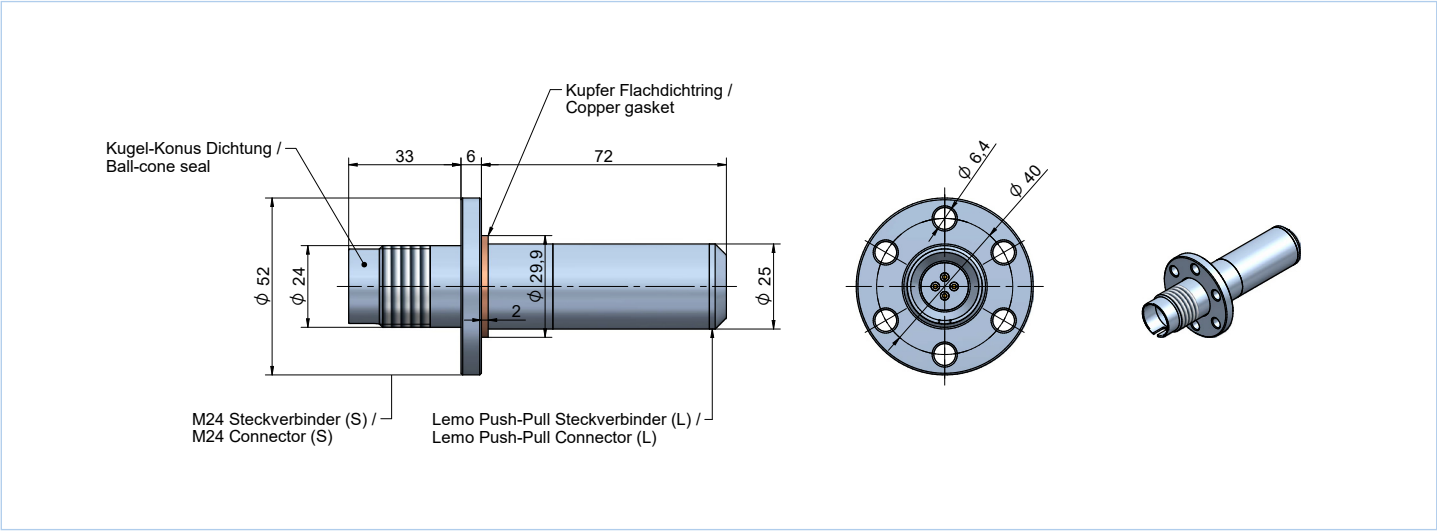


■ TECHNICAL DATA JUNCTION BOX

JUNCTION BOX	JUNCTION BOX A SXL		JUNCTION BOX B SXL	
General				
Material housing	Stainless steel, 1.4301			
Construction	Stainless steel housing, graphite gasket			
Mounting method	4 x M8 Screw			
Screw type	Hexagon Socket Button Head Screw ISO 7380-1 - M8 x 60			
Washer type	Nord-Lock wedge-locking washers			
Connector (P)	Ceramic terminals, self sealing M24 threaded connection			
Humidity	up to 100 %			
Operating temperature range	-25...+150 °C			
Vibration ZPA (Zero Period Acceleration)	10 g			
Shock	30 g/ 11 ms			
Protection class	IP68			
Pressure resistance	10 bar			
Radiation	250 kGy / 1 kGy/h			
Radiation LOCA	600 kGy / 1 kGy/h			
Amount of ceramic terminals (K)	4	8	(14)	
Weight (approx.) [g]	4000	6750	(6900)	
Ceramic terminals				
Rated cross-section with wire-end ferrule	0,25...2,5 mm²			
Connecting method	Screw connection			
Wire-end ferrule (mandatory)	Non-insulated, 10 mm long			
Tightening torque	0,5 Nm			
Tightening screw	M3, slot head (bit with blade width 3mm)			
Material	Ceramics			

