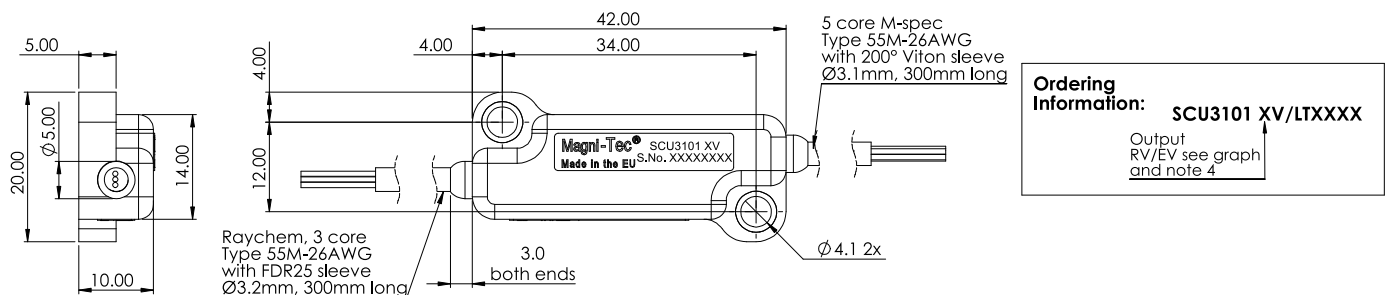


For applications that prohibit sensors with integral electronics, which are usually in high temperature environments or mounting space restrictions, we offer a number of compact signal conditioning units (SCU's) designed to operate remotely from the LVDT or RVDT sensor. The SCU's operate from either a 5Vdc regulated or 8V to 30Vdc unregulated supply and the output options are 0.5V to 4.5V and 4-20mA.



They are extensively used in motorsport data acquisition and control systems as the operating circuit for inductive position sensors. The SCU3111, SCU3121 and SCU3124 models are housed in a compact machined aluminium casing and are fitted with fire & chemical resistant DR25/type 55 cabling. They have fully encapsulated electronics for maximum reliability when mounted close to hostile environments and are sealed to IP66 as standard. Both SCU3101 and SCU3201 are ultra compact SCU's with a thermoplastic case and environmentally rated to IP67. The SCU3101 comes complete with fire & chemical resistant DR25/type 55 cabling and the SCU3201 is fitted with an integral connector.

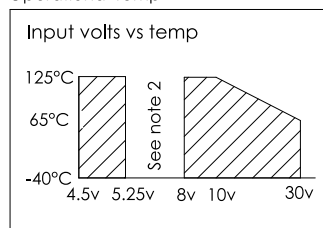
### SCU3101 XV - signal conditioning unit (analogue)



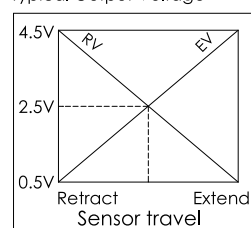
Specification			
Supply voltage (+Vs)	5.0±5% regulated	8 to 30 unregulated	Vdc
Line regulation	Ratiometric with supply	<0.01% FS/V	%
Supply current		<60	mA
Output (Vout)		0.5 - 4.5	Vdc
Linearity		<0.20	%
Output ripple		<10	mV
Output load		>2	K Ohms
LVDT excitation voltage		3	Vrms
LVDT excitation frequency		5	KHz
Temperature performance	<50	<110	ppm/°C
Operating temperature		-40 to +125	°C
Environmental		IP67	
Weight (approx)		12	grams

- Notes:
1. Incorrect wiring may cause internal damage.
  2. Do not operate between 5.25V and 8V.
  3. Non-linearity is calculated from Least Squares Best Fit method.
  4. When ordering SCU please state which sensor the SCU will be paired with.

