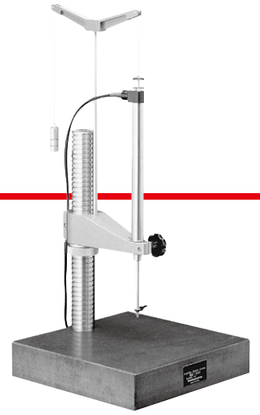
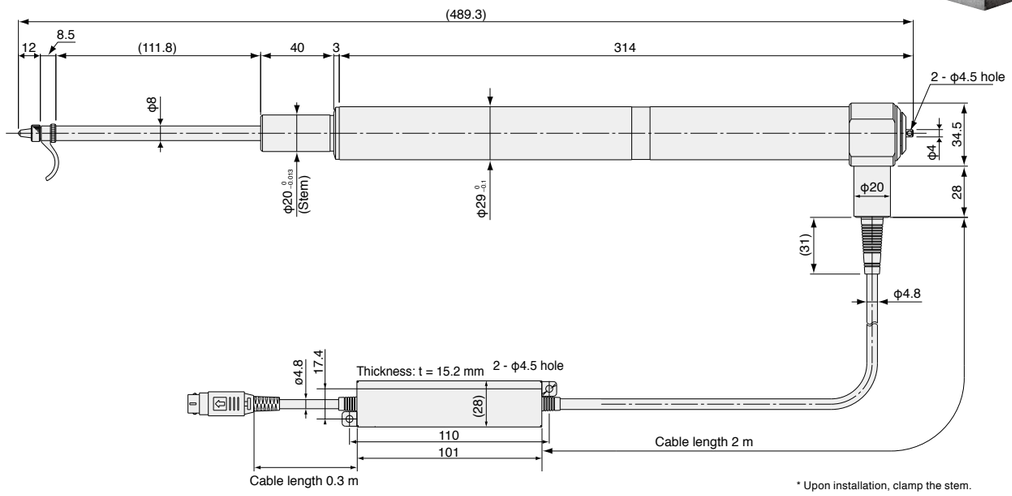
DK DK110

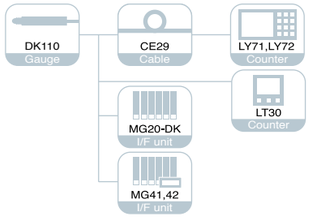
Resolution 0.5μm | Stem φ20 | Stroke 110mm | Output A/B phase





* Upon installation, clamp the stem.

Unit: mm



Specifications

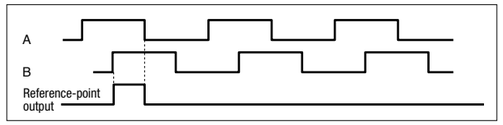
Model	DK110NLR5
Measuring range	110 mm
Maximum resolution	0.5 μm
Accuracy (at 20°C/68°F)	4 μm
Measuring force (at 20°C/68°F)*1	Downward: 1.55±0.15 N (Spindle weight)
Maximum response speed	250 m/min
Reference point	Position at spindle movement of 5 mm
Reference-point response speed	Same as the noted maximum response speed
Output	A/B/reference point Voltage-differential line driver output (conforming to EIA-422)
Protection grade*2	IP50
Vibration resistance	10 to 2000 Hz 150 m/s²
Impact resistance	1500 m/s² 11 ms
Operating temperature	0 to 50 °C
Storage temperature	–20 to 60 °C
Power supply	5 VDC±5 %
Power consumption	1 W
Mass*3	Approx. 800 g
Output cable length	2.4 m
Feeler	Carbide ball tip, Mounting screw M2.5
Accessories	Instruction Manual, +P M4 × 5 screw (2pc), Lift lever DZ-161

*1 The measuring force can be changed by mounting optional balancer DZ581 and changing weights.

*2 Excluding the interpolation box and connector *3 Excluding cable section and interpolation box

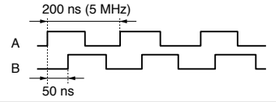
DK Series measuring unit output signals

The signal output from these measuring units are A/B/Z reference point, voltage differential line driver output compliant with EIA-422.

