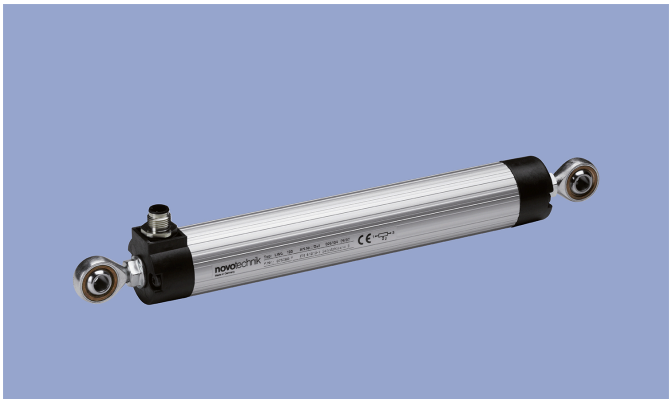
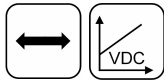


Transducer
Potentiometric

LWG
Pivot Head Mounting
up to 750 mm



Special Features

- Rod and cylinder design with twin slide bearings and lip seal
- Backlash free mounting via spherical rod end bearings with large pivot angle of ± 12.5 degrees
- Outstanding linearity
- Resolution better than 0.01 mm
- Long life up to 50 Mio. movements
- Protection class IP65
- Cable or connector version available
- Heavy duty version IP67 see data sheet series LWX

Applications

- Manufacturing Engineering
- Automation technology
- Vehicle Engineering
- Robotics technology

This linear transducer series is characterized by its robust housing and easy mounting via rod end bearings. The wiper block is mechanically decoupled backlash-free from the actuating rod, hereby ensuring high accuracy and long life. The sensor can be used in a wide range of closed-loop control applications, including linear position sensing in industrial automation, mobile electronics and also in very fast robotics, e.g. simulator actuation. The simplicity of the measurement system – being electrically passive and providing absolute output even after power loss – makes the sensor impervious to electronic interferences and magnetic interferences.

Description	
Material	Housing: aluminium, anodized Actuating rod: stainless steel AISI 303, 1.4305, rotatable
Mounting	Pivot Head Mounting (Stainless steel pivot heads on request)
Bearing	Slide bearing
Resistance element	Conductive plastic
Wiper	Precious metal multi-finger wiper, elastomer damped
Electrical connection	Connector M12x1, 4-pin, A-coded / Cable 3x 0.34 mm ² (AWG 22), PVC, shielded, L = 1 m

Mechanical Data	
Type	LWG 0050 LWG 0075 LWG 0100 LWG 0130 LWG 0150 LWG 0175 LWG 0200 LWG 0225 LWG 0250 LWG 0275 LWG 0300 LWG 0325 LWG 0360 LWG 0375 LWG 0400 LWG 0450 LWG 0500 LWG 0550 LWG 0600 LWG 0750
Length of housing [mm] (dim. A ± 2 mm)	176 201 227 258 277 303 330 354 379 405 430 456 505 521 549 619 684 747 810 994
Mechanical travel [mm] (dim. B ± 2 mm)	54 79 105 138 155 181 210 231 257 283 307 336 368 387 417 460 510 561 612 764
Min. distance between pivot heads [mm] (dim. C, nominal)	222 247 273 303 323 349 375 400 425 451 476 502 551 567 595 665 730 793 856 1040
Operating force*	typ. ≤ 15 N
*) Initial operating force is dependent on ambient temperature and inactive time.	