Operational Temp

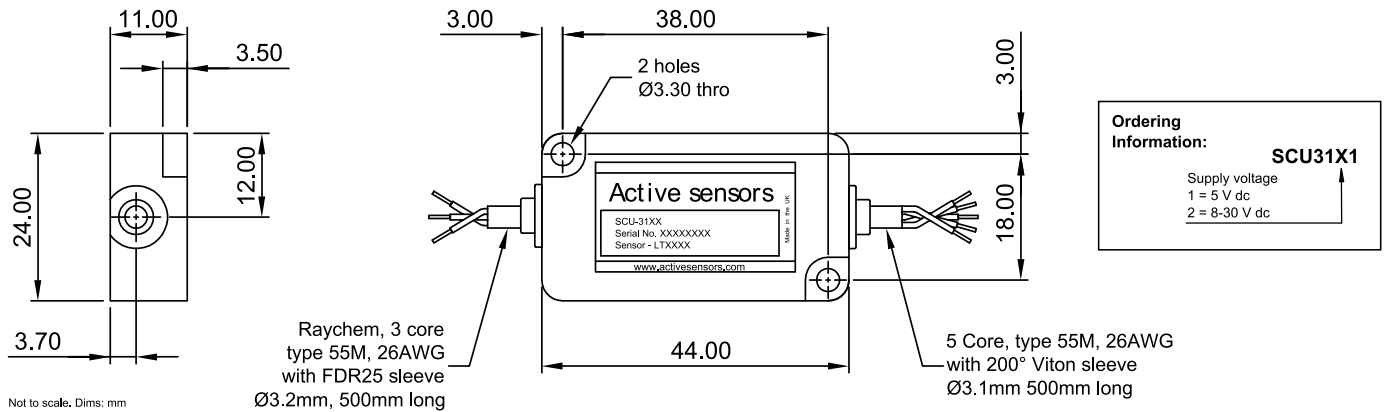


Typical Output Voltage

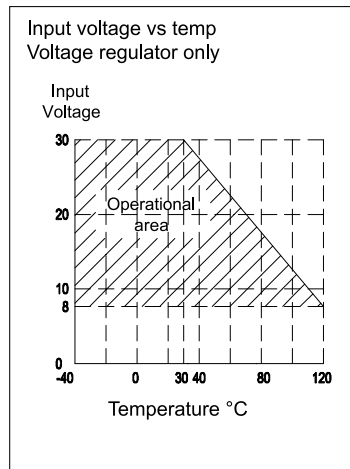
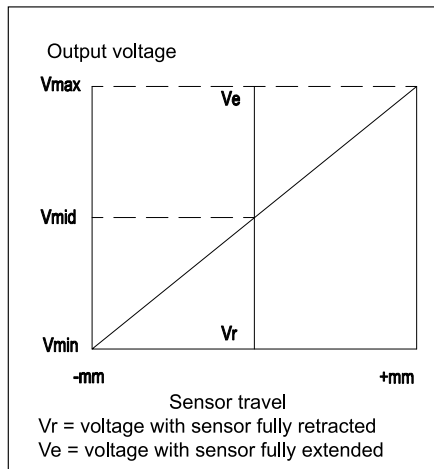


Electrical connector connections	
<b>LVDT Connection</b>	<b>Wire colour</b>
Secondary A	Blue
Secondary B	Yellow
Secondary Centre	Green
Primary -	Black
Primary +	Red
<b>System Connection</b>	<b>Wire colour</b>
Analogue signal Vout	White
Supply +Vs	Red
Supply 0V	Black

# SCU31X1 - signal conditioning unit (analogue)



	SCU3111	SCU3121	
Supply voltage +Vs	5 ±10%	8-30 (see graph)	V dc
Line regulation	Ratiometric with supply	<0.1	%
Supply current	<60	<60	mA
Output Vout	0.5 - 4.5	0 - 4.096	V dc
Linearity	<0.20	<0.20	%
Output ripple	10	10	mV
Output load		>2	K Ohm
LVDT excitation voltage		3	V rms
LVDT excitation frequency		5	KHz
Temperature performance	<50	<50	ppm/°C
Operating temperature		-40 - +125	°C
Environmental		IP66	
Weight (without wire)		20 (±5)	grams



