TECHNICAL DATASHEET #TD2300AX

# 4-20 mA to Current Converter

## P/N: IC-DR-*XX* and AX130300

Where xx = 11 (0-200 mA output)
12 (20 – 160 mA output)
14 (0-50 mA output)
18 (40-160 mA output)
20 (0-100 mA output)
24 (0-160 mA output)
25 (20-200 mA output)
AX130300 (5-195 mA output)


**Description:** The Current Converter accepts a 24VDC power supply (nominal) and a 4-20mA input signal converting it to a current output. Various outputs are available, including 0-200 mA, 20-200 mA, 5-195 mA, 0-100 mA, 20-160 mA, 40-160 mA, 0-160 mA or 0-50 mA. Span and zero is user adjustable. A diagnostic LED indicates operational status, glowing green when the load, input signal and power supply are connected. The load should be floating, isolated from ground. The circuit board is conformal coated and the unit is available in a 35 mm DIN rail mount housing.

## Application:

Industrial automation
Power generation controls

## Technical Specifications:

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

| | |
|---|---|
| **Ordering Part Number:** | *IC-DR-xx*<br>4-20 mA to Current Converter<br>Where xx = Output current default setting<br>*xx = 11 (0-200mA output)*<br>*xx = 12 (20-160mA output)*<br>*xx = 14 (0-50 mA output)*<br>*xx = 18 (40-160 mA output)*<br>*xx = 20 (0-100 mA output)*<br>*xx = 24 (0-160 mA output)*<br>*xx = 25 (20-200 mA output)*<br>*AX130300: 4-20 mA input, 5-195 mA output* |
| **Input Specifications:** | |
| *Current Input* | 4-20mA |
| *Input Impedance* | 50 Ohms +/- 1% |

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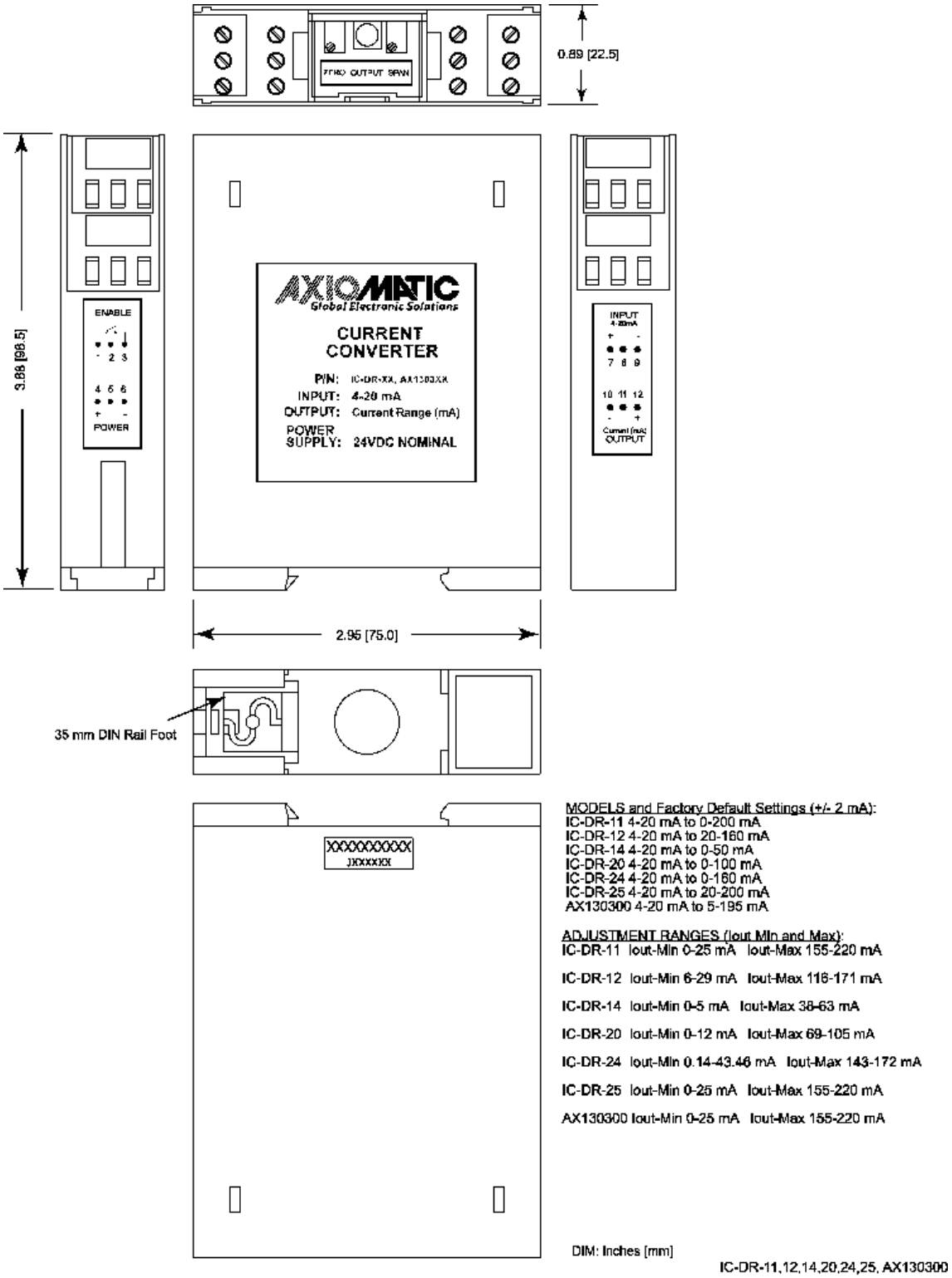
| **Output Specifications:** | |
|---|---|
| *Current Output* | Factory settings +/- 2mA:<br>IC-DR-11 = 0-200mA<br>IC-DR-12 = 20-160 mA<br>IC-DR-14 = 0-50 mA<br>IC-DR-18 = 40-160 mA<br>IC-DR-20 = 0-100 mA<br>IC-DR-24 = 0-160 mA<br>IC-DR-25 = 20-200 mA<br>AX130300 = 5-195 mA<br>*(Other current output ranges are available on request.)*<br>Connect output to the output positive terminal and not to GND. |
| *Output Impedance* | <40 MOhm |
| *Response Time* | <5 mSec. |
| *Non-linearity* | <0.1% without adjustments performed |
| **General Specifications:** | |
| *Power Supply* | 24Vdc nominal (15-45Vdc operating range)<br>Transient protection is provided. |
| *Power Consumption* | 550 milliwatts<br>All measurements taken at 24VDC, full output current (max.). |
| *Reverse Polarity Protection* | Provided |
| *Operating Conditions* | -40 to 85 degrees C (-40 to 185 degrees F) |
| *Electrical Connection* | Screw terminals accept 14-24 AWG wire |
| *Enable (enables output through closing a mechanical relay contact)* | To enable operation, externally short terminals 1 and 3. |
| *Packaging and Dimensions (W x H x D)* | DR12, Polycarbonate<br>DIN rail mount (75 x 98.5 x 22.5 mm or 2.95 x 3.88 x 0.89 inches) for high profile DIN rail (35 mm) |
| *Protection* | PCB conformal coated<br>IP40 rated housing, Terminals rated at IP20 |
| *Weight* | 0.25 lb. (0.11 kg) |

