

**Position Transducers  
potentiometric  
up to 750 mm, IP65**

Series LWG



**Special features**

- twin-bearing actuating rod
- mountable via backlash-free pivot heads with a large angle of free movement (up  $\pm 12.5^\circ$ )
- outstanding linearity
- resolution better than 0.01 mm
- long life up to 50 million movements, depending on application
- protection class IP65
- cable or M12 connector version available
- LWX - rugged-duty, IP67
- see separate data sheet

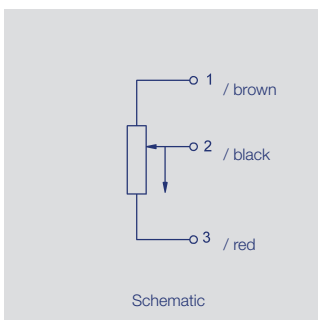
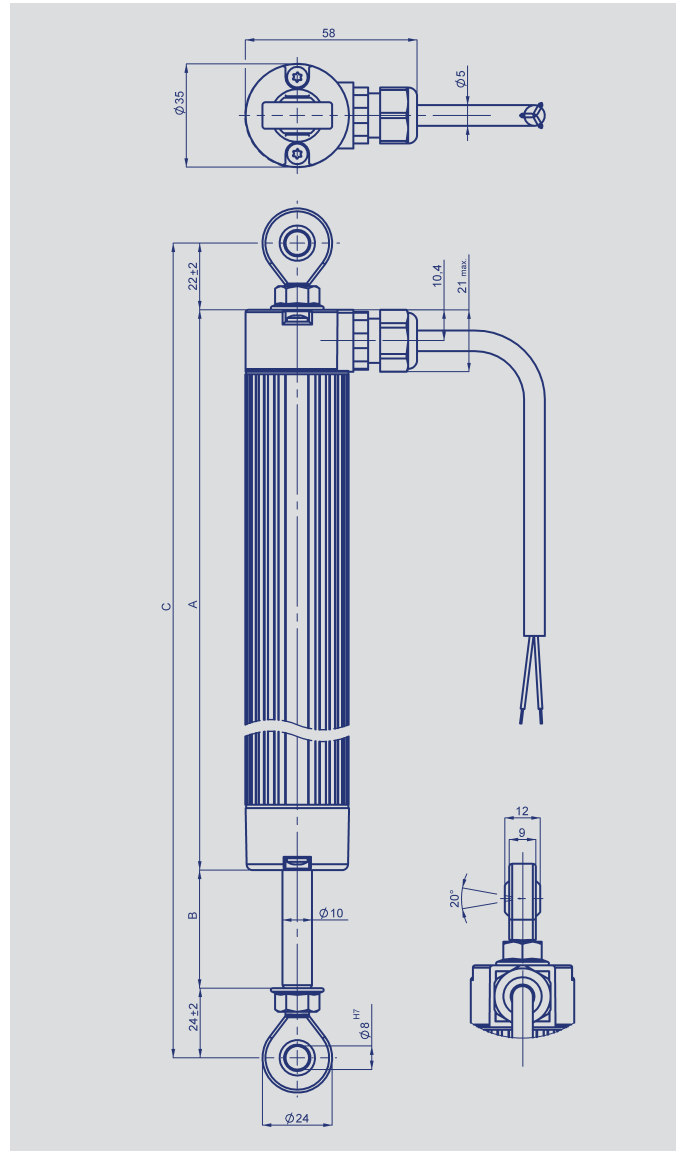
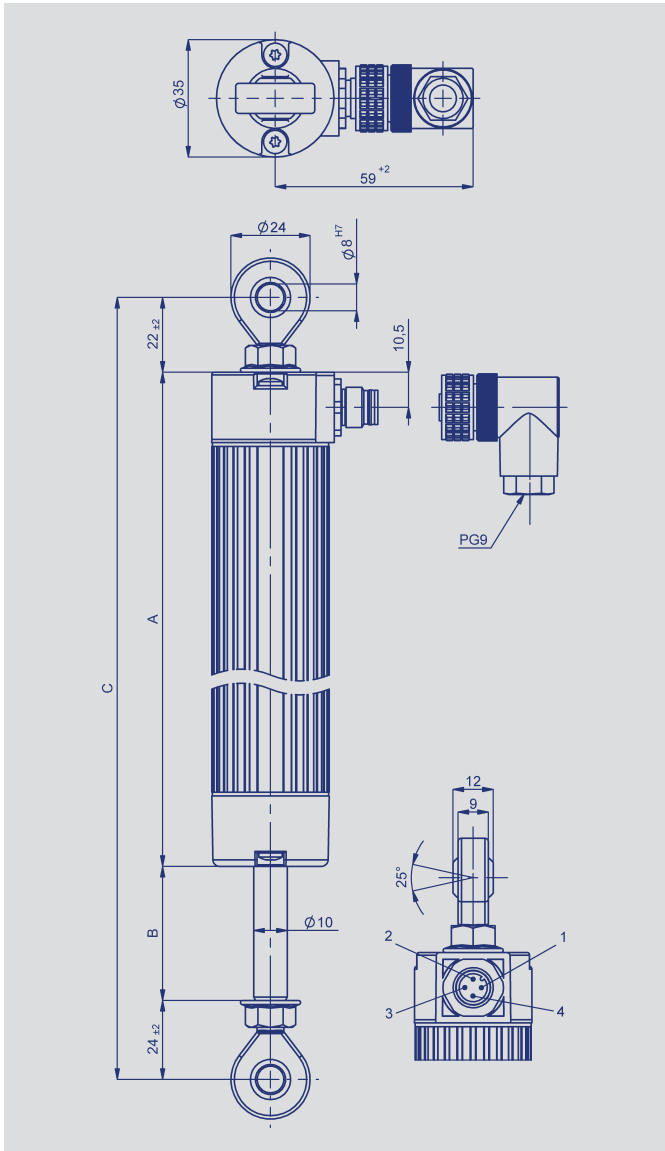
The LWG series was designed for a wide range of demanding applications in the mechanical, vehicle, automation and robotics industries.

