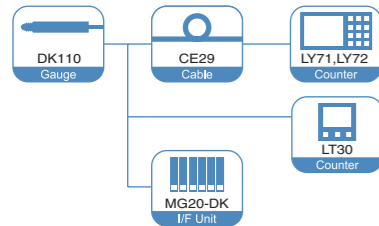




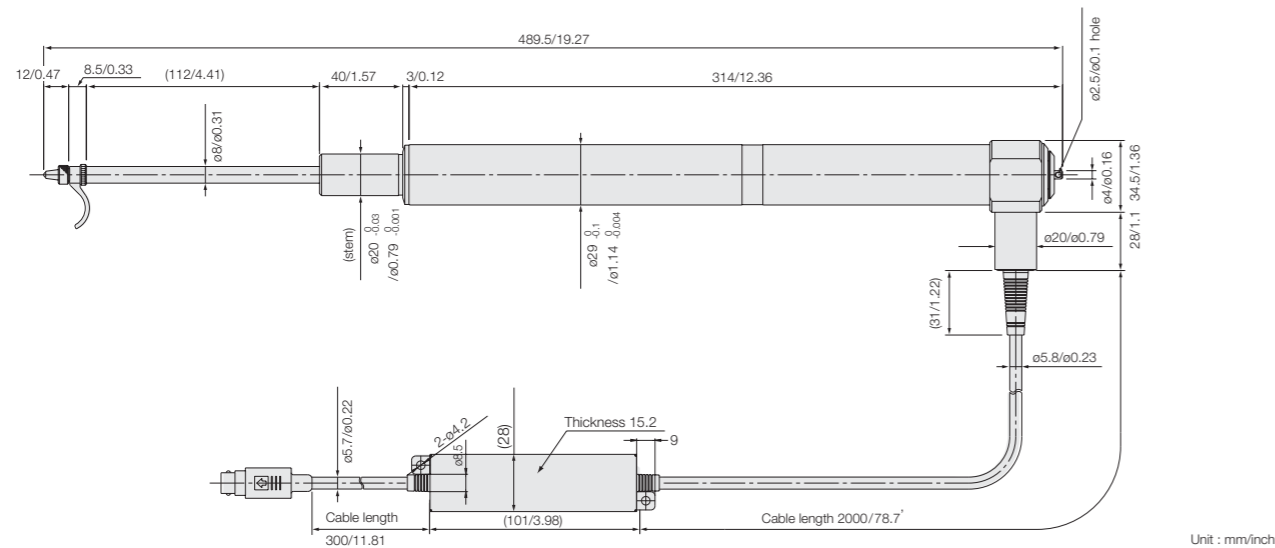
- Measuring range :110 mm / 4.33" ● Accuracy: 4 μm ● Resolution: 0.5 μm
- Direct connected to A/B quadrature counter ● Reduced measurement error
- Precision dual spindle support allows for a smooth spindle motion and virtually error free measurements.
- Reduced measuring force
  - The measuring force can be reduced to a minimum of 0.3 N in three selectable steps using the measuring balancer (option). The force is maintained constant regardless of spindle movement direction.
- Soft spindle return. A braking mechanism reduces spindle return speed, thereby eliminating the danger of damaging either the surface plate or the workpiece.



\*Digital gauge stand DZ-531 and Measuring force balancer DZ-581 are option.

### Digital Gauge

### Dimensions



Specifications	
Model	DK110NLR5
Output	A/B/Z phase voltage-differential line driver output (compliant with EIA-422) *Please see P17 Output Signal Phase Difference.
Resolution*1	0.5 μm
Measuring range	110 mm
Accuracy (at 20°C)	4 μm
Reference point	One location (at 5 mm position of spindle movement)
Maximum response speed	250 m/min
Vibration resistance (10 to 2000 Hz)	150 m/s <sup>2</sup>
Impact resistance (11 ms)	1500 m/s <sup>2</sup>
Protective structure	IP50
Operating temperature	0°C to 50°C
Storage temperature	-20°C to 60°C
Power supply voltage	DC +5 V ±5%
Power consumption	1 W or less
Cable length*2	Approx. 2.5 m
Diameter of stem	ø20 <sup>0</sup> / <sub>0.013</sub> mm
Mass*3	Approx. 800 g
Feeler	DZ-121 (Mount screw M2.5)
Output cable length	22 m max.
Guaranteed number of Strokes	Minimum 5 million cycles without shock
Accessories	+P M4x5 screw (2 pcs.), feeler DZ-121, lift lever DZ-161, Instruction Manual

\*1 : The resolution setting needs to be made when connecting to the LT30 series, MG series, and LY70 series. For details, please refer to the respective instruction manual.  
 \*2 : Please refer to P10 DK 802 A/B about the extension cable (Option).  
 \*3 : The mass indicated is the total mass excluding the cable and interpolation box.

### DK Series operating cautions

In operating the feeler with a vacuum pump, use such an air-pass system as shown in Fig. 1 to enable air driving. The optimum vacuum rate is 0.04 to 0.067MPa. Further, put such an orifice as shown in Fig. 2 on a tube from the air lifter connector to control the air suction and discharge speed. The feeler is lifted at the air discharge to the vacuum pump.

