KOS1600VI PROCESS SIGNAL ISOLATOR/CONDITIONER

> **(-50 to 50) V, (-50 to 50) mA INPUTS**

> **mA, VOLTAGE OR BIPOLAR VOLTAGE OUTPUT**

> **ACTIVE, PASSIVE mA ON INPUT AND OUTPUT**

> **22 SEGMENT USER LINEARISATION**

> **CONFIGURATION USING USB PORT**
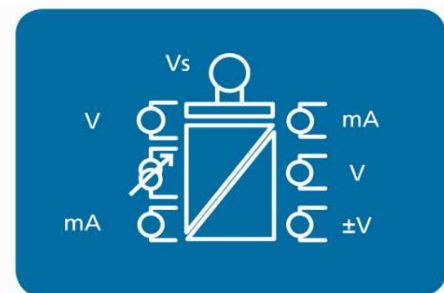

KOS1600VI

> ## INTRODUCTION

The KOS1600VI is a powered isolator/conditioner that accepts any voltage signal between (-50 and 50) VDC or any current signal between (-50 and 50) mA. The output stage offers either voltage, bipolar voltage or current re-transmission signals. The retransmission signal can be ranged to a scale anywhere within the input process range. A transmitter power supply is provided on both input and output meaning the products can accept sink or source applications.

For ease of use, a high-efficiency switch-mode power supply is fitted as standard and does not require any adjustment between ac or dc applications. Operating voltages are (10 to 48) VDC and (10 to 32) VAC

The free USBSpeedLink programming software offers two programming modes for the KOS1600VI: basic and advanced. These modes enable the user to configure the product exactly to requirements.

> ## FEATURE HIGHLIGHTS

BASIC MODE A simple and easy to use configuration mode, giving the user only the most common programming options for quick and straightforward set up of the KOS1600VI, for applications where basic input to output conditioning is all that is required.

ADVANCED MODE An advanced configuration mode, giving the user access to programming options such as root functions. A 22-segment user non linearisation profiling tool is also available for applications where the input to output signal is not a "straight line" relationship. This can be used to create input to output curves, and also to control output signal behaviour, when the input signal is outside limits.

SIGNAL DAMPING Signal damping that can be applied separately to both signal rise and signal fall time. The adjustable damping delay can be set between (0 to 3600) seconds.

ACTIVE RANGING The KOS1600VI is provided with a software ranging option, allowing adjustments at both low output and high output for a live input signal.

USB CONFIGURATION The KOS1600VI does not need to be wired to a power supply during the configuration process; it is powered (for programming only) via the USB interface from a PC.

SIGNAL RETRANSMISSION SCALING The input signal range for retransmission can be selected from any part of the maximum input capability. The output signal range can be selected from any part of the total output capability, for example (0 to 12) mA input to (1 to 5) mA output.

DITEL

KOS1600VI PROCESS SIGNAL ISOLATOR/CONDITIONER

ELECTRICAL INPUT		SPECIFICATIONS @20˚C
Type mA	**Range**	**Accuracy / Stability / Notes**
Current	(-50 to 50) mA	± 10 uA
Auto ranging	(-22 to 22) mA	± 5 uA
Impedance		< 30 Ω
Thermal drift		< ± 0.01 % of full range / ˚C
Type Voltage, ± Voltage		
Voltage	(-50 to 50) V	± 10 mV
Auto ranging	(-22 to 22) V	± 5 mV
Impedance		1 MΩ
Thermal drift		**< ± 0.01 % of full range / ˚C**

OUTPUT ANALOGUE mA CURRENT		SPECIFICATIONS @20˚C
Type / Function	**Range / Description**	**Accuracy / Stability / Notes**
Two wire current	(0 to 20) mA (4 to 20) mA	(mA output /2000) or 5 uA (Whichever is the greater)
Current source	(0 to 20) mA	Maximum load 750 Ω
Current sink	Supply voltage (10 to 30) Vdc	SELV
Loop voltage effect		0.2 uA/ V (sink mode)
Maximum output		21.5 mA
Thermal stability	Zero at 20 ˚C	1 uA/ ˚C
The mA output range can be set to anywhere within the maximum capability		

OUTPUT ANALOGUE VOLTAGE		SPECIFICATIONS @20˚C
Type / Function	**Range / Description**	**Accuracy / Stability / Notes**
Two wire voltage	(0 to 10) VDC (-10 to 10) VDC	± 5 mV
Maximum output		10.1 VDC, -10.1 VDC
Current drive		± 2 mA, minimum load 5 KΩ @ 10 VDC
Thermal stability	Zero at 20 ˚C	± 10 uV/˚C
The voltage output range can be set to anywhere within the maximum capability		

USB CONFIGURATION USER INTERFACE		
Type / options / function	**Description**	**Notes**
Configuration hardware	USB mini B	Cable not included
Configuration software	USBSpeedLink	Download www.ditel.es
Operating system	Microsoft Windows	Windows 7 or later

USB CONFIGURATION USER INTERFACE BASIC PROCESS MODE		
Type / options / function	**Description**	**Notes**
Input configuration Type Scale Active range Damping	 High, low High, low Rise/fall seconds for full range swing	 mA, V mA, V any within input range Automatic scaling (0 to 3600) s
Output configuration Type Scale	 Output signal High, low	 mA, V, ±V mA, V, ±V any within output range

