USER MANUAL

Z-D-OUT

SENECA s.r.l.

Via Germania, 34 – 35127 – Z.I. CAMIN – PADOVA – ITALY

Via Svizzera, 17 – 35127 – Z.I. CAMIN – PADOVA – ITALY

Tel. +39.049.8705355 – 8705359 Fax. +39.049.8706287

Web site: www.seneca.it

Technical assistance: supporto@seneca.it (IT), support@seneca.it (Other)

Commercial reference: commerciale@seneca.it (IT), sales@seneca.it (Other)

This document is property of SENECA srl. Duplication and reproduction of its are forbidden (though partial), if not authorized. Contents of present documentation refers to products and technologies described in it. Though we strive for reach perfection continually, all technical data contained in this document may be modified or added due to technical and commercial needs; it's impossible eliminate mismatches and discordances completely. Contents of present documentation is anyhow subjected to periodical revision. If you have any questions don't hesitate to contact our structure or to write us to e-mail addresses as above mentioned.

MI002540

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Seneca Z-PC Line module: **Z-D-OUT**

The module Z-D-OUT controls 5 relays digital output (OUT1-OUT5).

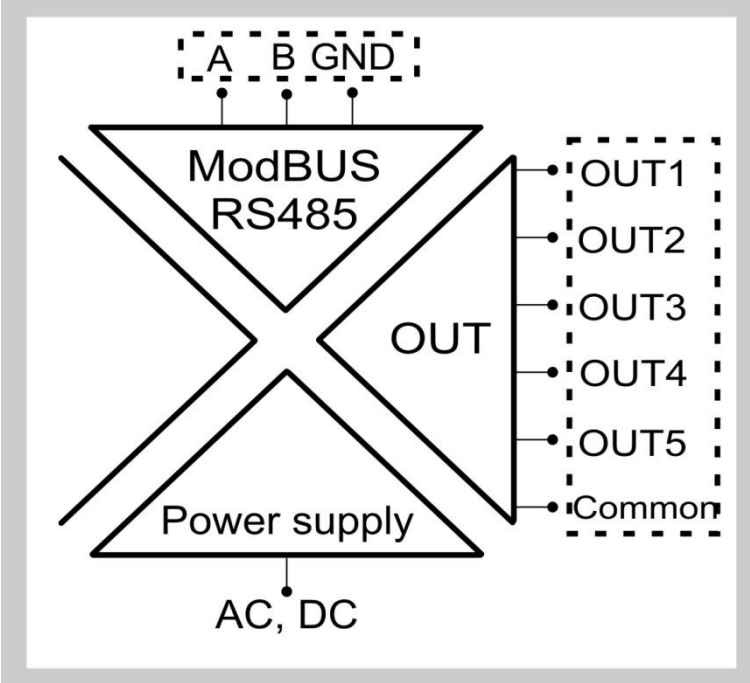
General characteristics

- Management of the output state if the interval time of RS485-bus communication failure is greater than a configurable time (up to 25 sec)
- Configuration of the module (node) address and baud-rate by Dip-Switches
- It is possible to add/remove the module to/from RS485-bus without disconnecting the communication or power supply

Features

OUTPUT	
Number	5
Type	Relays SPST (Single Pole Single Throw) normally open, with common
Max current through screw terminals	Screw terminals 7,8,9,10,11: 5A with 250Vac(if resistive load); 2A (if inductive load). Screw terminal 12: 12A
Max relay switching frequency	6 cycles/min(with resistive load); 1200 cycles/min(with no load)
Pick-up relay voltage	18V
Drop-out relay voltage	2.4V
Relay internal supply	With reference to the screw terminal 12 (GND), the relays are supplied with 24Vdc internally
No-load adsorbed current by a relay	9mA
Relay response time	5/2ms
CONNECTIONS	
RS485 interface	IDC10 connector for DIN 46277 rail (back-side panel) or screw terminals: 4 (GND), 5(B), 6(A)
1500 Vac ISOLATIONS	
	Between: power supply, ModBUS RS485, digital output

