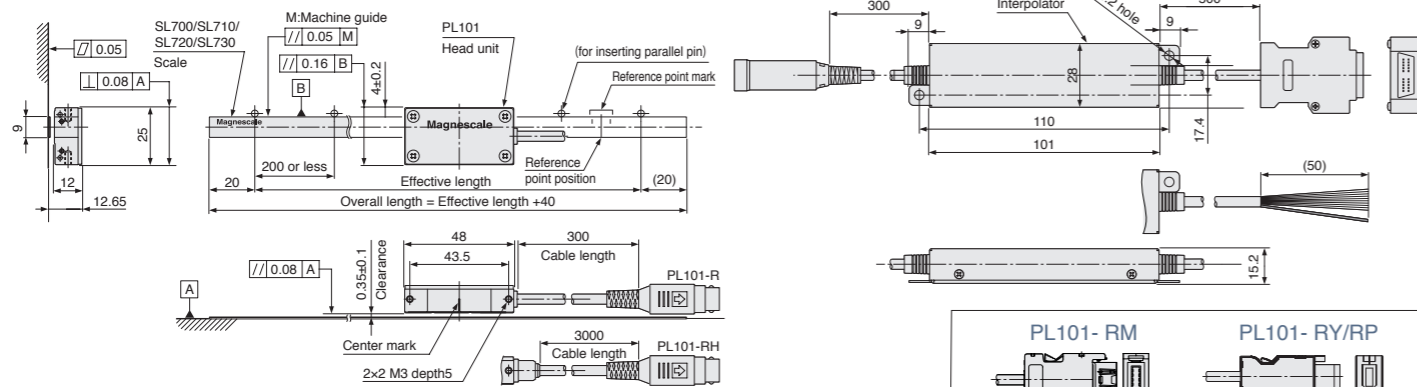


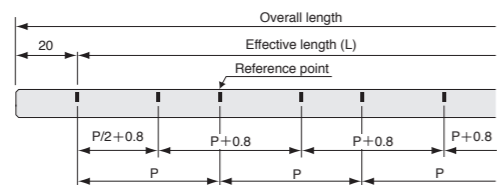
Dimensions

PL101- RA / SL700 series



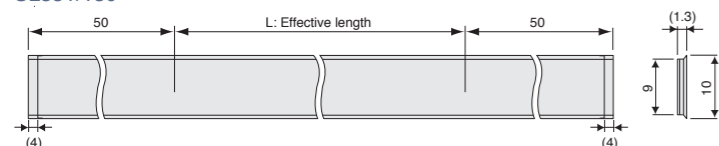
* Scale thickness : Maximum 0.3mm (including double sided tape)
 * Install on non-magnetic materials. If installing on magnetic materials, please ensure a non-magnetic layer of at least 3mm between the scale and the mounting surface.

SL730
Distance coded reference marks signal explanation

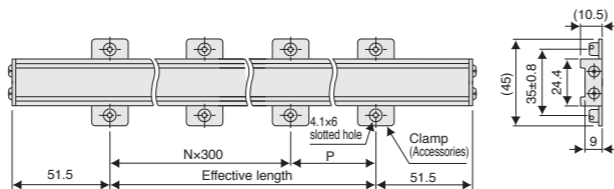


Reference pitch (P)	Effective length : mm
80 mm	200 <math>< L \leq 2,000</math>
160 mm	2,000 <math>< L \leq 12,000</math>
320 mm	12,000 <math>< L \leq 56,000</math>
480 mm	56,000 <math>< L \leq 100,000</math>