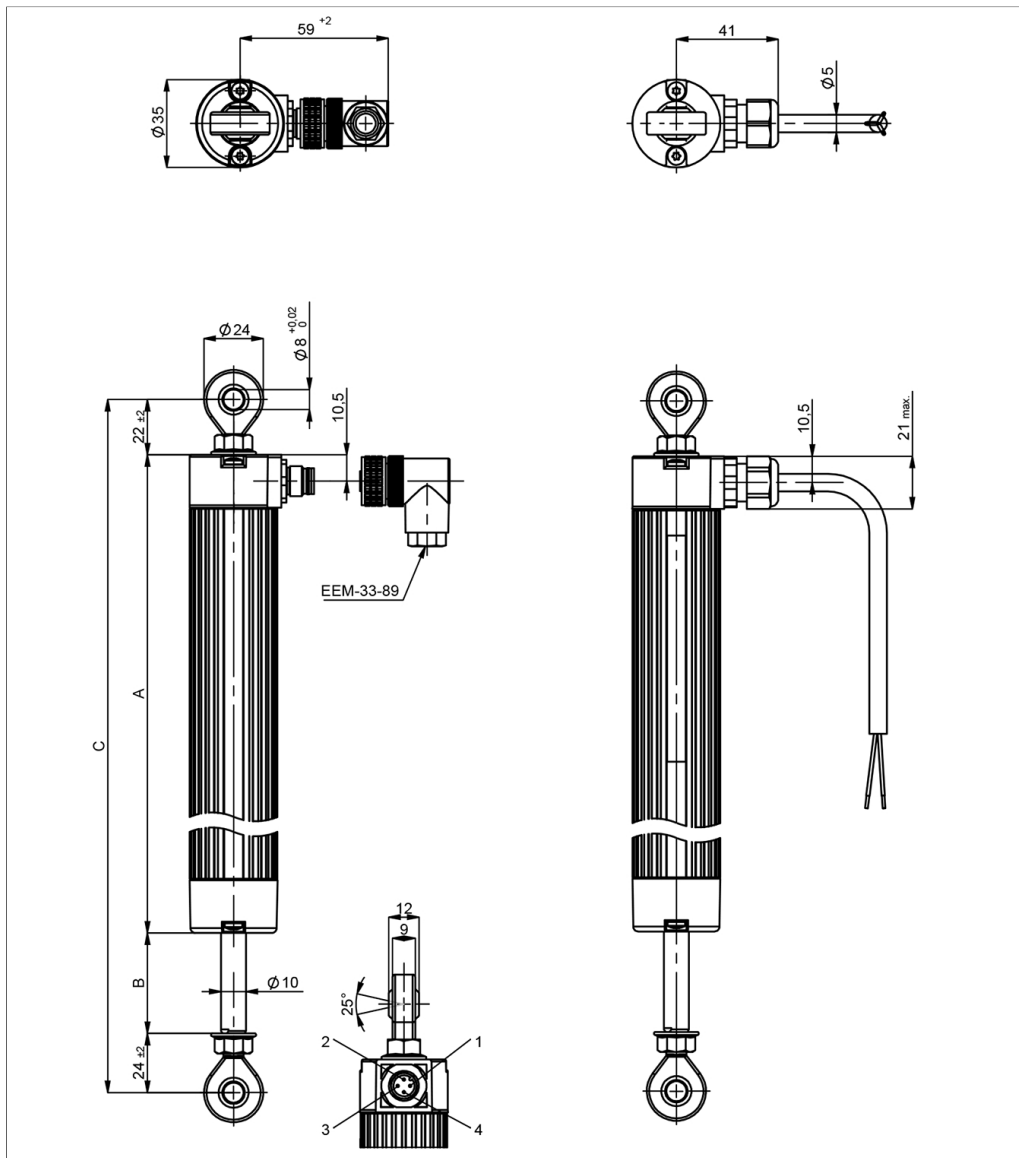
Ordering Specifications

P/N	Type	Defined electr. range [mm]	Electrical connection
400026102	LWG-0050	50	Connector
400026103	LWG-0075	75	Connector
400026104	LWG-0100	100	Connector
400104722	LWG-0130	130	Connector
400026106	LWG-0150	150	Connector
400026107	LWG-0175	175	Connector
400104723	LWG-0200	200	Connector
400026109	LWG-0225	225	Connector
400026110	LWG-0250	250	Connector
400104724	LWG-0275	275	Connector
400026112	LWG-0300	300	Connector
400104725	LWG-0325	325	Connector
400026114	LWG-0360	360	Connector
400104726	LWG-0375	375	Connector
400104727	LWG-0400	400	Connector
400026118	LWG-0450	450	Connector
400026120	LWG-0500	500	Connector
400026122	LWG-0550	550	Connector
400026124	LWG-0600	600	Connector
400026130	LWG-0750	750	Connector
400026202	LWG-0050-000-201	50	Cable
400026203	LWG-0075-000-201	75	Cable
400026204	LWG-0100-000-201	100	Cable
400104728	LWG-0130-000-201	130	Cable
400026206	LWG-0150-000-201	150	Cable
400026207	LWG-0175-000-201	175	Cable
400104729	LWG-0200-000-201	200	Cable
400026209	LWG-0225-000-201	225	Cable
400026210	LWG-0250-000-201	250	Cable
400104730	LWG-0275-000-201	275	Cable
400026212	LWG-0300-000-201	300	Cable
400104731	LWG-0325-000-201	325	Cable
400026214	LWG-0360-000-201	360	Cable
400104732	LWG-0375-000-201	375	Cable
400104733	LWG-0400-000-201	400	Cable
400026218	LWG-0450-000-201	450	Cable
400026220	LWG-0500-000-201	500	Cable
400026222	LWG-0550-000-201	550	Cable
400026224	LWG-0600-000-201	600	Cable
400026230	LWG-0750-000-201	750	Cable

Accessories included in delivery

- Mating female connector EEM-33-89 (see connector system M12)

Drawing



CAD data see
www.novotechnik.de/en/download/cad-data/

Technical Data

Type	LWG 0050	LWG 0075	LWG 0100	LWG 0130	LWG 0150	LWG 0175	LWG 0200	LWG 0225	LWG 0250	LWG 0275	LWG 0300	LWG 0325	LWG 0360	LWG 0375	LWG 0400	LWG 0450	LWG 0500	LWG 0550	LWG 0600	LWG 0750
Electr. measuring range [mm]	52	77	102	132	152	178	203	229	254	279	305	330	366	381	406	457	508	559	610	762
