SICES
Empowering your control

DITHERM
DIGRIN
DIVIT & DANOUT

Modules for additional analogue I/O

DITHERM, DIGRIN, DIVIT are electronic modules able to extend the number of analogue Input of several SICES genset controllers.

DANOUT is a module for extending the number of analogue Output of SICES controllers.

In detail:

DITHERM module allows the contemporary connection of different types of **thermocouples**. It is equipped with three insulated channels.

DIGRIN module allows the contemporary connection of different types of **thermo resistances**. It is equipped with three insulated channels.

DIVIT is a module which provide **voltage and current signals 0..05V - 0...10V** and **0...10mA - 0...20mA** using four different and insulated lines.

DANOUT is an auxiliary module able to provide voltage and current signals as Output 0..05V - 0...10V and 0...10mA - 0...20mA

These modules can be connected to:

DST4602,

GCXXX

DST4601PX

DITHERM

It allows to get up to **3 signals from thermocouples**. Input are insulated and it's possible to contemporary connect different types of thermocouples.
DITHERM can be connected to the following genset controllers: DST4602, GCXXX and DST4601PX, using the canbus interface.
DITHERM is available even with RS485 Modbus RTU. Using this version it's possible to monitor the measures of thermocouples even from remote using the proper software Sices Supevisor
It's possible to set thresholds of alarms and warnings for each temperature input having proper timing for warning. .
The type of the thermocouple is set using the parameters or using some switches.
The configuration is user-friendly, considering it's possible to set them using the PC.

Led indicators

LED ON WORK Led running (it flashes meaning the device is operating
LED REMOTE It means the communication is active
LED ALARM OUT Common alarm / warning sensors temperature
LED TEMP 1 It means alarm or warning sensor temperature 1
LED TEMP 2 It means alarm or warning sensor temperature 2
LED TEMP 3 It means alarm or warning sensor temperature 3

Dimensions: 101(H) x 35(L) x 119(D)mm
Weight: 165g

If required, available tropicalized version for hazardous areas.

Thermocouple input					
	Type	Range Min	Range Max	Risoluz.	Mistake %
Thermocouple	B	50 °C	1800 °C	0,5 °C	1,5
	R	0 °C	1400 °C	0,5 °C	1
	S	0 °C	1530 °C	0,5 °C	1
	J	0 °C	970 °C	0,5 °C	1
	E	0 °C	750 °C	0,5 °C	1
	N	0 °C	1300 °C	0,5 °C	1
	K	0 °C	1300 °C	0,5 °C	1
	T	0 °C	350 °C	0,5 °C	1
Channel number :		3			
Cold junction compensation:		From 0°C to 60°C			
Input impudence:		470 KΩ			
Sampling timing:		300 msec			

Environmental conditions	
Operating temperature:	-20°C +60°C
Humidity :	From 30 to 90 %
Temperature warehousing:	-20°C a +70°C
Protection degree	IP 20

DIGRIN

DIGRIN module allows to connect 3 independent and galvanic insulated thermoresistences PT100 type.
This additional module is available for DST4602, GCXXX and DST4601PX, using canbus connection. By means a configuration switch it's possible to select the protocol type (i.e. J1939 or Ex-bus, Sices 'proprietary protocol).
Using J1939 protocol it's possible to use Nr.2 modules and with a maximum of 5 thermoresistences for measuring bearing and windings alternator temperatures. On the other hand, using Ex-bus protocol it's possible to connect up to 16 modules.
DIGRIN is available even in version RS485 with Modbus RTU protocol. In that way it's possible to visualize the measures communing from Pt100 using a supervision system like SicesSupervisor or similar.
It's possible to set thresholds of alarms and warnings for each temperature input having proper timing for warning.

Led indicators:

LED ON WORK Led running (it flashes meaning the device is operating
LED REMOTE It means the communication is active
LED ALARM OUT Common alarm / warning sensors temperature
LED TEMP 1 It means alarm or warning sensor temperature 1
LED TEMP 2 It means alarm or warning sensor temperature 2
LED TEMP 3 It means alarm or warning sensor temperature 3

Dimensions: 101(H) x 35(L) x 119(D)mm
Weight: 165g

If required, available tropicalized version for hazardous areas.

Thermoresistence input					
Thermoresistence	Type	Range Min	Range Max	Risoluz.	Error
	PT100	-70 °C	650 °C	0,1 °C	2 ‰
Channel number	3				
Sampling timing	300 msec				

Feeder	
Voltage feeder	7÷32Vcc
Current consumption	100 mA (a 13V)
Consumption	Max 2,4 W
Insulated	1000 V

Environmental conditions	
Operating temperature:	-20°C +60°C
Humidity :	From 30 to 90 %
Temperature warehousing:	-20°C +70°C
Protection degree	IP 20

DIVIT

DIVIT is an auxiliary module able to acquire voltage and current signals 0..05V - 0...10V and **0...10mA - 0...20mA** current loop using four different and galvanic insulated channels and power lines.