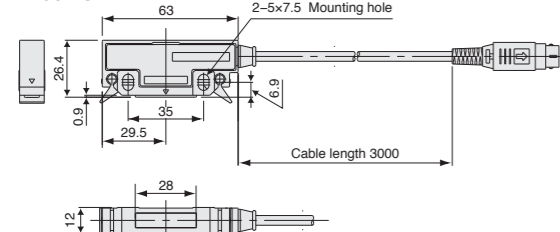
SL331/130



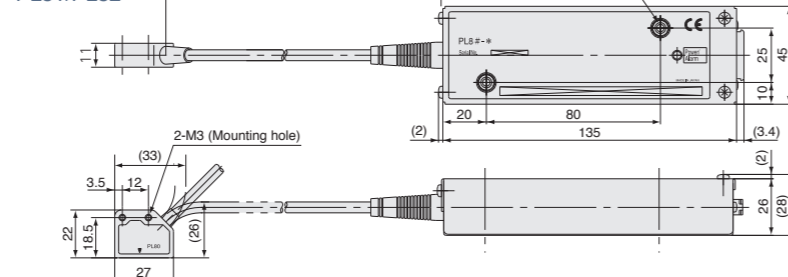
SL110



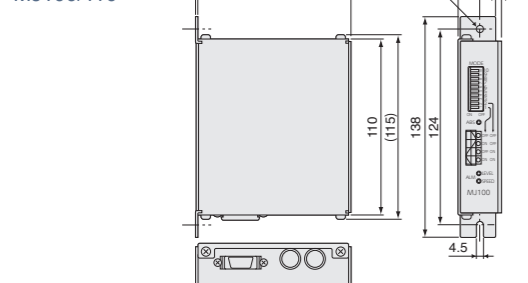
PL60/25



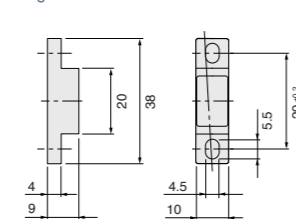
PL81/PL82



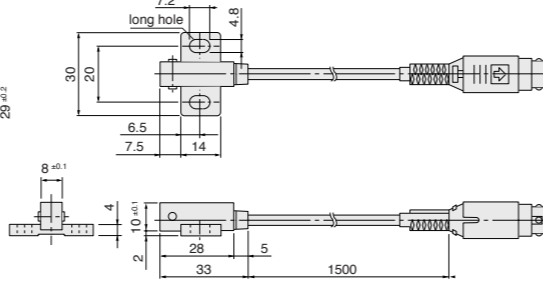
MJ100/110



SET-P16
Magnet PG-104



Sensor PK16



Unit: mm

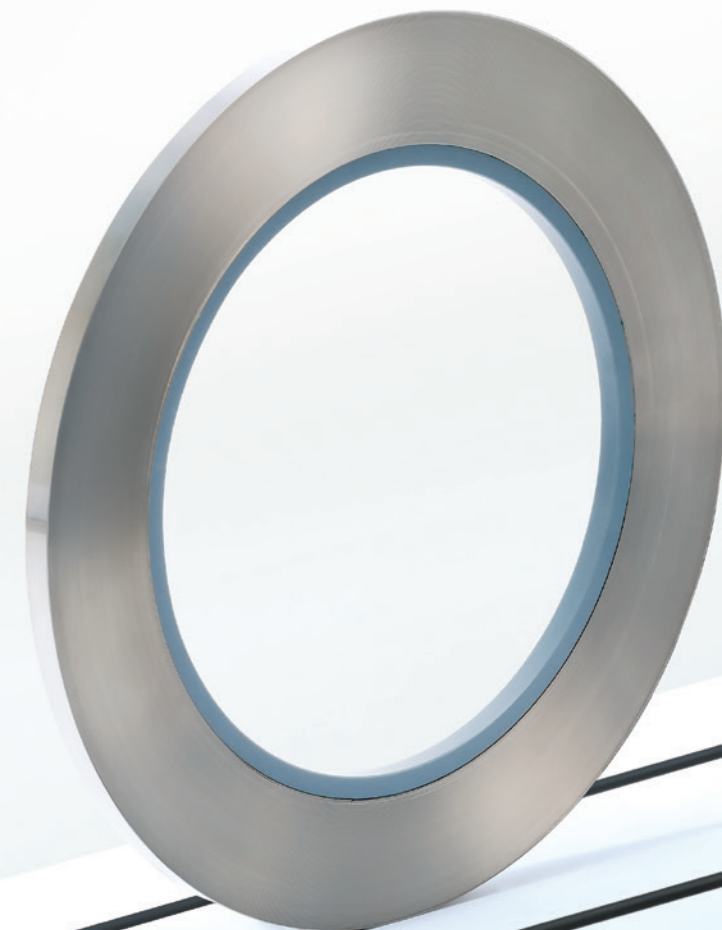
Magnescale

SPEED X PRECISION

Magnetic Ribbon Scale

DIGIRULER

High environmental resistance,
 High response speed (10m/s) and high resolution (0.1 μm).
 Magnetic digital scale technology produces real-time measurement data



