SDVG20 Series of Separate-core DC LVDT Displacement sensor

Introduction

LVDT is a high-tech product used to measure the elongation, vibration, thickness, expansion and so on, it is intended for widely application in Aerospace, Machinery, Construction, Textile, Railway, Coal mine, Metallurgy, Plastic, Chemical industry and Academic research.

DC LVDT performs excellently from 9-28 voltage DC power supply, suitable for high precision and high repeatability measurement, output standard signal of 0-5v or 4-20mA to be identified by computer or PLC. The integrated circuit is hermetically sealed in SUS 304 stainless steel sleeve, ensure that the transducers keep working accurately and reliably in hostile environment of damp and dust, corrosion, etc.

Features

- Outer diameterΦ20mm , sainless steel shell, separate-core
- DC single power supply, built-in excellent signal demodulator
- Three wires voltage output 0-5V or 0-10V, two wires current output 4-20mA
- Measuring range from 1mm-500mm, high resolution, excellent repeatability
- Contactless operation, long life

Applications

- Machine tools and instrument positioning
- Hydraulic cylinder positioning
- The valve position detection and control
- Cement industry, bridge deck shift detection
- The subway tunnel engineering protecton

Specifications

	Series of SDVG20 Separate-core
Input Voltage	9 ~28V DC
Input Current	input current ≤12mA (Voltage output type)
	input current 4~20mA (2 wire, current output type)
Measuring range	2.5, 5, 10, 15, 25, 50, 100, 250, 500mm
Output signal	0～5V (9 ~28V DC input voltage)
	0 ~10V (15 ~28V DC input voltage)
	4 ~20mA (2 wire, 15 ~28V DC input voltage)
	Digital output (9 ~28V DC input voltage)
Linearity	Analog output:±0.25%,±0.5% etc optional; Digital output:0.25%,0.1% etc optional
Repeatability	≤0.01% of FS
Resolution	≤0.01um(max), Digital output is 16 bit
Dynamic characteristics	250 Hz(max)
Operating temperature	-25℃ ~ +85℃
Temperature coefficient	Null point≤0.01%/℃
	Sensitivity ≤0.025%/℃

Mechanical Specifications

Ø 6.0

A

P

M3x0.5

Ø 4.8

B
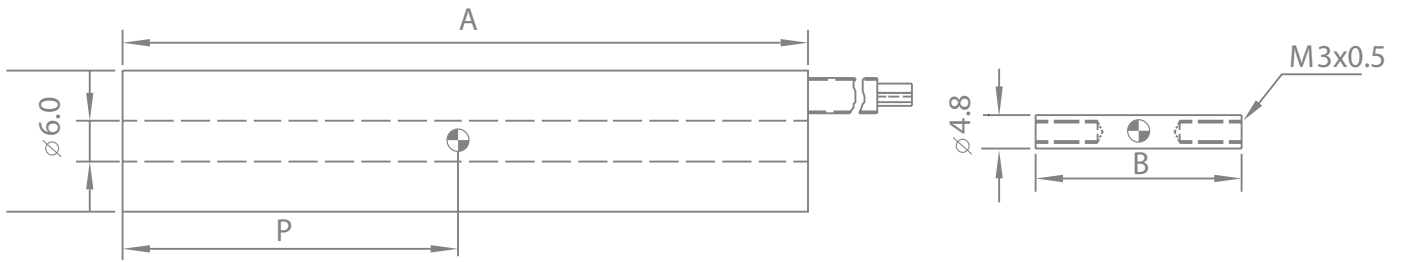
| Specifications	SDVG20 Series Separate-core								
Measuring range (mm)	2.5	5	10	15	25	50	100	250	500
Body A (mm)	80	90	110	130	170	210	290	498	800
Iron coreB (mm)	20	30	40	50	70	80	120	150	180
Electrical null point P (mm)	21	26	36	46	66	86	126	230	381