DIVIT module can be used for acquiring 4 different measures by using the proper parameter set point. The value of the measured magnitude is directly transmitted. The format of data has an absolute and dynamic range comprised from –237 and +1735 with a selectable decimal point position. For each channel one descriptive alphanumeric string can be set on the gen set controller and also define the unit of measurement of the value acquired by the sensor. Both active and passive sensors can be used.

DIVIT is available in two versions: Canbus or Modbus RS485 communication. Both versions have galvanic insulated communications lines. An additional RS232 (not insulated) is available by means jack for setting the device. DIVIT is connected to Sices gen set controllers (DST4602, GCXXX and DST4601PX) via Canbus, using a proper EX-BUS protocol. DIVIT module has an output connector for controlling the optional device DITEL module (8 additional output) either 12V or 24V.
In addition, by means DIVIT module it's possible to control 8 dry outputs/relays which are activated through thresholds and conditions setting different parameters by means one RS232 serial port and Sices Board programming. The device is mounted using a DIN guide.

Dimensions: 101(H) x 35(L) x 119(D)mm
Weight: 165g

If required, available tropicalized version for hazardous areas.

Technical features:	
Input Voltage	7 ÷ 32Vdc
Current absorbed	100mA (@ 13V)
Consumption	Max 2.4W
Insulation of Input reading channels	1000V
Live inputs	Monopole - Two Scales 0...5V and 0...10V - Input impedance < 1Mohm
Current Inputs	Monopole - Two Scales 0...10mA and 0...20mA - Input impedance < 10ohm
Max. Input Voltage	25V
Max. Input Current	30mA

Readings	
Precision	0.05%
Linearity	0.05%
Thermal drift	0.01% K
Response time (CAN signal)	400 ms
Digital acquisition resolution	15 bit
Reading resolution	1/32
Display resolution (on DST4601PX)	1/10
Reading dynamics transmitted	From –273 to +1735 units with one decimal figure; position of decimal point position can be set

Environmental conditions	
Operating temperature:	-20°C +60°C
Humidity :	From 30 to 90 % (condensate free)
Temperature warehousing:	-20°C +70°C
Protection degree	IP 20

DANOUT

DANOUT is an auxiliary module able to provide voltage and current signals 0..05V - 0...10V and **0...10mA - 0...20mA** current loop using four different and galvanic insulated channels and power lines.
DANOUT is available in two versions: Canbus (using the proper EX-BUS protocol) or Modbus RS485 communication.
Both versions have galvanic insulated communications lines. An additional RS232 (not insulated) is available by means jack for setting the device.

DANOUT can be connected to the following Sices gen set controllers:
- DST4602,
- GCXXX
- DST4601PX

Dimensions: 101(H) x 35(L) x 119(D)mm
Weight: 165g

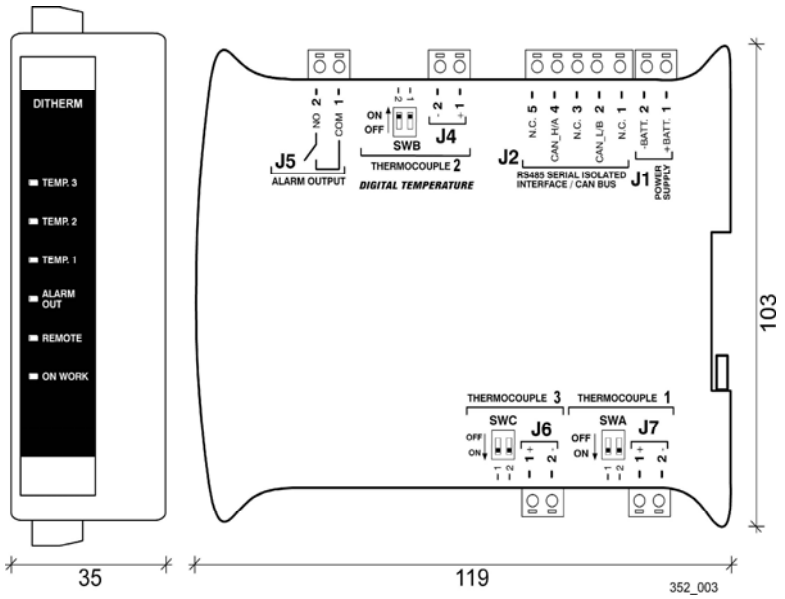
If required, available tropicalized version for hazardous areas.

Technical features:	
Input Voltage	7 ÷ 32Vdc
Current absorbed	Typ. 280mA (@ 13V) - Max 380 mA (@ 13V)
Power consumption	Typ. 3.7W - Max 4.9W
Insulation of Input reading channels	1000V
Voltage outputs	Monopolar; Two scales: 0...5V - 0...10V Minimum load impedence 20kOhm
Current outputs	Monopolar; Two scales: 0...10mA - 0...20mA Maximum load impedence 500kOhm

