



POWER FROM WITHIN

DIPOT CONTROLLER



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1. General Information

This document describes the technical and functional characteristics and how to use the DIPOt board. The available models are identified by the following codes:

1. **E6102094300xx** : DIPOt RS485 IN 0÷5V/IN 0÷10V
2. **E6102094301xx** : DIPOt RS485 IN TEMP./PRESS. VDO
3. **E6102094302xx** : DIPOt CANBUS IN 0÷5V/IN 0÷10V
4. **E6102094303xx** : DIPOt CANBUS IN TEMP./PRESS. VDO

Thanks to its versatility, the "DIPOt" device lets you connect most products (Speed regulators, Voltage regulators, Power factor controllers, etc.) that require a voltage or current input, to suit their variation and management specifications. The output for piloting the boards is managed by a microcontroller that controls the regulation of an output proportional current loop (which can be converted into a voltage output using a simple resistance).

The output can be regulated and piloted with UP and DOWN digital inputs, or by modifying the Modbus protocol registry value via RS485 connection or CANBUS J1939 connection to our generator management boards DST4601, DST4601PX, DST4400, etc.

2. Characteristics

2.1 Output

On all DIPOt models, the regulation of the Current Loop can be selected using three configurations of dip-switches:

- from 0 to +20 mA
- from -10mA to +10mA
- from -20mA to +20 mA

Using one of the current adjustable outputs we can create a voltage output by connecting a resistor to pins 2 and 3 of connector J1.

The current loop device output is between pins +4, +3 for the positive, and pins -2, -1 of J1 for the negative. The resistor can be connected to pin 2 and pin 3 of J1 .

Warning: Carefully consider the resistor and the dip-switch configuration, as the max. voltage range is ± 11V.

Here are some examples:

Example 1:

Voltage required: min. -6V to max. +6 V.

Select ± 20mA

The resistance to use is: $R = \frac{V}{I} = \frac{6V}{0,02A} = 300\Omega$

The dissipation power of the resistor must be at least: $P = V * I = 6V * 0,02A = 0,12W$

The resistor to be used will be 300ohm - 1/4W

Example 2:

Voltage required: min. 0V to max. 11 V.

Select ± 20mA

$$\text{The resistance to use is: } R = \frac{V}{I} = \frac{11V}{0,02A} = 550 \Omega$$

The dissipation power of the resistor must be at least: $P = V * I = 11V * 0,02A = 0,22W$

The resistor to be used will be 550ohm - 1/4W

2.2 Power input

Connector **J5** is used for the power input; input voltage can be either 12 or 24VDC, with a self-rearming internal fuse. The device is protected by input polarity switching.

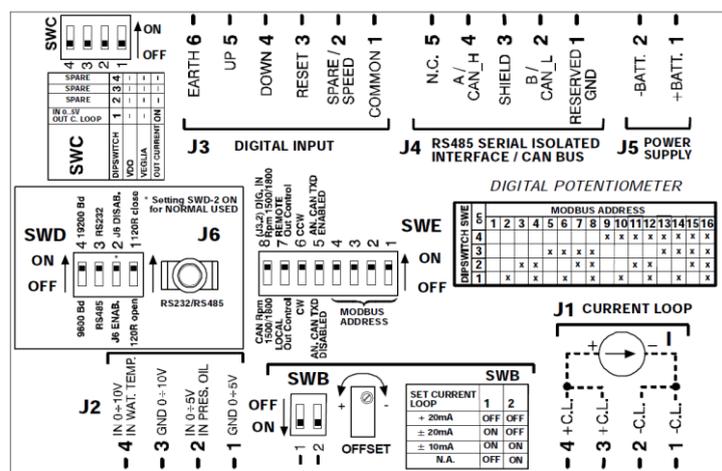
The maximum current absorption is approximately 80 mA at a voltage of 10V. The input voltage range is between 7.5 and 32 VDC.

Configuration:

- **J5 – PIN 1:** positive input
- **J5 – PIN2:** negative input
- **J3 – PIN6:** Ground (cable screens)

2.3 Controls and function

Wiring Diagram:



The DIPOt board has several dip switches, which let you set the specific functions of the device, the current loop value and the properties of the serial port.

