SV3300 series proximity probe, extension cable and Driver/HART transmitter

HART COMMUNICATION PROTOCOL

Probe

Extension cable

Extension cable

Promitter® transmitter

OVERVIEW

The 3300 Eddy Current Transducer System consists of:

- SV3300 probe
- SV3300 extension cable
- SV3300 driver/ loop-powered HART transmitter

The signal that is a voltage output from the driver or the current output from a HART transmitter, which is directly proportional to the distance between the probe tip and the observed conductive surface. The system can measure both static (axial position) and dynamic (racial vibration) values. The system's primary applications are vibration and position measurements on fluid-film bearing machines, as well as Keyphasor* reference and speed measurements. The HART transmitter can also provide a dynamic buffered signal analysis BNC interface.

The 3300 series system fully complies with the American Petroleum Institute's (API) 670 Standard (4th Edition), and supports complete interchangeability of probes, extension cables, and Driver sensors/ HART transmitter. According to the measurement range, diameters of the probe tip such as Φ5mm, Φ8mm and Φ11mm are available. DIN-35mm rail or flat base mounting style is optional for Driver sensors/ HART transmitter.

SV3300 series proximity probe, extension cable and driver/HART transmitter

Specifications

Probe

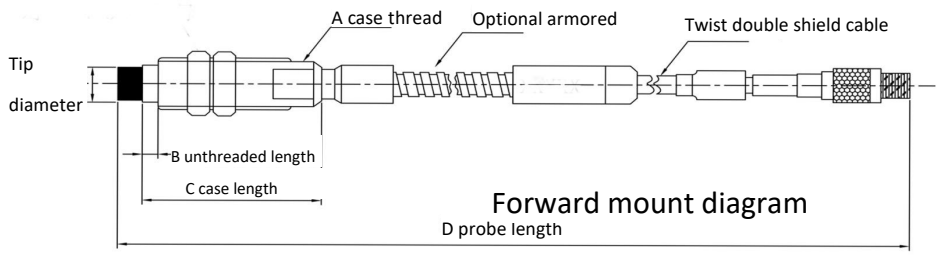
Probe tip material: Polyphenylene Sulfide (PPS)

Probe case material: AISI 304 stainless steel（SST）

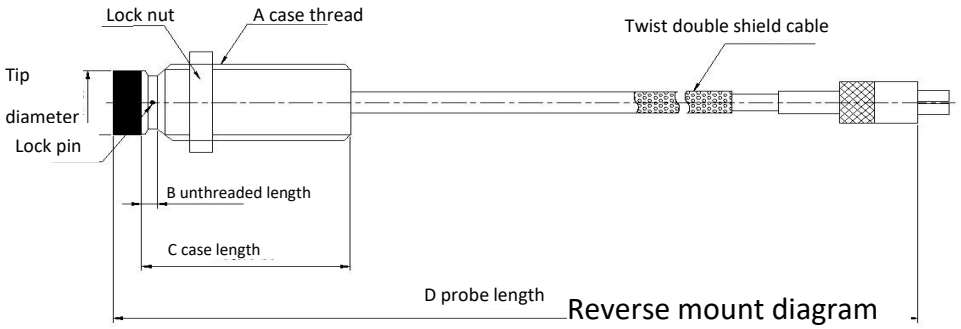
Probe cable type: 75Ω triaxle, fluoroethylene propylene (FEP) insulated probe cable in the following total probe lengths 0.5m, 1m, 5m or 9m.

Operating and storage temperature for the probe：
-40°C - +177°C

Mounting style: forward or reverse
Protection grade: IP66
Locknut: For sealing connection and securing the probe
Recommended gap setting：1.27mm（50mils）
Vgap=9.8V-10V
Standard target materials: 4140 steel (other material is available upon request and has high accuracy)
Agency approval: NEPSI/EAC/IECEx/ATEX,Ex ia IIC T4,intrinsicall safety approvals