⚠ Caution

1. The factory default setting is that output signal maximum when the leader is move to outlet direction.
2. The ☉ is eccertical null point, when the iron core midpoint is located on it.
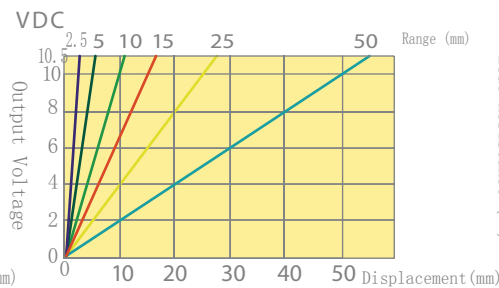
Output Characteristics

Relations of output voltage (0-5V) and displacement for series of SDVB 20 different measuring ranges:
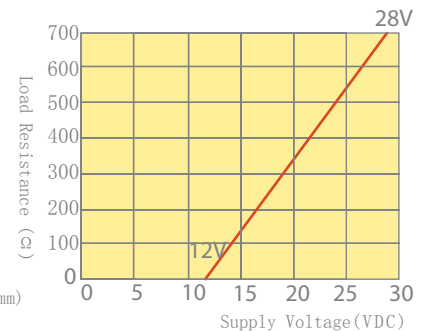(Input voltage 9-28VDC ,12VDC is recommended)
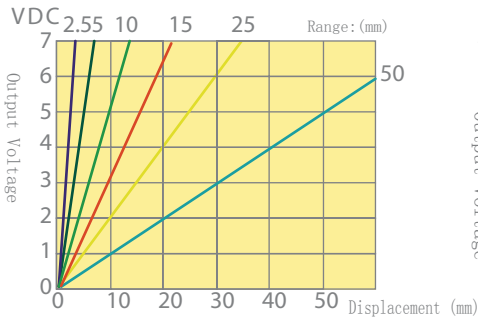
Relations of output voltage (0-10V) and displacement for series of SDVB 8 different measuring ranges:
(Input Voltage 15-28VDC, 15VDC is recommended)

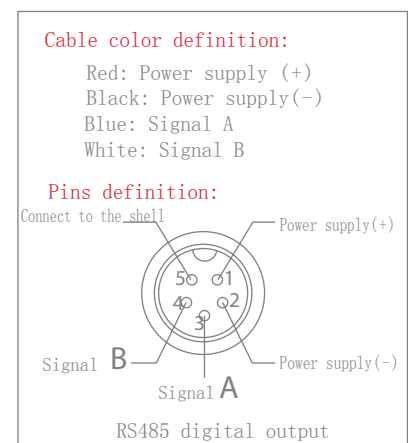Relations between the Max loop impedance and input voltage (Current output Model)
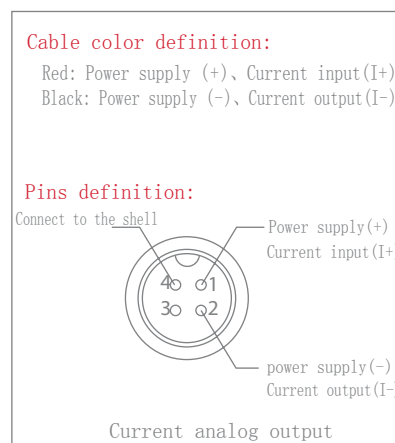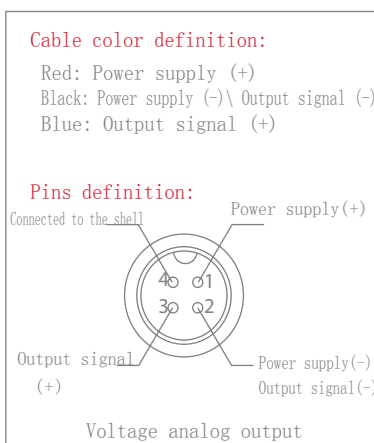(Input voltage 15-28VDC, 24VDC is recommended, Load impedance 500Ω)

wiring

⚠ The input voltage must be within the scope of specifications. (Refer to the performance parameter table), two output types, one is socket output the other is cable directly output.