Defined electr. range [mm]	50	75	100	130	150	175	200	225	250	275	300	325	360	375	400	450	500	550	600	750
Resistance value [kΩ]	2	3	3	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10
Resistance tolerance	± 20 %																			
Independent linearity [± %FS]	0.2	0.1	0.1	0.09	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
Repeatability	≤ ±0.01 mm																			
Recommended operating wiper current	≤ 1 µA																			
Max. wiper current in case of malfunction	10 mA																			
Max. permissible supply voltage Ub	42 VDC																			
Effective temp. coefficient of the output-to-applied voltage ratio	typ. 5 ppm/K																			
Insulation resistance (500 VDC)	≥ 10 MΩ																			
Dielectric strength (500 VAC, 50 Hz)	≤ 100 µA																			
Environmental Data																				
Max. operational speed	5 m/s																			
Vibration IEC 60068-2-6	20 g, 5 ... 2000 Hz, Amax = 0.75 mm																			
Shock IEC 60068-2-27	50 g, 11 ms																			
Protection class DIN EN 60529	IP65																			
Operating temperature	-30 ... +100°C																			
Operating humidity	0 ... 95 % R.H. (no condensation)																			
Life	typ. > 50 Mio. movements																			
Functional safety	If you need assistance in using our products in safety-related systems, please contact us																			
Traceability	Serial number on type labeling: production batch of the sensor assembly and relevant sensor components																			
Conformity/Approval	CE, UKCA see https://www.novotechnik.de/en/downloads/certificates/declarations-of-conformity-eu/uk WEEE see https://www.novotechnik.de/en/downloads/certificates/eu-directive-weee/																			

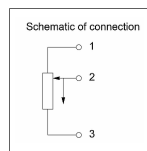
Important:

All values specified in this data sheet for linearity, lifetime and temperature coefficient are only valid for a sensor used as a voltage divider with virtually no load applied to the wiper ($I_e \leq 1 \mu A$).

