

# Analog Signal Converter

Voltage or Current Input

User Selectable +/- 10 to +/- 310 mA or Factory Set Output

P/N: IC-DR-13, IC-DR-16, IC-DR-19 or IC-DR-23

## Description:

The Analog Signal Converter accepts a 24VDC power supply (nominal). A 4-20mA input signal (0-10VDC, -10 to +10VDC, -5 to +5 VDC input signals available) is converted to a user selectable current output from +/- 10 mA to +/-310 mA (in 10 mA steps) or a factory set output. Span and zero is user adjustable. Diagnostic LEDs indicate operational status. The load should be floating, isolated from ground. The unit is conformal coated and packaged in a DIN rail mount housing.



## Technical Specifications:

Typical at nominal input voltage and 25 degrees C unless otherwise specified

Ordering Part Numbers:	IC-DR-13 4-20mA converted to +/-10 mA to +/-310 mA	IC-DR-16 +/-10VDC converted to +/-10 mA to +/-310 mA	IC-DR-19 +/-5VDC converted to +/-10 mA to +/-310 mA	IC-DR-23 0-10VDC converted to +/-200 mA
<b>Input Specifications:</b>				
Input	4-20 mA	-10 to +10 VDC	+5 to -5VDC	0-10VDC
Input Current Limit	Approx. 25 mA	Not applicable		
Compliance Voltage	3.5 V maximum	Not applicable		
Open Loop Detection	Provided	Not applicable		
Input Resistance	50 Ohms	125 KOhms		55 KOhms
<b>Output Specifications:</b>				
Bipolar Output	Provided			
Current Output Settings	+/-10 mA up to +/-310 mA (in 10 mA steps) User selectable by jumper Factory setting: +/- 60 mA (Refer to the jumper settings in the connection diagram.)			Factory setting: -200 mA to +200 mA
Output accuracy	Maximum error +/-1%. Adjustment of output using the trim pots can improve this rating.			
Load Connection	Ungrounded, Floating (WARNING: Do not operate the converter without the load connected.) (NOTE: Use an appropriate load based on the compliance voltage and the required output current as per the internal jumper settings.)			
Compliance Voltage	12V max.			
Output Shut-down	@V-IN < -11V or @V-IN >+11V	@V-IN < -5.5V or @V-IN >+5.5V		@V-IN < -0.5V or @V-IN >+11V
Short Circuit Protection	All ways (input, output and power supply)			
Response Time	<5 mSec. (Response time varies depending on setting. i.e. 1.2 mSec for -30 mA to +30 mA output.)			
Non-linearity	<0.1% without adjustments performed			
<b>Power Supply:</b>				
Power Supply	24VDC nominal (16-32VDC operating range) Transient protection is provided up to 36V.			
Reverse Polarity Protection	Provided			
Internal Output Voltages	+12.5V/0.5A max. -12.5V/10ma max.			