Cable color definition:
  Red: Power supply (+)
  Black: Power supply (-)\ Output signal (-)
  Blue: Output signal (+)

Pins definition:
Connected to the shell
Power supply(+)

4 ○ ○1
3 ○ ○2

Output signal
(+)
Power supply(-)
Output signal(-)

Voltage analog output

Cable color definition:
  Red: Power supply (+)、Current input(I+)
  Black: Power supply (-)、Current output(I-)

Pins definition:
Connect to the shell
Power supply(+)
Current input(I+)

4 ○ ○1
3 ○ ○2

power supply(-)
Current output(I-)

Current analog output

Cable color definition:
  Red: Power supply (+)
  Black: Power supply(-)
  Blue: Signal A
  White: Signal B

Pins definition:
Connect to the shell
Power supply(+)

5 ○ ○1
4 ○ ○2
3

Signal B
Signal A
Power supply(-)

RS485 digital output

◆ Diagram for voltage output model:

Power 9-28VDC (+) — Red — voltage output model LVDT — Blue — output (+)
Black — output (−)
A/D
PLCinput
(−)
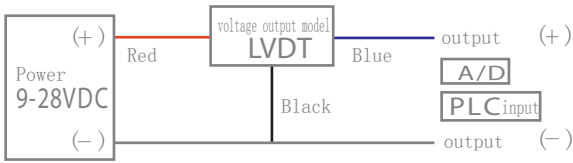
◆ Two wires current output wiring:

Power 15-28VDC (+) — Red — I-Input (I+) — Current output model LVDT
Black
I-Output (I−)
Loop load resistor (Ω) — mA Current Meter
L
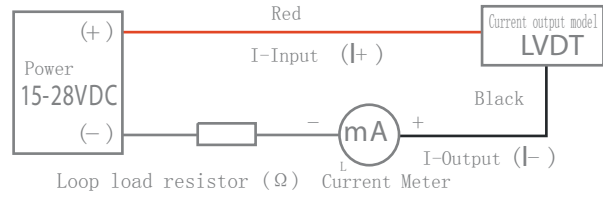
◆ PLC wiring (two wires current output):

PLC IO.1 M 0V
24VDC — Red — I-Input (I+) — Current output model LVDT
Black
I-Output (I−)
Loop load resistor (250Ω)
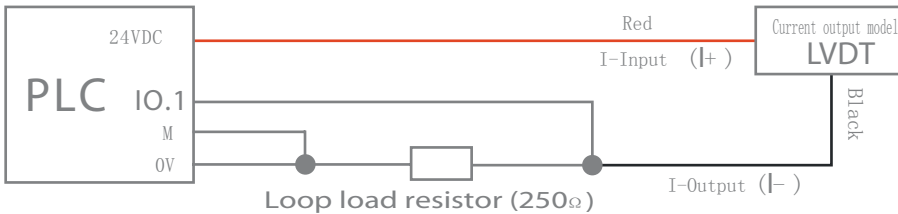
Installation

⚠ LVDT installations require a nonmetal materials with a low-temperature coefficient of expansion to mount the units, metal materials will influenced the products performance.