Outstanding linearity and accurate measurement are achieved with a conductive plastic resistance element on a glassfiber reinforced substrate.

The wiper system is mounted on the actuating rod and coupled free-of-backlash for a long life and trouble-free operation.

Novotechnik potentiometers are fundamentally insensitive to electrical and magnetic interference.

Description	
Housing	aluminium, anodized
Mounting	see drawing
Actuating rod	stainless steel AISI 303, rotatable
Bearings	sleeve bearing
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper, elastomer-damped
Electrical connections	4-pin round connector, M12x1
	3-wire PVC-cable, 3x0.34 mm <sup>2</sup> , shielded, 1 m length



Plug	Cable Code 201	Female connector with cable EEM33-32, EEM33-33	falling characteristic*	rising characteristic*
PIN 1	BN	BN	Supply	GND
PIN 2	BK	WH	Signal	Signal
PIN 3	RD	BU	GND	Supply
PIN 4	-	BK	do not connect	do not connect

\*) Displayed schematic for extending rod

Type designations	LWG 0050	LWG 0075	LWG 0100	LWG 0150	LWG 0175	LWG 0225	LWG 0250	LWG 0300	LWG 0360	LWG 0450	LWG 0500	LWG 0550	LWG 0600	LWG 0750	
<b>Electrical Data</b>															
Defined electrical range	50	75	100	150	175	225	250	300	360	450	500	550	600	750	mm
Electrical stroke	52	77	102	152	178	229	254	305	366	457	508	559	610	762	mm
Nominal resistance	2	3	3	5	5	5	5	5	5	5	5	5	5	10	kΩ
Resistance tolerance	20														±%
Independent linearity	0.2	0.1	0.1	0.08	0.07	0.07	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.04	±%
Repeatability	0.01														mm
Recommended operating wiper current	≤ 1														μA
Maximum permissible wiper current (in case of system failure)	10														mA
Maximum permissible applied voltage	42														V
Effective temperature coefficient of the output-to-applied voltage ratio	typical 5														ppm/K
Insulation resistance (500 VDC)	≥ 10														MΩ
Dielectric strength (500 VAC, 50 Hz)	≤ 100														μA
<b>Mechanical Data</b>															
Body length (dimension A)	176	201	227	277	303	354	379	430	505	619	684	747	810	994	±2 mm
Mechanical stroke (dimension B)	54	79	105	155	181	231	257	307	368	460	510	561	612	764	±2 mm
Minimum distance between pivot heads, nominal (dimension C)	222	247	273	323	349	400	425	476	551	665	730	793	856	1040	mm
Weight with connector approx.	356	397	437	518	558	639	679	760	878	1057	1157	1264	1356	1655	g
Operating force															
horizontal	3.6	3.6	3.7	4.0	4.2	4.5	4.6	4.9	5.2	5.7	6.0	6.3	6.6	7.5	N
vertical	7.4	7.4	7.6	8.0	8.2	8.7	8.9	9.3	9.8	10.6	11.0	11.4	11.9	13.2	N
<b>Environmental Data</b>															
Temperature range	-30 ... +100														°C
Operating humidity range	0 ... 95 (no condensation)														% R.H.
Vibration	5...2000 Amax = 0.75 amax = 20														Hz mm g
Shock	50 11														g ms
Life	> 50 x 10 <sup>6</sup> (typical)														movem.
Operating speed	5														m/s max.
Protection class	IP65 (DIN EN 60529)														

Order designations (connector version)		Order designations (cable version)	
Type	P/N	Type	P/N
LWG-0050	026102	LWG-0050-000-201	026202
LWG-0075	026103	LWG-0075-000-201	026206
LWG-0100	026104	LWG-0100-000-201	026204
LWG-0150	026106	LWG-0150-000-201	026206
LWG-0175	026107	LWG-0175-000-201	026207
LWG-0225	026109	LWG-0225-000-201	026209
LWG-0250	026110	LWG-0250-000-201	026210
LWG-0300	026112	LWG-0300-000-201	026212
LWG-0360	026114	LWG-0360-000-201	026214
LWG-0450	026118	LWG-0450-000-201	026218
LWG-0500	026120	LWG-0500-000-201	026220
LWG-0550	026122	LWG-0550-000-201	026222
LWG-0600	026124	LWG-0600-000-201	026224
LWG-0750	026130	LWG-0750-000-201	026230

Other lengths on request

### Included in delivery (connector version)

Mating female connector M12x1, 4-pin, angled, with coupling nut, screw terminals connection, IP67, not shielded, P/N 005634, EEM 33-89.

### Recommended accessories

Cable set - female connector M12x1, 4-pin, straight, with molded cable, shielded, 4x0,34 mm<sup>2</sup>, IP67  
 Length 2 m, P/N 005600, EEM 33-32  
 Length 5 m, P/N 005609, EEM 33-62  
 Length 10 m, P/N 005650, EEM 33-97.

Cable set - female connector M12x1, 4-pin, angled, with molded cable, shielded, 4x0,34 mm<sup>2</sup>, IP67, open-ended:  
 Length 2 m, P/N 005601, EEM 33-33  
 Length 5 m, P/N 005610, EEM 33-63  
 Length 10 m, P/N 005696, EEM 33-99.

Mating female connector M12x1, 4-pin, straight, with coupling nut, screw terminals connection, IP67, not shielded, P/N 005633, EEM 33-88.

Process-control indicator MAP... with display.  
 Signal conditioner MUP... / MUK ... 24 V supply voltage with standard voltage and current output signals.



### 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  $\leq 1 \mu\text{A}$ .

Further technical accessories data see accessories data sheet.