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Innovative Power Solutions

Project :	
UPS DOCUMENTATION	
Subject :	
JBUS Protocol – SHARYS DC POWER SYSTEM	

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Level 1: JBUS TABLE

Overview

JBUS Database

This document describes the SOCOMEC UPS protocol, adopted to communicate with all communication products, like Supervisor, Network communication, etc...

This protocol will be implemented in the SOCOMEC UPS equipment, in order to use the same driver for all products. This document describes the specific implementation of **SHARYS DC POWER SYSTEM**.

Each SOCOMEC UPS product has a **"Database"** for the protocol JBUS that containing all the information. This information is divided into the following topics and each one is located in a predefined address of memory.

TYPE	Address	Lenght	TIPO	NOTE	JBUS Function
IDENTIFIERS POWER SYSTEM	0x1000	12	WORD		3 (read)/ 6 (write 1 word)
STATES	0x1020	4	BIT	64 States	3 (read)
EXTENDED STATES	0x1024	3	BIT	Other 48 States	3 (read)
ALARMS	0x1040	4	BIT	64 Allarmi	3 (read)
EXTENDED ALARMS	0x1044	28	BIT	Other 48 Alarmes	3 (read)
MEASUREMENTS	0x1060	48	WORD	48 Measurements	3 (read)
CONFIGURATION	0x10E0	32	WORD	32 Configuration	3 (read)
PARAMETERS	0x1160	127	WORD	127 Parameters (EEPROM dates – EEP file)	3 (read) / 6 (write 1 word) / 16 (write words)
DATE/TIME	0x1360	4	WORD	See related chapter: data and time format	3 (read) / 6 (write 1 word) / 16 (write words)
REQUEST LOG FILE	0x1370	1	WORD		3 (read)
LOG FILE	0x1380	4*record number	4 WORD / RECORD	Maximum 30 records per frame 4*30=120 word	3 (read)
SEED	0x135C	2	WORD	Seed for access enable mode	3 (read)
KEY	0x135E	2	WORD	Key for access enable mode	16 (write words)
COMMANDS	0x15B0	1	WORD	Standard commands	6 (write 1 word) / 16 (write words)
COMMANDS CONTROL TABLE	0x15C0	2	WORD		3 (read)

Identifiers

In the "Identifier" for Controller, there are coded the "main information" of the System.

Address base: 0x1000		
Name	**Description**	**Notes**
I00	System type	**4128**: Three phases DC Power System **4144**: Single phase DC Power System **4145**: Enclosure DC Power System
I01	System nominal Current [A * 10]	This value is Module output current multiplied for the number of modules (included the redundant ones).
I02	Module Number	**0**: module number of controller
I03-I07	Serial Number	Located in EEPROM
I08-I11	Event	Not used
I12	Jbus Code	**19**: JBUS for RCT (version 1.00)
I12-I27	AssistCode	String of the name of SW maint. file (.ini) – 30 chars

In the "Identifier" for Module, there are coded the "main information" of the Module.

Address base: (bank 1): 0x(NH+1)000 Address base: (bank 2): 0x((NH – 0x0E)+1)000 ….		
Name	**Description**	**Notes**
I00	System type	**4198**: DC Rectifier Module
I01	System nominal Current [A * 10]	This value is Module output current multiplied for the number of modules (included the redundant ones).
I02	Module Number	**N**: module number
I03-I07	Serial Number	Located in EEPROM
I08-I11	Event	Not used
I12	Jbus Code	**19**: JBUS for RCT (version 1.00)
I12-I27	AssistCode	String of the name of SW maint. file (.ini) – 30 chars

States

In the following table there is the list of standard JBUS protocol's states.

