DISIBEINT

SVP

CONTROL AND VISUALIZATION OF VOLTAGE, PHASE AND FREQUENCY IN THREE-PHASE LINES WITH NEUTRAL

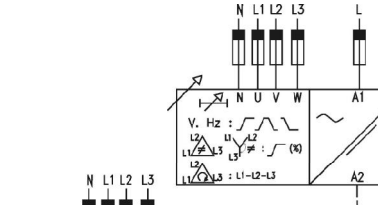
Function	Voltage relay for three-phase lines with neutral. Control of an auxiliary voltage or of its own supply voltage.
Operating mode	Configurable by the user. Each one of the available relays it is assigned with its own operating mode for one or more magnitudes, reacting by the first one which is produced.
Voltage control	· Operating margin: ±18% of the nominal voltage. · Operativity by maximum and/or minimum voltage between phases.Independent adjustment L1-L2, L1-L3, L2-L3, L1-N, L2-N and L3-N. At each case, adjustment for detection and/or for release. · Reading value RMS
Phase sequence control	It is detected only at the start-up of the relay or when three-phase line is applied.
Control unbalance Ln-Ln	Adjustable from 0 and 100%. · Only one adjustment for the three phases.
Control unbalance Ln-N	Adjustable from 0 and 100%. · Only one adjustment for the three phases.
Frequency control	· Adjustable from 43..70 Hz. · Operativity by maximum and/or minimum frequency. At each case, adjustment for detection and/or for release. · If the frequency changes in such a value that the relay loose the required precision for a normal operating mode, it switches to the alarm mode (See page 4 for detailed information).
Timing	· Associable to the detection and/or to the release of whichever relay. · Adjustable from 0,01s..999,9h · Repeating precision ±30 ppm
Voltage precision	Taken over the read value: · For L1-L3 and L2-L3: 0,8% (50Hz) / 1,0% (60Hz) · For L1-L2: 0,9% (50Hz) / 1,1% (60Hz) · For L1-N and L2-N: 1,3% (50Hz) / 1,1% (60Hz) · For L3-N: 0,7% (50Hz) / 0,6% (60Hz)
Frequency precision	Taken over the read value: 0,3%
Display of the reading value	The value of the read magnitudes is displayed by means of the following status screen: · VOLTAGE L1-L3: Voltage between L1 and L3 · VOLTAGE L2-L3: Voltage between L2 and L3 · VOLTAGE L1-L2: Voltage between L1 and L2 · VOLTAGE L1-N: Voltage between L1 and neutral · VOLTAGE L2-N: Voltage between L2 and neutral · VOLTAGE L1-N: Voltage between L3 and neutral · FREQUENCY: Frecuencia de la red · ≠ |Li-Lj|: Unbalance between phases · ≠ |Li-LN|: Unbalance between phases · PHASE CYCLE: Phases sequence
Output relay	From 1..3 independent relays, SPST NO. By default, we supply three relays.
Output 4-20 mA	It is assigned to whichever of the measured magnitudes (voltage L1-L2, voltage L2-L3, voltage L1-L3, voltage L1-N, voltage L2-N, voltage L3-N, frequency, unbalance phase-phase, unbalance phase-neutral) to be transmitted through a 4-20 mA current loop, being able to coexist with the relays. Precision: 1% additional to the read value. This kind of output is optional.
PC communication	It is possible to establish different types of communication with a computer (see also last page): - By telephone connector that incorporates standard device and programming interface CPBZ. - By a RS232 connection (optional). - By a connection RS2485 and SBAZ converter (optional).
Supply voltage	[024] 24 VAC 50/60Hz [110] 110..125 VAC 50/60Hz [230] 220..240 VAC 50/60Hz [400] 380..415 VAC 50/60Hz [440] 440 VAC 50/60Hz

Ranges

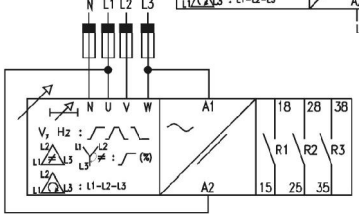
-18%	*Nominal*	*+18%*
90,20	110..125	147,50
180,40	220..240	283,20
311,60	380..415	489,70
360,80	440	519,20
410	500	590
566	690	814

Warning	Three-phase voltage must be disconnected before or simultaneously than the supply voltage, never later.