FEEDTHROUGH

■ TECHNICAL DRAWING FEEDTHROUGH



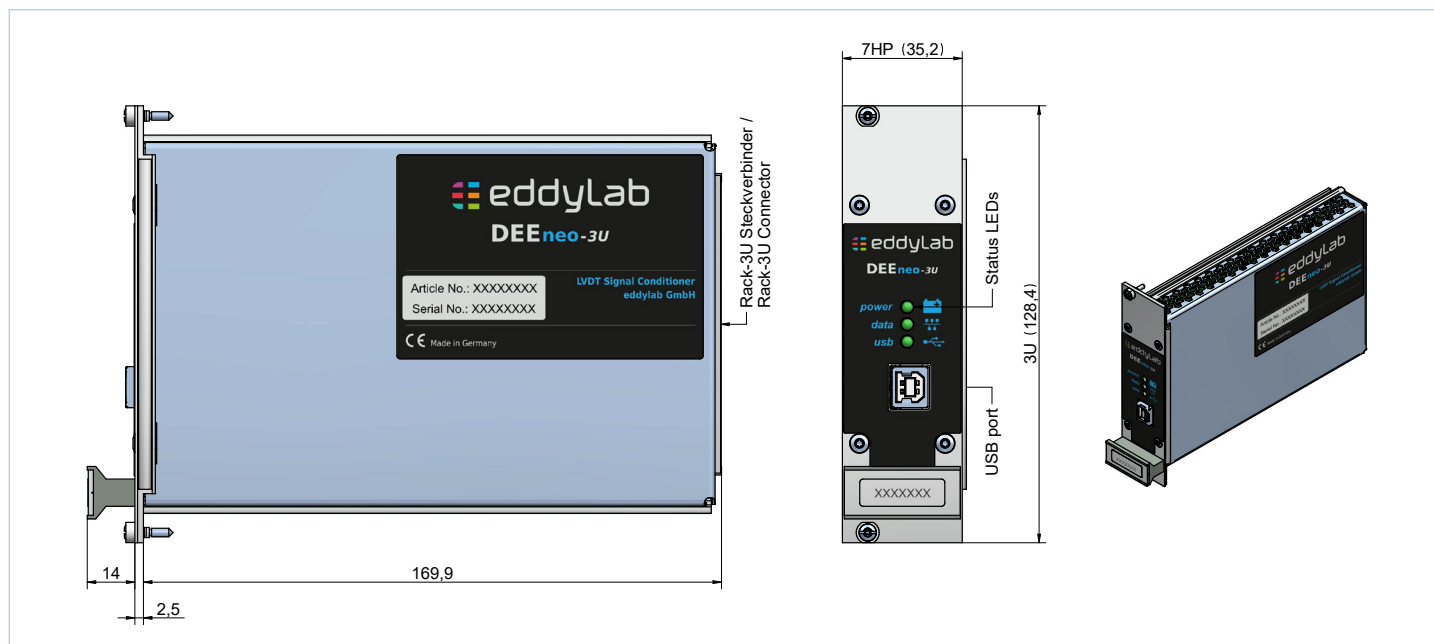
■ TECHNICAL DATA FEEDTHROUGH

FEEDTHROUGH	FEEDTHROUGH D SXL
General	
Material housing	Stainless steel, 1.4301 / Brass chrome plated
Construction*	Hermetically sealed feedthrough for installation in sealed enclosed areas
Mounting method	6 x M6 Screw
Screw type	Hexagon Socket Head Cap Screw ISO 4762 - M6 x 20
Washer type	Nord-Lock wedge-locking washers
Connector (S)	4-pole connector, self sealing threaded connection
Connector (L)	Lemo connector EGG.2K.304.CYP
Humidity	up to 100 % (only connector S) / 95 % at 60 °C (only connector L)
Operating temperature range	-25...+400 °C (only connector S) / -55...+200 °C (only connector L)**
Vibration ZPA (Zero Period Acceleration)	10 g
Shock	30 g/ 11 ms
Protection class	IP68
Pressure resistance	10 bar (only connector S)
Radiation	250 kGy / 1 kGy/h (only connector S)
Radiation LOCA	600 kGy / 1 kGy/h (only connector S)
Weight (approx.) [g]	350

*Customized versions available on request
**Max. temperature valid for short periods of use