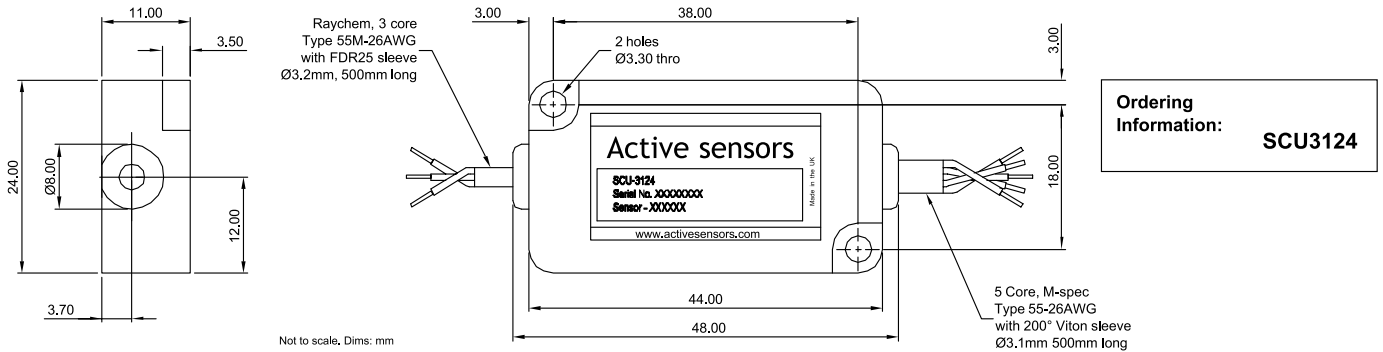
Electrical connections

Wire colour*	LVDT connection
Red	Primary +
Black	Primary -
Green	Secondary Centre
Blue	Secondary A
Yellow	Secondary B

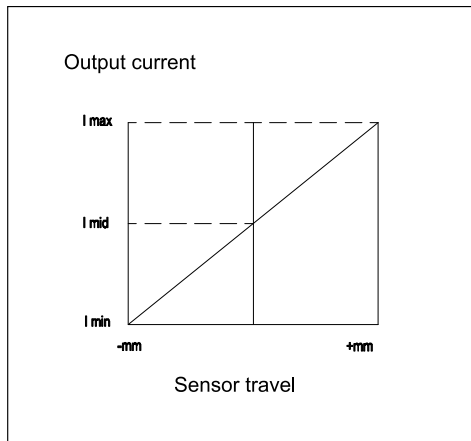
Wire colour	System connection
Red	Supply +Vs
Black	Supply 0V
White	Analogue signal Vout

\*Active Sensors LVDTs

# SCU3124 - signal conditioning unit (4-20mA)



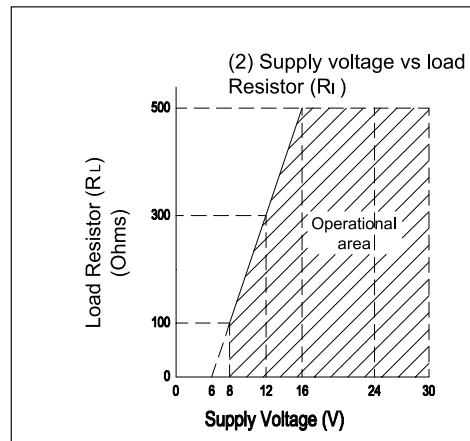
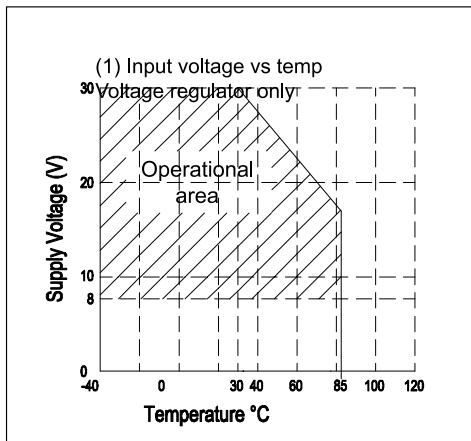
Supply voltage +Vs	8-30 Derate @ 0.2V/°C from 20°C. See graph (1)	V dc
Line regulation	<0.1	%
Supply current	<60	mA
Output type	Current	
Output noise	<±0.05	%FS
Output I out (typical)	4-20 (3 wire)	mA
Update rate	>500	Hz
Linearity	<±0.05	%
Output load (Rc)	100ohms@8V increasing by 50ohms/V to a max of 500ohms. See graph (2)	
LVDT excitation voltage (typical)	3	V rms
LVDT excitation frequency (typical)	5	KHz
Temperature performance	<±400	ppm/°C FS
Operating temperature	-40 - +85	°C
Environmental	IP66	
Weight (without wire)	20 (±5)	grams



