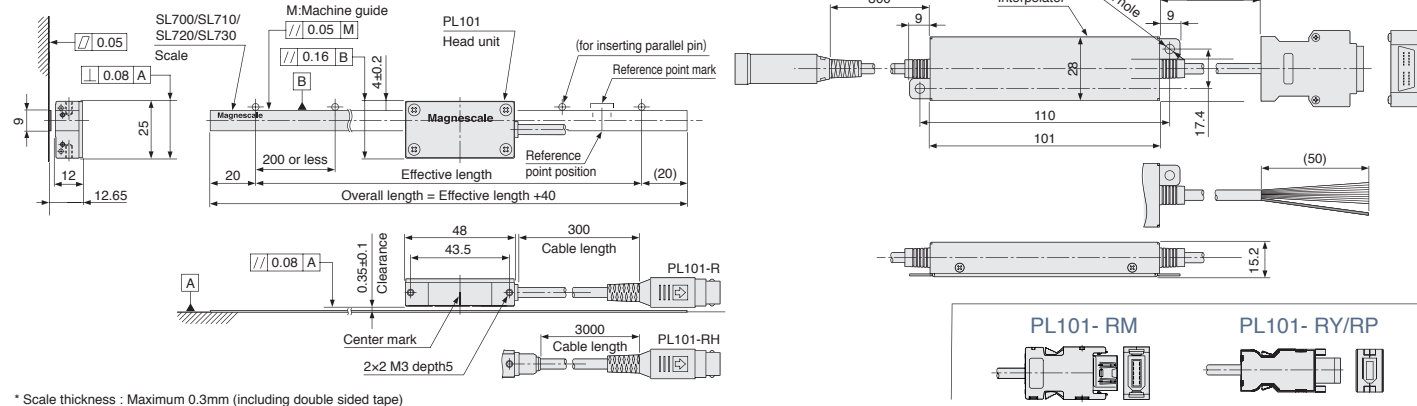


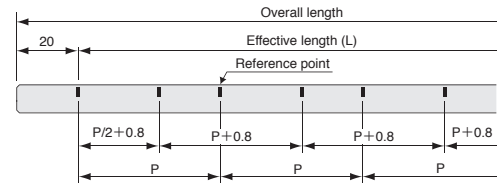
Dimensions

PL101- RA / SL700 series



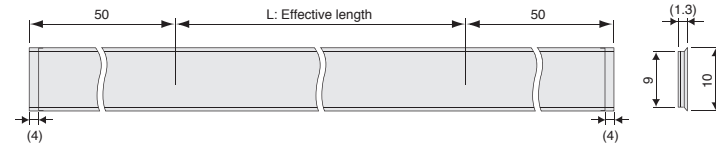
* Scale thickness : Maximum 0.3mm (including double sided tape)
 * Install on non-magnetic materials. If installing on magnetic materials, please ensure a non-magnetic layer of at least 3mm between the scale and the mounting surface.

SL730
 Distance coded reference marks signal explanation

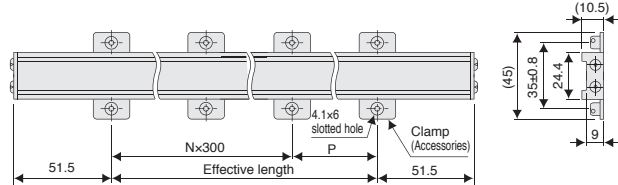


Reference pitch (P)	Effective length : mm
80 mm	200 <math>< L \leq 2,000</math>
160 mm	2,000 <math>< L \leq 12,000</math>
320 mm	12,000 <math>< L \leq 56,000</math>
480 mm	56,000 <math>< L \leq 100,000</math>