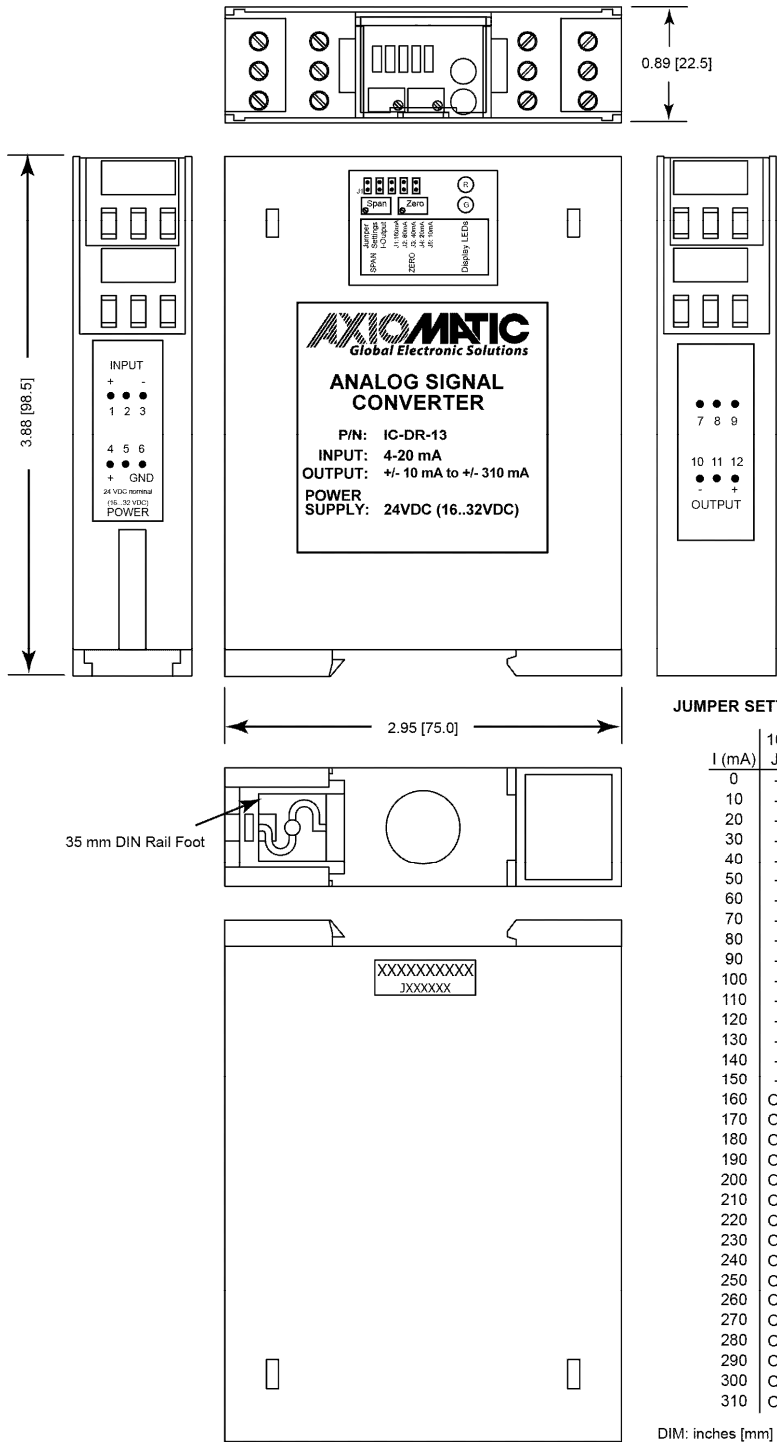
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<b>General Specifications:</b>		
<i>Power Consumption</i>	<7 Watts @ 24VDC, 310 mA	<i>IC-DR-23</i> 20 mA @24VDC, no load
<i>Operating Temperature</i>	-40 to 85 degrees C (-40 to 185 degrees F)	
<i>Electrical connection</i>	Screw terminals accept 14-24 AWG wire	
<i>Packaging and Dimensions (W x H x D)</i>	DR12, Polycarbonate (75 x 98.5 x 22.5 mm or 2.95 x 3.88 x 0.89 inches) DIN rail mount for high profile DIN rail (35 mm)	
<i>Protection</i>	PCB conformal coated IP40 rated housing, Terminals rated at IP20	
<i>Weight</i>	0.20 lbs (0.09 kg)	
<i>LED Indication</i>	<i>Axiomatic P/N:</i> <i>IC-DR-13</i>	<i>Axiomatic P/N:</i> <i>IC-DR-16, IC-DR-19, IC-DR-23</i>
	Red and green LED indication of: Normal operation, Power OK – Both LEDs ON 5% below 4 mA – Green LED slow flash, Red LED ON 5% above 20 mA – Green LED ON, Red LED slow flash 10% below 4 mA – Both Green and Red LEDs slow flash 10% above 20 mA – Both Green and Red LEDs fast flash NB. When both Green and Red LEDs are flashing the output is shutdown to 0 mA.	Red and green LED indication of: Normal operation, Power OK – Both LEDs ON 5% below – max. VDC – Green LED slow flash, Red LED ON 5% above +max. VDC – Green LED ON, Red LED slow flash 10% below – max. VDC – Both Green and Red LEDs slow flash 10% above +max. VDC – Both Green and Red LEDs fast flash NB. When both Green and Red LEDs are flashing the output is shutdown to 0 mA.
<i>Zero and Span Adjustment</i>	+/-10% of full scale Multi-turn trim pots (10 turns)	
	<i>Axiomatic P/N:</i> <i>IC-DR-13</i>	<i>Axiomatic P/N:</i> <i>IC-DR-16, IC-DR-19, IC-DR-23</i>
<i>Zero</i>	Apply 12mA input current. Use the ZERO trimpot to adjust current output to 0 mA for IC-DR-13.	Apply 0V input (IC-DR-16, IC-DR-19) or +5VDC input (IC-DR-23). Use the ZERO trimpot to adjust current output to 0 mA.
<i>Span</i>	STEP 1 - Apply 20mA input current and use the SPAN trimpot to adjust current output to match the positive full scale value selected by the jumpers. STEP 2 - Apply 4mA input current and use the ZERO trimpot to adjust current output to match the negative full scale value selected by the jumpers. STEP 3 - Repeat steps 1 and 2 if necessary. STEP 4 - Apply 12 mA input current and confirm the output current is 0 mA for IC-DR-13.	STEP 1 - Apply +maximum VDC input voltage and use the SPAN trimpot to adjust current output to match the positive full scale value selected by the jumpers. STEP 2 - Apply –maximum VDC input voltage and use the ZERO trimpot to adjust current output to match the negative full scale value selected by the jumpers. STEP 3 - Repeat steps 1 and 2 if necessary. STEP 4 - Apply 0V input (IC-DR-16, IC-DR-19) or +5VDC input (IC-DR-23) and confirm the output current is 0 mA.