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000



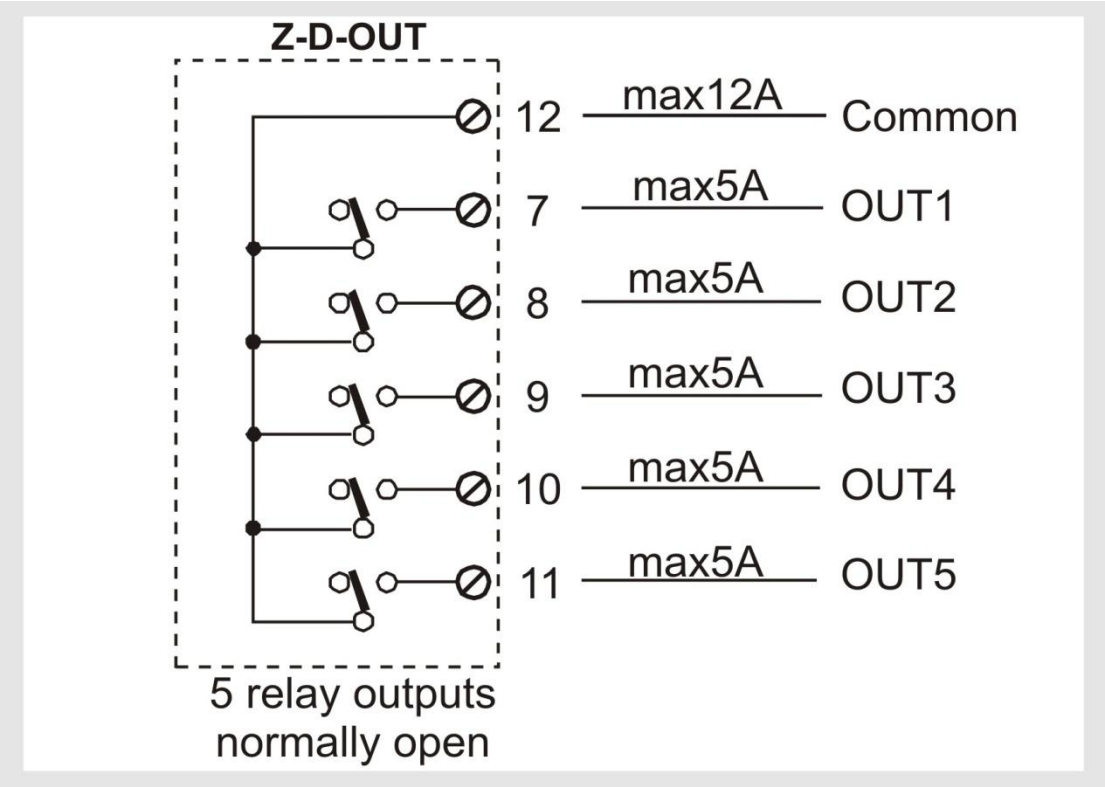
POWER SUPPLY	
Supply voltage	10 – 40 Vdc or 19 – 28 Vac (50Hz - 60Hz)
Power consumption	Min: 0.5W; Max: 2.5W

The power supply transformer necessary to supply the module must comply with EN60742 (Isolated transformers and safety transformers requirements). To protect the power supply, it is recommended to install a fuse.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Output connections

Power on the module with < 40 Vdc or < 28 Vac voltage supply. These upper limits must not be exceeded to avoid serious damage to the module.



It's forbidden that the current through the screw terminal 12 (common) is greater than 12A.
It's forbidden that the current through the screw terminals 7,8,9,10,11 is greater than 5A.

Dip-switches table

In the following tables: box without circle means Dip-Switch=0 (OFF state); box with circle means Dip-Switch=1 (ON state).

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

BAUD-RATE (Dip-Switches: DIP-SWITCH STATUS)		
1	2	Meaning
		Baud-rate=9600 Baud
	●	Baud-rate=19200 Baud
●		Baud-rate=38400 Baud
●	●	Baud-rate=57600 Baud

ADDRESS (Dip-Switches: DIP-SWITCH STATUS)						
3	4	5	6	7	8	Meaning
						Address and Baud-Rate are acquired from memory(EEPROM)
					●	Address=1
				●		Address=2
				●	●	Address=3
			●			Address=4
X	X	X	X	X	X	……
●	●	●	●	●	●	Address=63

RS485 TERMINATOR (Dip-Switches: DIP-SWITCH STATUS)		
9	10	Meaning
		RS485 terminator disabled
	●	RS485 terminator enabled