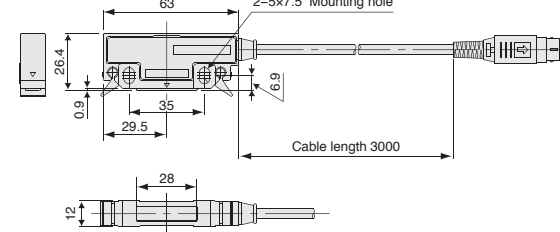
SL331/130



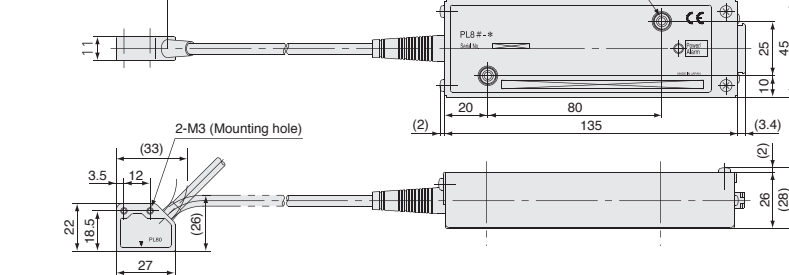
SL110



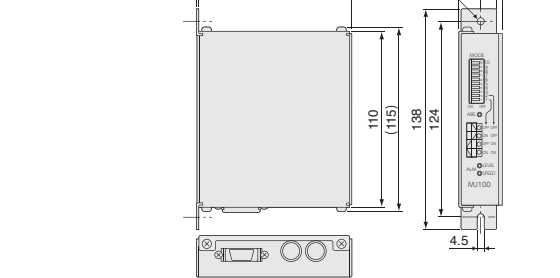
PL60/25



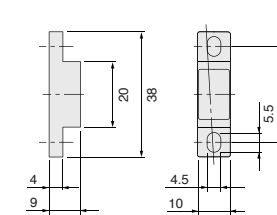
PL81/PL82