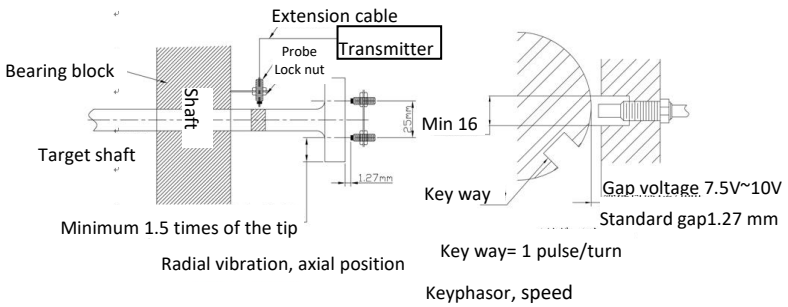


Forward mount diagram



Reverse mount diagram

Probe mount diagram



Extension cable

Cable resistance：75Ω

Cable specifications：Triaxlial, FEP insulated cable

Capacitance：21.3pF/ft

Cable sealing: all cables sealed via the extraction process

Temperature for cable：-40°C - +177°C

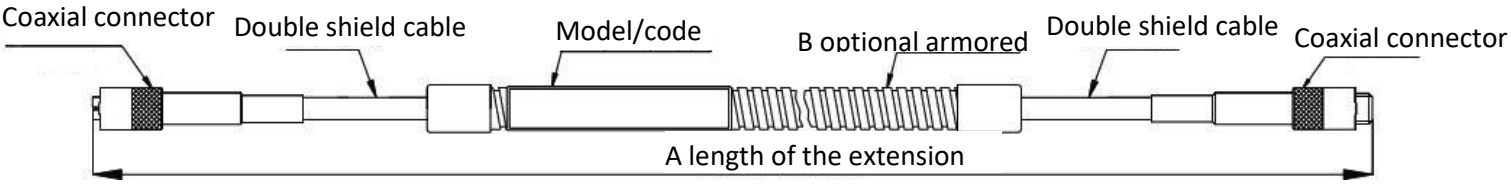
Connector material：Gold-plated brass hexagon connector

Protection grade of extension cable：IP66

Minimum bend radius：25.4mm

Relative humidity：100% condensation but not submerged into water and protect the connector

Linear range：for 5mm and 8mm probes, it is 2mm （80mils） and linear range begins at approximately 0.25mm from target and is from 0.25mm to2.5mm.



Driver sensor

Material: A 308 aluminum

Power：-18 VDC ~ -26 VDC

Sensitivity: -7.87 V/mm (-200mV/mil), ± 5%
（5&8mm probe）

-3.94 V/mm (-100mV/mil), ± 5%（11mm probe）

Hazardous areas approved：
NEPSI/EAC/IECEx/ATEX,Ex ia IIC T4

Unlinear: Max. 0.015mm (0.6mils) and exceeds 2.5 mm (100mils) resulting in bias

Frequency Response：0-10KHz, ± 5%

Temperature Range：-51℃- +100℃

Insulation：Mounting with insulation against ground and 500Vrms for circuit to ground

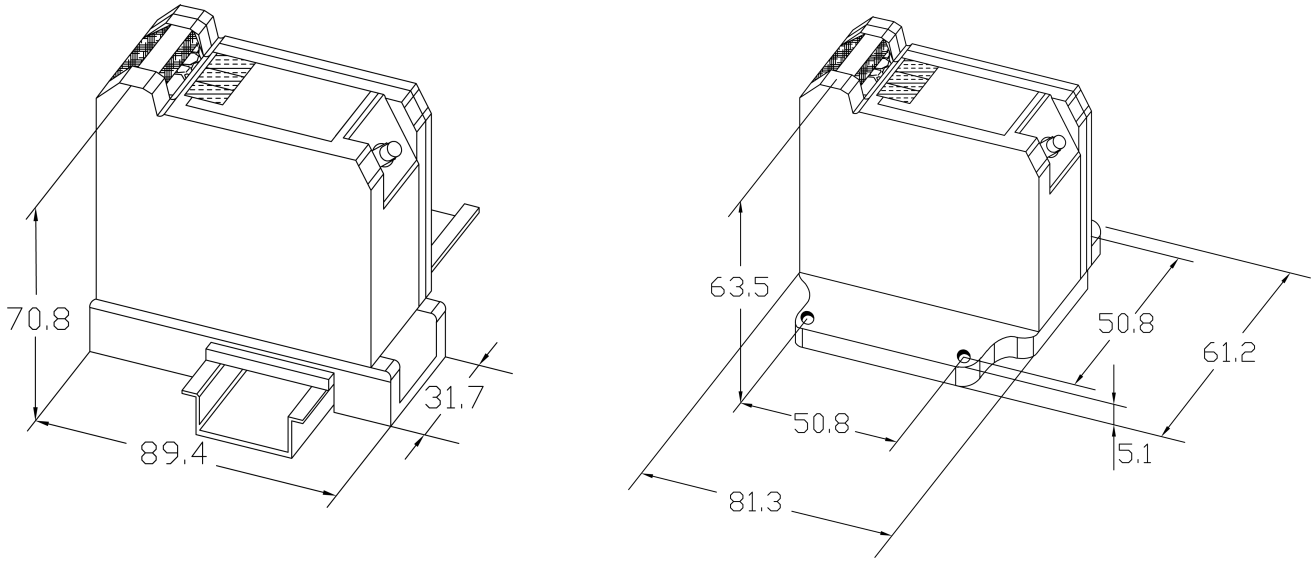
Interchangeability error：When replace any one of the probe, cable and Driver, the max error is ± 5% in the sensitive area