RS485 register table

Name	Range	Interpretation of register	R/W	Default	Address
MachineID	/	MSB, LSB	R		40001
	Id_Code (Module ID)			0x02	Bit [15:8]
	Ext_Rev (Module version)				Bit [7:0]
FWREV	/	Word	R		40009
	Firmware Code				
Status	0-1	Bit	R/W		40007
	These bits aren't used			/	Bit [15:2]
	Reset of module: 0=deactivated; 1=activated			0	Bit 1
	Save configuration in memory (EEPROM). The content of 40003, 40004, 40005, 40006 registers is overwritten, respectively, in the 40067, 40068, 40069, 40070 registers (these ones are in memory EEPROM): 0=deactivated; 1=activated			0	Bit 0
Eprflag	0-1	Bit	R/W		40005 (EEPROM 40069)
	These bits aren't used			/	Bit [15:8]
	(*)Fault state enabling. If bit40005.7=1 and if the interval time of RS485-bus communication failure **is greater than Timeout/10** [sec], the relays 1-5 and the LEDs1-5 will have the configuration that correspond to bit40003.X. If bit40005.7=1 and if the module is connected to RS485-bus communication **for the first time**, the relays 1-5 and the LEDs1-5 will have the configuration that correspond to bit40003.X and the bit 40003.X is overwritten to bit 40002.X, with X=0;4. 0=deactivated; 1=activated			1	Bit 7

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	(*)Timer reset type. The module has a timer: if the interval time of RS485-bus communication failure is greater than Timeout/10[sec], the module overwrites the content of Fault Output (bits 40003.[0:4]) to Output (bits 40002.[0:4] and registers 00001-00005) It's possible to reset this timer (the timer returns to «Timeout/10[sec]» automatically) when one of the following event occurs: 1) event=the Z-D-OUT module receives a valid message within Timeout/10[sec] (if bit 40005.6=1); 2) event=any module connected to the bus RS485 receives a valid message within Timeout/10[sec] (if bit 40005.6=0)	0	Bit 6
	This bit isn't used	/	Bit 5
	Parity for RS485: 0=even parity; 1=odd parity	0	Bit 4
	Parity for RS485: 0=deactivated; 1=activated	0	Bit 3
	(*)Delay for RS485 (delay of communication response: pauses between the end of Rx message and the start of Tx message): 0=there isn't; 1=there is	0	Bit 2
	This bit isn't used	/	Bit 1
	(*) With reference to the «Coil Status» ModBUS registers 00001-00005 and to the bit40002.0-bit40002.4, it is the state of the relay 1-5. If bit 40005.0=0: relay 1-5 open(closed) corresponds to "0"("1") and LED1-5 turned off(on); if bit 40005.0=1: relay 1-5 open(closed) corresponds to "1"("0") and LED1-5 turned on (off)	0	Bit 0

(*) To modify the bit 40005.0, 40005.2, 40005.6 and 40005.7 state, it isn't necessary to reset the module because the modification is immediate; to modify the other bit state, execute in the order the following operations: write the new configuration in the register and reset the module (switch bit 40007.0 to 1).

Dip-Switch state	0-1	Bit	R		40008
	These bits aren't used			/	Bit [15:8]
	Dip-Switches [1:2] state. They correspond to module address for RS485			/	Bit [7:6]
	Dip-Switches [3:8] state. They correspond to module baud-rate for RS485			/	Bit [5:0]
Baudrate Address	Address: from 0x01=1 to 0xFF=255	MSB, LSB	R/W		40006 (EEPROM 40070)
	Baudrate for RS485 (baud-rate of module/node if parameters are configurated by memory modality): 0=4800; 1=9600; 2=19200; 3=38400; 4=57600; 5=115200; 6=1200; 7=2400			38400	Bit [15:8]
	Address for RS485 (address of module/node if parameters are configurated by memory modality)			1	Bit [7:0]
Output	0-1	Bit	R/W		40002
	These bits aren't used			/	Bit [15:5]
	Output OUT5 state:0=relay5 deactivated and LED5 turned off (there is no current through relay5); 1=relay5 activated and LED5 turned on (there is current through relay5)			0	Bit 4
	Output OUT4 state:0=relay4 deactivated and LED4 turned off (there is no current through relay4); 1=relay4 activated and LED4 turned on (there is current through relay4)			0	Bit 3