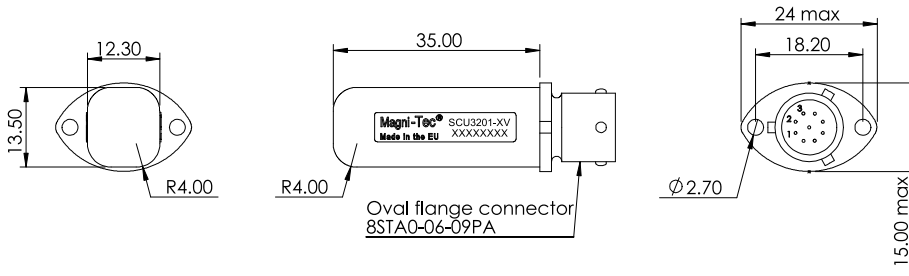
Electrical connections

Wire colour*	LVDT connection
Red	Primary +
Black	Primary -
Green	Secondary Centre
Blue	Secondary A
Yellow	Secondary B
Wire colour	System connection
Red	Supply +Vs
Black	Supply 0V
White	Signal Iout

\*Active Sensors LVDTs



# SCU3201 XV - signal conditioning unit with integral connector (analogue)



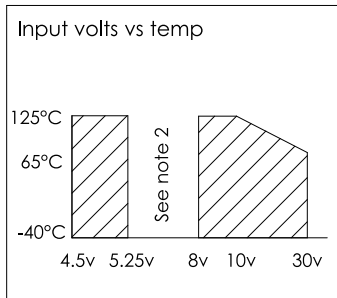
**Ordering Information:** SCU3201 XV/LTXXXX  
 Output RV/EV see graph and note 4

Specification			
Supply voltage (+Vs)	5.0 ±5% regulated	8 to 30 unregulated	Vdc
Line regulation	Ratiometric with supply	<0.01% FS/V	%
Supply current		<60	mA
Output (Vout)		0.5 - 4.5	Vdc
Linearity		<0.20	%
Output ripple		<10	mV
Output load		>2	K Ohms
LVDT excitation voltage		3	Vrms
LVDT excitation frequency		5	KHz
Temperature performance	<50	<110	ppm/°C
Operating temperature	-40 to +125		°C
Environmental	IP67		
Weight (approx)	12		grams
SCU error conditions (Vout)			
	LVDT disconnected		0.25Vdc
	LVDT sum voltage error		0.25Vdc
	SCU initialisation failure		0Vdc

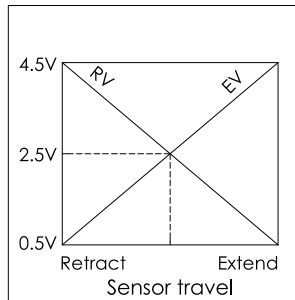
**Notes:**

1. Incorrect wiring may cause internal damage.
2. Do not operate between 5.25V and 8V.
3. Non-linearity is calculated from Least Squares Best Fit method.
4. When ordering SCU please state which sensor the SCU will be paired with.

Operational Temp



Typical Output Voltage



**Electrical connector connections**

Signal description	Connector position
Secondary A (blue)	1
Secondary B (yellow)	2
Secondary Centre (green)	3
Primary - (black)	4
Primary + (red)	5
Analogue signal Vout	6
Supply +Vs	7
Supply 0V	8

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