Address base: 0x1020			
Name	**Description**	**Notes**	**Managed**
S00	Input Mains present (Mains OK)	Controller logic	•
S01	Inverter ON		
S02	Module ON (DC/DC ON)	OR of each modules	•
S03	Load on Inverter		
S04	Load on Mains/Load on By-Pass		
S05	Load on Battery/Battery Discharging		•
S06	Remote command disabled		•
S07	ECO/MODE ON		
S08	Modules in Standby mode (DC/DC OFF)	OR of each modules	•
S09	Buzzer ON	Controller logic	•
S10	Battery Test in progress		•
S11	Battery Test programmed		•
S12	Battery Test in stand-by		•
S13	Battery Test supported (1=test possible)		•
S14	Battery Test failed (not concluded,....)		•
S15	Battery near end of Back-up (Low battery)	Controller logic	•
S16	Battery discharged/Battery end	Controller logic	•
S17	Battery 1 connected	Controller logic	•
S18	Auto test in progress		
S19	Auto test in stand-by		
S20	Auto test supported (1 = test possible)		
S21	Auto test failed (not concluded,....)		
S22	Module on power derating	OR of each modules	•
S23	Inverter synchronised with Mains		
S24	Boost ON	OR of each modules	•
S25	Battery OK	Controller logic	•
S26	Auxiliary mains OK		
S27	Battery charger ON(1)-OFF(0)		
S28	Auxiliary input frequency out of tolerance		
S29	Scheduling ON/OFF disabled:	Disabled = 1	
S30	Modules on parallel system	Controller logic	•
S31	Battery 2 connected		
S32	Module 01 present (if in communication)	Controller logic	•
S33	Module 02 present	Controller logic	•
S34	Module 03 present	Controller logic	•
S35	Module 04 present	Controller logic	•
S36	Module 05 present	Controller logic	•
S37	Module 06 present	Controller logic	•
S38	External state 1	Controller logic	•
S39	External state 2	Controller logic	•
S40	External state 3	Controller logic	•
S41	External state 4	Controller logic	•
S42	Control table managed	Enabled = 1	

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Name	Description	Notes	Managed
S43	Power Share capability available		
S44	E-Service Enabled	Enabled = 1	
S45	Wrong module number setting	Controller logic	•
S46	Module 07 present	Controller logic	•
S47	Module 08 present	Controller logic	•
S48	Module 09 present	Controller logic	•
S49	Module 10 present	Controller logic	•
S50	Module 11 present	Controller logic	•
S51	Module 12 present	Controller logic	•
S52	Module 13 present	Controller logic	•
S53	Module 14 present	Controller logic	•
S54	Module 15 present	Controller logic	•
S55	Module 16 present	Controller logic	•
S56	Module 17 present	Controller logic	•
S57	Module 18 present	Controller logic	•
S58	Module 19 present	Controller logic	•
S59	Module 20 present	Controller logic	•
S60	Module 21 present	Controller logic	•
S61	Module 22 present	Controller logic	•
S62	Module 23 present	Controller logic	•
S63	Module 24 present	Controller logic	•

Extended states

In the following table there is the list of extended JBUS protocol's states.

Address base: 0x1024			
Name	Description	Notes	Managed
S64	Float recharge	Controller logic	•
S65	Boost recharge	Controller logic	•
S66	Battery current limit	Controller logic	•
S67	Cold boot		
S68	CAN bus communication OK		

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Alarms

In the following table there is the list of JBUS protocol's alarms.

Address base: 0x1040			
Name	**Description**	**Notes**	**Managed**
A00	Alarm present (OR of all alarms)	OR of each modules	●
A01	Battery failure/Battery anomaly/Battery fuse failure/LVD open	Controller logic	●
A02	Output overload	OR of each modules	●
A03	Output voltage under limit	Controller logic	●
A04	Digital power supply fault (Vcc)	Due to NMI interrupt	●
A05	Input voltage out of tolerance	Controller logic	●
A06	Fuse fault on auxiliary distribution	Controller logic	●
A07	Battery temperature alarm	Controller logic	●
A08	Manual By-pass closed		
A09	Short-circuit detection on module output	OR of each modules	●
A10	Battery charger failure		
A11	Inverter over-current		
A12	Excessive Inverter distortion		
A13	Precharge voltage out of tolerance		
A14	BOOST output voltage too low		
A15	BOOST output voltage too high		
A16	Battery voltage too high	Controller logic	●
A17	Improper condition of use	Not used	
A18	Overload timeout blocking Inverter		
A19	Microprocessor control system failure	Bootstrap event + OR of each modules	●
A20	Configuration data map corrupted	OR of each modules + controller logic	●
A21	PLL Fault		
A22	Input mains protection failure	Controller logic	●
A23	Rectifier general alarm		
A24	BOOST general alarm		●
A25	Inverter general alarm		
A26	Battery charger general alarm		
A27	Output voltage over limit	Controller logic	●
A28	Minimum battery voltage	Controller logic	●
A29	LVD general alarm	Controller logic	●
A30	System stopped for overload	Controller logic	●
A31	Imminent stop		●
A32	Module 01 general alarm	A00(01) + fault_com_CAN(01)	●
A33	Module 02 general alarm	A00(02) + fault_com_CAN(02)	●
A34	Module 03 general alarm	A00(03) + fault_com_CAN(03)	●
A35	Module 04 general alarm	A00(04) + fault_com_CAN(04)	●
A36	Module 05 general alarm	A00(05) + fault_com_CAN(05)	●
A37	Module 06 general alarm	A00(06) + fault_com_CAN(06)	●
A38	External Alarm 1	Controller logic	●
A39	External Alarm 2	Controller logic	●
A40	External Alarm 3	Controller logic	●