Connection diagram



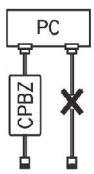
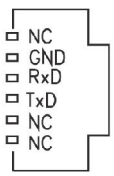
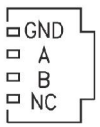
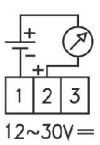
With auxiliary supply voltage



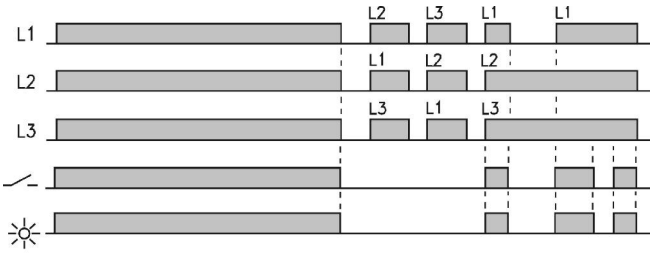
With the own supply voltage

Voltage in A1-A2 can be connected any three phases, but don't to neutral.

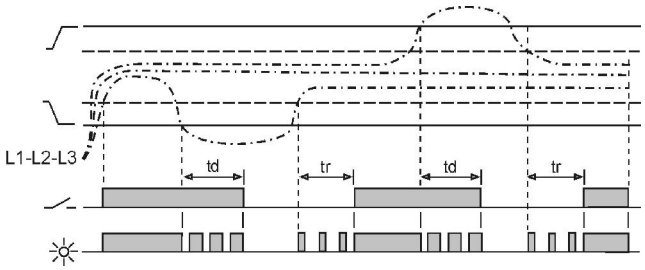
Communication (According options)

Standard Code 0	**RS232** Code 3	**RS485** Code 8	**4-20 mA** Code 4
			

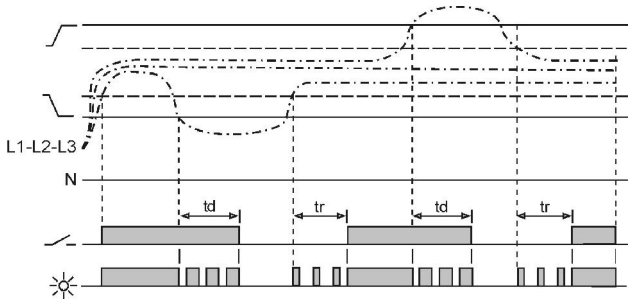
Phases sequence



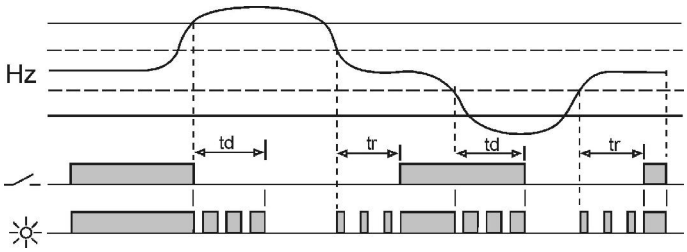
Control for voltage between phases



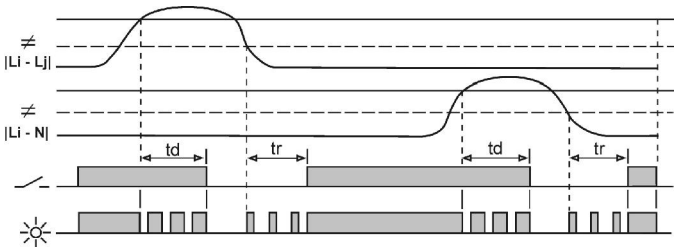
Control for voltage between phase and neutral



Frequency



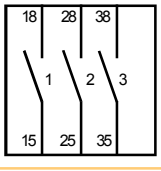
Unbalance between phase and between phase and neutral



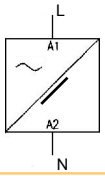
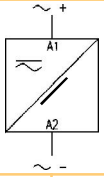
td = Delay on detection / **tr** = Delay on release

State of the relay may vary according to the application.
What is shown in the diagrams belongs to the set-up of the default user's programms 1 and 2.