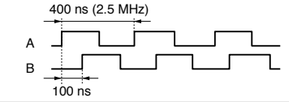


The reference point is the synchronized reference point that is at Hi level when the signal A and signal B are at the Hi level.

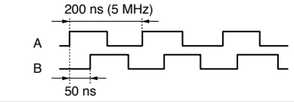
DK800SA output signal at maximum response speed (at approx. 80 m/min)



DK800SB output signal at maximum response speed (at approx. 42 m/min)



DK10/25/100/155/205/110 output signal at maximum response speed (at approx. 250 m/min)



The A/B quadrature output signal by measuring unit is 5 MHz maximum with a minimum phase difference of 50 ns for DK800SA and is 2.5 MHz maximum with a minimum phase difference of 100 ns for DK800SB.
The counter or control devise capable of processing these signals should be used.

For DK the A/B quadrature output signal by measuring unit is 5 MHz maximum with a minimum phase difference of 50 ns .
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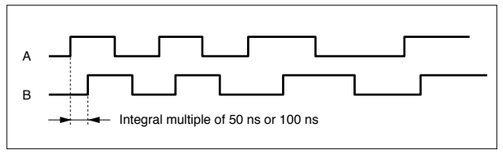
Output Signal Phase Difference

Moving length of the measuring unit is detected every 50 ns for the DK800SA/DK and every 100 ns for the DK800SB, and the phase difference proportional to the amount traveled is output.
The amount of phase difference changes in integer multiples of 50 ns or 100 ns.
Also, the minimum phase difference for the phase A and B is 50 ns for the DK800SA/DK and 100 ns for the DK800SB.

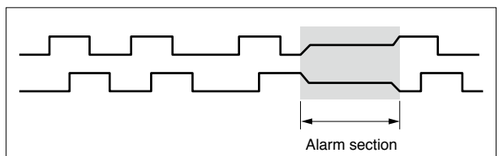


In the standard specifications, the minimum phase difference is fixed at 50 ns for the DK800SA and 100 ns for the DK800SB, however, the minimum phase differences in the following table below are available as special specifications.

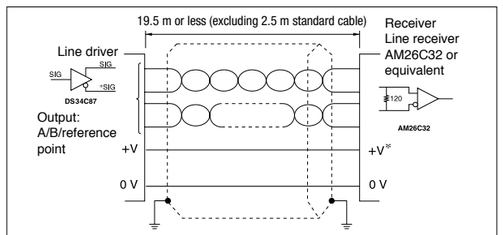
Phase A/B Minimum phase difference	Phase A single cycle	Counter's permissible frequency	Maximum response speed		Remarks
			Resolution 0.1 μm	Resolution 0.5 μm	
50ns	200ns	5MHz	80m/min	250m/min	DK800SA standard product
100ns	400ns	2.5MHz	42m/min	100m/min	DK800SB standard product
300ns	1.2μs	833kHz	14m/min	33m/min	Special specifications
500ns	2μs	500kHz	8.4m/min	20m/min	Special specifications

Output Signal Alarm

If the response speed is exceeded, the phase A/B output from this measuring unit changes to high impedance state for about 400 ms as an alarm.



Receiver



* If extending the cable (Magnescale-specific cable), the supply voltage should be +5 V ±5% at the extension destination. * For an extension cable with spread-out end, use the CE22 Series.

DK Series operating cautions

• For the pneumatic push type, use of the pneumatic circuit shown in Fig. 1 enables the feeler to be air driven. Pressure regulation is required depending on the usage condition. A precision pressure regulator (e.g., SMC IR2010 or equivalent) should be used.
• For the vacuum suction type, use of the pneumatic circuit shown in Fig. 2 enables the feeler to be air driven.

Fig. 1 Pneumatic circuit (pneumatic push)

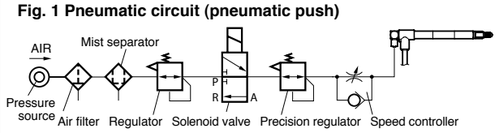


Fig. 2 Pneumatic circuit (vacuum suction)