✅ Ready-made mounting blocks are available for all LVDT Series in our catalog; Also can defined by customers.
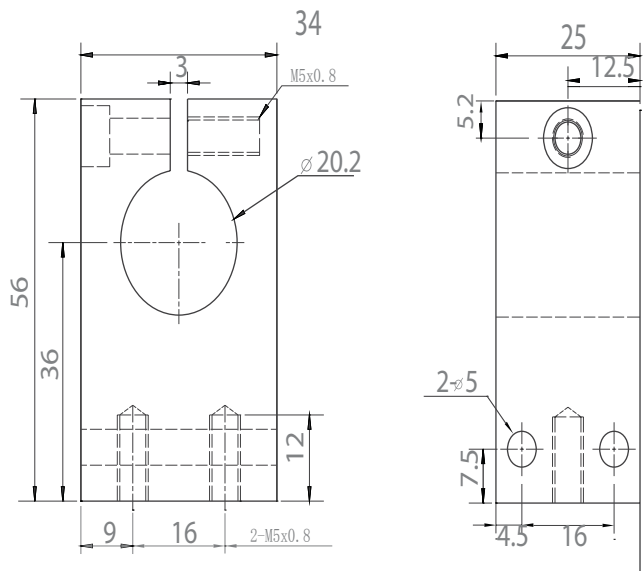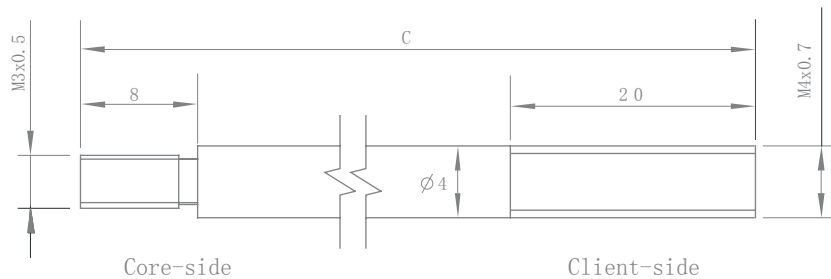
Dimensions of mounting block

34
3
M5x0.8
∅20.2
56
36
12
9 16 2-M5x0.8

25
12.5
5.2
2-∅5
7.5
4.5 16

Iron core connecting rod dimension

M3x0.5
C
8
20
M4x0.7
∅4
Core-side   Client-side

Specifications	SDVG20 series iron core connecting rod demension								
Measuring range (mm)	2.5	5	10	15	25	50	100	250	500
Iron core connecting rod length C (mm)	58	58	68	78	98	128	168	346	618

⚠ Caution

Explanation: it's need connecting rod between the iron core and objects which need to measuring for connected, the connecting rod must be nonmagnetic material, can use 304 or 316 nonmagnetic stainless steel material, both ends of the bar have thread. The thread length and specifications is

Product model selection table

SDVG 20	□	–	□	□	□	□	–	□	□	–	□	□	□	Selection description
Structure relations of electronic warehouse and coil	X														Standard type is default value; A: Double tube type, B: Electronic warehouse and coil separated type, C: No shell type,···..,Z: customized
Measuring Range			X	X	X										Unit:mm
Precision							A								0.25%
							B								0.50%
							C								1%
							D								3%
							E								5%
							S								0.1%(Only applies to digital output)
Output signal									X	X					See attached list one
Sensor installation specifications												X	X		See attached list two
Output type														D	Connector output
														P	Directly exit cable (default length 1m)
														M	With digital display table output

Attached list one: Output signal

□		□	
Analog output	Output model	Output range	
	A:Current output	1、4mA~20mA	
	V:Voltage output	1、0V~10V 4、-5V~5V	
		2、0V~5V 6、-10V~10V	
		A、AC output	
Digital output	Output model	Data format and Baud rate	
	M:Modbus output (Factory default baud rate19200)	RTU format	ASCII
		0: 2400	A: 2400
		1: 4800	B: 4800
		2: 9600	C: 9600
		3: 19200	D: 19200
		4: 38400	E: 38400
		5: 76800	F: 76800
		6: 115200	G: 115200

Attached list two:Sensor installation specifications

□		□		
C: Cylindrical	Code	Thread (Outer diameter)	Code	Thread (Outer diameter)
M: Standard thread	1		B	12
T:Fine thread	2		C	14
	3		D	16
	4		E	18
	5		F	20
	6		G	22
	7		H	24
	8	8	I	27
	9		J	
	A	10	Z	Customized

Selection example:

SDVG   20–   50 A–   V2–   C   F   P

- Length 1m directly exit cable
- Outer diameter20
- Cylindrical
- Voltage output 0-5V
- Precision 0.25%
- Measuring range50mm
- Body outer diameter 20 mm
- Separate-core