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Name	Description	Notes	Managed
A41	External Alarm 4	Controller logic	•
A42	E-Service General Alarm	Controller logic	
A43	Redundancy lost	Controller logic	
A44	Minimum battery capacity	Controller logic	
A45	Pre-minimum battery voltage	Controller logic	
A46	Module 07 general alarm	A00(07) + fault_com_CAN(07)	
A47	Module 08 general alarm	A00(08) + fault_com_CAN(08)	
A48	Module 09 general alarm	A00(09) + fault_com_CAN(09)	
A49	Module 10 general alarm	A00(10) + fault_com_CAN(10)	
A50	Module 11general alarm	A00(11) + fault_com_CAN(11)	
A51	Module 12 general alarm	A00(12) + fault_com_CAN(12)	
A52	Module 13 general alarm	A00(13) + fault_com_CAN(13)	
A53	Module 14 general alarm	A00(14) + fault_com_CAN(14)	
A54	Module 15 general alarm	A00(15) + fault_com_CAN(15)	
A55	Module 16 general alarm	A00(16) + fault_com_CAN(16)	
A56	Module 17 general alarm	A00(17) + fault_com_CAN(17)	
A57	Module 18 general alarm	A00(18) + fault_com_CAN(18)	
A58	Module 19 general alarm	A00(19) + fault_com_CAN(19)	
A59	Module 20 general alarm	A00(20) + fault_com_CAN(20)	
A60	Module 21 general alarm	A00(21) + fault_com_CAN(21)	
A61	Module 22 general alarm	A00(22) + fault_com_CAN(22)	
A62	Module 23 general alarm	A00(23) + fault_com_CAN(23)	
A63	Module 24 general alarm	A00(24) + fault_com_CAN(24)	

Note: a module is in alarm on the mimic panel of the controller when there is its "General Alarm (A00)" via CAN BUS.

Extended alarms

In the following table there is the list of extended JBUS protocol's alarms.

Address base: 0x1044			
Name	**Description**	**Notes**	**Managed**
A64	Overtemperature	OR of each modules	•
A65	Fan failure	OR of each modules	•
A66	Selective disconnection	OR of each modules	•
A67	Load sharing fault	OR of each modules	•
A68	Temporary overload	OR of each modules	•
A69	Current limit	OR of each modules	•
A70	Maximum recharge time	Controller logic	•
A71	Battery 1 protection fault	Controller logic	•
A72	Battery 2 protection fault		
A73	Discharge anomaly		
A74	Auxiliary circuit anomaly		
A75	Battery discharging	Controller logic	•
A76	Battery fault (result of battery test)	Controller logic	•
A77	Battery Current Measurement not correct	Controller logic	•

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Measurements

In the following table there is the list of the measurements managed by Controller.

Address base: 0x1060				
Name	Description	Notes	Unit	Format
M04	Remaining battery capacity		%	###
M09	Battery 1 voltage		V*10	###.#
M15	Battery 1 current	From battery shunt (recharging or discharging)	A*10	###.#
M17	Output current	Sum all the output current of each modules	A*10	###.#
M20	Output voltage		V*10	###.#
M22	Battery temperature	From the probe	℃	##
M23	Remaining backup time	Calculate from M04	Min	###
M24	Total battery current	Correspond with M15	A*10	###.#
M33	Input voltage L1		V	###
M34	Input voltage L2		V	###
M35	Input voltage L3		V	###
M47	Output load current	Difference between output current M17 and battery current M15	A*10	###.#

Note: if a measurement is not available, its value is 0xFFFF so it is not showed in the JBUS protocol and on mimic panel.

Configuration

In the following table there is the list of the configuration related to the Controller. These are "characteristic" values of System, some of them are read only, other ones are modifiable by EEPROM parameters.