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Live data	Input Signal	mA, V, ±V
	Output signal	mA, V, ±V
	Output %	% of full scale output
	Record live data	Save data to CSV file
	Store configuration to PC	Save data to file
Other device options	Tag number	20 Characters

USB CONFIGURATION USER INTERFACE ADVANCED PROCESS MODE		
Type / options / function	**Description**	**Notes**
Input configuration		
Type		mA, V
Scale	High, low	mA, V any within input range
Damping	Rise, fall seconds for full range swing	(0 to 3600) s
Maths functions	Default linear	^(1/2), ^(1/3), ^(3/2), ^(5/2), ^2, ^3
Process segments	Linearisation segments	(3 to 22)
Process table	Input to output relationships	mA, V = engineering units
Engineering units	User defined	4 Characters
Output configuration		
Process output	Engineering units high, low	Any within range
Active range	High, low	Automatic scaling
Type	Output signal	mA, V, ±V
Scale	High, low	mA, V, ±V any within output range
Live data	Input Signal	mA, V, ±V
	Electrical value	mA, V, ±V
	Output signal	In engineering units
	Output %	% of full scale output
	Record live data	Save data to CSV file
	Store configuration to PC	Save data to file
Other device options	Tag number	20 Characters

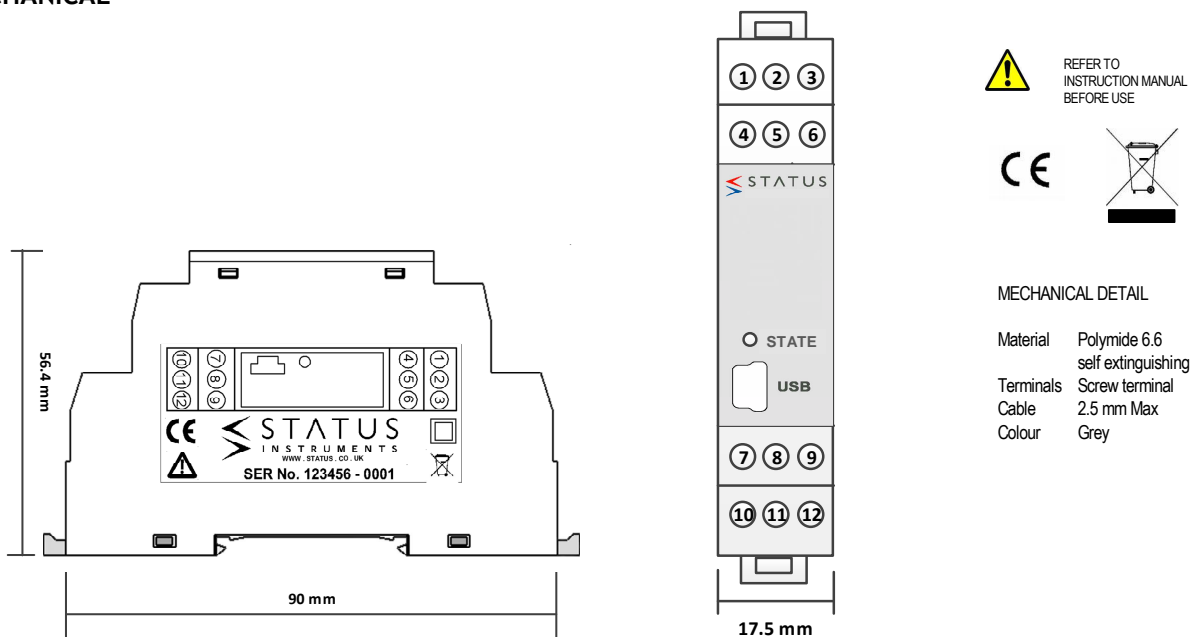| GENERAL	
Function	**Description**
Update time	300 ms
Response time	400 ms
Start-up time	5 s (output condition lags)
Warm-up time	120 s until full accuracy
Galvanic isolation	Three way (input, output, supply) 500 VDC
Default configuration	
State LED	Red = fault, green = OK, input and output condition monitored
Supply range	(10 to 32) VAC rms, (10 to 48) VDC SELV
Power	< 1 W @ full output current
Protection	Internal resettable fuse (0.5 A) + over-voltage protection

MECHANICAL	
Function	**Description**
Dimensions	17.5 mm width, 56.4 mm depth from rail, 90 mm height
Enclosure	DIN rail mount
Material	Polymide 6.6 self-extinguishing: Grey
Connections	Screw terminals 2.5 mm wire maximum
Weight	60 g approximate

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ENVIRONMENTAL

Function	Description
Ambient temperature	Operating/Storage (-30 to 70) °C
Ambient Humidity	Operating/Storage (10 to 90) %RH non-condensing
Protection requirement	Device must be installed in an enclosure offering >IP65 Protection
USB configuration ambient	(10 to 30) °C

APPROVALS

EMC	BS EN 61326: Note - Sensor input wires to be less than 30 m to comply
Ingress protection	BS EN 60529
RoHS	Directive 2011/65/EU

MECHANICAL

MECHANICAL DETAIL

Material	Polymide 6.6 self extinguishing
Terminals	Screw terminal
Cable	2.5 mm Max
Colour	Grey

ORDER CODE	KOS1600VI

ACCESSORIES

USB configuration software	USBSpeedLink free of charge from www.ditel.es
Loop powered display	Refer to www.ditel.es
48-200-0001-01	Standard USB A to USB mini B cable for configuration

To maintain full accuracy annual calibration is required contact support@ditel.es for details

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