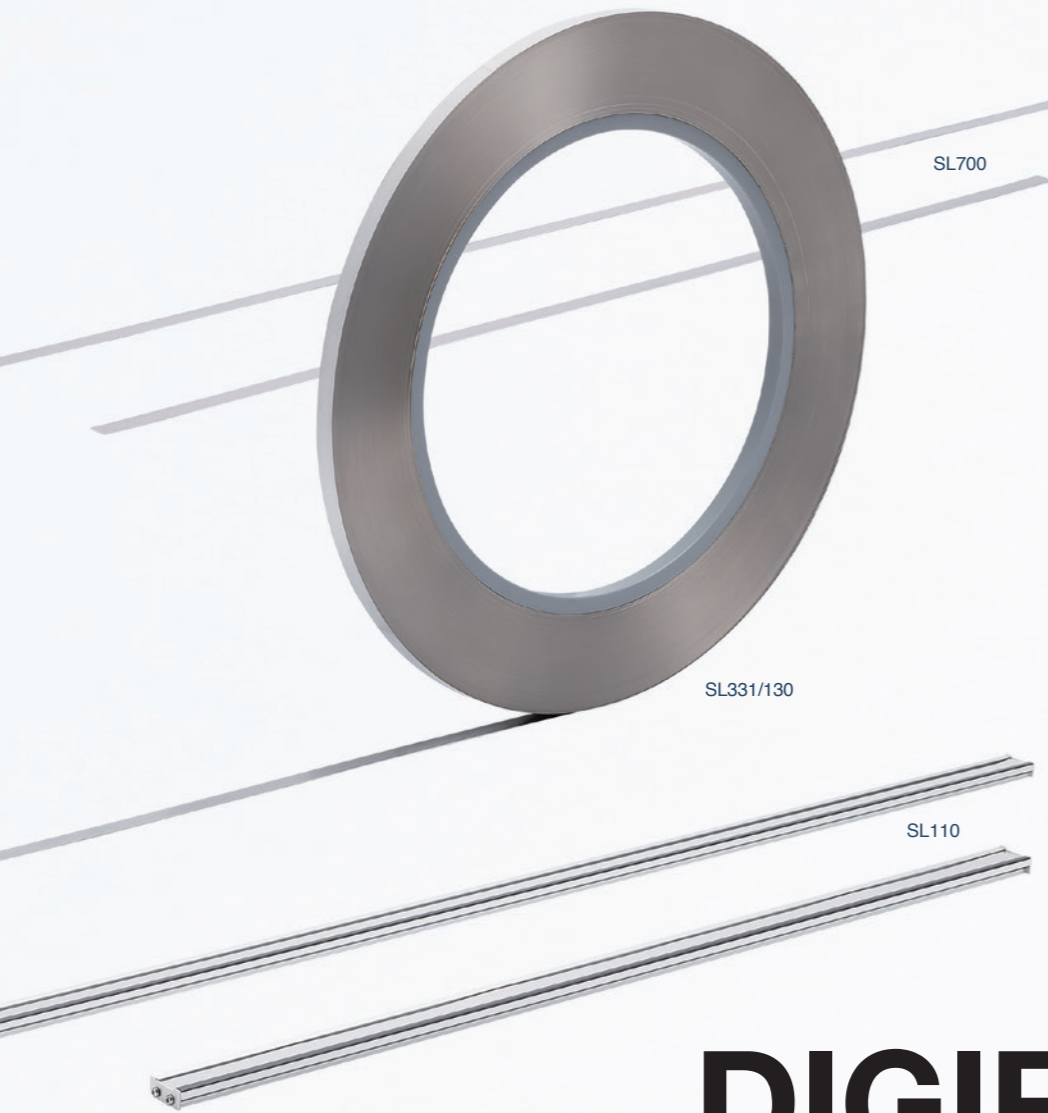
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Magnescale Co., Ltd.



