• 15N0102B1 •

SINUS PENTA
SPARE ES821
USER MANUAL

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R.02

English

• This manual is integrant and essential to the product. Carefully read the instructions contained herein as they provide important hints for use and maintenance safety.
• This device is to be used only for the purposes it has been designed to. Other uses should be considered improper and dangerous. The manufacturer is not responsible for possible damages caused by improper, erroneous and irrational uses.
• Elettronica Santerno is responsible for the device in its original setting.
• Any changes to the structure or operating cycle of the device must be performed or authorized by the Engineering Department of Elettronica Santerno.
• Elettronica Santerno assumes no responsibility for the consequences resulting by the use of non-original spare-parts.
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1. OVERVIEW

This manual explains how to configure an ES821 control board used as a "spare" board instead of a ready-made control board mounted on a Sinus Penta drive.

NOTE Software version 1.6xx or later is required.

The keypad, the RemoteDrive software or the serial link (ModBus) can be used for the configuration of ES821 control board.

2. PART NUMBER

2.1. ES821 Control Board for the Sinus Penta Drive

CODE	DESCRIPTION	NR
ZZ0101240	ES821 CONTROL BOARD	1

3. CONFIGURATION PROCEDURE

When using a spare ES821 control board, the following screen appears at power on:

SPARE!!!
→ + 0.00rpm
→ + 0.00rpm
MEA PAR CF [IDP]

Also, the FWD and REV LEDs blink at a time to indicate that the Penta drive cannot be started up.

The parameters below allow configuring the spare ES821 board and allow starting the Penta drive:

ID	Parameter	Default Value
S000	Voltage Class	4T
S001	PIN (Part Identification Number)	0020 S12
S002	Current Class	0020
S013	Fan Control Selection	7=Fan, Status, NTC
S017	CPU Power Supply	D=from DC Bus
S099	Serial Number S/N	0
S100	Serial Number Low	0

NOTE

The first five values to be entered can be get in sequence from the "SPARE CODE" label placed next to the "S/N" label. To view the "SPARE CODE" label, remove the Penta drive keypad. Example:

Spare code: 4T–S12–0030–0025–FSN–A
J1: 2-3

Parameter	Value to be entered
Voltage Class	4T
PIN (Part Identification Number)	0030
Current Class	0025
Fan Control Selection	FSN = Fan, Status, NTC
CPU Power Supply	A = from AC mains

The Serial Number is given in the "S/N" label.

The Fan Control Selection parameter is coded as follows:

Software versions of the spare board up to 1.679 included:

Labelling	Fan Control Selection Parameter
B	0: No
S	1: Status only
P	2: PT2
N	3: NTC

Software versions of the spare board from 1.680:

Labelling up to version 1.679	Labelling from version 1.680	Fan Control Selection parameter
B	---	0: None
-	-S-	1: NoFan-St-NoNTC
-	F--	2: Fan-NoSt-NoNTC
P	FS-	3: Fan-St-NoNtc
S	--N	4: NoFan-NoSt-NTC
-	-SN	5: NoFan-St-NTC
-	F-N	6: Fan-NoSt-NTC
N	FSN	7: Fan-St-NTC

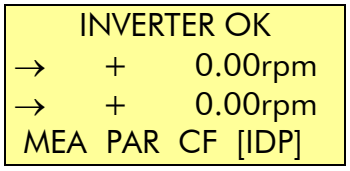
After entering the Serial Number and the values of the five parameters required, and after confirming those values, the FWD and REV LEDs stop flashing and the drive gets ready to start.

Also, properly set jumper J1 according to line 2 in the "SPARE CODE" label based on the table below:

Position	Wording on the control board
1-2	IU CAL
2-3	IU LEM

Jumper J1 is located in the left top corner of the control board. For more details, please refer to the "Control Board Signals and Programming" section in the Sinus Penta's Installations Instructions manual.

When the equipment is next is powered on, the following screen is displayed:

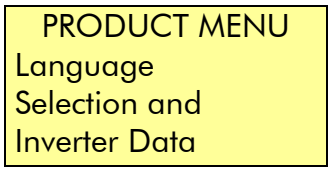


The instructions for configuring ES821 control board using the keypad, the RemoteDrive software and the serial link are given in the sections below—Using the Keypad, Using the RemoteDrive Software and Using the Serial Link (ModBus) respectively.

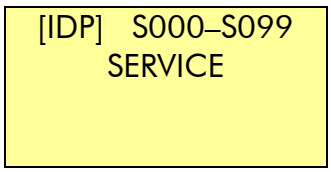
NOTE After confirmation of the above-mentioned parameters, the Penta drive is ready to start and no other preset parameter can be selected.
For more details, please contact ELETTRONICA SANTERNO Customer Service.