The **SWE** switch is an 8-way dip switch for setting the following specific functions of the product:

- **DIP 1-4 (Communication address):** assign the modbus address to the device (in the CANBUS version, the communication address is fixed)
- **DIP 5(analog on CANBUS):** enables/disables transmission via Can bus of the water temperature and oil pressure sensors connected to the analog inputs of the DIPOt module (connector J2). In the Can Bus version of the receiving device, the Can is always enabled, regardless of the state of this switch, if SWE dip 7 is ON (REMOTE CONTROLS).
- **DIP 6 (CCW/CW):** lets you switch the current loop output in relation to data control (and then switch from CW to CCW operating mode). In CW mode, the request with a CANBUS/Modbus message or from the UP button, for an increment in the command, will result in a drop in the value of the output current while in CCW mode, the request with a CANBUS/Modbus message or from the DOWN button, for a decrease in the command, will result in an increase in output current.
- **DIP 7 (REMOTE/LOCAL CONTROL):** in "Local" mode the up/down/reset buttons are acquired and let you change the current loop output value. In "Remote" mode, the current-loop output value is determined by the CANBUS or Modbus command. With version RS485 in "Remote" mode, the value of the MIN, MAX, RESET and RAMP trimmer is set in the "Holding register.
- **DIP 8(Rpm1500/1800 from CANBUS/DIGITAL INPUT):** determines if the nominal speed of the motor (1500 or 1800 rpm) is automatically detected by the CANBUS or digital input J3-2. (If the input is active, the nominal speed is 1800 rpm, if the input is inactive the nominal speed is 1500 rpm).

Switch **SWD** is a 4-way switch and sets the properties of the available serial port on stereo jack connector **J6** and connector **J4**:

- **DIP 1 (120R ON/OFF):** lets you connect/disconnect the 120R termination resistor on serial port RS485 of **J6** (only if necessary and if the port is set as RS485).
- **DIP 2 (Enable/disable Serial port):** enables/disables the serial port on stereo jack **J6**.

In the versions with isolated RS485 (**E6102094300xx** and **E6102094301xx**) serial port of connector **J4** is shared with connector **J6**. Use **SWD** dip 2 to select which port should be used. The serial ports on **J4** and **J6** cannot operate simultaneously. If the serial port is used on connector **J6**, disconnect the female connector on **J4**.

In versions with CANBUS (**E6102094020xx** and **E6102094303xx**) the serial port on connector **J6** is always available.

- **DIP 3 (RS232/RS485):** configures the serial port on Stereo jack **J6** as RS232 or RS485 (not isolated).
- **DIP 4 (9600/19200 Bd):** sets the baud rate used by the serial port on Jack (**J6**) and also that of isolated RS485 serial port (**J4**) if the product is version RS485.

The **SWB** switch is a 2-way switch and sets the scale of the current loop used:

- from 0 to +20 mA **SWB-1 OFF SWB-2 OFF**
- from -10mA to +10mA **SWB-1 ON SWB-2 ON**
- from -20mA to +20 mA **SWB-1 ON SWB-2 OFF**

The **SWC** switch is a 4-way switch that lets you enable the voltage insulator function (Setting **ON** on switch no. 1).

2.4 Digital inputs

The output value of connector **J1** (current loop) can be controlled by three digital inputs (connector **J3**), optically isolated. To control, connect the respective input terminal to the insulated positive after connecting the insulated negative to the common terminal (**J5-1**). There are a total of 5 contacts:

- **Pin 1 of J5** **COMMON:** common negative of optoinsulated inputs
- **PIN 2 of J5** **SPARE/SPEED:** only used in **CANBUS** version to select the nominal speed (1500 or 1800 rpm) of the engine (if **SWE** switch 8 is **ON**).
- **PIN 3 of J5** **RESET:** resets the output to the set value using the **RESET TRIMMER**
- **PIN 4 of J5** **DOWN:** controls the decrease in the output value to the value set with the **MIN trimmer**
- **PIN 5 of J5** **UP:** controls the increase in the output value to the value set with the **MAX trimmer**