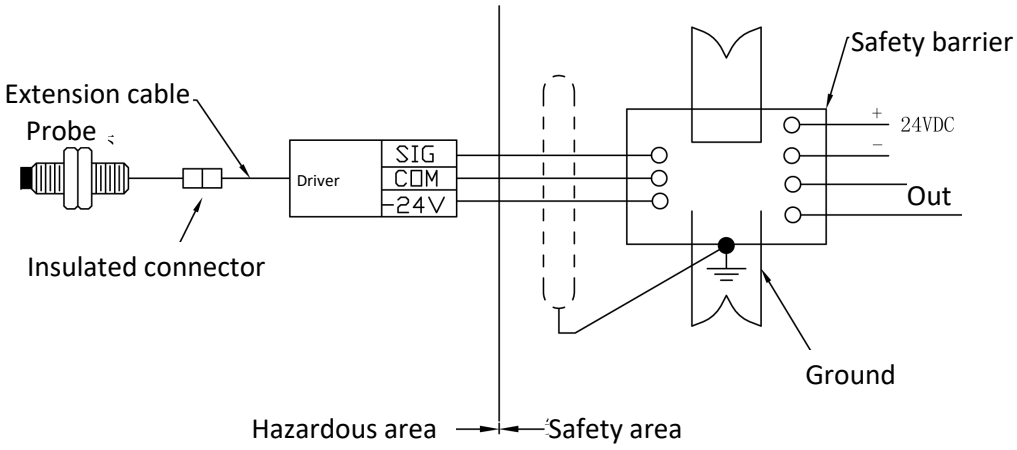
case：The inner plated polymer blocking radio frequency/electromagnet interference (FI/EMI) extends the service life.

SV3300 series proximity probe, extension cable and Driver/HART transmitter

Outline and dimensions of the Driver (Unit: mm)

:





The preferred safety barrier model: VS8057-EX

(recommended)

MTL5531 (MTL)

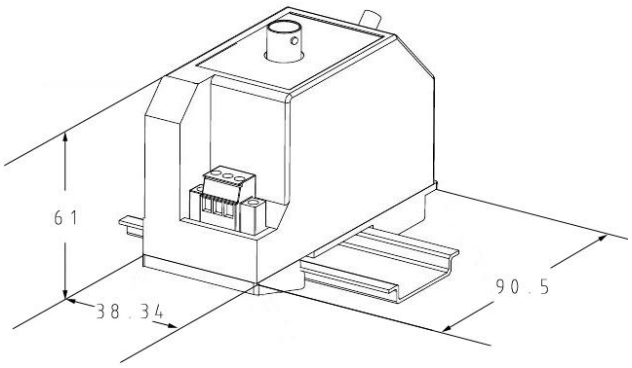
KFD2-VR4-Ex1.26(P+F)

SV3300 series proximity probe, extension cable and Driver/HART transmitter

Promitter® HART transmitter

Material: PBT plastic
Power：17 VDC ~ 30 VDC ， regardless of polarity
Frequency response：5Hz-1kHz，-3dB pk-pk vibration
0Hz-15Hz，-3dB position
Linear range：0.5-2.0mm（5&8mm probe）
0.5-4.0mm（11mm probe）
Temperature range：-40℃- +85℃
BNC output：7.87V/mm（200 mV/mil）
3.94V/mm（100 mV/mil）,(11mm probe)
Hazardous areas approved：
NEPSI/EAC/IECx/ATEX,Ex ia IIC T4,intrinsically safety

The max load resistance：RL=50（VS-17）ohms
Interchangeability error：When replace any one of the probe, cable and Driver, the max error is ± 5% in the sensitive area
Case: the inner plated polymer blocking radio frequency/electromagnet interference （FI/EMI）extends the service life
communication： User can change the measurement range as required via smart HART protocols.