Output relays

		SVP
		
Resistive load	AC	6 A / 240 V
	DC	6 A / 24 V
Inductive load	AC	3 A / 240 V
	DC	3 A / 24 V
Mechanical life		> 10^6 oper.
Max. mech. operations		18.000 operations / hour
Electric life at full load		360 operations / hour
Contact material		AgSnO Alloy
Operating voltage		240 VCA (85 ºC)
Voltage between contacts		1000 VAC
Voltage coil/contact		4000 VAC
Isolation resistance		> 100 MΩ (500 VDC)
Indication		1 red led per relay

Supply voltage

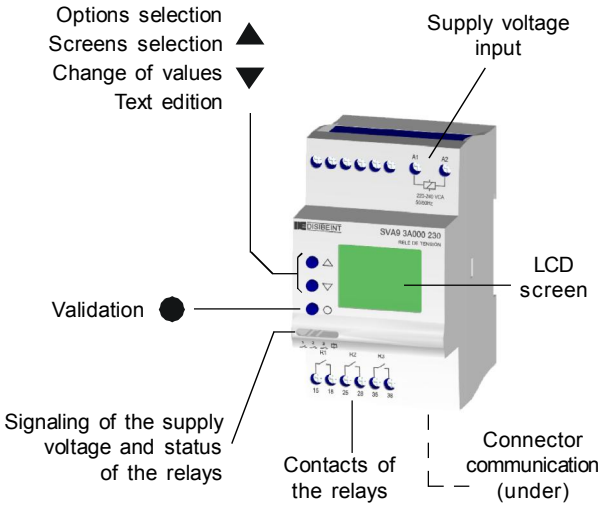
	SVP			
				
	[024]..[400]		[903]	[904]
Galvanic isolation	4000 V		2500 V	
Frequency	50 Hz	60 Hz	-	
Operating margins	±18%		15..70 V	60..240 V
Consumption	2,5 VA		3,5 W	3,1 W
Start-up time	120 ms	110 ms	< 600 ms*	< 200 ms*
Detection time	70 ms	60 ms	160 ms	150 ms
Reset	1 net cycle and/or -30% of the nominal voltage		>70 ms * and/or -30% of the nominal voltage	
Indication	Green led			

* In the worth of the cases

Constructive and enviromental data

Voltage phase-neutral	300 V
Overvoltage category	III
Shock voltage	4 kV
Pollution degree	2 (EN61010)
Protection	IP 20
Approx. weight	280 g
Store temperature	-30..+80ºC
Operating temperature	-20..+50ºC
Humidity	< 95% HR
Housing	Cycoloy - Light grey
Leds window	Lexan - Transparente
Buttons, connector, clamp	Technyl - Dark blue
Connector's terminals	Brass
Screws torque	0,8 Nm
Norms	Dessigned and manufactured under EEC normative. Electromagnetic compatibility, directives 89/366/EEC and 92/31/EEC. Electric safety, directive 73/23/EEC. Plastics: UL 91 V0

Device parts



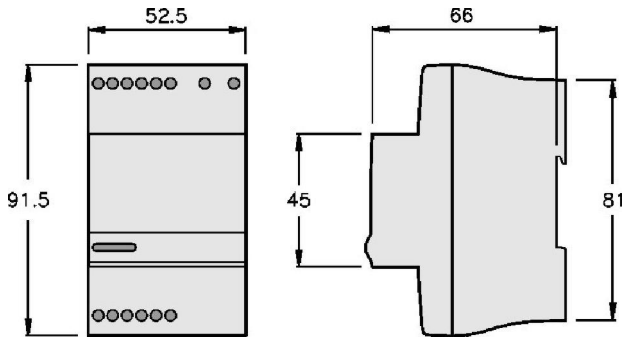
Order code

	Control - Interface	Number of relays	Type of relay	Communication	Version	Supply	Ranges
SVP	9 - With display. Default languages: · Spanish · English · French · Catalan (Other on request)	0 - No relays 3 - 3 relays	0 - No relays A - SPST NO	0 - No bus 4 - 4-20 mA 3 - RS232 8 - RS485	00..99	[024] 24 VAC [110] 110..125 VAC [230] 220..240 VAC [400] 380..415 VAC [440] 440 VAC	[110] 110..125 VAC + N [230] 220..240 VAC + N [400] 380..415 VAC + N [440] 440 VAC + N [500] 500 VAC + N [690] 690 VAC + N
	Q - Without display. Without communic.					[903] 15..70 VAC/DC [904] 60..240 VAC/DC	
	U - Without display. Communication RS232 / RS485.	(By default, 3)	(By default, A)	(By default, 0)	(By default, 00)		

To compose the reference, select one option of each column. Example: **SVP9 3A400 230 690**

Dimensions

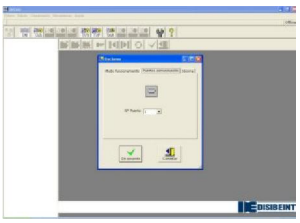
SVP

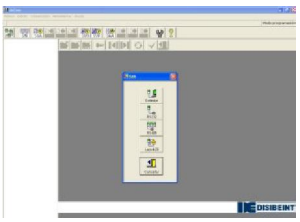
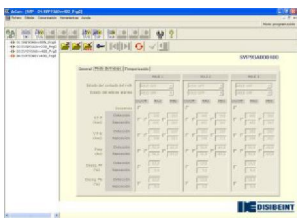