The reset command resets the current to the set output value with **RESET TR2** trimmer. Activating the **UP** and **DOWN** controls respectively increases or decreases the current value if in **CW** mode (dip 6 of **SWE** **OFF**), inverted in **CCW** mode (dip 6 of **SWE** **ON**), to the maximum and minimum values adjustable using the **MAX TR3** and **MIN TR4** trimmers. Every activation of an **UP** or **DOWN** control produces a step variation in the current value; keeping the control pressed produces a continuous increase/decrease, with the speed set by trimmer **TR1 RAMP** (linear resistance ramp-duration of command).

The green LED on the front of the device indicates an order of magnitude for the output value:

- LED flashing slowly (50% on and 50% off): minimum output value
- As the output value increases so does the frequency of the flashing (50% on and 50% off)
- Led on with short intermittent flashes off (90% on 10% off): max. output value.

2.5 Analog Inputs

The DIPOT board implements two analog inputs, which can be of two types depending on the model:

- Analog inputs 0..5V and 0..10V
- VDO pressure transducer (0 .. 10bar) and temperature (0 .. 150 ° C) analog inputs

The analog inputs can be measured differentially as they have separate grounds, to avoid non-equipotential problems with the input ground point of the signal and the input ground of the device. However, the potential difference between the input ground of the signal and that of the DIPOT input cannot be more than 1.5 V; over this level, the measurement is imprecise due to the saturation of the device amplifiers. Considering the high impedance of the measurement inputs, a screened cable should be used with very long connections. If the ground connections of the inputs aren't used, the ground of reference is the device power input.

In the case of configuration for pressure and temperature transducer inputs, the two grounds of the inputs (**J2** pin 3 and pin 1) should not be connected.

Since the resistance of the transducers is relatively low, a screened cable isn't required.

notes: Since the conversion between VDO and VEGLIA Borletti transducers involves a recalibration of the device, this must be done by Mecc Alte S.p.A.

Analog values acquired by the device are available in the Modbus registers on port RS485 or with SAE J1939 CAN BUS.

2.6 Adjustments

Four settings can be adjusted on the device using the trimmers on the front:

- **TR1 - RAMP:** adjusts the linear increment ramp for the value/duration of the command; corresponds to the increment/decrement speed of the value with the respective controls enabled. Turning clockwise increases the rapidity of the increment, which decreases vice versa counter-clockwise. The total time of the range can be adjusted from 4 seconds to 120 seconds.
- **TR2 - RESET:** adjusts the value after a RESET command; between MIN and MAX value: normally corresponds to 50% of the output (if output is set to +/- 10 mA the reset value is 0 mA)
- **TR3 - MIN:** adjusts the minimum value obtainable with **DOWN** command; turning the trimmer clockwise increases the minimum value
- **TR4 - MAX:** adjusts the maximum value obtainable with the **UP** command; the maximum value increases as the trimmer is turned clockwise

To get the full range, **MIN** must be turned fully counter-clockwise and **MAX** fully clockwise. In the abnormal condition in which the set **MIN** value exceeds the set **MAX** value or vice versa; after an increment or decrement command, the current output remains stable at a fixed value.

The value range can be adjusted observing the relative position of the trimmers, the limits (minimum and maximum) are directly proportional to the angles of rotation of the respective trimmers at the nominal value. The RESET trimmer adjusts the default value; the adjustment is linear between the MIN and MAX values set (ex. with trimmer in the middle of its range, there is the intermediate value halfway between MIN and MAX).

To adjust the range, proceed as follows:

- turn RAMP (TR1) to half its value;
- set the MAX value to half the value
- set the MIN value to half the value

Proceed as follows:

- With the UP input always active, adjust the output to the desired maximum value by turning trimmer MAX TR4 clockwise.
- With the DOWN input always active, adjust the output to the desired minimum value by turning trimmer MIN TR3 clockwise.
- With the RESET input always active, adjust the output to the desired reset value by turning trimmer RESET TR2 clockwise/counter-clockwise.
- Adjust trimmer RAMP (TR1) to obtain the desired rapidity of increment/decrement response.

