



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

FK-302F - - / EX / SYS / GEO

System cable length		Mounting plate		Terminal block		Intrinsically safe		System calibration	Geothermal spec.
1	5m	1	DIN Rail(35mm) Mount	1	Screw type terminal block (M4)	1	TIIS (Ex ia IIC T4)		
2	9m	2	Screw mount (50.8x50.8mm)	2	Spring lock terminal	4	CSA C/US (Ex ia IIC T4)		
		3	Screw mount (92x31mm : For VK replacement)			5	ATEX (Ex ia IIC T4 Ga)		
		4	Screw mount Multi-pitch (50.8x50.8 mm and 92x31 mm)			B	TS (Ex ia IIC T4 Ga)		
						C	TR-CU (Ex ia IIC T4)		

*1 Above code shows model number of driver only. Refer to outline drawings for model number of sensor and extension cable.

SPECIFICATIONS		NOTICE
CALIBRATION MATERIAL	JIS SCM440 flat surface	<p>1. CALIBRATION MATERIAL MODEL FK-302F Transducers are calibrated for JIS SCM440 flat surface (more than 30 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.</p> <p>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.</p> <p>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, which may cause the wiring trouble in the case of temperature more than 80°C. The connector shall not be located in the oil environment. The oil penetration to cable through the connector may cause the sensitivity change, due to the change of the cable capacitance.</p> <p>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.</p> <p>5. SENSOR INSTALLATION Not available for rain water at out door use. It may cause the sensitivity change and insulation down.</p> <p>6. CALIBRATED AS A SYSTEM The sensor, extension cable and driver, which are calibrated as a system, shall be connected with each serial No. as specified in the inspection test report. If this is not adhered the output characteristics may be out of specification.</p> <p>7. SCALE FACTOR ERROR and LINEARITY The scale factor error margin and linearity margin provide for examination result in our factory. This regulated value is not applied to the examination result in the site.</p> <p>8. SAFETY BARRIER In case of the intrinsically safe specification, the approved following safety barrier is recommended. • MTL 796- Linear range reduces when intrinsic safety system with barrier. (to approx. 90%)</p>
MEASURING RANGE	0.25 mm to 3.25 mm from sensor tip	
SENSITIVITY*2	5.0 V/mm	
SENSITIVITY ERROR*2	Within ±4 %	
SCALE FACTOR ERROR*2	Within ±4 % of 5.0 V/mm (if calibrated as a system) Within ±10 % of 5.0 V/mm (including interchangeability errors) Step : 0.25 mm, Linear range : 3 mm	
LINEARITY*2	Within ±30 μm of 5.0 V/mm straight line : (if calibrated as a system) Within ±45 μm of 5.0 V/mm straight line : (including interchangeability errors) Linear range : 3 mm	
FREQUENCY RESPONSE*2	DC to 10 kHz or more (-3 dB)	
MAX. OUTPUT VOLTAGE*2	Approx. -23 VDC	
SENSOR ABNORMAL OUTPUT VOLTAGE*2	Approx. -0.6 VDC (Sensor OPEN/Sensor SHORT)	
OUTPUT IMPEDANCE*2	50 Ω Current 5 mA(max.)	
CURRENT CONSUMPTION (10 kΩ load)	Max. -15 mA	
OUTPUT NOISE*2	Approx. 20 mVpk-pk + power supply noise	
SENSOR TIP DIAMETER	Approx. 10 mm dia.	
CABLE DIAMETER	Approx. 3.6 mm dia.	
CONNECTOR DIAMETER	Approx. 7.1 mm dia.	
SYSTEM CABLE LENGTH	5 m or 9 m	
OPERATING TEMPERATURE RANGE	Sensor : -40 to +177 °C Extension Cable : -40 to +177 °C Driver : -40 to +80 °C	
RANGE OF TEMPERATURE AT EXPLOSION PROOF CONSTRUCTION	EX1 : -20 to +60 °C (Sensor, Extension Cable & Driver) EX4 : -20 to +85 °C (Sensor, Extension Cable & Driver) EX5,B : -38 to +80 °C (Sensor, Extension Cable & Driver) EXC : -30 to +80 °C (Sensor, Extension Cable & Driver)	
TEMPERATURE CHARACTERISTIC	Sensor : Less than ±3 % of F.S. Extension Cable : Less than ±3 % of F.S. Condition : Gap=3 mm, Target : JIS SCM440 0 to 80 °C (at 20 °C standard) Driver : Less than ±3 % of F.S. Loop : Less than ±4 % of F.S. Condition : Gap=3 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 terminal and mounting plate : 1 mA or less at 500 VAC for one minute	
INSULATION RESISTANCE OF DRIVER	Between each terminal 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	
*2 The above specification apply at 25 °C with -24 VDC power supply and load resistance 10 kΩ and JIS SCM440 target (thickness≥5 mm).		

CONFIGURATION