User can change the following parameters via a hart communicator:

Transmitter type		Lower range value	Upper range value	Damping ratio
Position transmitter AVT	5&8 mm	Between 0.25~2.5mm	Between 2.5~0.25mm	non
	11mm	Between 0.25~4.5mm	Between 4.5~0.25mm	
Vibration transmitter RVT		0	Switch freely any one of the specified measurement ranges in this document	non
Speed transmitter SVT		0	speed： 120～100000rpm	Key way numb： 1～99

Forward mounted SV3300 probe

SV330AAA-BB-CC-DD-02

AAA：probe type BB：Unthreaded length CC：case length DD：Probe length

Tip diameter	Case thread	armored	AAA type	BB unthreaded length	CC Case length	DD Probe length
5mm	1/4"-28	N	171	standard 00=0.0in incremental 05=0.5in max length=case length-1.0in	standard 30=3.0in Min length 10=1.0in incremental 05=0.5in max length 95=9.5in	05=0.5m ±.05m 10=1.0m ±.10m 50=5.0m ±.50m 90=9.0m ±.90m
	1/4"-28	Y	172			
8mm	3/8"-24	N	101			
	3/8"-24	Y	102			
11mm	1/2"-20	N	191			
	1/2"-20	Y	192			
5mm	M8X1	N	173	standard 00=0.0mm incremental 01=10mm max length=case length-20mm	standard 07=70mm Min length 02=20mm incremental 01=10mm max length 25=250mm	
	M8X1	Y	174			
8mm	M10X1	N	103			
	M10X1	Y	104			
11mm	M14X1.5	N	193			
	M14X1.5	Y	194			

SV3300 series extension cable

SV330AAA-BBB-CC

AAA: cable type

BBB: cable length

CC: armored option

Tip diameter	AAA type	BBB cable length	CC armor
5&8mm	130	040=4.0m 045=4.5m 080=8.0m 085=8.5m	00=armored
11mm	830		01=unarmored

Reverse mounted SV3300 probe SV330AAA-BB-CC-DD-02

AAA：probe type BB：Unthreaded length CC：case length DD：Probe length

Case thread	Tip diameter	armored	AAA type	BB unthreaded length	CC Case length	DD Probe length
3/8"-24	8mm	N	105	02=0.2in	12=1.2in	05=0.5m ±.05m 10=1.0m ±.10m
	11mm	N	195			
M10X1	8mm	N	106	05=5mm	30=30mm	
	11mm	N	196			

Example 1：

A 9-meter system consists of standard unarmored 8mm-probe, M10*1 case threads, 70mm case length 0.5m probe length, 20mm unthreaded length, armored extension cable, transmitter with DIN rail installation type, detects rod sinking and has the measurement range of 0.5-2mm,then the selection guide is as following

Probe type：SV330103-20-07-05-02, extension cable：SV330130-085-01 ,transmitter：AVT33N00

Example 2：

A 5-meter system consists of standard unarmored 8mm-probe, M10*1 case threads, 70mm case length,1m probe length, 0 unthreaded length, unarmored extension cable, driver with DIN rail installation type, then the selection guide is as following

Probe type ： SV330103-00-07-10-02 extension cable ： SV330130-040-00 driver ： SV330180-50-01

Shenyang VibroTech Instruments INC Address:No.7Xinlong Street, Hunnan district www.vibrotech.cn
Tel: 024-83786099/024-83786199 Fax: 024-85615237 email：sales@vibrotech.cn

SV3300 series proximity probe, extension cable and Driver/HART transmitter

SV3300 series driver SV330AAA-BB-CC

AAA：driver type BB：system length CC：Mounting style

Tip diameter	AAA type	BB system length	CC mounting
5&8mm	180	50=5m system	00=flat base mount
11mm	880	90=9m system	01=35mm DIN rail mount