| **Adjustments:** | *Multi-turn trim pots (10 turns)* |
|---|---|
| *Zero* | CW = increasing<br>Apply 4mA input current and adjust the Zero trimpot to desired minimum output current. Refer to the chart below.<br>Factory settings are listed below. |
| *Span* | CW = increasing<br>Apply 20mA input current and adjust the Span trimpot to desired maximum current output. Refer to the chart below.<br>Factory settings are listed below. |

CW = clockwise, CCW = counter clockwise

### Default Current Outputs and Adjustment Ranges:

| **MODELS** | IOUT MIN RANGE | | IOUT MAX RANGE | | **DEFAULT** | **DEFAULT** |
|---|---|---|---|---|---|---|
| **P/N** | MIN [mA] | MAX [mA] | MIN [mA] | MAX [mA] | **MIN [+/-2 mA]** | **MAX [+/-2 mA]** |
| **IC-DR-11** | 0 | 25 | 155 | 220 | **0** | **200** |
| **IC-DR-12** | 6 | 29 | 116 | 171 | **20** | **160** |
| **IC-DR-14** | 0 | 5 | 38 | 63 | **0** | **50** |
| **IC-DR-18** | 0.14 | 43.46 | 143 | 172 | **40** | **160** |
| **IC-DR-20** | 0 | 12 | 69 | 105 | **0** | **100** |
| **IC-DR-24** | 0.14 | 43.46 | 143 | 172 | **0** | **160** |
| **IC-DR-25** | 0 | 25 | 155 | 220 | **20** | **200** |
| **AX130300** | 0 | 25 | 155 | 220 | **15** | **195** |




MODELS and Factory Default Settings (+/- 2 mA):
IC-DR-11 4-20 mA to 0-200 mA
IC-DR-12 4-20 mA to 20-160 mA
IC-DR-14 4-20 mA to 0-50 mA
IC-DR-20 4-20 mA to 0-100 mA
IC-DR-24 4-20 mA to 0-160 mA
IC-DR-25 4-20 mA to 20-200 mA
AX130300 4-20 mA to 5-195 mA

ADJUSTMENT RANGES (Iout Min and Max):
IC-DR-11 Iout-Min 0-25 mA Iout-Max 155-220 mA

IC-DR-12 Iout-Min 6-29 mA Iout-Max 116-171 mA

IC-DR-14 Iout-Min 0-5 mA Iout-Max 38-63 mA

IC-DR-20 Iout-Min 0-12 mA Iout-Max 69-105 mA

IC-DR-24 Iout-Min 0.14-43.46 mA Iout-Max 143-172 mA

IC-DR-25 Iout-Min 0-25 mA Iout-Max 155-220 mA

AX130300 Iout-Min 0-25 mA Iout-Max 155-220 mA

DIM: Inches [mm]

IC-DR-11,12,14,20,24,25, AX130300
June 6, 2010 A. Wilkins
Axiomatic Technologies Corporation

*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 https://www.axiomatic.com/service/.*

Form: TD2300AX-06/08/23