To fine tune the trimmer values, use the following register:

40019	40019	Select an adjustment source	0 = from trimmer, 1 = from Modbus, 2 = Modbus + trimmer for fine tuning (+/- 12.5%)
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- By setting the registry to 0 the MIN, MAX, RESET, RAMP values are only acquired by the trimmer.
- By setting the register to 1 the MIN, MAX, RESET, RAMP values will only be read by the following registers:

40004	40004	MAX - Max. PWM value (0-8191) value that can be set	Writing max. PWM value
40005	40005	MIN - Min. PWM value (0-8191) value that can be set	Writing min. PWM value
40006	40006	RESET - PWM Reset value (0-8191) value that can be set	PWM reset value writing
40007	40007	RAMP - PWM Ramp value (0-8191) value that can be set	PWM ramp value writing

The trimmers are no longer used.

- By setting the register to 2, the MIN, MAX, RESET, RAMP values are read by the above registers and the trimmers can be used for fine tuning +/- 12.5% in relation to the value set in the register.

3. Voltage isolator mode

Switching switch 1 of the **SWC** bank **ON** activates the voltage insulator function. In other words an analog input is read and its value is transferred proportionally to the Current Loop output. The LEDs on the front panel remain lit in this mode.

In this mode, **SWE** dip switches 5 to 8 are no longer read and a CanBus interface will be disabled.

Using digital input **UP (PIN 5 of J5)** you can select which digital input will be used for the handshaking:

- **With input UP inactive (open), the 0-5V digital input is acquired**
- **With input UP active (closed), the 0-10V digital input is acquired**

In voltage isolator mode the DIPOt lets you decouple, transfer, and reduce or increase the acquired voltage value.

The current range ($\pm 20\text{mA}$, $\pm 10\text{mA}$, 0-20mA), between the two output terminals (+ C.L. and -C.L.), can be selected with a switch on the Current Loop output, simply connect a suitable resistance to obtain the desired voltage range ($\pm 11\text{V}$).

With suitable settings in the following registers we can limit the acquired voltage value making it also asymmetrical in relation to the output, if desired:

40015	40015	Min. 0-5V input percentage limit for Voltage isolator	
40016	40016	Max. 0-5V input percentage limit for Voltage isolator	
40017	40017	Min. 0-10V input percentage limit for Voltage isolator	
40018	40018	Max. 0-10V input percentage limit for Voltage isolator	

With suitable settings in the following registers we can also choose the source of adjustment and limit the range of the output current loop:

40019	40019	Select an adjustment source	0 = from trimmer, 1 = from Modbus, 2 = Modbus + trimmer for fine tuning (+/- 12.5%)
--------------	--------------	-----------------------------	---

- By setting the register to 0 the MIN, MAX values are only acquired by the trimmers.
- By setting the register values to 1 the MIN, MAX values are only read by the following registers:

40004	40004	MAX - Max. PWM value (0-8191) value that can be set	Writing max. PWM value
40005	40005	MIN - Min. PWM value (0-8191) value that can be set	Writing min. PWM value

- By setting the register to 2, the MIN, MAX values are read by the above registers and the trimmers can be used for fine tuning +/- 12.5% in relation to the value set in the register.

The buttons (except the UP button) and the RAMP and RESET trimmers are no longer read. Only the MIN and MAX trimmers and the analog input selected with the UP button are read, this is to minimize the response time between input and output variations as far as possible.

To change mode, move SWC switch SW1, then turn the device off and on again.

If the SWC switch isn't installed on the board, DIPOt can only function in the normal operating mode.

4. Connections

Depending on the DIPOt version, you may have an RS485 communication interface or CANBUS interface isolated from the I/O and internal logic circuits; this results in high immunity to transient voltages and eliminates problems caused by differences in the input voltages of the devices connected by bus. This is particularly useful for long connections, in environments prone to disturbance, or where there is no guarantee of equipotential grounding between devices (e.g. direct connection to a PC).