SCALE → **HEAD** → **INTERPOLATOR** → **OUTPUT**

- SL700** Reference point: None Effective Length: 50 - 100,000mm
- SL710** Reference point: One Effective Length: 50 - 100,000mm
- SL720** Reference point: Multi-point Effective Length: 100 - 100,000mm
- SL730** Reference point: Distance coded reference marks Effective Length: 200 - 100,000mm
- SL331** Reference point: None Effective Length: 200 - 8,000mm
- SL110** Reference point: None Effective Length: 200 - 2,000mm
- SL130** Reference point: None Effective Length: 200 - 30,000mm



- Analog 1 Vp-p
- A/B quadrature Reference point signal
- Mitsubishi Electric Corporation serial communication signal
- Panasonic Corporation serial communication signal
- Yaskawa Electric Corporation serial communication signal
- A/B quadrature Reference point signal
- A/B quadrature

DIGIRULER

Magnetic detection system with excellent resistance to dust, oil, and water
(Maintenance free, IP67 grade model available)
Wide variety of measurement lengths available from 50mm to 100,000mm

	SL700	SL710	SL720	SL730	SL331	SL110	SL130
Effective Length(L)	50 to 100,000 mm		100 to 100,000 mm	200 to 100,000 mm	200 to 8,000 mm	200 to 2,000 mm	200 to 30,000 mm
Reference point	None	One	Multi point	Distance coded reference marks	None	None	None
Accuracy (at 20°C) *1	±10ML μm (ML ≤ 3 m. ML=Effective length in 1m increments) *2				(30+10L/1,000) μm p-p	(50+10L/1,000) μm p-p	(50+10L/1,000) μm p-p *3
Reproduced wavelength	800 μm			2 mm	5 mm		
Compatible reader head	PL101			PL60	PL25 / PL81 / PL82		
Operating temperature range	0 to +45°C			0 to +45°C	-5 to +45°C		

*1 With compatible reader head *2 Please contact our sales department for measurement lengths over 3,000mm *3 Please contact our sales department for measurement lengths over 8,000mm

	PL101																			
	Head		PL101-RA		PL101-RHA		PL101-RM		PL101-RHM		PL101-RP		PL101-RHP		PL101-RY		PL101-RHY			
Head	PL101-R	PL101-RH	PL101-R	PL101-RH	PL101-R	PL101-RH	PL101-R	PL101-RH	PL101-R	PL101-RH	PL101-R	PL101-RH	PL101-R	PL101-RH	PL101-R	PL101-RH	PL101-R	PL101-RH		
Interpolator	-	-	MJ632				MJ832				MJ852				MJ842					
Output Signal	Analog output 1 Vp-p		A/B quadrature, (Line driver, compliant with EIA-422), reference point, alarm signal				Mitsubishi Electric Corporation serial communication signal (compliant with EIA-485)				Panasonic Corporation serial communication signal (compliant with EIA-485)				Yaskawa Electric Corporation serial communication signal (compliant with EIA-485)					
Compatible scale	SL700 / SL710 / SL720 / SL730		SL700 / SL710 / SL720 / SL730				SL700 / SL710				SL700 / SL710 / SL720 *1				SL700 / SL710 / SL720 / SL730					
Resolution (number of divisions)	1 μm recommended		0.2 to 10 μm				0.1 μm				0.1 μm				(1/8,192)					
Reference mark detection	Available																			
Maximum response speed	Varies according to the connected control		Varies according to the combination of resolution and minimum phase difference *2				10 m/s													
Installation tolerance	Clearance between head and scale : 0.35 ± 0.1 mm Pitch : ±0.1° Yaw : ±0.2° Roll : ±0.2°																			
Head cable length	PL101-R : 300 mm PL101-RH : 3 m																			
Protection grade	IP50 or equivalent *3	IP67 or equivalent *3	IP50 or equivalent *4	IP67 or equivalent *4	IP50 or equivalent *4	IP67 or equivalent *4	IP50 or equivalent *4	IP67 or equivalent *4	IP50 or equivalent *4	IP67 or equivalent *4	IP50 or equivalent *4	IP67 or equivalent *4	IP50 or equivalent *4	IP67 or equivalent *4	IP50 or equivalent *4	IP67 or equivalent *4	IP50 or equivalent *4	IP67 or equivalent *4		
Power supply voltage	DC 5 V ±5 %																			
Operating temperature range	0 to +45°C (No condensation)																			