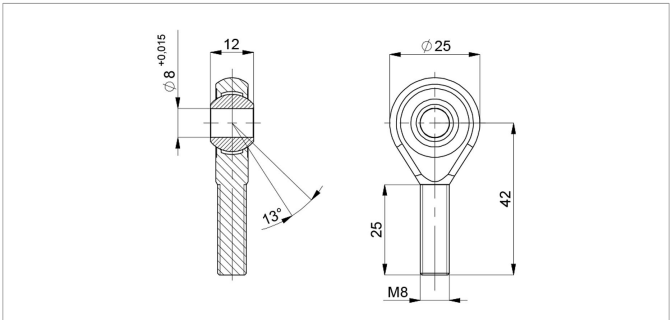
Connection Assignment

Signal	Connector	Cable
Connection 1	Pin 1	BN
Connection 2 Signal output	Pin 2	BK
Connection 3	Pin 3	RD
Do not connect	Pin 4	-

Direction of output characteristic while extending the rod:
increasing: supply voltage Ub at connection 3
falling: supply voltage Ub at connection 1

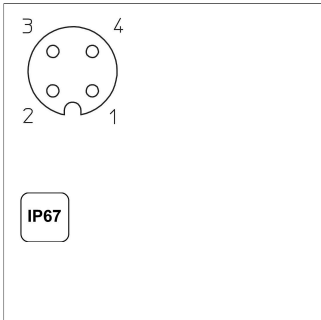
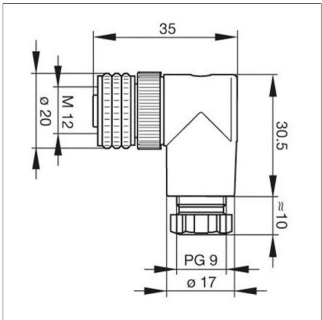


Sensor Mounting



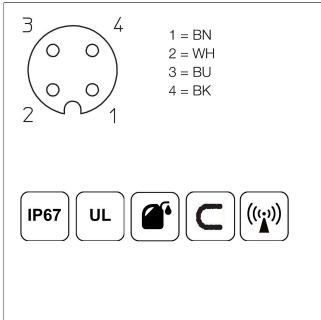
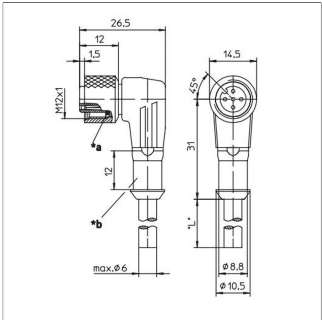
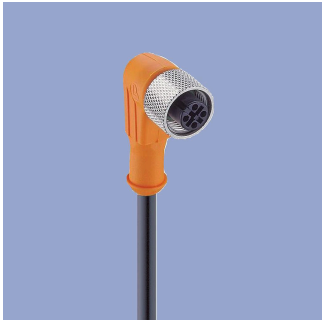
Z-G-03	
Conversion kit for series LWG and LWX: stainless steel version with 2 pivot heads and 2 lock nuts.	
P/N	Pack. unit [pcs]
400108551	2

