

Data Sheet

DP-40044-01-000

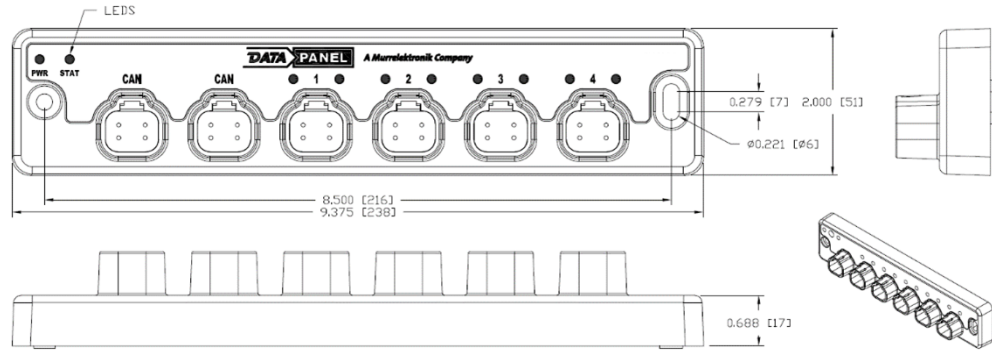
xtremeDBm

xDBm0404-DIO

**I/O Module
Digital and Analog**

J1939 CANbus

8...32 V DC



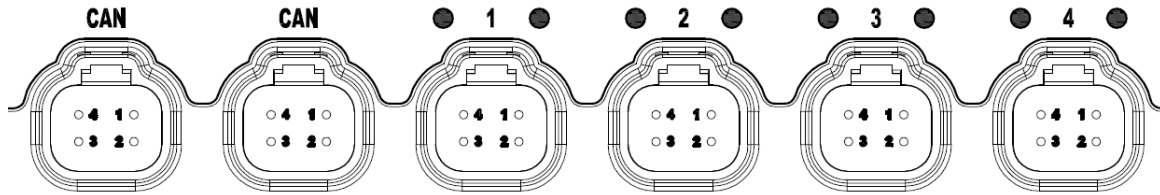
Technical Data

Housing	Molded glass-filled nylon
Dimensions (l x w x h)	2.000 x 9.375 x 1.34 in (51 x 239 x 34 mm)
Weight	0.66 lbs (0.30 kg)
Installation (mounting hardware not included)	Screw: 2 x #10 (2 x M5) Torque: 21 in-lbs (2.4 Nm) max.
Mating Connectors and Accessories	4 Pole Plug 10 x DT06-4S or equivalent
DEUTSCH® size 16 Socket	0462-201-16141 (16 – 20 AWG)
DEUTSCH® Seal Plug	1062-16-0122 (14 – 18 AWG) 114017
Operating Voltage	8...32 V DC protected against reverse polarity without need for external fuse
Operating Current	13 Amps node current max with one POWER pin 16 Amps node current max with two POWER pins 4 Amps continuous per output pin max.
Communication Interface and Baud Rate	2 parallel J1939 ports 250kb (default) & 500kb
Source Address	Base Address 217d (0xD9h) Offset 0...7
Total Inputs and Outputs	8 (4 x Inputs & 4 x 4 Amp Outputs)
Inputs Diagnostics	Out of range and sensor power overcurrent
Outputs Diagnostics	Short circuit and overcurrent
Output Port Parallelling Capability	Supported up to 8 Amps
Output Port H-Bridge Capability	Supported up to 4 Amps
Output (Sensor Power)	2 (VBAT @ 1 Amp max. or 5 V DC @ 200 mA max. per port, individually configurable)
Operating Temperature	-40...85 °C
Storage Temperature	-40...85 °C
Protection Class	IP67: Connector seal plugs required for unused pins Sealing plugs required for unused ports IP68/IP69K: Using Murrelektronik MDC xtreme cables

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Connector Interface



Connections:

Ports CAN

Pin 1 = POWER
 Pin 2 = CAN HIGH
 Pin 3 = GND-EXT
 Pin 4 = CAN LOW

Connections:

OUTPUT Ports J1 – J2

Pin 1 = GROUND
 Pin 2 = OUTPUT B
 Pin 3 = GROUND
 Pin 4 = OUTPUT A

Connections:


INPUT Ports J3 – J4

Pin 1 = SENSOR PWR
 Pin 2 = INPUT B
 Pin 3 = GROUND
 Pin 4 = INPUT A

Operating States (LEDs)	Color	Status
PWR	Blue	Module and Ports power are connected
STAT	Green	Module and Communication status good
	Yellow	Warning Status
	Red	Fault Status
I/O Port	Yellow	Left LED – Input A / Output A Right LED – Input B / Output B


Characteristics of the OUTPUT ports

Outputs Port J1: B, A Port J2: B, A	Digital Output Output voltage 8...32 V DC Switching current 4 Amps
	----- PWM & PWM(i) Current Controlled Output PWM frequency 40-1100 Hz PWM(i) frequency 100-700 Hz Switching current 4 Amps
	Default configuration Digital 4 Amps

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Characteristics of the INPUT ports

<p><i>Inputs Digital</i> Port J3: B, A Port J4: B, A</p>	<p><u>Positive switching</u> Input A threshold > 1.6 V DC Input B threshold > 1.6 V DC Input resistance 10 kΩ Input response 20 mSec</p> <p><u>Ground switching</u> Input A threshold < 1.6 V DC Input B threshold < 1.6 V DC Input resistance 10 kΩ Input response 20 mSec</p> <p><u>Frequency/Encoder Mode</u> <u>Port 3A & Port 4A</u> Positive switching >1.6 V DC Frequency 0-5000 Hz</p> <p><u>Default configuration</u> Positive switching</p>
<p><i>Inputs Analog</i> Port J3: B, A Port J4: B, A</p>	<p><u>Analog Input</u> Resolution 12 bit Accuracy 1% Full Scale Input response 20 mSec</p> <p><u>5 V DC Mode</u> Input voltage 0...5 V DC Input resistance 166 kΩ Input fault limit > 5.5 V DC</p> <p><u>10 V DC Mode</u> Input voltage 0...10 V DC Input resistance 55 kΩ Input fault limit > 11.0 V DC</p> <p><u>32 V DC Mode</u> Input voltage 0...32 V DC Input resistance 37.6 kΩ Input fault limit > 35.0 V DC</p> <p><u>4-20 mA Mode</u> Input current 0-25 mA Input resistance 162 Ω Input fault limit >25 mA</p> <p><u>Ratiometric Mode (Only on B Channels)</u> Input voltage 0...32 V DC Resolution 0.1% (0 – 100.0%) Input resistance 37.6 kΩ</p>

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Test Standards and Regulation

Climatic test *	<p>Cold Temperature to IEC 60068-2-1:2007, test Ad Dry Heat to IEC 60068-2-2:2007, test Bb Temperature Durability to IEC 60068-2-14:2000-08, test Nb Temperature Shock to IEC 60068-2-14:2000-08, test Na Humidity Soak to IEC 60068-2-78:2001, test Cab Humidity Cycle to IEC 60068-2-30:2005, test Db</p>
Mechanical test *	<p>Swept Sine Vibration to IEC 60068-2-6:2007, test Fc Random Vibration to IEC 60068-2-64:2008, test Fh Mechanical Shock to EN 60068-2-27:2008, test Ea Mechanical Bump to EN 60068-2-27:2008, test Ec IP protection to EN 60529:2000-09, test IP67, IP68, IP69K Chemical Loads to ISO 16750-5:2010 Part 5: AA, BA, BC, BD, BE, CC, DB, DD</p>
Electrical test	<p>EMC Immunity to ISO 13766-1:2018, ISO 13766-2:2018, EN 13309:2010 EMC Emissions to ISO 13766-1:2018, ISO 13766-2:2018, EN 13309:2010 Conducted Transients to ISO 13766-1:2018, ISO 13766-2:2018, ISO7637-2:2011, Annex A</p>

*Pending final testing

Application Notes

POWER GND-EXT	<p>Module battery power and negative return. In a module application with < 13 Amps one GND-EXT and one POWER CAN port pin may be used for the battery circuit connections. In a module application with 13 Amps to 16 Amps both CAN port GND-EXT and POWER pins are used for the battery circuit connections. All module GND-EXT nodes are internally linked to GROUND.</p>
Port J1 – J4 GROUND	<p>The module provides reverse battery protection for all external components connected to the ports J1 – J4 without the need of an external fuse. Any device connected to the module ports J1 – J4 shall have the device ground connection made at the port and not on the machine or chassis. All module GROUND nodes are internally linked to GND-EXT.</p>

Article Numbers

DP-40044-01-000	xDBm0404-DIO J1939 Slave Module
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