Address base: 0x1060				
Name	Description	Notes	Unit	Format
T01	System nominal output voltage		V*10	###.#
T04	Firmware version	Controller firmware version	Int * 100	#.##
T11	Firmware Controller Cks	Controller FW Checksum	HEX	####
T12	System nominal output current		A*10	###.#
T13	Module nominal output current		A*10	###.#
T14	Battery 1 capacity	Total Battery capacity. It's equal to 0 if the battery is not present	Ah	###
T16	Number of modules		Integer	Up to 24
T17	Battery 1 present		Integer	0 ,1
T20	Id system	Reserved	2 char	##
T21	Redundancy setting	Redundance level	Integer	N+x

Note: if a configuration is not available, its value is 0xFFFF so it is not showed in the JBUS protocol.

Seed & Key

The procedure of "seed & key" enables the access to EEPROM, RAM DSP parameters and to the History Log.

Address base: 0x135C			
Name	**Description**	**Notes**	**Format**
SD1	Seed (HI)	3 (read)	Word
SD0	Seed (LO)	3 (read)	Word
KE1	Key (HI)	16 (write words)	Word
KE0	Key (LO)	16 (write words)	Word

Parameters

In the following table there is the list of all parameters of the Controller. These are available after the correct procedure of "seed & key".

After every writing, the controller logic carries out the upgrade of memory checksum (see the last parameter of the list).

The column "Value" reports the default values, which are loaded into the "new" EEPROM before the automatic test.

Address base: 0x1160				
Code	**Name**	**Description**	**Value (1)**	**Range / Unit (1)**
General				
E00	Validatore			Hex
E01	NumSerie0	Serial number		Hex
E02	NumSerie1	Serial number		Hex
E03	NumSerie2	Serial number		Hex
E04	NumSerie3	Serial number		Hex
E05	NumSerie4	Serial number		Hex
E06	NumOfModules	Number of Modules	1	1 ÷ 14
E07	Redundancy	Level of redundancy	0	0 ÷ 13
E08	ComSettings	Serial Baudrate	9600	1200 - 2400 - 4800 - 9600
E09	JbusSettings	JBus node number	1	1 ÷ 7
E10	BuzzerEn	Buzzer enable	ENABLE	DISABLE (0) ENABLE (1)
E11	RemoteCommandDis	Remote Command enable	DISABLE	DISABLE (0) ENABLE (1)
E12	IdSystem	Identifier System	1	1 ÷ 99
E13	SystemSize	Size of System	60	
E14	DaysNextTestBatt	Battery Test Interval	0	
E15	Vok_off	Offset for threshold voltage during the Battery test	-30	V*10

Code	Name	Description	Value (1)	Range / Unit (1)
Input				
E16	ThreePhase	Input mains setting	3_PHASE	1_PHASE (0) 3_PHASE (1)
E17	MainsBreakerPres	Presence of Mains Breakers	ABSENT	ABSENT (0) PRESENT (1)
E18	VrmsMaskMin	Minimun Input voltage	180	V
E19	VrmsMaskMax	Maximun Input voltage	280	V
E20	MaskHyst	Hysteresis for Input Voltage	10	
E21	TimeUnderMaskMin	Points out of mask for Min Vinput	2000	µsec
E22	TimeOverMaskMax	Points out of mask for Max Vinput	2000	µsec
E23	PhaseDelay	Max Angle between input phases	9750	
E24	SelectedLang	Synoptic language	ENGLISH	ENGLISH (0) ITALIANO (1) FRANCAIS (2)
E25	Free_In	Free Input		
Output				
E26	VoutMin	Minimun Output voltage [V*10] (187 * NumElemBatt)	450	450 ÷ (*)
E27	VoutMax	Maximun Output voltage [V*10] (245 * NumElemBatt)	600	(*) ÷ 600
E28	VoutNoBatt	Output Voltage without battery [V*10] (222 * NumElemBatt)	533	450 ÷ 600
E29	MinWaitLoadOn	Waiting time for Output LVD close	0	0 ÷ 999 min
E30	CapWaitLoadOn	Battery Capacity for Output LVD close	0	0 ÷ 99 %
E31	LVDloadPres	Presence of Output LVD	ABSENT	ABSENT (0) PRESENT (1)
E32	VOpenLVDload	Voltage for opening Out LVD [V*10] (167 * NumElemBatt)	400	350 ÷ ((*) − 1)
E33	Free_Out0	Free Output0	0	
E34	Free_Out1	Free Output1	0	
Battery 1				
E35	Batt1Pres	Presence of Battery	PRESENT	ABSENT (0) PRESENT (1)
E36	NumElemBatt	Number of battery element		
E37	BatteryType	Type of battery	SEALED	SEALED (0) NI-CD (1)
E38	Cbatt1Nom	Nominal Battery Capacity	10	10 ÷ 9999 Ah
E39	Cbatt1Min	Minimun Battery Capacity	10	0 ÷ 99 %
E40	Vbatt1Max	Maximun Battery Voltage [V*10] (245 * NumElemBatt)	600	(*) ÷ 600
E41	Vbatt1PreMin	Preminimun Battery Voltage [V*10] (187 * NumElemBatt)	450	450 ÷ (*)
E42	Vbatt1Min	Minimun Battery Voltage [V*10] (187 * NumElemBatt)	450	450 ÷ E40
E43	LVDbatt1Pres	Presence of Battery LVD	PRESENT	ABSENT (0) PRESENT (1)
E44	VOpenLVDbatt1	Voltage for opening Batt. LVD [V*10] (145 * NumElemBatt)	400	350 ÷ ((*) − 1)
E45	Tbatt1ProbePres	Presence of Battery Temp. probe	PRESENT	ABSENT (0) PRESENT (1)
E46	Tbatt1Max	Maximun Battery Temperature	80	0 ÷ 80 ℃

