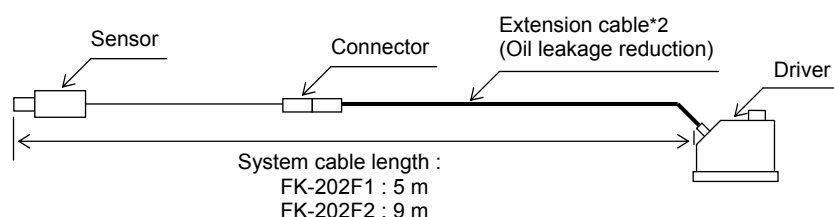


Specifications		Notice
Calibration material	JIS SCM440 flat surface	<ol style="list-style-type: none"> 1. Calibration material MODEL FK-202F Transducers are calibrated for JIS SCM440 flat surface (more than 15 mm dia.). If the measured target is other than JIS SCM440 flat surface, it will present a different characteristics. In such a case, calibration by the connected equipment (e.g. monitor) side should be required for system operation. 2. Shield wire connection Connect shield wire of signal cable (3-wire shielded cable between driver and monitor) to driver's "COM" terminal (Spring lock terminal: "Shield" terminal) and monitor's "COM" terminal. If this is not adhered to, noise may be caused. 3. Connector isolation, etc. The connector connecting the sensor cable and the extension cable shall be insulated with the attached insulation sleeve (transparent shrink tube) or fluoro resin insulation tape. The vinyl-insulating tape shall not be used. 4. Megger test of signal cable If megger test is made on the signal cable (3-wire shielded cable), be sure to discharge the charged electric load before connecting the cable to driver. If this caution is not adhered the driver could be damaged. 5. Sensor installation Not available for rain water at out door use. It may cause the sensitivity change and insulation down. 6. Scale factor error and Linearity The scale factor error margin and Linearity margin provides for examination result in our factory. This regulated value is not applied to the examination result in the site. 7. The instructions manual contains important information such as conditions necessary for safe handling of the system. Such information and conditions are important and indispensable for ensuring safety. Therefore, be sure to read the instructions manual thoroughly before handling the system. 8. Cable length 5.0m sensor is designed for 5m system only. Can not use for 9m system.
Measuring range	0.25 mm to 2.25 mm from sensor tip	
Sensitivity *1	7.87V/mm	
Sensitivity error*1	Within ±4%	
Scale factor error*1 (Including interchangeability errors)	Within ±5 % of 7.87 V/mm (for 5 m system) Within ±6.5 % of 7.87 V/mm (for 9 m system) Step : 0.25 mm, Linear range : 2 mm	
Linearity*1 (Including interchangeability errors)	Within ±25 μm of 7.87 V/mm straight line : (for 5 m system) Within ±38 μm of 7.87 V/mm straight line : (for 9 m system) Linear range : 2 mm	
Frequency response*1	DC to 10 kHz (-3 dB)	
Max. output voltage*1	Approx. -23 VDC	
Sensor abnormal output voltage*1	Approx. -0.6 VDC (Sensor OPEN/Sensor SHORT)	
Output impedance*1	50 Ω Current 5 mA (max.)	
Current consumption (10 kΩ load)	Max. -15 mA	
Output noise*1	Approx. 15 mVpk-pk + power supply noise	
Sensor tip diameter	Approx. 5 mm or 8 mm dia.	
Cable diameter	Approx. 2.7 mm or 3.6 mm dia.	
Connector diameter	Approx. 7.1 mm dia.	
System cable length	5 m or 9 m	
Sensor cable color	Blue	
Extension cable color	Black	
Operating temperature range	Sensor : -40 to + 177 °C Extension cable : -40 to + 177 °C Driver : -40 to + 80 °C	
Temperature characteristic	Sensor : Less than ±3 % of F.S. Extension cable : Less than ±4 % of F.S. Condition : Gap=2 mm, Target : JIS SCM440 0 to 80 °C (at 20 °C standard) Driver : Less than ±3 % of F.S. Loop : Less than ±6 % of F.S. Condition : Gap=2 mm, Target : JIS SCM440 0 to 60 °C (at 20 °C standard)	
Operating humidity range	30 to 95 % RH (non-condensing, non-submerged) (sensor body : 100 % RH)	
Power supply	-24 VDC ±10 %	
Dielectric strength of driver	Between each terminals and mounting plate : 1 mA or less at 500 VAC for one minute	
Insulation resistance of driver	Between each terminals and mounting plate : 100 MΩ or more at 500 VDC	
Applicable wire Size	Screw type terminal block (M4) : 0.75 to 2mm ² Spring lock terminal : 0.2 to 1.5mm ²	
Driver mass	Approx. 200 g	
Oil leakage reduction performance*2	Even if oil is poured in to the cable with the pressure of 0.05MPa. Oil does not leak from opposite the cable for 7 days. (cable length : 4m, at 25 °C)	
*1 The above specification apply at 25°C with -24VDC power supply and load resistance 10kΩ and JIS SCM440 target (thickness ≥ 5 mm)		
*2 . Oil leakage reduction performance is applied to the extension cable part.		

