

DAWN Mini ADAQ TC4™ Details

Technical Specifications

Input Specifications

Power Supply Input	12, 24, 36, 42, 48, 60VDC nominal (8...75VDC power supply range) NB. The maximum total power consumption is <1.5 Watts.
Protection	Surge and reverse polarity protection are provided.
Isolation	Full isolation of each channel from the CAN line, other inputs and power supply. Isolation voltage is 1500 Vac (rms) or 2550V for 1 sec. for all channels to power and 50V (rms) for all channels to CAN interface.
All Inputs	<p>4 Type J or K or T Thermocouple Modules (other types on request)</p> <p>All input channels are completely independent of each other and can read the thermocouple temperatures at the same time. Temperature is measured in °C with a 0.1°C resolution. All inputs send a message to the J1939 bus.</p> <p>There are 2 setpoints for each channel that are associated with the input and how the data is measured. Channels are configured to indicate the SAE J1939 SPN to transmit the temperature measured by that input. The Parameter Group Number (PGN) that will be used to send a temperature to the J1939 network is dependant on the Suspect Parameter Number (SPN) that was selected for that channel. Refer to Table 1.0 for a list of supported SPN's.</p> <p>Regardless of the SPN selected, temperature is always available for the associated PGN.</p>
Measurement Rate	The measurement rate is 5 scans/Sec. All channels are measured simultaneously. The update rate is 200 mSec.
Common Mode	Common mode rejection is >110 db@ 5V p-p (programmable for either 50 or 60 Hz). Common mode input range is +/- 4 V minimum.
Resolution	<p>Temperature data is measured with a resolution of 0.1 °C.</p> <p>When sending data to the J1939 bus, one byte parameters have a resolution of 1°C/ bit, an offset of -40°C and a range of -40 °C to 210 °C. Two byte parameters have resolution of 0.03125 °C / bit and a range of -273 °C to 1735 °C.</p>
Drift	Overall drift with temperature is 50ppm/°C of span (maximum).
Accuracy	+/-1 °C throughout the entire range of the thermocouple input
Input Configuration	Refer to the user manual for details on configuration.
Shield	Four shield connections are provided.
Ground	Four analog ground connections are provided.

General Specifications

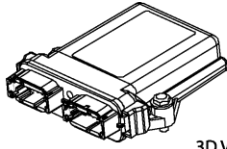
Operating Conditions	-40 to 85°C (-40 to 185°F)
Weight	0.55 lbs. (0.25 kg)
Protection	IP67; Unit is conformal coated within the housing. Plugs carry an IP69 rating.
Microprocessor	Motorola DSP56F8346
Control Logic	Standard embedded software is provided. <i>Refer to the user manual for details.</i> (Application-specific control logic is available on request.)

