

Displacement Sensors

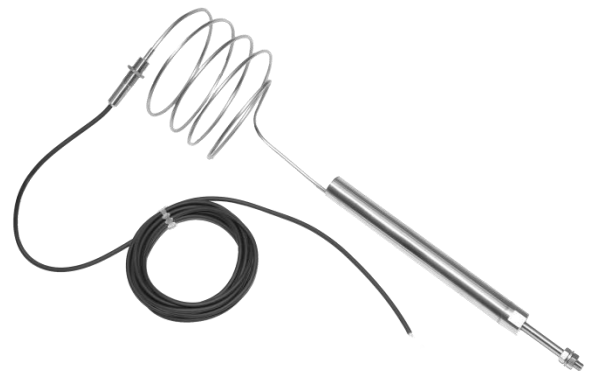
High Performance Rugged Displacement Transducers
SR Series

Description

The S Series product provided the perfect base for the development of the SR ruggedised transducer range, especially developed for challenging environments. Environmental ratings have been increased to IP68 or fully hermetically sealed. Extra high temperature products are also available as LVDT only or Orbit® versions.

Features

- <0.2% Linearity
- 19 mm diameter stainless steel body
- Excellent measuring range for the body length
- Multiple output options with integrated electronics
- Large bore to core clearance for ease of installation
- Excellent magnetic shielding
- Wide range of signal conditioning and instrumentation
- Absolute Positioning
- Pressure tested to 100 bar
- Rugged sealed construction
- Screw mount options

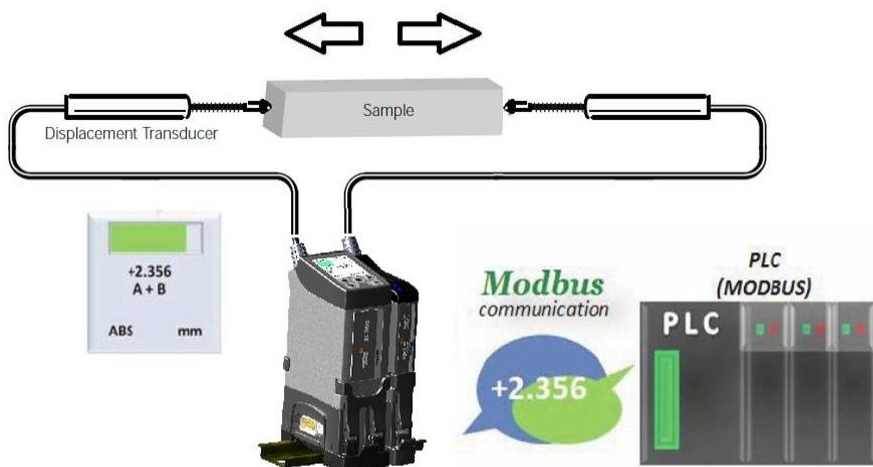


Rail, Sub Sea, Oil Industry, Steel Mills the SR Series **will** deliver

Precision. Quality. Reliability

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Application Example



Technical Specification

Generic Product Types

LVDT	RAS/2.5	RAS/5	RAS/7.5	RAS/10	RAS/15	RA/S25	RAS/50	RAS/75
Voltage Output (±DC Bipolar)	RVS/2.5	RVS/5	RVS/7.5	RVS/10	RVS/15	RV/S25	RVS/50	RVS/75
Voltage Output (DC Unipolar)	RVS/5	RVS/10	RVS/15	RVS/20	RVS/30	RVS/50	RVS/100	RVS/150
Current Output (4-20mA)	RIS/5	RIS/10	RIS/15	RIS/20	RIS/30	RIS/50	RIS/100	RIS/150
Digital Output (Orbit)	RDS/5	RDS/10	RDS/15	RDS/20	RDS/30	RDS/50	RDS/100	RDS/150