Configuration





Model code / Additional spec. code (No entry if additional spec. code is not specified.)

■ Sensor

FL-202F05 * - * * - * * - * * - * *

Armor		Thread size		Unthreaded length (L1)	Case length (L2)	Cable length (L3)	
L	Without armor	M1	M8×1	10mm STEP, 0-230mm L1 ≤ L2 - 20mm e.g.) 06=60mm	10mm STEP, 20-250mm e.g.) 25=250mm	05	0.5m
A	With armor (Without fluoro resin coating)					10	1.0m
T	With armor (With fluoro resin coating)	U1	1/4-28UNF	0.1inch STEP, 0-9.2inches L1 ≤ L2 - 0.7inches e.g.) 04=0.4inch	0.1inch STEP, 0.8-9.9inches e.g.) 35=3.5inch		
				Specified in mm for M threaded sensor. Specified in inch for UNF threaded sensor.			

FL-202F08 * - * * - * * - * * - * *

Armor		Thread size		Unthreaded length (L1)	Case length (L2)	Cable length (L3)	
L	Without armor	M2	M10×1	10mm STEP, 0-230mm L1 ≤ L2 - 20mm e.g.) 06=60mm	10mm STEP, 20-250mm e.g.) 25=250mm	05	0.5m
A	With armor (Without fluoro resin coating)					10	1.0m
T	With armor (With fluoro resin coating)	U2	3/8-24UNF	0.1inch STEP, 0-9.2inches L1 ≤ L2 - 0.7inches e.g.) 04=0.4inch	0.1inch STEP, 0.8-9.9inches e.g.) 35=3.5inch		
				Specified in mm for M threaded sensor. Specified in inch for UNF threaded sensor.			

FL-202F08R - * * - * * - * * - * *

Thread size		Unthreaded length (L1)	Case length (L2)	Cable length (L3)	
M2	M10×1	R5=5mm	03=30mm	05	0.5m
U2	3/8-24UNF	02=0.2inch	12=1.2inch	10	1.0m
				Specified in mm for M threaded sensor. Specified in inch for UNF threaded sensor.	

■ Extension cable

FW-202F * - * * / FP0

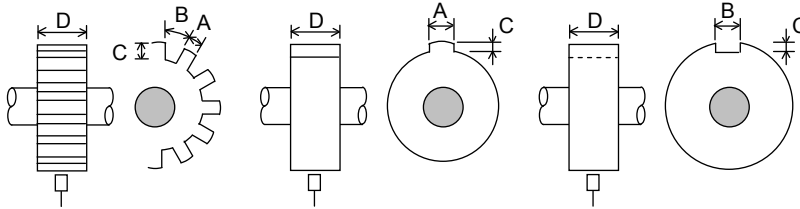
Armor		Cable length (L)		Oil leakage reduction
L	Without armor	40	4.0m	
A	With armor (Without fluoro resin coating)	45	4.5m	
		80	8.0m	
T	With armor (With fluoro resin coating)	85	8.5m	

■ Driver

FK-202F * - * - *

System cable length		Mounting plate		Terminal block	
1	5 m	1	DIN rail (35mm) mount	1	Screw type terminal block (M4)
2	9 m	2	Screw mount (50.8 × 50.8mm)	2	Spring lock terminal
		3	Screw mount (92 × 31mm: for VK replacement)		
		4	Screw mount multi-pitch (50.8 × 50.8mm and 92 × 31mm)		

- Dimension of target [recommended for rotational speed measurement]



Dimension of target [recommended] (mm)	$A \geq 6$
	$B \geq 7$
	$C \geq 2.5$
Set gap [recommended] (mm)	$D \geq 16$