CONDITIONER

■ TECHNICAL DRAWING CONDITIONER

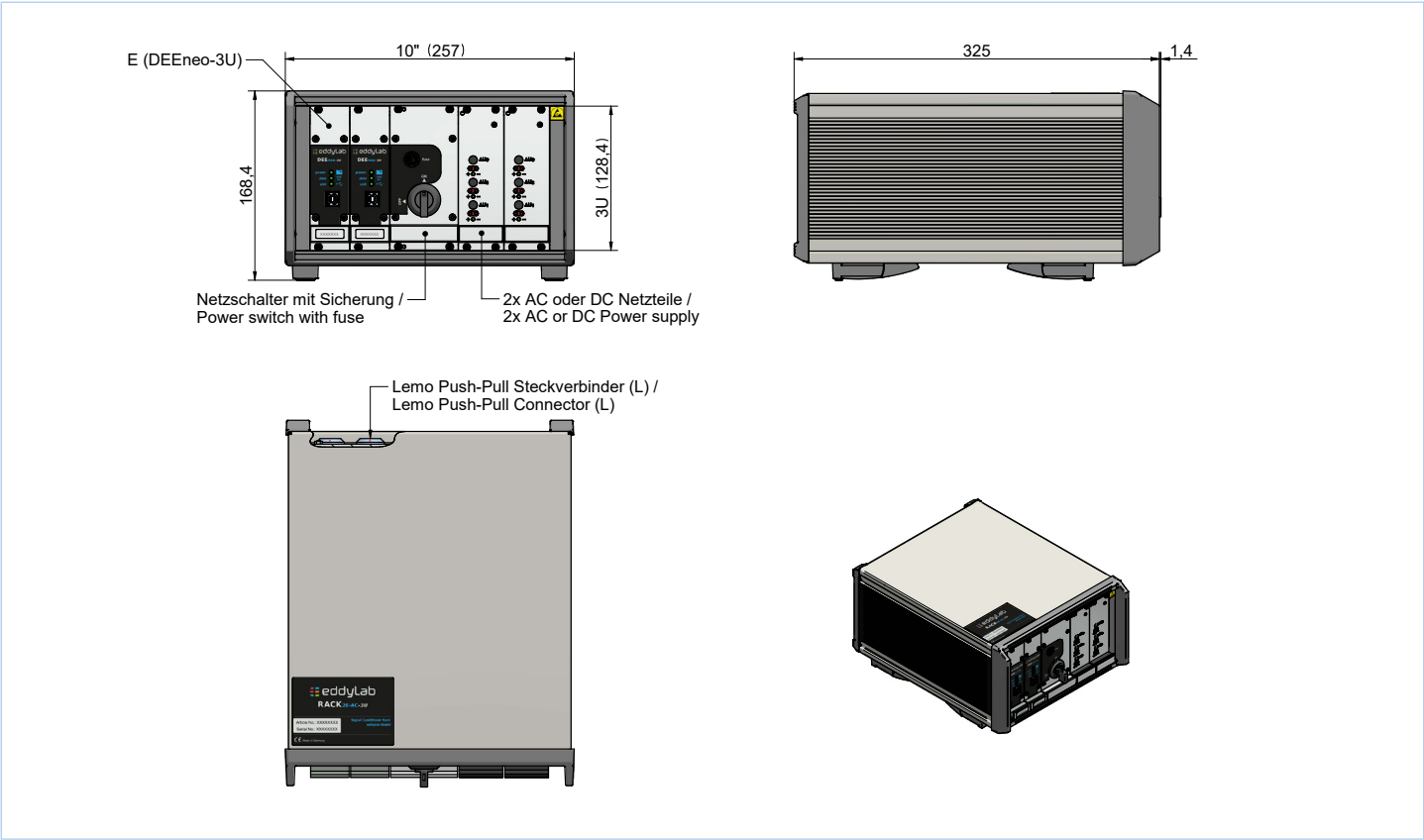


■ TECHNICAL DATA CONDITIONER

CONDITIONER	DEEneo-3U
General	
Material housing	Anodised aluminium
Connection to Rack-3U	Multipoint connector
Humidity	98 % (no condensation)
Operating temperature range	-40...+85 °C
Vibration ZPA (Zero Period Acceleration)	1 g
Shock	30 g/ 11 ms
Protection class	IP20
Weight (approx.) [g]	350
Power Supply	
Supply voltage	9...36 VDC
Current consumption	70 mA at 24 VDC, 130 mA at 12 VDC
Sensor supply	Standard: 3V / 3.3 kHz, digitally adjustable
Reverse polarity protection	Yes
Protection circuit	Bipolar suppressor diode 36V / polyfuse 0.5A
Isolation voltage	> 500 VDC
Analog output	
Standard output signal (Amperage)	0...20 mA, 4...20 mA, ± 20 mA
Optional output signal (Voltage)	0...5 V, ± 5 V; 0...10 V, ± 10 V
Filter corner frequency	Standard: 300 Hz, digitally adjustable
Max. working resistance (current output)	< 300 Ohm
Temperature coefficient	X
Switching-on delay (boot-time)	X
Switching-on drift	X
Output protection circuit	Polyfuse 50 mA (signal output impedance 150 Ohm)
General data and industrial standards	
Electromagnetic compatibility	EN 61326-1 / EN 55011
RoHS	Appropriate standard 2011/65/EU