MODELS:

MODEL	INPUT	OUTPUT
IC-DR-13	4-20 mA	+/-10 to +/- 310 mA
IC-DR-16	+/- 10VDC	+/- 10 to +/- 310 mA
IC-DR-19	+/- 5VDC	+/- 10 to +/- 310 mA
IC-DR-23	0-10VDC	+/- 200 mA

**JUMPER SETTINGS FOR CURRENT OUTPUT**

I (mA)	160	80	40	20	10
	J1	J2	J3	J4	J5
0	--	--	--	--	--
10	--	--	--	--	ON
20	--	--	--	ON	--
30	--	--	--	ON	ON
40	--	--	ON	--	--
50	--	--	ON	--	ON
60	--	--	ON	ON	--
70	--	--	ON	ON	ON
80	--	ON	--	--	--
90	--	ON	--	--	ON
100	--	ON	--	ON	--
110	--	ON	--	ON	ON
120	--	ON	ON	--	--
130	--	ON	ON	--	ON
140	--	ON	ON	ON	--
150	--	ON	ON	ON	ON
160	ON	--	--	--	--
170	ON	--	--	--	ON
180	ON	--	--	ON	--
190	ON	--	--	ON	ON
200	ON	--	ON	--	--
210	ON	--	ON	--	ON
220	ON	--	ON	ON	--
230	ON	--	ON	ON	ON
240	ON	ON	--	--	--
250	ON	ON	--	--	ON
260	ON	ON	--	ON	--
270	ON	ON	--	ON	ON
280	ON	ON	ON	--	--
290	ON	ON	ON	--	ON
300	ON	ON	ON	ON	--
310	ON	ON	ON	ON	ON

DIM: inches [mm]

IC-DR-13, 16, 19, 23  
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 Axiomatic Technologies Corporation

NB.: Jumpers are factory set for the outputs +/- 60 mA for p/n IC-DR-13, IC-DR-16 or IC-DR-19. The user can select the desired output setting using the jumper settings on the chart shown above. The factory setting for the output for IC-DR-23 is +/- 200 mA.

Specifications are indicative and subject to change. Actual performance will vary depending on the application and operating conditions. Users should satisfy themselves that the product is suitable for use in the intended application. All our products carry a limited warranty against defects in material and workmanship. Please refer to our Warranty, Application Approvals/Limitations and Return Materials Process as described on [www.axiomatic.com/service.html](http://www.axiomatic.com/service.html).  
 Form: TD2303AX-08/10/14