Measurement

Measurement Range (LVDT/±DC) (mm)	±2.5	±5	±7.5	±10	±15	±25	±50	±75
Measurement Range (4-20mA/DC/ORBIT) (mm)	5	10	15	20	30	50	100	150
Linearity (% FSO)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Resolution µm (Note 1)	<0.1	<0.1	<0.1	<0.2	<0.2	<0.3	<0.5	<0.7
Pre-travel ±0.5 mm (Guided Versions only)	1.5	2.7	2.5	3.4	6.4	6.6	4.6	4.7
Post Travel ±0.5 mm (Guided Versions only)	1.1	1.7	1.4	2	4.5	5.3	3.8	3.7
Temperature Coefficients (%FSO/°C) LVDT	<0.030	<0.030	<0.035	<0.035	<0.030	<0.030	<0.030	<0.030
Temperature Coefficients (%FSO/°C) DC/4-20mA	<0.030	<0.030	<0.035	<0.035	<0.030	<0.030	<0.030	<0.030
Tip Force ±20% (Horizontal at middle of range) N	1.0	0.9	1.0	1.1	1.2	1.5	2.1	1.9

Mechanical

Nominal Mass (g) LVDT	59	65	72	81	93	110	151	190
Nominal Mass (g) (4-20mA/DC)	76	87	95	101	121	136	176	216
Nominal Mass of Core (g)	2.6	5.0	5.8	7.2	6.4	6.6	9.0	9.0
Body diameter (mm)	19.0 (+0.0, -0.2)							
Case material	300 Series Stainless Steel							
Core material	Nickel Iron							
Cable Standard Type/Length (m)	Mineral Insulated + F.E.P. Style B (3)							
Axial Hermetic Connector Option	TYPE MIL-C-26482 Series 1							

Electrical Interface (LVDT)

Energising Voltage (Vrms) at 5 kHz	0-10							
Energising Current at 5kHz (mA/V)	1.0	2.6	2.2	0.7	1.5	0.5	0.6	2.5
Sensitivity at 5kHz ±5% mV/V/mm	139	125	59.5	60	52.5	17.7	11.8	8.4

Electrical Interface (4-20mA & DC)

Input	10 to 30 V @ 30mA (Typ) or 4-20mA loop powered							
Noise (DC Output) measured in 500Hz	<0.2 % FSO							
Output Change with Power Supply Variation	<0.5 mV							
Bandwidth (-3dB)	500Hz							

Electrical Interface (ORBIT)

Bandwidth	Up to 460 Hz (selectable)							
Output	Solartron Orbit							
Power (VDC)	5±0.25 @ 0.06A							
Sealing (Orbit Module)	IP43							

Note 1: Resolution specification is only applicable to ORBIT digital transducers.

The resolution of LVDT transducers is effectively infinite and is only limited by the conditioning electronics

Technical Specification

Environment

Temperature (Standard LVDT)	-40 to +120 °C
Temperature (HT LVDT)	-40 to +200 °C
Operating/Storage Temperature (4-20mA/DC)	0 to +65 / -20 to 85 °C
Sealing	IP68 with axial connector, 100 bar with MI cable
Vibration Sinusoidal	1 to 10g rms linear 10 to 50 Hz & 10g rms 50Hz to 1kHz
Vibration Random	DO160F Curve D
Shock	Drop test from 1m onto hard surface