DESKTOP RACK

■ TECHNICAL DRAWING DESKTOP RACK

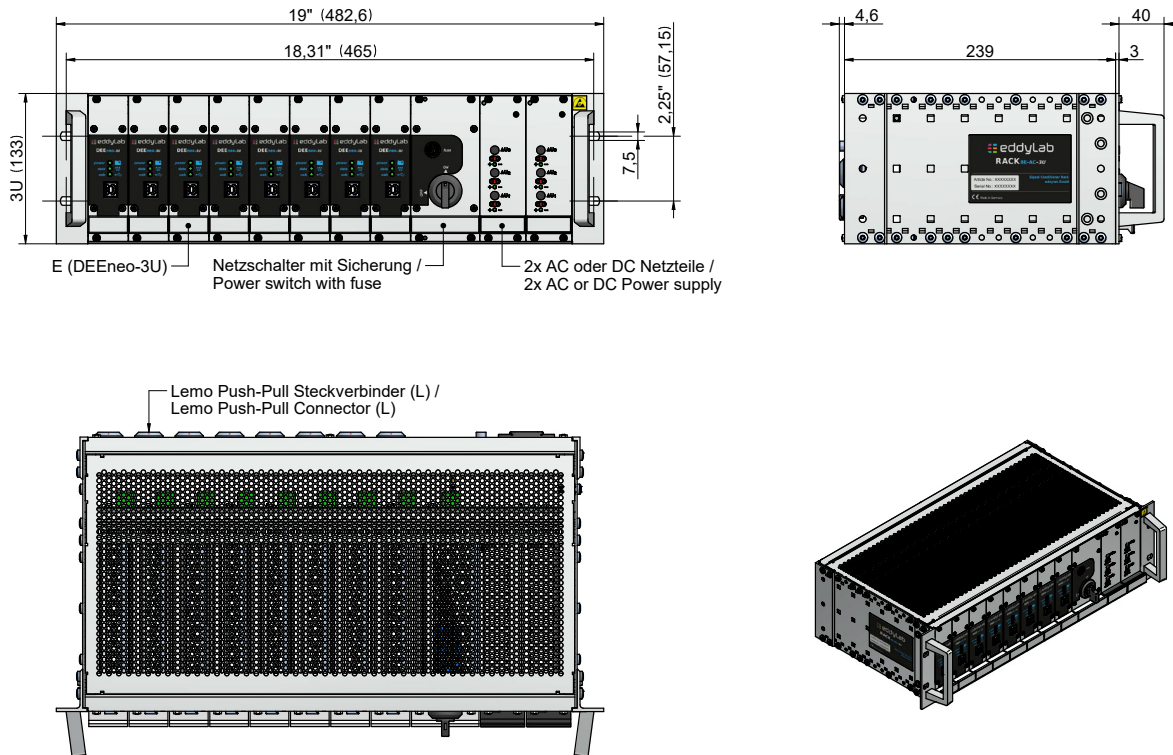


■ TECHNICAL DATA DESKTOP RACK

RACK	RACK-2E-AC-3U	RACK-2E-DC-3U
General		
Material housing	Anodised aluminium	
Construction	10-inch Desktop rack for up to 2 DEEneo-3U	
Redundant power supply design	2x AC power supply	2x DC power supply
Connection to DEEneo-3U	Multipoint connector	
Connection for power supply	C14 connector	
Connection for sensor signal cable (L) and output signal	Lemo connector EGG.2K.304.CYP	
Humidity	98 % (no condensation)	
Operating temperature range	-40...+85 °C	
Vibration ZPA (Zero Period Acceleration)	-	
Shock	-	
Protection class	IP20	
Weight empty (approx.) [g]	5400	
Weight fully equipped (approx.) [g]	6100	
Supply		
Supply voltage nominal	230 VAC	24 VDC
Supply voltage operating range	185...250 VAC / 45...400 Hz	18...36 VDC
Efficiency	≥ 75 %	≥ 72 %
Current consumption maximum	1,6 A	9,2 A
Fuse	Cartridge fuse 5 x 20 mm, 250 VDC, 10 A	