*1 To connect a PL101 reader head with a SL720 scale requires a special model with modified specifications. Please contact our sales department. *2 Please contact our sales department *3 Except the connector *4 Except the connector and interpolator Please contact our sales department for extension cables

	PL60	PL25	PL81	PL82
Compatible interpolator	MJ100/MJ110		Integrated cable	
Output signal	Signal for MJ100/MJ110 connection		A/B quadrature, alarm signal (Open collector)	A/B quadrature, alarm signal (Line driver, compliant with EIA-422)
Compatible scale	SL331	SL110 / SL130	SL110 / SL130	
Resolution	Variable depending on MJ100/MJ110 setting (5μm recommended)		Variable depending on MJ100/MJ110 setting (10μm recommended)	
Reference point detection	Requires SET-P16-1			
Maximum response speed	-			
Installation tolerance	Clearance between the scale: 0.5mm (Maximum 0.8mm) Pitch : ±0.3° Yaw : ±1° Roll : ±1°		Clearance between the scale: 0.8mm (Maximum 1.5mm) Pitch : ±0.5° Yaw : ±3° Roll : ±3°	
Head cable length	3m			
Protection grade	IP65 or equivalent *1		IP67 or equivalent *2	
Power supply voltage	Power supplied by MJ100/MJ110		DC 10 V to 30 V	DC 5 V ± 5%
Operating temperature range	0 to +45°C (No condensation)			
Optional accessories	SZ11 (Wiper : For removing dirt and dust from the scale), SZ12 (Bracket for tapped mounting holes. Vertical reader head installation), SZ13 (Bracket for tapped mounting holes. Horizontal reader head installation), SZ14 (Bracket for PL20 (standard model) without wiper), SZ15 (Bracket for PL20 (standard model) with wiper)			

*1 Except the connector *2 Except the connector and interpolator Please contact our sales department for extension cables

	MJ100	MJ110
Output interface	Line driver (compliant with EIA-422)	Open collector (IOL=50mA max.)
Output signal	A/B quadrature, reference point, UVW phase, alarm signal	A/B quadrature, reference point, alarm signal
Division number	1,000 / 960 / 800 / 512 / 500 / 480 / 400 / 256 / 240 / 200 / 128 / 120 / 100 / 80 / 64 / 40 and 1/2 of each of these (Please contact our sales department)	
Maximum response frequency	1000 divisions	6kHz when connected to PL25 1800m/min when connected to PL60 720m/min
	500 divisions	15kHz when connected to PL25 4500m/min when connected to PL60 1800m/min
	200 divisions	42kHz when connected to PL25 12600m/min when connected to PL60 5000m/min
	120 divisions	70kHz when connected to PL25 21000m/min when connected to PL60 8400m/min
Minimum phase difference	100 ns	1 μs
Alarm signal	Speed alarm (minimum phase difference time or maximum response frequency) / Level alarm	
Compatible reader head	PL25 / PL60	
Power supply voltage	DC 5 V (4.5 V to 6 V)	DC 12 V to 30 V (11 V to 31 V)
Operating temperature range	0 to +45°C	
Optional accessories	SET-P16-1 (for external reference point), Head extension cable, External reference point extension cable	

	SET-P16-1
Sensor	PK16-1
Magnet	PG-104
Detection direction	1 direction
Repeatability	±3 μm (*Under the following condition)
Working range	7.5 ±2 mm (When clearance equals to 1mm)
Maximum response frequency	10 kHz
Output format	NPN transistor, open collector
Protection grade	IP67 or equivalent
Operating temperature range	-10 to +60°C

*Clearance 1mm, temperature fluctuation 1.2°C or less, voltage fluctuation ±1% or less, 5 min after energizing