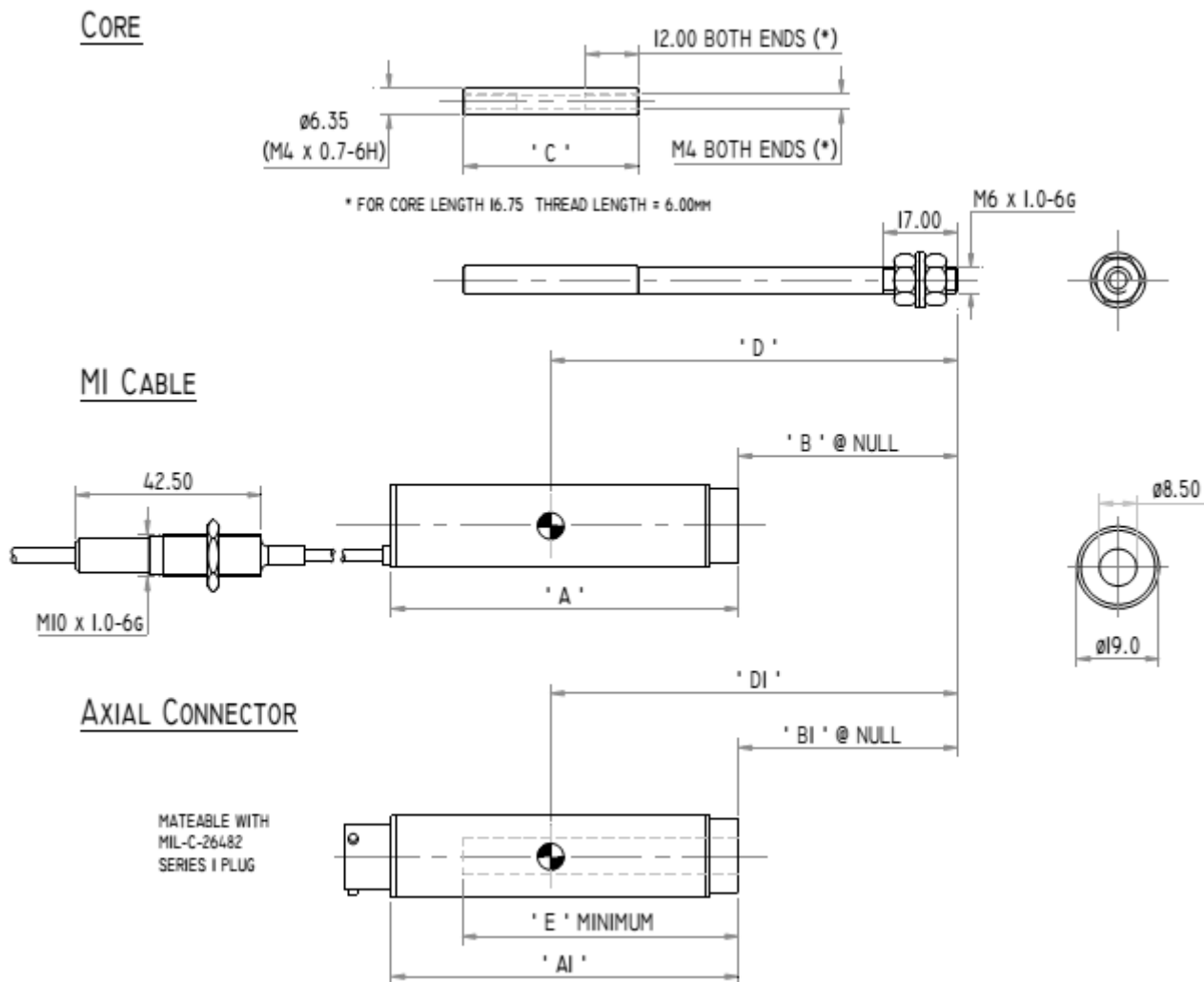
SR Series Options

Standard Output Options	Mechanical Options	Connection Options
LVDT	Free Core	Cable (wire ends)
±5V DC	Free Core/Carrier	Cable + Connector
±10V DC	Guided Core	Axial Connector
0-5V DC	Captive Guided Core	Orbit Module
5-0V DC	Tip	MI Cable
0-10V DC	Spring Push	
10-0V DC		
4-20 mA		
20-4 mA		
Solartron Orbit (Digital)		

For non standard products contact your local Sales Office or Distributor

Solartron can provide a range of LVDT Conditioning Modules and Readouts for use with the LVDT versions of the S Series. Please see the LVDT Conditioning Data Sheet