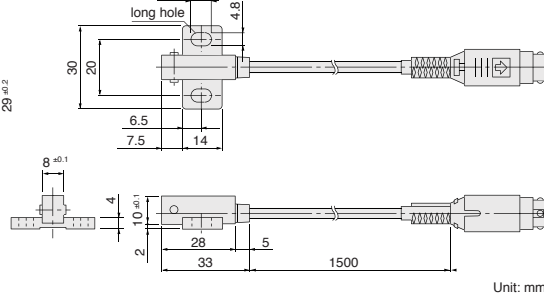
MJ100/110



SET-P16
 Magnet PG-104



Sensor PK16



Unit: mm

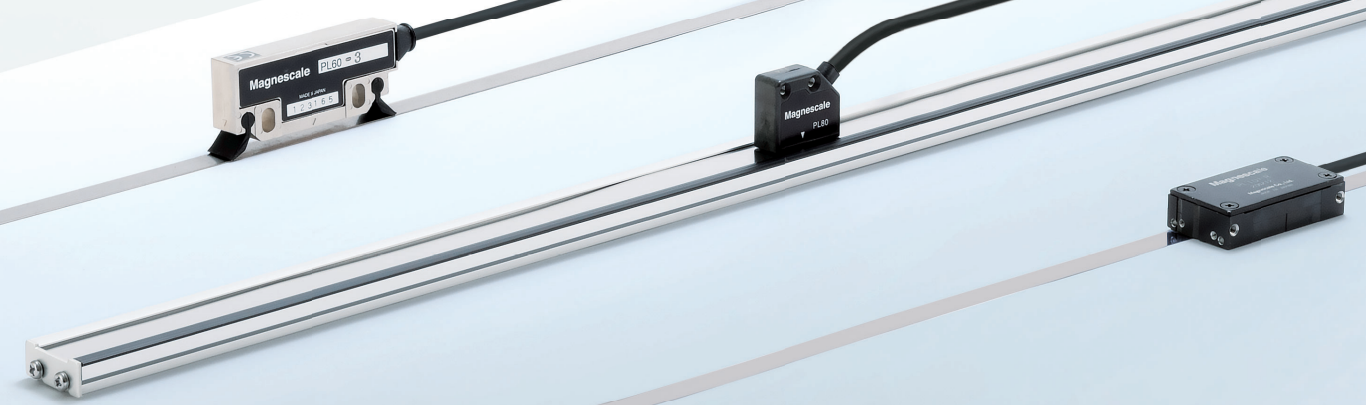
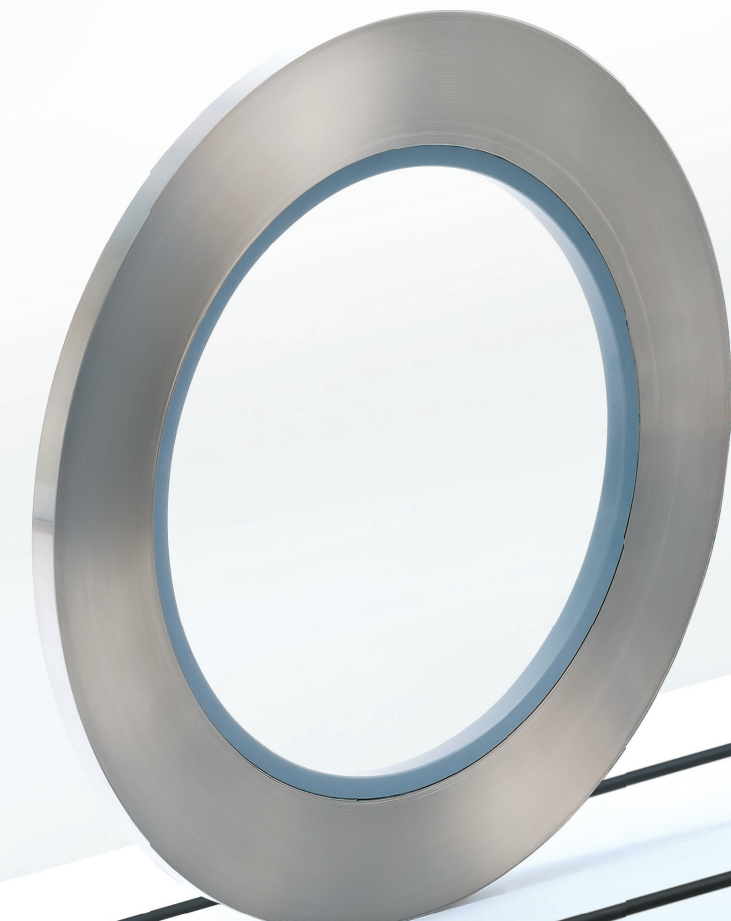
Magnescale