When initially setting up the device you can use the serial port on 3.5 mm stereo jack connector **J6**. This serial port is non-isolated (unlike those on connector **J4**) and can be configured as RS485 or RS232 using **SWD** dip 3. If it is setup as interface RS485 a termination resistor can be used (as required by standard TIA/EIA-485) to close **SWD** dip 1.

The line termination must not be switched in if interface RS232 is selected, or the serial port will malfunction.

The baud rate of the port can also be set (**SWD** dip 4).

In the versions with isolated RS485 (**E6102094300xx** and **E6102094301xx**) serial port of connector **J4** is shared with connector **J6**. Use **SWD** dip 2 to select which port should be used. The serial ports on **J4** and **J6** cannot operate simultaneously.

If the serial port is used on connector **J6**, disconnect the female connector on **J4**.

Use **SWD** dip 2 as follows, to select which port will be used:

- If **SWD** -2 is ON, the serial will be available on connector **J4** (RS485 isolated with baud rate selected by **SWD**-4).
- If **SWD** -2 is OFF the serial will be available on connector **J6** (RS232 or RS485 on the basis of **SWD** -3 with the baud rate selected by **SWD**-4). **In this case, disconnect female connector J4.**

In versions with CANBUS (**E6102094302xx** and **E6102094303xx**) the serial port on **J6** can always be used.

4.1 RS485 interface version connections

On pins 4 and 2 of **J4** connect respectively signal A (Non-inverting Receiver Input/Driver Output) and signal B (Inverting Receiver Input/Driver Output) of bus RS485.

Connect the cable screen to pin 3 of **J4**.

DO NOT USE pin 1 of **J4** (GND RESERVED).

A 120 ohm termination resistance should be connected directly to terminals 4 and 2 of **J4**.

4.1.1

Modbus addresses and communication protocol

On the DIPOT board there is a dip-switch selector that can be used to implement up to 16 DIPOT boards on the same RS485 bus line, switch the UP inputs with the DOWN inputs and manage the writing of the remote Modbus registers.

- Modbus Address:** The max. number of DIPOT boards on the same RS485 bus line is 16. The SWE dip lets you select the physical address of the DIPOT boards from a value of 1 to a value of 16 by suitably modifying the switches from 1 to 4 as in the following table

Selecting Modbus address:

DIPSWITCH SWE	S	MODBUS ADDRESS															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4										x	x	x	x	x	x	x	x
3						x	x	x	x					x	x	x	x
2				x	x			x	x			x	x			x	x
1		x		x		x		x		x		x		x		x	

Note that address 1 is obtained with all the switches (1 to 4) OFF.

4.1.2 ModBus address list

Input Register

From	To	Description	Notes
30001	30001	PWM value (0-8191) (0-0x1FFF) value 13-bit	Output PWM reading value
30002	30002	switches SWA 1-4 and SWC 1-2 (start-up and current) XXYH x = start-up y = current	Read state of switches SWA and SWC ON = 1 OFF = 0 (byte read → 00cc aaaa, where aaaa = SWA, cc = SWC)
30003	30003	Buttons (4 bit LSB) (bit0=RESET, bit1=DOWN, bit2=UP, bit3=SPARE)	Read digital inputs (0 = active, 1 = inactive)
30004	30004	Trimmer TR3 - TR104 (MAX) 0-3FF	Read value set on trimmer Max 10bit
30005	30005	Trimmer TR4 - TR105 (MIN) 0-3FF	Read value set on trimmer Min 10bit
30006	30006	TR2 trimmer - TR103 (RESET) 0-3FF	Read value set on trimmer RESET 10bit
30007	30007	Trimmer TR1 - TR102 (RAMP) 0-3FF	Read value set on trimmer Ramp 10bit