Connector System
M12



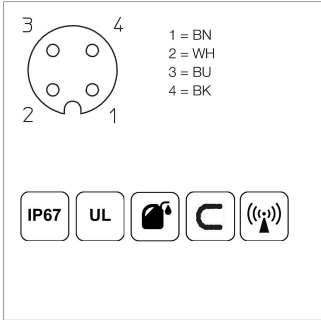
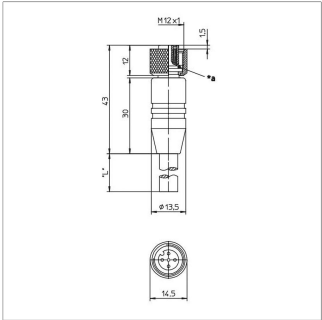
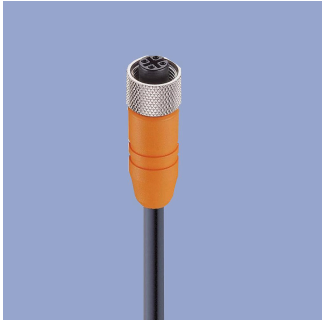
EEM-33-89 (Included in delivery)
M12x1 Mating female connector, 4-pin, angled, A-coded, with coupling nut, screw termination, IP67, not shieldable
Operating temp. -25 ... +90°C
Plug housing PBT
For wire gauge 6 ... 8 mm, max. 0.75 mm²

P/N	Type
400005634	EEM-33-89



EEM-33-33/63/99
M12x1 Mating female connector, 4-pin, angled, A-coded, with molded cable, shielded, IP67, open ended
Plug housing PA
Cable sheath PUR, Ø = max. 6 mm, -25 ... +80°C (moved) -50 ... +80°C (fixed)
Lead wires PP, 0.34 mm²

P/N	Type	Length
400005601	EEM-33-33	2 m
400005610	EEM-33-63	5 m
400005696	EEM-33-99	10 m



EEM-33-32/62/97
M12x1 Mating female connector, 4-pin, straight, A-coded, with molded cable, shielded, IP67, open ended
Plug housing PA
Cable sheath PUR, Ø = max. 6 mm, -25 ... +80°C (moved) -50 ... +80°C (fixed)
Lead wires PP, 0.34 mm²

P/N	Type	Length
400005600	EEM-33-32	2 m
400005609	EEM-33-62	5 m
400005650	EEM-33-97	10 m

IP67

Protection class IP67 DIN EN 60529

IP68

Protection class IP68 DIN EN 60529

Very good Electromagnetic Compatibility (EMC) and shield systems

Very good resistance to oils, coolants and lubricants

C

Suited for applications in dragchains

UL

UL - approved

CAN-Bus

Signal Processing

MUP-080

Cost-efficient signal conditioner with fixed output range, voltage or current output. Not adjustable. Detailed data see separate data sheet.

P/N	Type	Output
400054220	MUP-080-111	0 ... 10 V
400054221	MUP-080-113	4 ... 20 mA

MUP-410

Signal conditioner with simple teach-in function to adapt start and end point. Switchable current or voltage outputs. With galvanic isolation. Detailed data see separate data sheet.

P/N	Type	Output
400108799	MUP-410-11	4 ... 20 mA, 0 ... 10 V, 0 ... 2/5 V, ± 10 V, 0 ... 5/20 mA