SPEED X PRECISION

Magnetic Ribbon Scale

DIGIRULER

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



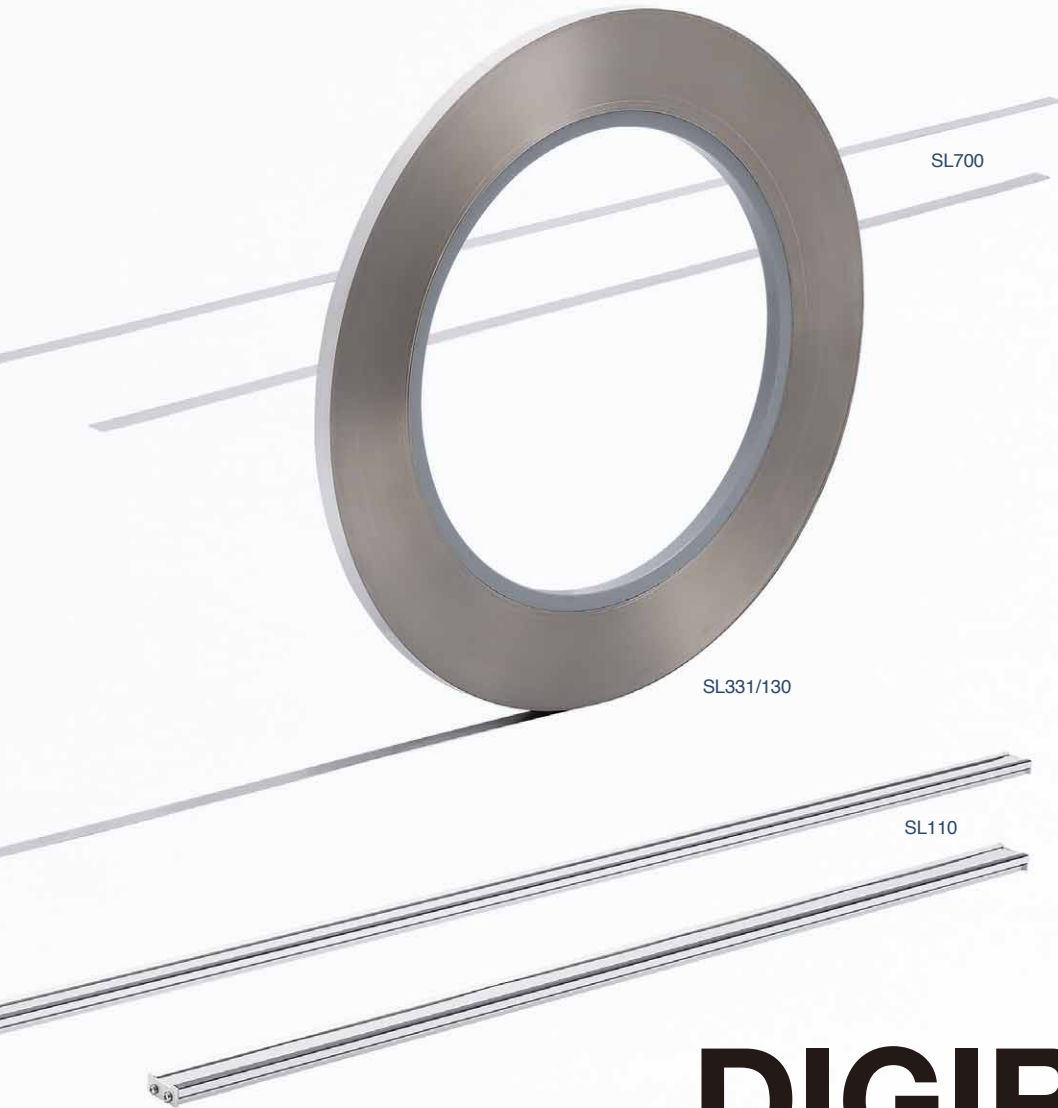
Magnescale Co., Ltd.

International Sales Department	3-1-4 Edagawa, Koto-ku, Tokyo 135-0051, Japan	TEL.+81(0)3-6632-7924	FAX.+81(0)3-6632-7928	E-mail : info-mgs-eng@magnescale.com
Magnescale Americas Inc.	1 Technology Drive, Suite F217, Irvine, CA 92618, USA	TEL.+1(949)727-4017	FAX.+1(949)727-4047	E-mail : info-am@magnescale.com
Magnescale Europe GmbH	Antoniusstrasse 14, 73249 Wernau, Germany	TEL.+49(0)7153-934-291	FAX.+49(0)7153-934-299	E-mail : info-eu@magnescale.com
Service & Parts	45 Suzukawa, Isehara-shi, Kanagawa 259-1146, Japan	TEL.+81(0)463-92-2132	FAX.+81(0)463-92-3090	E-mail : info-css@magnescale.com

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 C.1907.CB.1000

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

PL101-R/RH

PL101-RA/RHA
PL101-R/RH --- MJ632

PL101-RM/RHM
PL101-R/RH --- MJ832

PL101-RP/RHP
PL101-R/RH --- MJ852

PL101-RY/RHY
PL101-R/RH --- MJ842

PL60

PL25

Magneswitch
<External reference point>
SET-P16-1

Head cable with interpolator
PL81 Open collector
PL82 Line driver

MJ100 Line driver

MJ110 Open collector

➤➤ 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	
Head	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, 1/2)	
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
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			
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	300 m/min			
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	
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 1800min when connected to PL60 720min
	500 divisions	15kHz when connected to PL25 4500min when connected to PL60 1800min
	200 divisions	42kHz when connected to PL25 12600min when connected to PL60 5000min
	120 divisions	70kHz when connected to PL25 21000min when connected to PL60 8400min
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