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Code	Name	Description	Value (1)	Range / Unit (1)
E47	Free_Batt0	Free Batt0	0	
E48	Free_Batt1	Free Batt1	0	
Battery 2				
E49	Batt2Pres	Presence of Battery	ABSENT	ABSENT (0) PRESENT (1)
E50	Cbatt2Nom	Nominal Battery Capacity	10	10 ÷ 9999 Ah
E51	Cbatt2Min	Minimun Battery Capacity	10	0 ÷ 99 %
E52	Vbatt2Max	Maximun Battery Voltage [V*10] (245 * NumElemBatt)	600	(*) ÷ 600
E53	Vbatt2PreMin	Preminimun Battery Voltage [V*10] (187 * NumElemBatt)	450	450 ÷ (*)
E54	Vbatt2Min	Minimun Battery Voltage [V*10] (187 * NumElemBatt)	450	450 ÷ E40
E55	LVDbatt2Pres	Presence of Battery LVD	ABSENT	ABSENT (0) PRESENT (1)
E56	VOpenLVDbatt2	Voltage for opening Batt. LVD [V*10] (145 * NumElemBatt)	400	350 ÷ ((*) − 1)
E57	Tbatt2ProbePres	Presence of Battery Temp. probe	ABSENT	ABSENT (0) PRESENT (1)
E58	Tbatt2Max	Maximun Battery Temperature	80	0 ÷ 80 ℃
E59	Free_Batt2	Free Batt2	0	
E60	Free_Batt3	Free Batt3	0	
Recharging				
E61	TypeRecharge	Recharging type	FLOATING	FLOATING (1) 2LEVELS (2)
E62	Free_Rech0	Free Rech0	0	
E63	LowStepZone	Recharging current regulation	25	+- 2.5% Inom Q10
E64	DeadZoneUpLim	Recharging current regulation	3	
E65	SoftStep	Step for Voltage regulation	50	V*1000/10ms
E66	ModulesOnDelay	Delay for modules start	200	10*ms
E67	SWdischarge	Current limit without controller	5	% Cnom
E68	DVbatt_dT	Voltage compensation for temperature	0	0 ÷ 1500 [(V/℃)*1e4]
E69	IlimLev1	Recharging current limit for floating	600	A*10
E70	VmaintLev1	Recharging voltage for floating [V*10] (245 * NumElemBatt)	533	V*10
E71	IlimLev2	Recharging current limit for 2Levels	30	A*10
E72	IchargeLev2	Maint. to Recharging threshold	20	A*10
E73	ImaintLev2	Recharging to Maint. threshold	10	A*10
E74	VchargeLev2	Recharging voltage for 2Levels	576	450 ÷ 600
E75	VmaintLev2	Maintenance voltage for 2Levels	533	E74 ÷ 600
E76	BoostTime	Max time of manual recharge	30	sec
E77	MaxRechargeTime	Max time of recharging mode	13	hour
E78	Free_Rech1	Free Rech1	0	
E79	Free_Rech2	Free Rech2	0	
Shunt				
E80	Kshunt1_01	Shunt for System 15A-20A-30A	500	A/mV
E81	Kshunt1_02	Shunt for System 38A-40A-50A-60A	1000	A/mV
E82	Kshunt1_03	Shunt for System 75A-100A-120A-125A	2500	A/mV