30008	30008	INPUT 0-5V (0-1023) 10-bit	Read value of 0-5V analog input or VDO/VEGLIA pressure
30009	30009	INPUT 0-10V (0-1023) 10-bit	Read value of 0-10V analog input or VDO/VEGLIA temperature
30010	30010	PWM (PWM value) as in register 30001	Output PWM reading value
30011	30011	Inverted PWM (inverted PWM value = 0x1FFF-PWM value)	Read inverted PWM value
30012	30012	DIPOT board switch bank (start-up and current)	
30014	30014	MAX - Maximum PWM value (0-8191)	Read steps corresponding to the maximum output value set with MAX trimmer
30015	30015	MIN - Minimum PWM value (0-8191)	Read step corresponding to minimum output value set with MIN trimmer
30016	30016	RESET - PWM reset value (0-8191)	Read steps corresponding to RESET value set with RESET trimmer
30017	30017	RAMP - ramp value (0-32) (value removed or added every 10 ms)	Read steps corresponding to the ramp value set with RAMP trimmer
30019	30019	Test Flag (0 = normal mode, 1 = test mode)	(to enter the test, short-circuit pins 1 - 2 of JP107 on start-up)
30020	30020	Mode (0 = DIPOT normal, 1 = voltage isolator)	
30021	30021	Modbus Address	The modbus address is selected by switches
30022	30022	Serial speed	The baud rate is selected by switches
30023	30023	E2Prom test result	When the board is in test mode and e2prom is

			tested in this register, the result of the test is: 0 = not performed, 1 = OK, 2 = Error)
30026	30026	Minimum value of 0-5V input in points per voltage isolator	
30027	30027	Maximum value of 0-5V input in points per voltage isolator	
30028	30028	Minimum value of 0-10V input in points per voltage isolator	
30029	30029	Maximum value of 0-10V input in points per voltage isolator	
30031	30032	0-5V INPUT - value calculated in ohms	
30033	30033	0-5V INPUT - Pressure calculated	
30035	30036	0-5V INPUT - Value calculated in Volts	With 16 fractional bits
30037	30037	Pressure in kPa	Example: value of register 34 = 34*4 = 136 kPa
30041	30042	0-10V INPUT - value calculated in ohms	
30043	30043	0-10V INPUT - Temperature calculated	In tenths of a degree (e.g. 305 = 30.5 °C)
30045	30046	0-10V INPUT - Value calculated in Volts	With 16 fractional bits
30051	30051	Current Loop Output: Current PWM value	
30052	30052	Current Loop Output: Minimum PWM value	
30053	30053	Current Loop Output: Maximum PWM value	
30054	30054	Current Loop Output: PWM offset value and Reset value	
30055	30055	Current Loop Output: PWM Ramp value	
30201	30201	CANBUS: Presence of canbus interface	0 = CanBus interface not present, 1 = CanBus Interface Present.
30202	30202	CANBUS: State	0=Error Active, 1= Error Passive, 2=BusOff
30203	30203	CANBUS: Transmission errors	
30204	30204	CANBUS: Reception errors	
30205	30206	CANBUS: Overrun errors	
30207	30208	CANBUS: Transmitted messages counters	
30209	30210	CANBUS: Received messages counters	
30212	30212	TEST CANBUS: transmitted message counter	
30213	30213	TEST CANBUS: received messages counter	

30221	30221	RPM value received via CAN BUS	(RPM x 8. E.g. 1200 / 8 = 1500 RPM)
30222	30222	RPM GAP received via CAN BUS	If 1500 rpm: GAP 120 x 8 = 960
30223	30223	RPM GAP Percentage received via CAN BUS	(nominal speed = 50%)

Holding Register

(always available in read, only available in write in REMOTE mode (4 of SWA = ON))