SR Series Dimensions

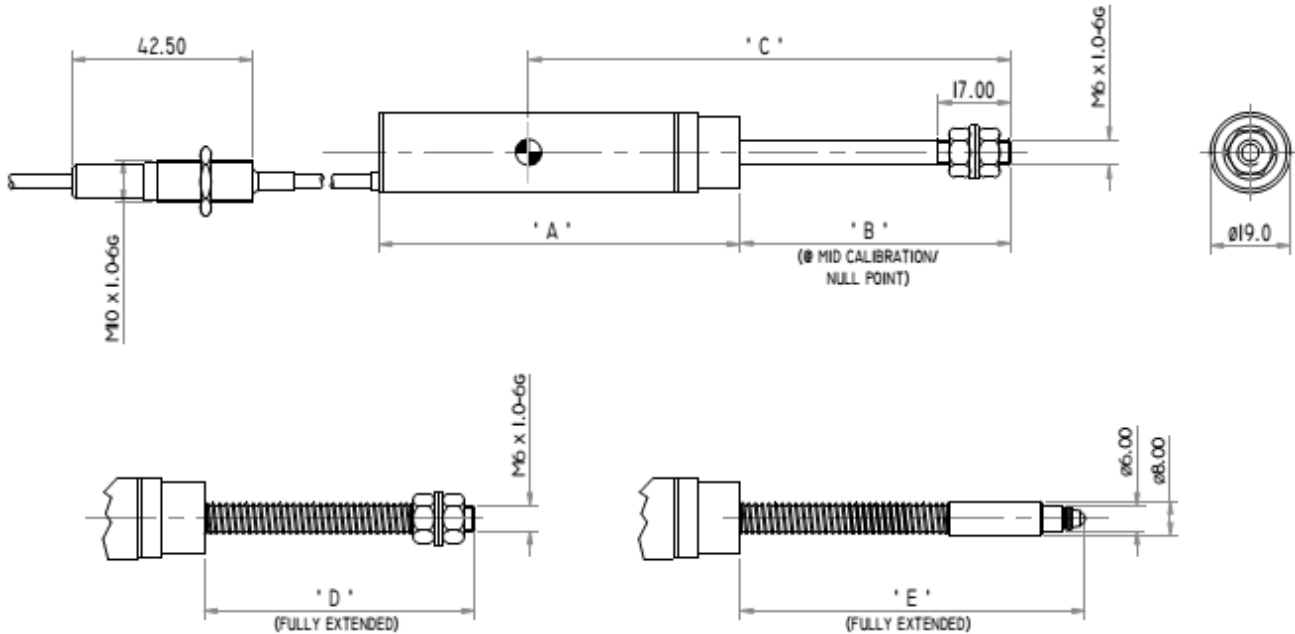


Range (mm)		MI Cable Free Core and Free Core with Carrier					Axial Connector Free Core and Free Core with Carrier				
LVDT	DC & 4-20mA	LVDT	DC 4-20mA	All			LVDT	DC 4-20mA	All		
		A	A	B	C	D	A1	A1	B1	D1	# E
±2.5	5	55.5	93.5	37.8	16.75	63.4	60.5	93.5	37.2	63.4	44
±5	10	74.5	112.5	45.7	29.00	80.5	79.5	110.5	44.5	80.5	63
±7.5	15	82.0	120.0	47.0	31.50	85.8	86.5	120.0	46.2	85.8	70
±10	20	96.5	134.5	54.5	39.00	100.5	101.5	134.5	54.0	100.5	84
±15	30	110.5	148.5	64.9	37.50	117.8	112.5	148.5	63.8	117.8	98
±25	50	132.5	170.5	77.2	38.50	141.3	137.5	170.5	76.5	141.3	120
±50	100	189.5	227.5	112.6	50.00	205.0	194.5	227.5	111.6	205.0	178
±75	150	240.5	278.5	157.8	50.00	276.0	245.5	278.5	157.5	276.0	228