GENERAL CHARACTERISTICS OF THE DIGITAL CONTROL RELAYS	
User's manual	For a wide knowledgment of the options offered by the digital control relays, the own User's Manual for each model must be read. Although an issue is given with every purchased device, a copy can be donwloaded in our web site (www.disibeint.com).
How to programm	The digital control relays can be indistinctly programmed either with the buttons placed in the front of the housing or with a personal computer. Please refer at the end of this page to learn more about the PC programming alternative.
Types of screens	Status: They show the actual values of the magnitudes controlled by the relay. User: Where the user can write a customized text to help to the relay identification. Options: For accessing to the menus for the options selection. Informatives for values: They show the information of the different set parameters. Change of value: For modifying the values of the different values. Screens menus: Group of screens related under the same concept and that can contain whichever type of the screens previously described.
Interactive menus	For an ease programming, into the menus only the options that can be set are the ones visible. The rest of the options are not visible. This feature is interactive, ie., it is produced automatically according whether other functions are activated or not.
Changing values	The screens for changing the values contain the margins betwen such value can be adjusted. These margins can depend of other options and this is because different margins could be displayed according to other previous relations.
User's programms	Provided by factory two programs with options and pre-configured settings for quick start-up team. In most cases, these parameters should be tweaked to suit the characteristics of each installation. The user can create your own program and store it on your computer.
Display lighting	The display remains backlihghted while it is accessed to the different screens. If any button is not pressed for longer than 30 seconds, the light turns off. In order to turn the light on, it is enough to press any button only once.
Value added	- Four languages available in each relay - Graphic bar for the intuitive visualization of the displayed value - Historical control of the maximum values obtained by the relay - Screen's refresh selectable between 1 and 8 times per second - Possibility of locking the keyboard to avoid any undesired modification - Complementary timing functions

SPECIFIC CHARACTERISTICS FOR THE MODEL SVP	
Alarm by frequency deviation	This option affects to those relays with any voltage parameter activated. By default, this option is activated. Inhibits the activation of the relay in the state of alarm when the requency is deviated in ± 0,4 Hz during the detection process, and of ± 0,3 Hz during the releas process. For this kind of deviation in the frequency, the operating precision is reduced. More the frequency in the net is deviated, worse precision when reading its voltage. If this option is deactivated, you must remember that the reading precision of the voltage parameters decrease when the frequency gets deviations from its nominal values (50 Hz / 60 Hz). You must consider this reduction of precision when setting the values for detection and/or release.

PC COMMUNICATION	
deCom	· Communication and programming soft-ware for the digital control relays. · It allows the interactivity between the different types of communication: through the CBPZ interface, RS232 or RS485. · It displays the complete data related to the relay, gruoped by concepts and easing the intuitive programming. · It has control tools to do not exceed the operating margins of each model according to its range. · It is provided with templates to facilitate the programming of each model. · It allows to store the own settings. Windows XP operative system (.NET Framework required).