From	To	Description	Notes
40001	40001	PWM value (0-8191) value that can be set	PWM output value writing
40004	40004	MAX - Max. PWM value (0-8191) value that can be set	Writing max. PWM value
40005	40005	MIN - Min. PWM value (0-8191) value that can be set	Writing min. PWM value
40006	40006	RESET - PWM Reset value (0-8191) value that can be set	PWM reset value writing
40007	40007	RAMP - PWM Ramp value (0-8191) value that can be set	PWM ramp value writing
40011	40011	Offset (in points) for 0-5 V INPUT	
40012	40012	Gain (x 1000) for 0-5V INPUT	
40015	40015	Min. 0-5V input percentage limit for Voltage isolator	
40016	40016	Max. 0-5V input percentage limit for Voltage isolator	
40017	40017	Min. 0-10V input percentage limit for Voltage isolator	
40018	40018	Max. 0-10V input percentage limit for Voltage isolator	
40019	40019	Select an adjustment source	0 = from trimmer, 1 = from Modbus, 2 = Modbus + trimmer for fine tuning (+/- 12.5%)
40021	40021	Offset (in points) for 0-5 V INPUT	
40022	40022	Gain (x 1000) for 0-5V INPUT	
40031	40031	Minimum value for 0-5V INPUT	Minimum value on 0-5V input
40032	40032	Maximum value for 0-5V INPUT	Maximum value on 0-5V input
40033	40033	Peak reset command	Writing a value other than zero will reset the values read as minimum and maximum
40034	40034	Difference = Maximum value - minimum value for 0-5V INPUT	N points difference between minimum and maximum value measured on 0-5V input reading

4.2 CAN BUS version connection

The CANBUS version of the DIPOT device can be interfaced to the CANBUS line with our boards DST4400, DST4601, DST4601PX, GC310, GC350 and GC500.

The CANbus interface should not be powered from an outside source as it is powered by a DC/DC source in the device.

Connect the CAN_H signal (High Level Can Voltage Input/output) and the CAN_L signal (Low Level Can Voltage Input/output) of the CANBUS to pins 4 and 2 of J4 respectively.

Connect the cable screen to pin 3 of J4.

DO NOT USE pin 1 of J4 (GND RESERVED).

A 120 ohm termination resistance should be connected directly between terminals 4 and 2 of J4.

4.2.1 CAN BUS communication

The DIPOT module can be used in applications with generators that are not equipped with CANBUS communication and installed a great distance from the control devices (DST4601, GC310 ...).

It can indeed be difficult to send a control signal of a few volts without problems that could make the generator malfunction.

Using the DIPOT module with CANBUS you can send the speed regulation command at a distance while maintaining the high accuracy and safety of the command. Furthermore, again using the CANBUS line, you can also simultaneously acquire the oil pressure and coolant temperature values via the analog inputs.

For this application the DIPOT will be connected to the Engine CAN line of the Mecc Alte control boards (CANBUS line normally used to manage CanJ1939 engines).

The **SWE** switch must also be set correctly:

- **DIP 1-4 (Communication address):** the communication address in the CANBUS version is fixed, so these switches can be left OFF.
- **DIP 5 (analog on CANBUS):** must be set ON if you have to detect and transmit the values of the water temperature and oil pressure sensors (both VDO) connected to the analog inputs of the DIPOT module (connector J2) on the Can bus.
- **DIP 6 (CCW/CW):** lets you switch the current loop output in relation to data control (and then switch from CW to CCW operating mode). With CW, the request via CANBUS message for a command increment (such as an increase in engine speed) will result in a drop in the output current value. With CCW, the request via CANBUS message for a command decrement will result in an increase in output current. This switch depends on the type of speed regulator used.
- **DIP 7 (REMOTE/LOCAL CONTROL):** it should be ON so the current loop output value is determined by the CANBUS command.
- **DIP 8 (Rpm1500/1800 from CANBUS/DIGITAL INPUT):** determines if the nominal speed of the motor (1500 or 1800 rpm) is automatically detected by the CANBUS or by digital input J3-2 (input active for speed 1800 rpm, inactive for speed 1500 rpm). If input J3-2 is not connected, leave the switch OFF.

The resistance to connect to terminals 2 and 3 of J1 will be selected on the basis of the voltage value to obtain (and therefore on the basis of the speed regulator used).

A engine CANBUS must be installed on the Mecc Alte control device (DST4601PX, Gc310) to manage the speed regulation command and acquire the analog pressure and temperature values.