ADD 30mm For DC Types

SR Series Dimensions

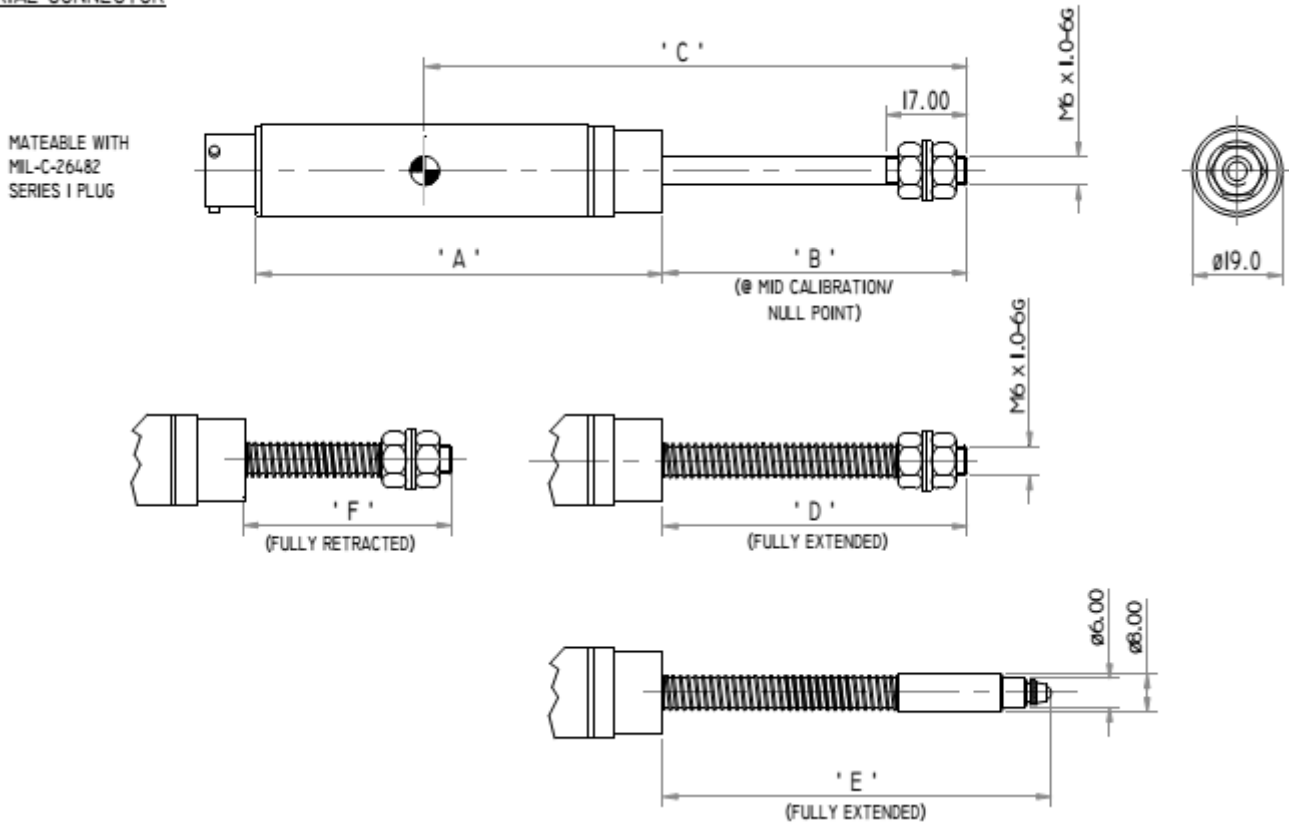
MI CABLE



Range (mm)		MI Cable Guided Core Spring Push					
LVDT	DC & 4-20mA	LVDT	DC 4-20mA	All			
		A	A	B	C	D	E
±2.5	5	63.5	101.5	32.4	66.0	35.8	50.8
±5	10	82.5	120.5	40.3	83.1	46.8	61.8
±7.5	15	90.0	128.0	41.7	88.4	50.8	65.8
±10	20	104.5	142.5	49.1	103.1	61.8	76.8
±15	30	118.5	156.5	59.5	120.4	79.8	94.8
±25	50	140.5	178.5	71.8	143.9	102.8	117.8
±50	100	197.5	235.5	107.3	207.6	160.8	175.8
±75	150	248.5	286.5	152.4	278.6	231.8	246.8