CAN Interface	<p>1 CAN port (SAE J1939) (CANopen® on request)</p> <p>The software was designed to provide flexibility and provides the following.</p> <ul style="list-style-type: none">• Configurable ECU Instance in the NAME (for multiple ECU's on the network)• Configurable SPN for each channel• Configurable Diagnostic Messaging Parameters, as required• Diagnostic Log, maintained in non-volatile memory <p><i>Note: Configurable parameters are also called setpoints.</i></p> <p>Compliant with Bosch CAN protocol specification, Rev.2.0, Part B, and the following J1939 standards.</p> <ul style="list-style-type: none">○ SAE J1939-21, December 2006, Data Link Layer○ SAE J1939-71, January 2009, Application Layer○ SAE J1939-73, September 2006, Application Layer – Diagnostic○ SAE J1939-81, May 2003, Network Management
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Termination	It is necessary to terminate the network with external termination resistors. The resistors are 120 Ohm, 0.25W minimum, metal film or similar type. They could be placed between CAN_H and CAN_L terminals at both ends of the network.																																																								
FMI	There are four FMIs associated with each thermocouple channel and include the following functions: High Temperature Shutdown; High Temperature Warning; Low Temperature Warning; and Thermocouple Open Circuit.																																																								
Diagnostics	The controller stores diagnostic data in a non-volatile log. There are four diagnostic log entries associated with each input channel. Each entry is a record of the SPN, FMI and OC for any fault that has occurred. There are eight setpoints associated with if and how the ECU will send diagnostic messages for each channel. For more details refer to the user manual.																																																								
Electrical Connections	<p>Refer to Table 2.0.</p> <div style="text-align: center;"> <p>Key Arrangement B (black)</p> <p>Key Arrangement A (grey)</p> <p>FRONT VIEW 24 PIN RECEPTACLE</p> <p>Deutsch DTM series 24 pin receptacle (DTM13-12PA-12PB-R008) Mating plugs kits are available on request and include Deutsch DTM06-12SA and DTM06-12SB with 2 wedgelocks (WM12S) and 24 contacts (0462-201-20141). 20 AWG wire is recommended for use with contacts 0462-201-20141.</p> <p>Use dielectric grease on the pins when installing the controller.</p> <p><i>Table 2.0 - Typical Connections</i></p> <table border="1"> <thead> <tr> <th colspan="2">Grey Connector</th> <th colspan="2">Black Connector</th> </tr> <tr> <th>Pin #</th> <th>Function</th> <th>Pin #</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>RS-232_GND</td> <td>1</td> <td>TC IN1+</td> </tr> <tr> <td>2</td> <td>RS-232_TXD</td> <td>2</td> <td>TC IN1-</td> </tr> <tr> <td>3</td> <td>RS-232_RXD</td> <td>3</td> <td>TC1_Shield</td> </tr> <tr> <td>4</td> <td>Not Used</td> <td>4</td> <td>TC IN2+</td> </tr> <tr> <td>5</td> <td>Frame GND</td> <td>5</td> <td>TC IN2-</td> </tr> <tr> <td>6</td> <td>Battery -</td> <td>6</td> <td>TC2_Shield</td> </tr> <tr> <td>7</td> <td>Battery +</td> <td>7</td> <td>TC3_Shield</td> </tr> <tr> <td>8</td> <td>Not Used</td> <td>8</td> <td>TC IN3-</td> </tr> <tr> <td>9</td> <td>Not Used</td> <td>9</td> <td>TC IN3+</td> </tr> <tr> <td>10</td> <td>CAN_L</td> <td>10</td> <td>TC4_Shield</td> </tr> <tr> <td>11</td> <td>CAN_H</td> <td>11</td> <td>TC IN4-</td> </tr> <tr> <td>12</td> <td>CAN_Shield</td> <td>12</td> <td>TC IN4+</td> </tr> </tbody> </table> </div>	Grey Connector		Black Connector		Pin #	Function	Pin #	Function	1	RS-232_GND	1	TC IN1+	2	RS-232_TXD	2	TC IN1-	3	RS-232_RXD	3	TC1_Shield	4	Not Used	4	TC IN2+	5	Frame GND	5	TC IN2-	6	Battery -	6	TC2_Shield	7	Battery +	7	TC3_Shield	8	Not Used	8	TC IN3-	9	Not Used	9	TC IN3+	10	CAN_L	10	TC4_Shield	11	CAN_H	11	TC IN4-	12	CAN_Shield	12	TC IN4+
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Packaging and Dimensions

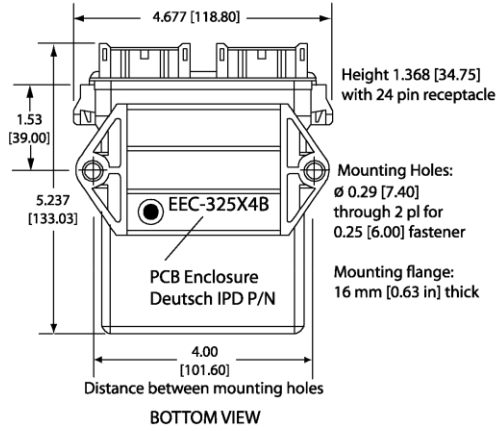
High Temperature Nylon housing, Deutsch IPD PCB Enclosure (EEC-325X4B)
 4.62 x 5.24 x 1.43 inches 117.42 x 133.09 x 36.36 mm (W x L x H excluding mating plug)



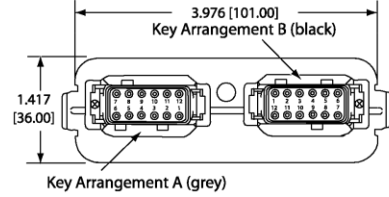
3D VIEW
 Housing with 24 Pin Receptacle

HOUSING DIMENSIONS

Housing Material: High Temperature Nylon (Black)



FRONT VIEW 24-PIN RECEPTACLE (NOT TO SCALE)



Mating Plug Assemblies for 24-pin receptacle:
 Deutsch IPD P/N: DTM06-12SA and DTM06-12SB
 with wedgelocks WM12S and contacts
 (Contact factory for contact specification.)

Dimensions: inches [mm]
 excluding mating plug(s)