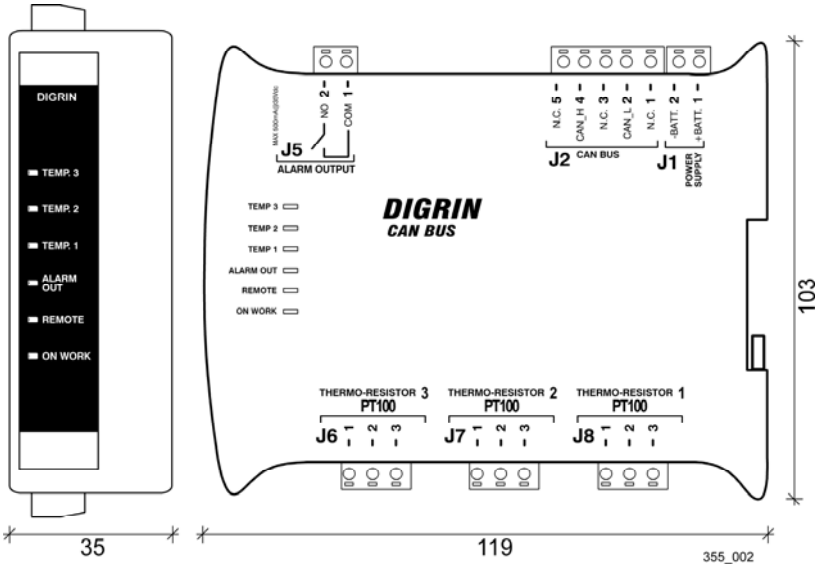
Readings	
Precision	0.05%
Linearity	0.05%
Thermal drift	0.01% K
Response time (CAN signal)	200 ms
Digital acquisition resolution	14 bit
Reading resolution	1/256
Display resolution (on DST4601PX)	1/10
Reading dynamics received	0 to 100% with 8 tenth bits (1/256ths)

Environmental conditions	
Operating temperature:	-20°C +60°C
Humidity :	From 30 to 90 % (condensate free)
Temperature warehousing:	-20°C +70°C
Protection degree	IP 20

DITHERM



DIGRIN



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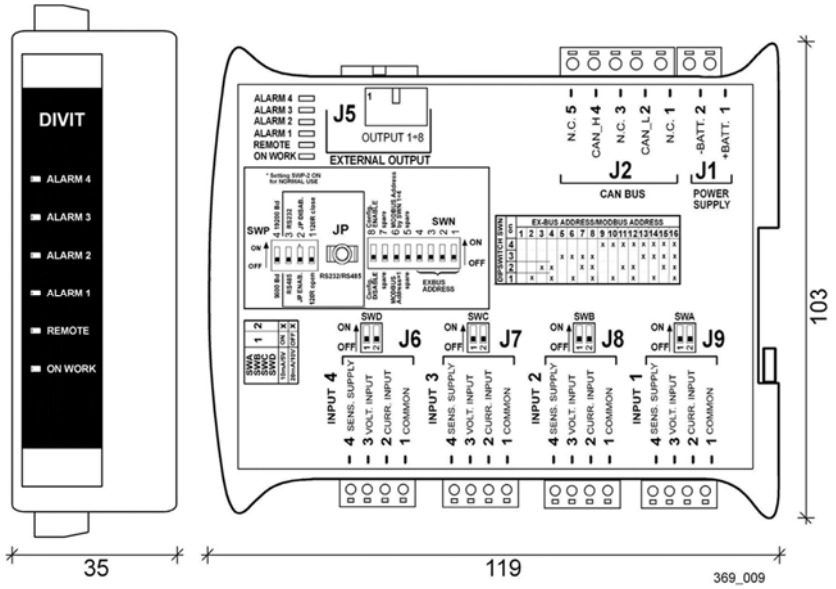
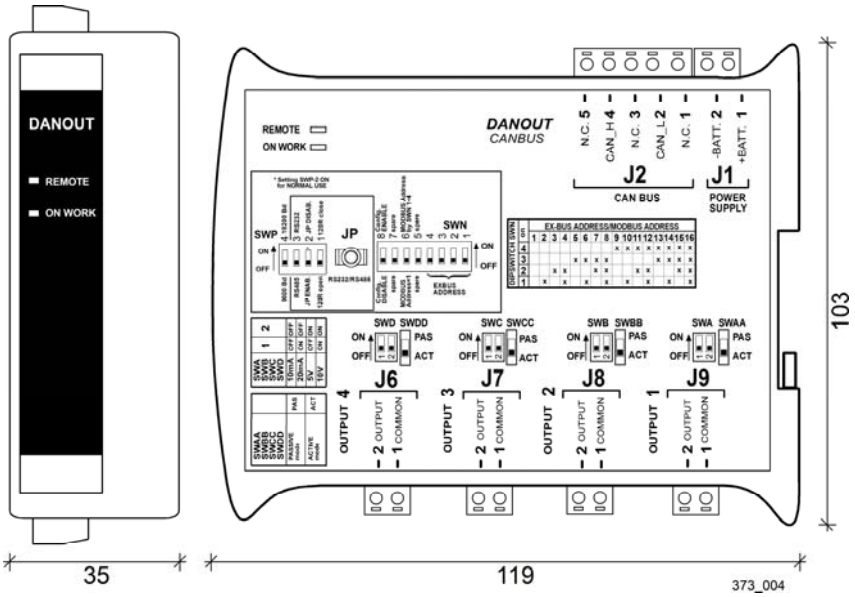


DANOUT



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