Single channel signal conditioner 8800

Power the driver and provide 4-20mA output

Dual channel signal conditioner DPS2016

Power the driver and provide 4-20mA output relay contact output buffered signal output

SV3300 series radial vibration transmitter RVT33ABC

A：system length B：Tip diameter C：4-20mA output

system length	A type	B Tip diameter	C 4-20mA output	
5 meter	F	0=5&8mm	0	75um，pk-pk
			1	100um，pk-pk
9 meter	N		2	125um，pk-pk
			3	250um，pk-pk
			4	500um，pk-pk
			5	200um，pk-pk

SV3300 series axial position transmitter AVT33ABC

A：system length B：Tip diameter C：4-20mA output

system	A	B Tip	C 4-20mA output	
5米	F	0=5&8mm	0	0.5-2mm，
9米	N		1	0.5-2.5mm，
5米	F	1=11mm	1	0.5-4mm，
9米	N		2	0.5-4.5mm，

SV3300 series keyphasor/speed transmitter SVT33AB-CC-DDDDDD

A：system length B：Tip diameter CC：keyway numbers DDDDDD：4-20mA output

system	A	B Tip	CC keyway	DDDDDD=4-20mA output		
5 meter	F	0=5&8mm	1 ┆ 99	1keyway（min） ┆ 99 keyways（max）	120 ┆ 100000（highest）	120rpm（least） ┆ 100000rpm（highest）
9 meter	N					

Shenyang VibroTech Instruments INC Address:No.7Xinlong Street, Hunnan district www.vibrotech.cn
Tel: 024-83786099/024-83786199 Fax: 024-85615237 email：sales@vibrotech.cn

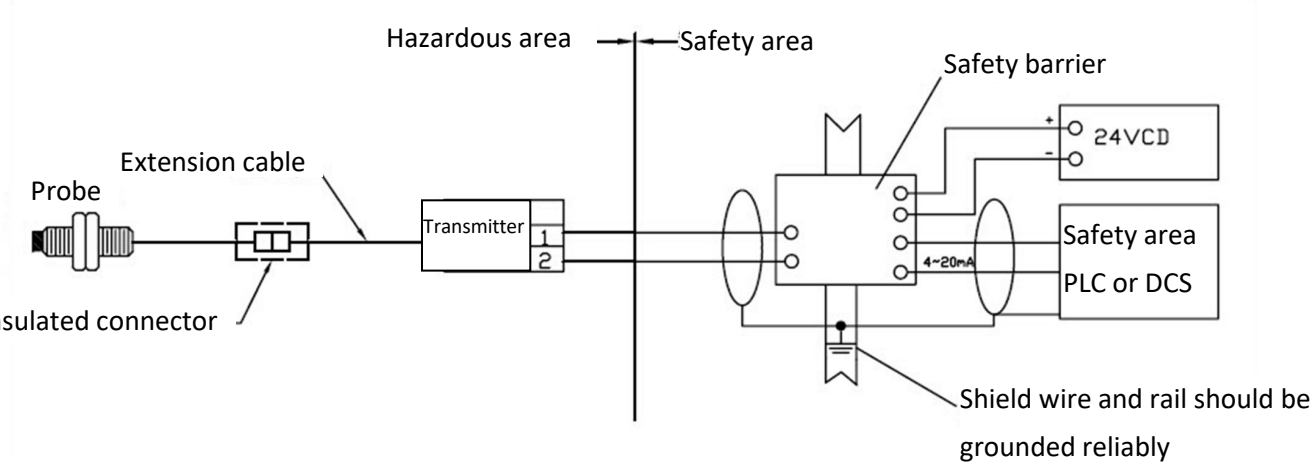
The vibraTech's eddy current transmitter can replace the imported ones and they can operate with probes and extension cables either from Bently or Metrix. Consult factory for specific models.

system	A	B Tip	CC keyway numbers		DDDDDD=4-20mA output	
5	F	1=11mm	1	1 keyway	120	120rpm（least）
9	N		99	（least）	100000	100000rpm（highest）

SV3300 series proximity probe, extension cable and Driver/HART transmitter

Wiring diagram

Hazardous area



preferred safety barrier models：VS8047-EX（recommended）

MTL5541（MTL）

KFD2-STC4-Ex1（P+F）