MUP-110

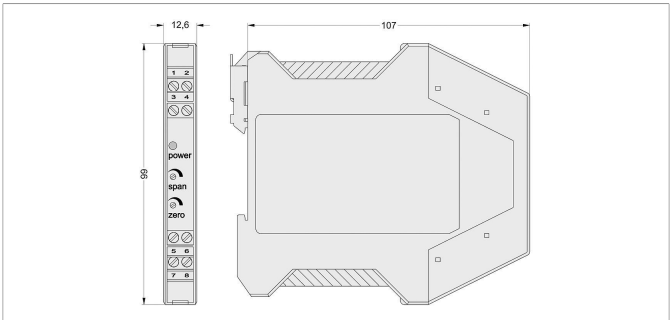
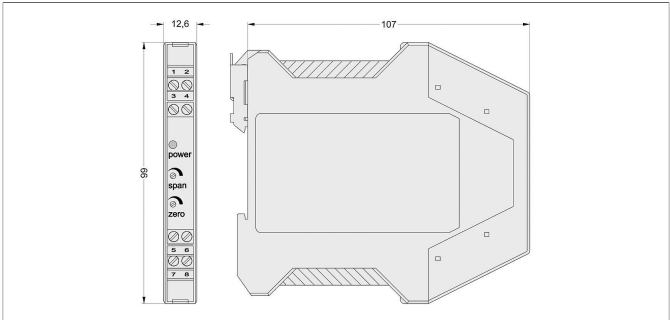
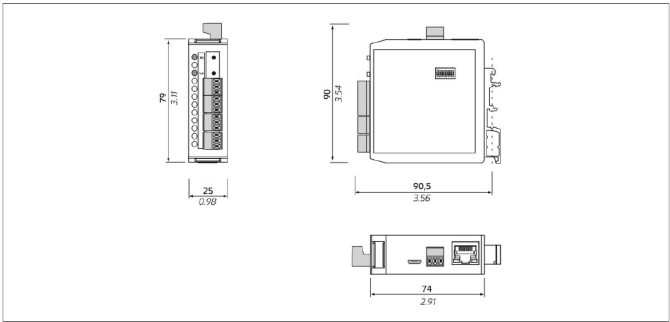
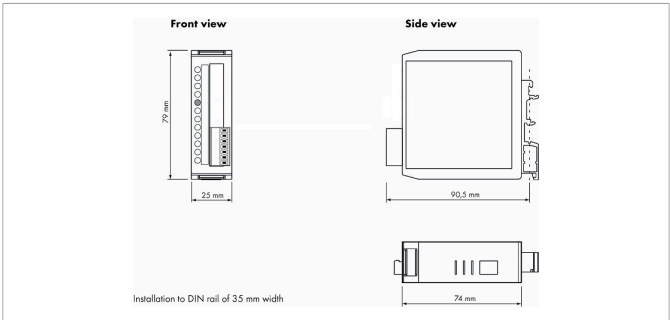
Signal conditioner in compact size with voltage or current output, adjustable zero and span. Detailed data see separate data sheet.

P/N	Type	Output
400054010	MUP-110-0	0 ... 20 mA
400054011	MUP-110-1	0 ... 10 V
400054014	MUP-110-4	4 ... 20 mA

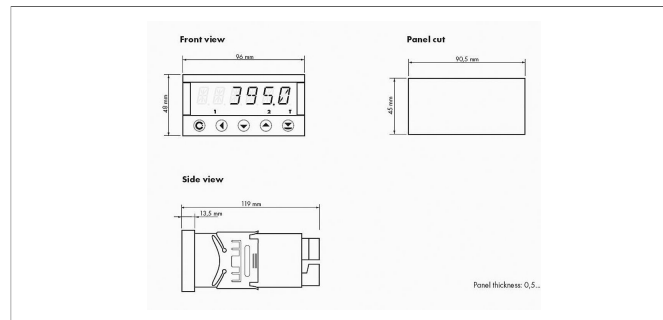
MUP-160

Signal conditioner in compact size with voltage or current output, adjustable zero and span. With galvanic isolation. Detailed data see separate data sheet.

P/N	Type	Output
400054060	MUP-160-0	0 ... 20 mA
400054061	MUP-160-1	0 ... 10 V
400054064	MUP-160-4	4 ... 20 mA



Signal Processing



MAP-4000

Multifunctional measuring device with digital display for direct connection of potentiometric and normalized signals.

- Supply voltage 10...30 VDC, 80...250 VDC or AC
- High accuracy up to 0.1%
- Adjustable supply voltage for sensors 5...24 V
- Temperature coefficient 100 ppm/K
- Optional RS 232, RS 485, analog output, limited switch
- Complete data see separate data sheet

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