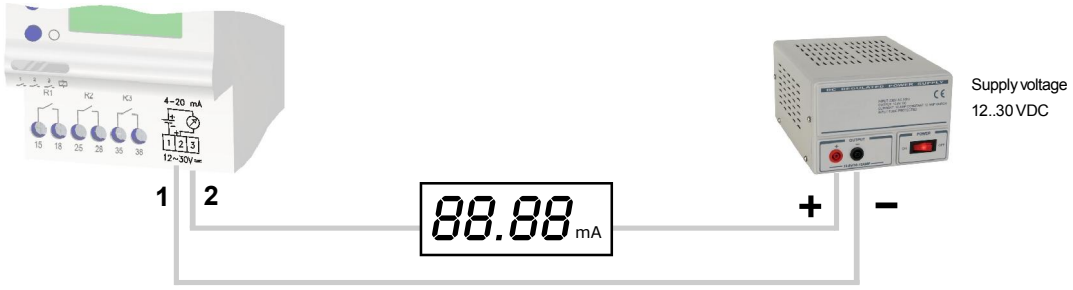


OUTPUTS COMMUNICATIONS

REMOTE PROGRAMMING FROM PC

CURRENT LOOP 4-20 mA



ACCESSORIES

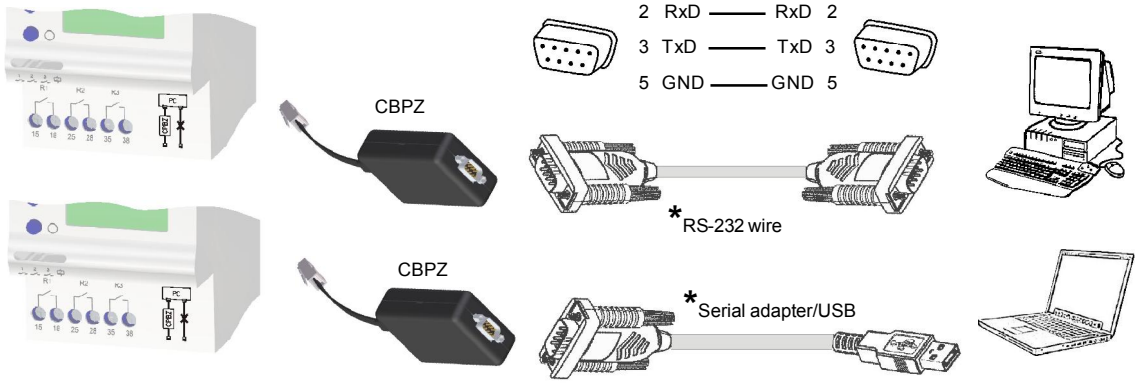
CBPZ

Interface for remote programming from a PC.
It allows the connection between whichever digital relay not provided with bus and a PC.
Not required for devices provided with bus RS232, RS485 or with 4-20mA output.

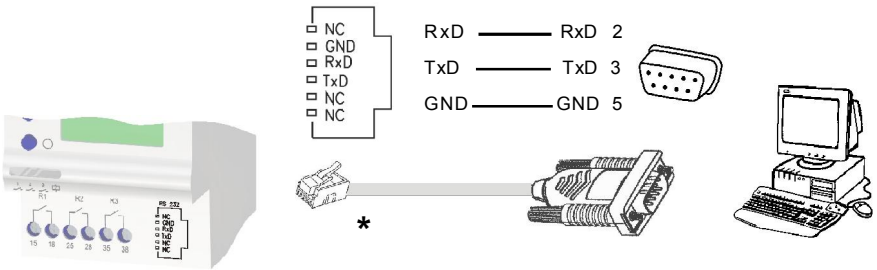
SBAZ

RS485 to RS232 signal converter for the remote programming or for the data capture and visualization from a PC.
It allows the connection of up to 31 digital control relays provided with RS485 communication bus, to get an unique codified RS232 output.

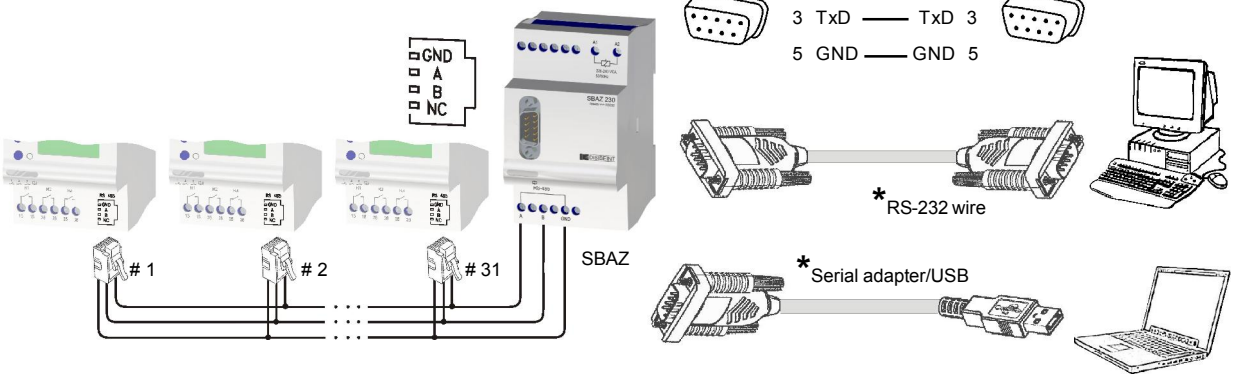
STANDARD MODE



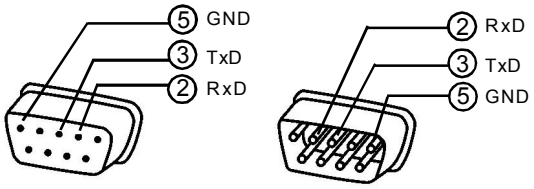
RS232 COMMUNICATION



RS485 COMMUNICATION



* Disibeint not supply cables or connectors. You can find these products in stores specializing in computer equipment.



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