Code	Name	Description	Value (1)	Range / Unit (1)
E83	Kshunt1_04	Shunt for System 150A-160A-180A-200A-250A	4166	A/mV
E84	Kshunt1_05	Shunt for System 270A	5000	A/mV
E85	Kshunt1_06	Shunt for System 420A-450A	8333	A/mV
E86	Kshunt1_07	Shunt for System 600A	10000	A/mV
E87	Free_Shunt0		0	
Endscale				
E88	Vbatt1_fs	Battery voltage Endscale	800	$((V*10)/Q10)*1024$
E89	Vbatt1_off	Battery voltage Offset	0	$V*10$
E90	Vout_fs	Output voltage Endscale	800	$((V*10)/Q10)*1024$
E91	Vout_off	Output voltage Offset	0	$V*10$
E92	Vshunt1Charge_fs	Recharging current Endscale	6800	$((V*1e5)/Q10)*1024$
E93	Vshunt1Charge_off	Recharging current Offset	0	$V*1e5$
E94	Vshunt1Discharge_fs	Discharging current Endscale	6800	$((V*1e5)/Q10)*1024$
E95	Vshunt1Discharge_off	Discharging current Offset	0	$V*1e5$
E96	VfaseR_fs	Input R phase Endscale	1050	$((V)/Q10)*1024$
E97	VfaseR_off	Input R phase Offset	0	V
E98	VfaseS_fs	Input S phase Endscale	1050	$((V)/Q10)*1024$
E99	VfaseS_off	Input S phase Offset	0	V
E100	VfaseT_fs	Input T phase Endscale	1050	$((V)/Q10)*1024$
E101	VfaseT_off	Input T phase Offset	0	V
E102	Tbatt1_fs	Battery temperature Endscale	87	$((°C)/Q10)*1024$
E103	Tbatt1_off	Battery temperature Offset	-8	°C
E103	Free_Taratura0	Free Taratura0	0	
E103	Free_Taratura1	Free Taratura1	0	
E104	Vnull	Threshold to reset Output Voltage	4	$lg2(Idischarge\_fs / Vnull)$
E105	Inull	Threshold to reset Battery Current	5	$lg2(Idischarge\_fs / Inull)$
E106	Checksum	EEprom parameters checksum	-	HEX

(*) depends on the output voltage of the System. Maybe the value of E28, E70 or E75 depending on the choose of "TypeRecharge (E61)".

The battery shunt is different for each System "size":

shunt 30 A   taglia 15, 20, 30A
shunt 60 A   taglia 38, 40, 50, 60A
shunt 150 A   taglia 75, 100, 120, 125A
shunt 250 A   taglia 150, 160, 180, 200, 250A
shunt 300 A   taglia 270A
shunt 500 A   taglia 420, 450A
shunt 600 A   taglia 600A

Note (1): the columns "Value" and "Range/Unit" are reported to DC Power System 48V. In case of different nominal voltage (24V, 108V, 120V), the values of these columns depend on the parameter "NumElemBatt (E36)".

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Date & Time

"Date and time" are four words codified like showed in following table, located at 0x1360 and protected by "seed & key" procedure.

Address base: 0x1360			
Offset	**Description**	**Notes**	**Format**
W1 low	Seconds	0 ÷ 59	Byte
W1 high	Minutes	0 ÷ 59	Byte
W2 low	Hours	0 ÷ 23	Byte
W2 high	Days	1 ÷ 31	Byte
W3 low	Day of the week	1 (Monday) ÷ 7 (Sunday)	Byte
W3 high	Month	1 ÷ 12	Byte
W4 low	Years	00 ÷ 99	Byte
W4 high	Not used	Not used	Byte

Commands

In the following table there are the "standard" commands.

Address base: 0x15B0		
Code	**Name**	**Description**
C01	Alarm reset	Reset all alarms of controller and send a reset command in broadcast (to all nodes). This command must carry out the restart of the Power System.
C07	Buzzer enable	Enable the buzzer of Controller.
C08	Buzzer off	Disable the buzzer of Controller until next new alarm.
C12	History log reset	Reset the History Log saved into Controller.
C13	Test led	Carry out the test leds either the controller and all modules.
C14	Buzzer disable	Disable the buzzer of Controller.
C16	Battery test	Active the battery test.

Commands control table

The table sets the "command" available.

Address base: 0x15C0		
Code	**Description**	**Format**
K00	Command Control Table LO (C15…C00)	Bit
K01	Command Control Table HI (C31…C16)	Bit