RACK

■ TECHNICAL DRAWING RACK



■ TECHNICAL DATA RACK

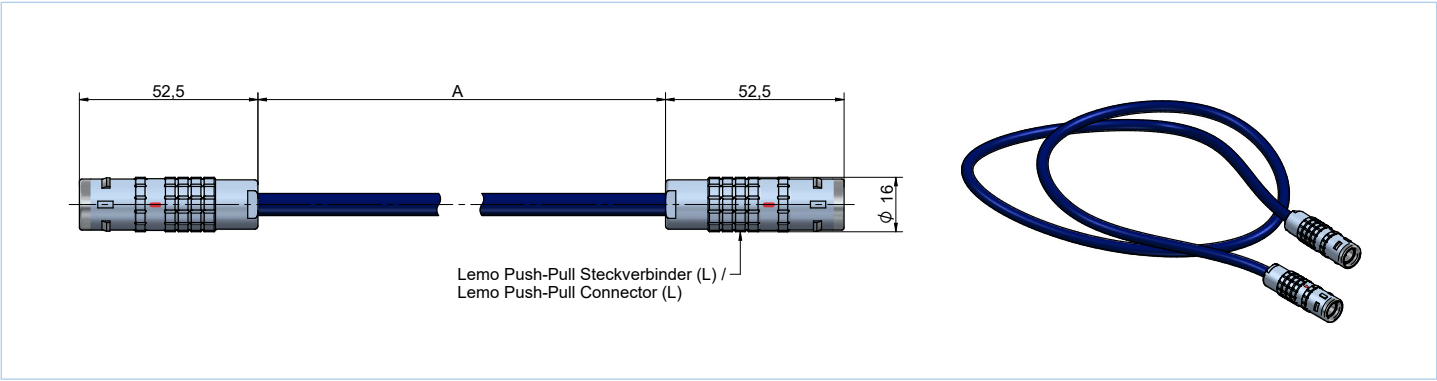
RACK	RACK-8E-AC-3U	RACK-8E-DC-3U
General		
Material housing	Anodised aluminium	
Construction	19-inch Rack for up to 8 DEEneo-3U	
Redundant power supply design	2x AC power supply	2x DC power supply
Connection to controllers	Multipoint connector	
Connection for power supply	Terminal block or IEC Lock C14 connector	
Connection for sensor signal cable (L) and output signal	Terminal block or optional Lemo connector EGG.2K.304.CYP	
Humidity	98 % (no condensation)	
Operating temperature range	-40...+85 °C	
Vibration ZPA (Zero Period Acceleration)	1 g	
Shock	30 g/ 11 ms (only with powersupply via terminal block)	
Protection class	IP20	
Weight (approx.) [g]	5400	
Weight fully equipped (approx.) [g]	8200	
Supply		
Supply voltage nominal	230 VAC	24 VDC
Supply voltage operating range	185...250 VAC / 45...400 Hz	18...36 VDC
Efficiency	≥ 75 %	≥ 72 %
Current consumption maximum	1,6 A	9,2 A
Fuse	2x Cartridge fuse 5 x 20 mm, 250 VDC, 10 A	

RACK	RACK-8E-AC-3U	RACK-8E-DC-3U
Signal passthrough		
Sensor signal (customer cable)	Passed through rack directly to controller	
Analog output	Passed through rack directly from controller	
Terminal block		
Rated cross-section with wire-end ferrule	0,25...2,5 mm²	
Connecting method	Screwless spring connection	
Recommended stripping length*	8 mm	
Recommended installation tool	Slotted screwdriver 0,6 x 3,5 mm	
Material	PA	