3.1. Using the Keypad

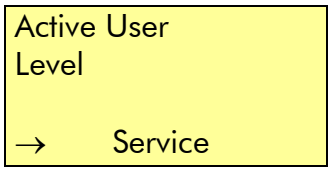
Press the SAVE/ENTER key from the root page:



Press the DEC key:

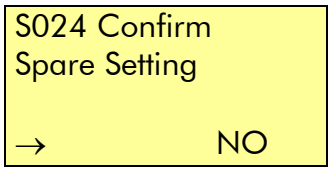


Press the SAVE/ENTER key to access the Service Menu:



The pages contained in the Service Menu can be accessed using the INC and DEC keys. Their values can be changed with the editing modes allocated to the SAVE/ENTER and INC/DEC keys.

The new values are to be confirmed by selecting YES.



After selecting YES, the FWD and REV LEDs turn off, and three dashes (---) appear instead of "NO" on page S024. This means that the Penta drive is ready to start.

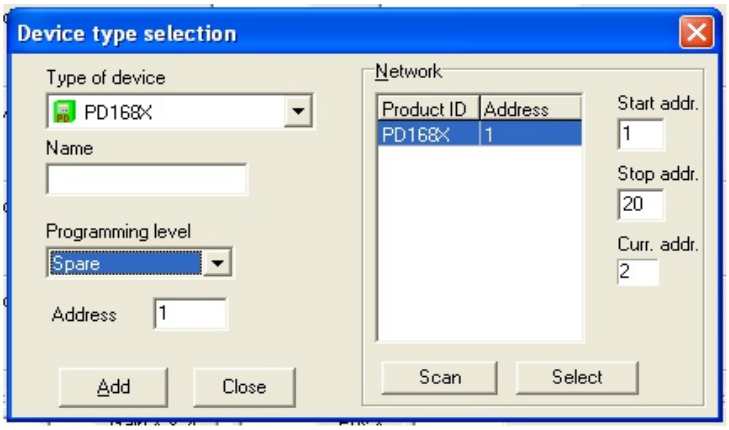
NOTE

Parameters S099 and S100 comprising the serial number cannot be set up via keypad. This means that the Fire Mode is disabled and the relevant menu cannot be accessed. However, any other functionality of the drive is still available.

In order to access the Fire Mode, the serial number must be properly set up using the RemoteDrive.

3.2. Using the RemoteDrive Software

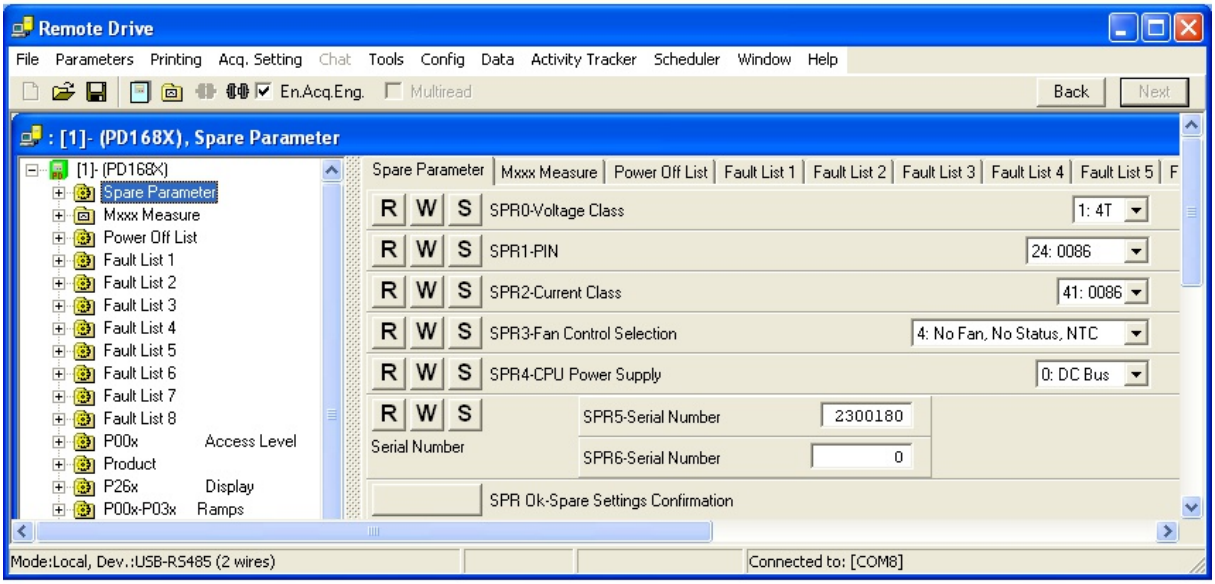
From the "Device type selection" window, select "Spare" in the "Programming level" field.