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	Output OUT3 state:0=relay3 deactivated and LED3 turned off (there is no current through relay3); 1=relay3 activated and LED3 turned on (there is current through relay3)			0	Bit 2
	Output OUT2 state:0=relay2 deactivated and LED2 turned off (there is no current through relay2); 1=relay2 activated and LED2 turned on (there is current through relay2)			0	Bit 1
	Output OUT1 state:0=relay1 deactivated and LED1 turned off (there is no current through relay4); 1=relay1 activated and LED1 turned on (there is current through relay1)			0	Bit 0
Fault Output	0-1	Bit	R/W		40003 (EEPROM 40067)
	These bits aren't used			/	Bit [15:5]
	Fault value of Output OUT5 state:0=relay5 deactivated and LED5 turned off (there is no current through relay5); 1=relay5 activated and LED5 turned on (there is current through relay5)			0	Bit 4
	Fault value of Output OUT4 state:0=relay4 deactivated and LED4 turned off (there is no current through relay4); 1=relay4 activated and LED4 turned on (there is current through relay4)			0	Bit 3
	Fault value of Output OUT3 state:0=relay3 deactivated and LED3 turned off (there is no current through relay3); 1=relay3 activated and LED3 turned on (there is current through relay3)			0	Bit 2
	Fault value of Output OUT2 state:0=relay2 deactivated and LED2 turned off (there is no current through relay2); 1=relay2 activated and LED2 turned on (there is current through relay2)			0	Bit 1
	Fault value of Output OUT1 state:0=relay1 deactivated and LED1 turned off (there is no current through relay1); 1=relay1 activated and LED1 turned on (there is current through relay1)			0	Bit 0
Timeout	Between: 5 (=0.5[sec]); 250 (=25[sec])	Word	R/W		40004 (EEPROM 40068)
	Timeout [sec/10] (if bit40005.7=1, it is the interval time of RS485-bus communication failure, after which the bit 40003.X is overwritten to bit 40002.X, with X=0;4)			100 (=10[sec])	

The «Coil Status»-type registers are shown in the following table:

Name	Range	Interpretation of register	R/W	Default	Address
State OUT1	0-1	Word	R/W		00001
	Output OUT1 state:0=relay1 deactivated and LED1 turned off (there is no current through relay1); 1=relay1 activated and LED1 turned on (there is current through relay1)			0	
State OUT2	0-1	Word	R/W		00002
	Output OUT2 state:0=relay2 deactivated and LED2 turned off (there is no current through relay2); 1=relay2 activated and LED2 turned on (there is current through relay2)			/	
State OUT3	0-1	Word	R/W		00003
	Output OUT3 state:0=relay3 deactivated and LED3 turned off (there is no current through relay3); 1=relay3 activated and LED3 turned on (there is current through relay3)			/	

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

State OUT4	0-1	Word	R/W		00004
	Output OUT4 state:0=relay4 deactivated and LED4 turned off (there is no current through relay4); 1=relay4 activated and LED4 turned on (there is current through relay4)			/	
State OUT5	0-1	Word	R/W		00005
	Output OUT5 state:0=relay5 deactivated and LED5 turned off (there is no current through relay5); 1=relay5 activated and LED5 turned on (there is current through relay5)			/	

LEDs for signalling

In the front-side panel there are 9 LEDs and their state refers to important operating conditions of the module.

LED	**LED status**	**Meaning**
PWR	Constant light	The power is on
FAIL	Blinking light	The module has at least one of the errors/overflows described in RS485 Registers table
	Constant light	Module failure
RX	Constant light	Verify if the bus connection is corrected
	Blinking light	The module received a data packet
TX	Blinking light	The module sent a data packet
	Constant light	Verify if the bus connection is corrected
1-5	Constant light	OUT1-5 state equal to «1»
	No light	OUT1-5 state equal to «0» (if the power is on)

Easy-SETUP

To configure the Seneca Z-PC Line modules, it is possible to use Easy-SETUP software, free-downloadable from the www.seneca.it; the configuration can be performed by RS232 or RS485 bus communication.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000