*The use of insulated, 8 mm long wire end ferrules is recommended

CABLE

■ TECHNICAL DRAWING CABLE



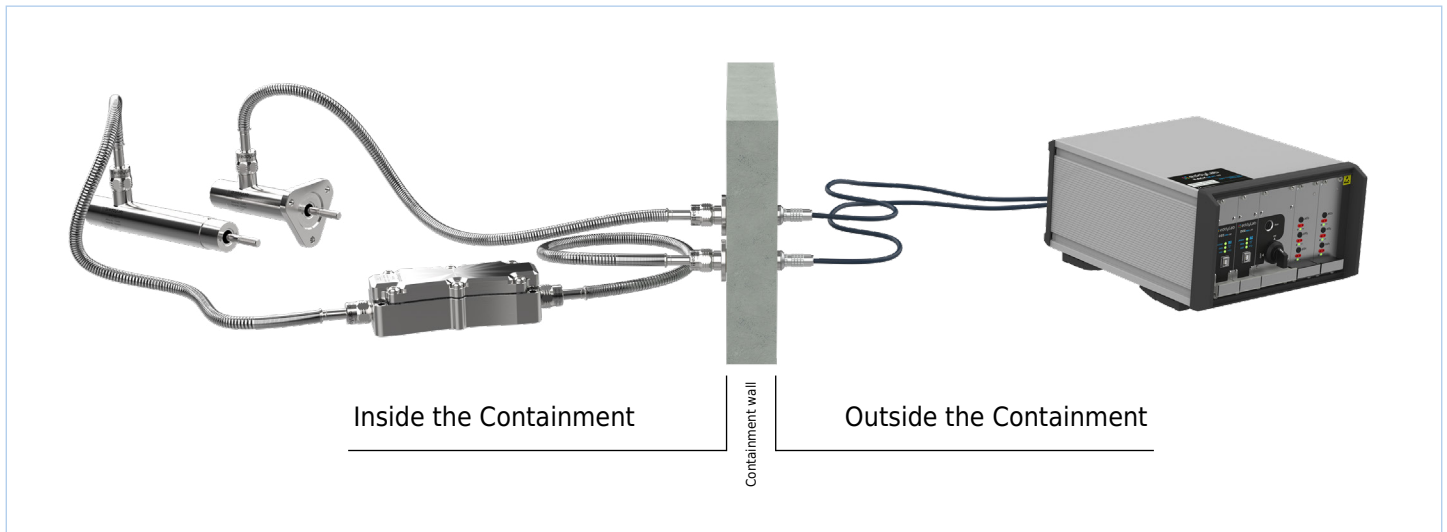
■ TECHNICAL DATA CABLE

CABLE	CABLE L
General	
Material housing	Brass chrome plated
Material cable*	TPE / PTFE
Connector (L)	Lemo connector FGG.2K.304.CYBC
Humidity*	95 % at 60 °C
Operating temperature range*	-55...+100 °C (TPE) / -55... +200 °C (PTFE)**
Vibration ZPA (Zero Period Acceleration)*	10 g
Shock*	100 g / 6 ms
Protection class	IP68
Dimension A [m]*	1...200

Lemo Push-Pull Connector	
Number of contacts	4
Rated cross-section	0,25...0,5 mm²
Connecting method	Crimp
Recommended installation tool	DPC.91.701.V + DCE.91.132.BVC
Jacket cable outside diameter***	1,3...8,5 mm

*If the customer provides their own cable, the specifications may differ. In this case, please check the data sheet of the cable provided.
**Max. temperature valid for short periods of use
***The Jacket cable outside diameter must be specified in the order

MEASURING CHAIN OVERVIEW



DESCRIPTION MEASURING CHAIN

The SXL / DEEneo series measuring chain is a fully integrated system for high-precision displacement and position measurement in harsh and safety-critical environments. While the system was originally developed to meet the stringent requirements of nuclear applications, its robust and modular design makes it equally suitable for many other demanding industrial use cases such as high-temperature processes, high-pressure environments, strong vibration, seismic conditions, underwater applications, and long-term installations with very limited maintenance access. The measurement chain comprises hermetically sealed LVDT or eddy current sensors, inorganic stainless-steel cables, patented connector systems, junction boxes, and hermetic cable feedthroughs. All components installed inside the containment are entirely inorganic and hermetically tight, ensuring long-term reliability and resistance to temperature, pressure, vibration, radiation, and environmental influences. Sensor signals are transmitted over long cable distances without loss of accuracy and routed through sealed feedthroughs to signal conditioning electronics installed in protected areas. There, digital signal conditioners supply the sensors, linearize the measurement signals, perform temperature compensation, and provide standardized analog and digital outputs, forming a complete, reliable measurement chain from the sensing point to the control or monitoring system.

TECHNICAL DATA MEASURING CHAIN

MEASURING CHAIN	SXL / DEEneo SERIES MEASURING CHAIN
Inside the Containment (e.g. K1)	
Humidity	100 %
Operating temperature range	-25...+400 °C for configurations without Junction Box / -25...+150 °C for configurations with Junction Box
Vibration ZPA (Zero Period Acceleration)	10 g
Shock	30 g/ 11 ms
Protection class	IP68
Pressure resistance	10 bar
Radiation	250 kGy / 1 kGy/h
Radiation LOCA	600 kGy / 1 kGy/h
Outside the Containment (e.g. K3)	
Humidity	95 % at 60°C (no condensation)
Operating temperature range	-40...+85 °C
Vibration ZPA (Zero Period Acceleration)	1 g (only for 8E Racks)
Shock	30 g/ 11 ms (only for 8E Racks)
Protection class	IP20