Fig.1 Air-pass System

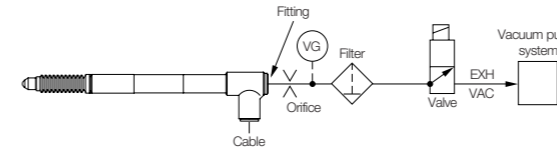
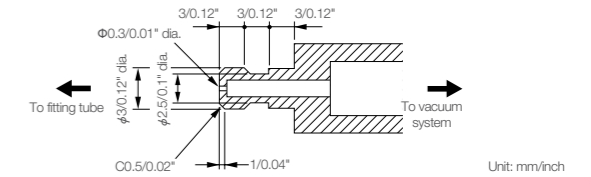
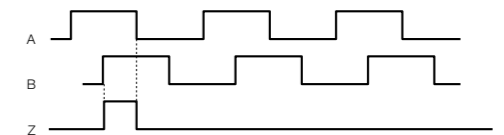


Fig.2 Dimensions of Orifice



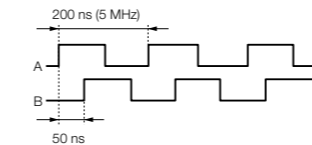
### DK Series measuring unit output signals

The signals output from this measuring unit are A/B quadrature signal, Z signal in the form of voltage-differential line driver output compliant with EIA-422.

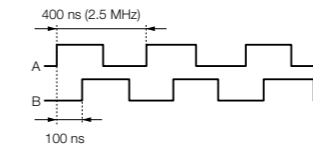


The reference point is the synchronized reference point that is at Hi impedance when the phase A and phase B are at the Hi level.

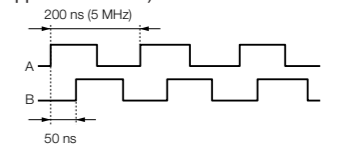
DK800A output signals at maximum response speed (at approx. 80 m/min)



DK800B output signals at maximum response speed (at approx. 42 m/min)



DK10/25/100/155/205/110 Output signals at maximum response speed (at approx. 42 m/min)



Before using, check that the minimum input phase difference of the control device connected to this measuring unit or the counter is smaller than 50 ns for the DK800A (A signal cycle: 200 ns, 5 MHz) or smaller than 100 ns for the DK800B (A cycle: 400 ns, 2.5 MHz).

Before using, check that the minimum input phase difference of the control device connected to this measuring unit or the counter is smaller than 50 ns for-DK 10~110 series (A signal cycle: 200 ns, 5 MHz).

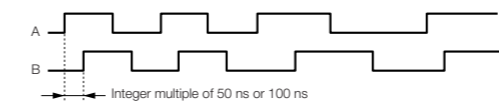
\*The minimum phase difference can be modified under special specifications.

### Output Signal Phase Difference

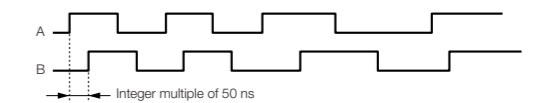
The travel amount of the measuring unit is detected every 50 ns for the DK800A and every 100 ns for the DK800B, and the phase difference proportional to the amount traveled is output. The phase difference changes in integer multiples of 50 ns or 100 ns. Also, the minimum phase difference for the A and B is 50 ns for the DK800A and 100 ns for the DK800B.

The travel amount of the measuring unit is detected every 50 ns, and the phase difference proportional to the amount traveled is output. The phase difference changes in integer multiples of 50 ns. Also, the minimum phase difference for the A and B is 50 ns.

DK802A/B-812A/B



DK10/25/100/155/205/110



In maximum standard specifications, the minimum phase difference is fixed at 50 ns for the DK800A and 100 ns for the DK800B, but the minimum phase differences in the table below are available as special specifications.

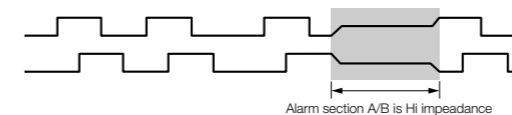
In the standard specifications, the minimum phase difference is fixed at 50 ns, but the minimum phase differences in the table below are available as special specifications.

A/B minimum phase difference	A signal cycle	Counter allowable frequency	Maximum response speed		Remarks
			Resolution 0.1 μm	Resolution 0.5 μm	
50 ns	200 ns	5 MHz	80 m/min	250 m/min	DK800A standard product
100 ns	400 ns	2.5 MHz	42 m/min	100 m/min	DK800B standard product
300 ns	1.2 μs	833 kHz	14 m/min	33 m/min	Special specifications
500 ns	2 μs	500 kHz	8.4 m/min	20 m/min	Special specifications

A/B minimum phase difference	A signal cycle	Counter allowable frequency	Maximum response speed Resolution 0.5 μm	Remarks
100 ns	400 ns	2.5 MHz	100 m/min	Special specifications
300 ns	1.2 μs	833 kHz	33 m/min	Special specifications
500 ns	2 μs	500 kHz	20 m/min	Special specifications

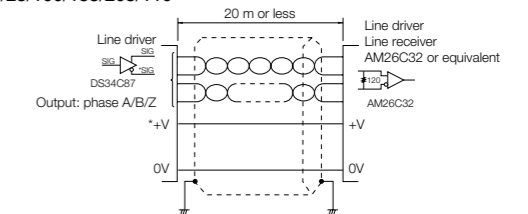
### Output Signal Alarm

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



### Receiver

DK10/25/100/155/205/110



(\*If extending the cable, the supply voltage is +5 V±5%.)  
 \*Use the CE22 series extension cables for bare wires (optional accessories).