S000278

The "Spare Parameter" menu is enabled.

S000279



The following parameters can be accessed from the "Spare Parameter" menu:

- SPR0 – Voltage Class
- SPR1 – PIN
- SPR2 – Current Class
- SPR3 – Fan Selection Control
- SPR4 – CPU Power Supply
- SPR5 – Serial Number
- SPR6 – Serial Number Low

The parameters above can be confirmed by pressing the **SPR Ok – Confirm Spare Settings** button.

When the "Spare" programming level is selected and you attempt to change a parameter value, an error message appears, because parameter write is not allowed for ES821 control board in Spare mode. Example of error message:

NOTE

3.3. Using the Serial Link (ModBus)

The same results as described in Using the Keypad and Using the RemoteDrive Software can be obtained by using the serial link, as detailed in the table below:

ID	Description	Address (dec)	Min	Max
SPR0	Voltage Class	235	0	3
SPR1	PIN (Part Identification Number)	481	0	40
SPR2	Current Class	482	0	81
SPR3	Fan Selection Control	243	0	3
SPR4	CPU Power Supply	247	0	1
SPR5	Serial Number	1827/1828	0	99999999
SPR6	Serial Number Low	1829/1830	0	999999999
SPROk	Confirm Spare Settings	251	0	2

"Voltage Class" table: index (SPR0) at address 235

	Voltage Class
0	2T
1	4T
2	5T
3	6T

"PIN" table: index (SPR1) at address 481

	PIN		PIN
0	0004 S12	26	0129
1	0004 S14	27	0162
2	0007	28	0164
3	0014	29	0172
4	0015	30	0200
5	0018 S12	31	0201
6	0018 S14	32	0202
7	0020 S05	33	0250
8	0020 S10	34	0259
9	0020 S12	35	0260
10	0021	36	0399
11	0024	37	0401
12	0030 S10	38	0402
13	0030 S12	39	0459
14	0032	40	0523
15	0033	41	0524
16	0035	42	0598
17	0036	43	0748
18	0037	44	0828
19	0040	45	0831
20	0049	46	0832
21	0051	47	0964
22	0067	48	1128
23	0069	49	1129
24	0086	50	1296
25	0088	51	2076

"Current Class" table: index (SPR2) at address 482

	PIN		PIN		PIN		PIN
0	0003	25	0033	50	0179	75	0524
1	0004	26	0034	51	0180	76	0526
2	0005	27	0035	52	0181	77	0598
3	0006	28	0036	53	0200	78	0599
4	0007	29	0037	54	0201	79	0600
5	0008	30	0038	55	0202	80	0748
6	0009	31	0040	56	0216	81	0749
7	0010	32	0042	57	0217	82	0750
8	0011	33	0049	58	0218	83	0800
9	0012	34	0051	59	0250	84	0828
10	0013	35	0060	60	0259	85	0831
11	0014	36	0062	61	0260	86	0832
12	0015	37	0067	62	0290	87	0850
13	0016	38	0069	63	0312	88	0960
14	0017	39	0074	64	0313	89	0964
15	0018	40	0076	65	0314	90	0965
16	0019	41	0086	66	0366	91	1128
17	0020	42	0088	67	0367	92	1129
18	0021	43	0113	68	0368	93	1130
19	0022	44	0129	69	0399	94	1296
20	0023	45	0131	70	0401	95	1800
21	0024	46	0150	71	0402	96	2076
22	0025	47	0162	72	0457		
23	0030	48	0164	73	0459		
24	0032	49	0172	74	0523		

"Fan Control Selection" table: index (SPR3) at address 243

Software versions of the spare board up to 1.679 included:

	Fan Control Selection
0	B = No
1	S = Status
2	P = PT2
3	N = NTC

Software versions of the spare board from 1.680:

	Fan Control Selection
0	0: None
1	1: NoFan-St-NoNTC
2	2: Fan-NoSt-NoNTC
3	3: Fan-St-NoNtc
4	4: NoFan-NoSt-NTC
5	5: NoFan-St-NTC
6	6: Fan-NoSt-NTC
7	7: Fan-St-NTC

"CPU Power Supply" table: index (SPR4) at address 247

	CPU Power Supply
0	D = from DC Bus
1	A = from AC Bus

"Confirm Spare Settings" table: index (SPROk) at address 251

	Confirm Spare Settings
0	Confirm
1	Spare (SPARE!!!)
2	Non Spare (INVERTER OK)