List of engines currently compatible (list continuously updated):

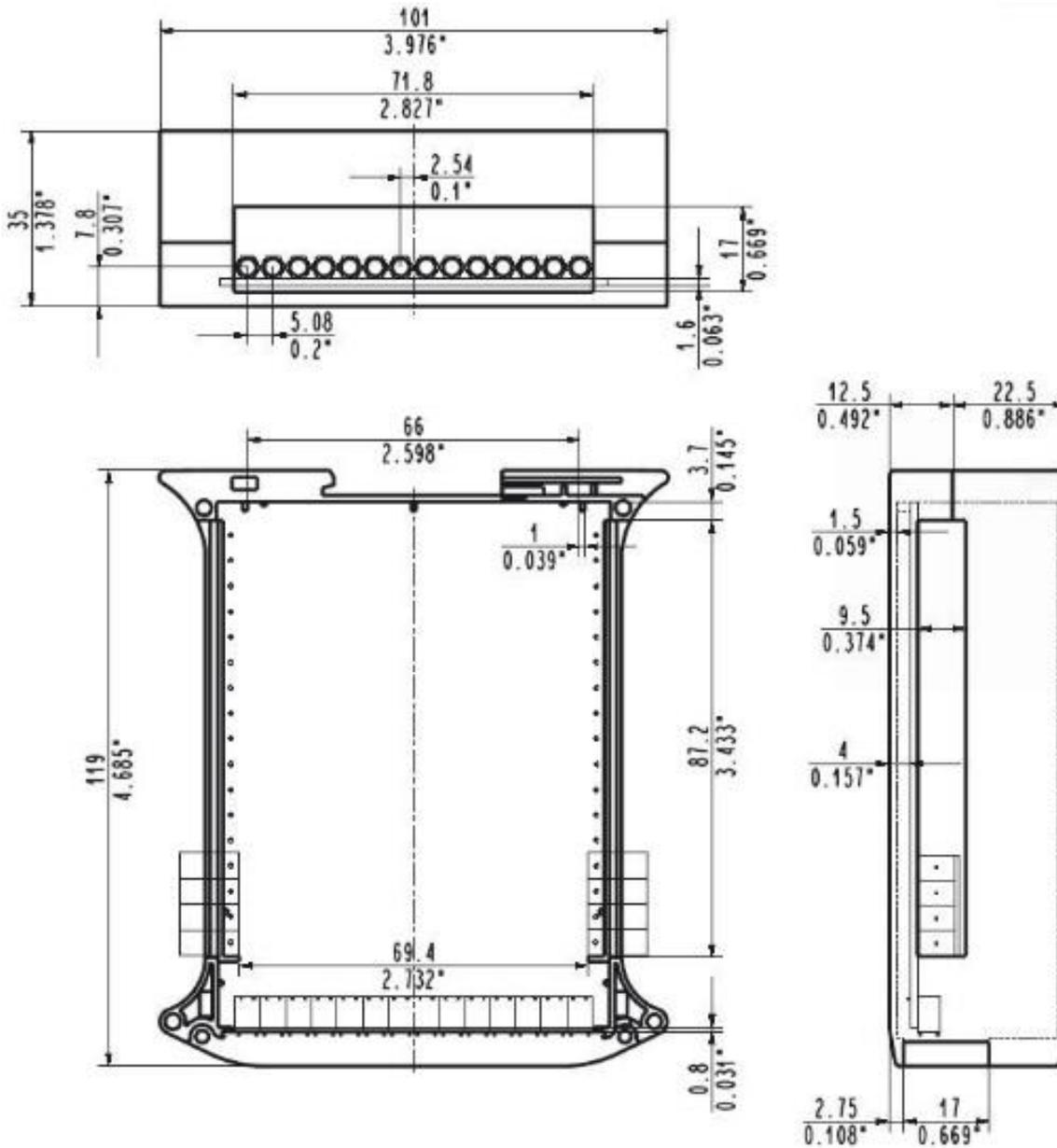
- VOLVO EDC4
- DEUTZ
- IVECO
- JOHN DEER
- CATERPILLAR
- PERKINS
- MTU ADEC
- CUMMINS ADAPTER

If the CANBUS communication is connected and functioning, the 'RUNNING' Led on the front panel of the DIPOT will remain lit.

If the Led is flashing CANBUS communication has been lost.

5. Dimensions

DI POT MODULE



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