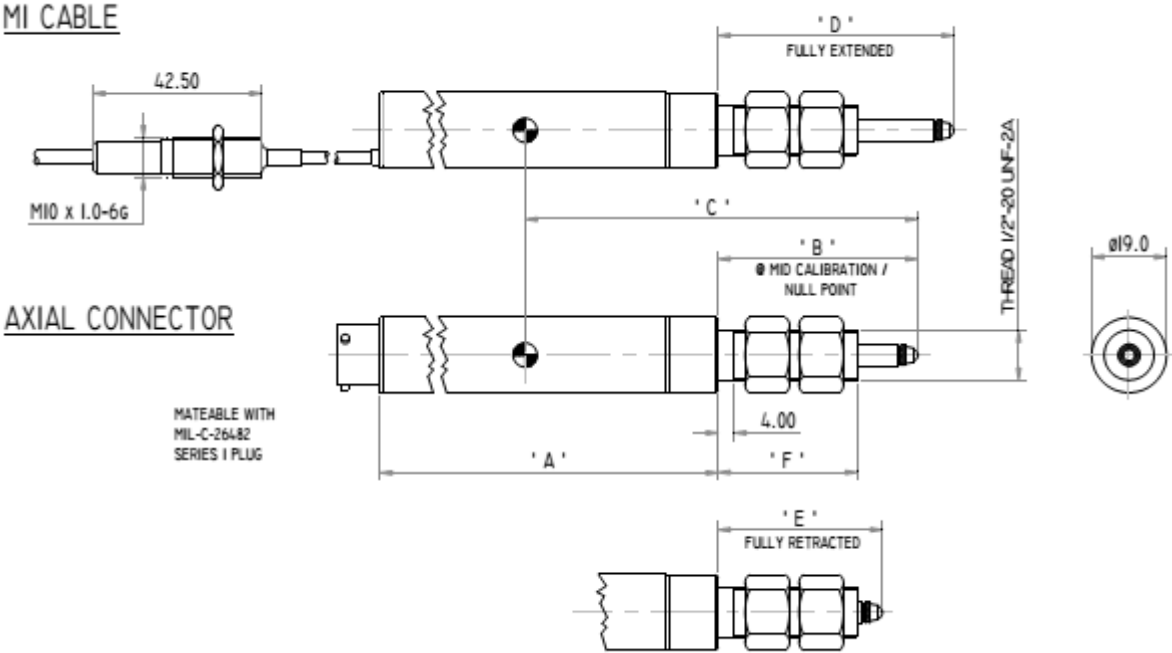
SR Series Dimensions

AXIAL CONNECTOR



Range (mm)		Axial Connector Guided Core Spring Push						
LVDT	DC & 4-20mA	LVDT	DC	All				
		A	A	B	C	D	E	F
±2.5	5	68.5	101.5	31.8	65.0	35.8	50.8	28.2
±5	10	87.5	118.5	39.1	83.0	46.8	61.8	32.4
±7.5	15	94.5	128.0	40.8	88.5	50.8	65.8	31.9
±10	20	109.5	142.5	48.4	103.0	61.8	76.8	36.4
±15	30	120.5	156.5	58.4	120.5	79.8	94.8	38.9
±25	50	154.5	178.5	71.2	144.0	102.8	117.8	40.9
±50	100	202.5	235.5	106.2	207.5	160.8	175.8	52.4
±75	150	253.5	286.5	152.1	278.5	231.8	246.8	73.4

SR Series Dimensions



Range (mm)		Axial Connector Captive Guided Core						
LVDT	DC & 4-20mA	LVDT	DC	All				
			4-20mA	A	B	C	D	E
±2.5	5	66.0	99.0	44.7	76.4	48.7	41.0	35.0
±5	10	85.0	116.0	48.0	89.5	56.2	41.3	35.0
±7.5	15	92.0	125.5	50.2	95.2	60.7	41.3	35.0
±10	20	107.0	140.0	94.3	146.5	106.2	82.3	76.0
±15	30	118.0	154.0	101.8	161.2	121.2	82.3	76.0
±25	50	143.0	176.0	112.6	182.7	140.2	82.3	76.0

Range (mm)		MI Cable Captive Guided Core Captive Guided Core						
LVDT	DC & 4-20mA	LVDT	DC	All				
			4-20mA	A	B	C	D	E
±2.5	5	61.0	99.0	45.3	76.4	48.7	41.0	35.0
±5	10	80.0	118.0	49.2	89.5	56.2	41.0	35.0
±7.5	15	87.5	125.4	51.0	95.2	60.7	41.0	35.0
±10	20	102.0	140.0	95.0	146.5	106.2	82.1	76.0
±15	30	116.0	154.0	102.9	161.2	121.2	82.1	76.0
±25	50	138.0	176.0	113.2	182.7	140.2	82.1	76.0

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Solartron pursues a policy of continuous development. Specifications in this document may therefore be changed without notice.



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