Technical specification

Xtender serial protocol appendix

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Contents

1. Appendix

The information in the appendices is valid for the latest software release. For a detailed changelog, please see the document Release_Rxxx.pdf in the latest "Studer system update" available on www.studer-innotec.com.

A major release (from R5xx to R6xx, for example) can imply significant changes that should be validated.

1.1 Xtender 120Vac specific parameters

While using Xtenders -01 (120Vac), some parameters have specific values. The following list contain them. The others are the same for all Xtender types.

Level	Param. nr	Parameters description Xtender	Unit	Default	Min	Max	Scom format	Increment
Expert	1286	AC Output voltage	Vac	120	55	140	FLOAT	1
Expert	1560	Max AC voltage increase with battery voltage	Vac	5	2	8	FLOAT	1
Expert	1309	AC input low limit voltage to allow charger function	Vac	90	50	115	FLOAT	5
Expert	1433	Adaptation range of the input current according to the input voltage	Vac	5	2	15	FLOAT	1
Expert	1199	Input voltage giving an opening of the transfer relay with delay	Vac	100	40	115	FLOAT	5
Expert	1200	Input voltage giving an immediate opening of the transfer relay (UPS)	Vac	90	40	115	FLOAT	5
Inst.	1432	Absolute max limit for input voltage	Vac	135	117.5	145	FLOAT	5

1.2 Xtender parameters

Level	Nr	Xtender parameter description	Unit	Default	Min	Max	Scom format	Increment
Basic	**1100**	**BASIC SETTINGS**					ONLY LEVEL	Menu
Basic	1551	Basic parameters set by means of the potentiomenter in the XTS		1:Yes	0:No	1:Yes	BOOL	1
Basic	1107	Maximum current of AC source (Input limit)	Aac	32	2	50	FLOAT	1
Basic	1138	Battery charge current	Adc	60	0	200	FLOAT	1
Basic	1126	Smart-Boost allowed		1:Yes	0:No	1:Yes	BOOL	1
Basic	1124	Inverter allowed		1:Yes	0:No	1:Yes	BOOL	1
Expert	1125	Charger allowed		1:Yes	0:No	1:Yes	BOOL	1

Basic	1552	Type of detection of the grid loss (AC-In)		2:Tolerant	1:Slow	4:Fast	LONG ENUM	Only 1 bit 1:Slow 2:Tolerant 4:Fast
Basic	1187	Standby level	%	10	0	100	FLOAT	10
Basic	1395	Restore default settings		S	S	S	INT32	Signal
Inst.	1287	Restore factory settings		S	S	S	INT32	Signal
Expert	**1137**	**BATTERY MANAGEMENT AND CYCLE**					ONLY LEVEL	Menu
Expert	1125	Charger allowed		1:Yes	0:No	1:Yes	BOOL	1
Inst.	1646	Charger uses only power from AC-Out		0:No	0:No	1:Yes	BOOL	1
Basic	1138	Battery charge current	Adc	60	0	200	FLOAT	1
Expert	1139	Temperature compensation	mV/°C/cell	-3	-8	0	FLOAT	1
QSP	1615	Fast charge/inject regulation		0:No	0:No	1:Yes	BOOL	1
QSP	1645	Pulses cutting regulation for XT (Not XTS)		0:No	0:No	1:Yes	BOOL	1
Expert	**1568**	**Undervoltage**					ONLY LEVEL	Menu
Expert	1108	Battery undervoltage level without load	Vdc	46.3	36	72	FLOAT	0.1
Expert	**1531**	**Battery undervoltage dynamic compensation**					ONLY LEVEL	Menu
Expert	1191	Battery undervoltage dynamic compensation		1:Yes	0:No	1:Yes	BOOL	1
Expert	1532	Kind of dynamic compensation		1:Automatic	0:Manual	1:Automatic	LONG ENUM	Only 1 bit 0:Manual 1:Automatic
QSP	1632	Automatic adaptation of dynamic compensation	%	65	0	100	FLOAT	1
Expert	1109	Battery undervoltage level at full load	Vdc	42	36	72	FLOAT	0.1
Expert	1190	Battery undervoltage duration before turn off	min	3	0	60	FLOAT	1
Expert	1110	Restart voltage after batteries undervoltage	Vdc	48	37.9	72	FLOAT	0.1
Expert	1194	Battery adaptive low voltage (B.L.O)		0:No	0:No	1:Yes	BOOL	1
Expert	1195	Max voltage for adaptive low voltage	Vdc	49.9	37.9	72	FLOAT	0.1
Expert	1307	Reset voltage for adaptive correction	Vdc	52.8	37.9	72	FLOAT	0.1
Expert	1298	Increment step of the adaptive low voltage	Vdc	0.5	0	1.4	FLOAT	0.01
Expert	1121	Battery overvoltage level	Vdc	68.2	37.9	74.4	FLOAT	0.1
Expert	1122	Restart voltage level after an battery overvoltage	Vdc	64.8	37.9	72	FLOAT	0.1
Expert	1140	Floating voltage	Vdc	54.4	37.9	72	FLOAT	0.1
Expert	1467	Force phase of floating		S	S	S	INT32	Signal
Expert	**1141**	**New cycle menu**					ONLY LEVEL	Menu
Expert	1142	Force a new cycle		S	S	S	INT32	Signal
Inst.	1608	Use dynamic compensation of battery level (new cycle)		0:No	0:No	1:Yes	BOOL	1
Expert	1143	Voltage level 1 to start a new cycle	Vdc	49.9	36	72	FLOAT	0.1
Expert	1144	Time period under voltage level 1 to start a new cycle	min	30	0	240	FLOAT	1

Expert	1145	Voltage level 2 to start a new cycle	Vdc	49.2	36	72	FLOAT	0.1
Expert	1146	Time period under voltage level 2 to start a new cycle	sec	60	0	600	FLOAT	2
Expert	1149	New cycle priority on absorption and equalization phases		0:No	0:No	1:Yes	BOOL	1
Expert	1147	Cycling restricted		0:No	0:No	1:Yes	BOOL	1
Expert	1148	Minimal delay between cycles	hours	3	0	540	FLOAT	1
Expert	**1451**	**Absorption phase**					ONLY LEVEL	Menu
Expert	1155	Absorption phase allowed		1:Yes	0:No	1:Yes	BOOL	1
Expert	1156	Absorption voltage	Vdc	57.6	37.9	72	FLOAT	0.1
Expert	1157	Absorption duration	hours	2	0	18	FLOAT	0.25
Expert	1158	End of absorption triggered with current		0:No	0:No	1:Yes	BOOL	1
Expert	1159	Current limit to quit the absorption phase	Adc	4	1	200	FLOAT	1
Expert	1160	Maximal frequency of absorption control		0:No	0:No	1:Yes	BOOL	1
Expert	1161	Minimal delay since last absorption	hours	2	0	540	FLOAT	1
Expert	**1452**	**Equalization phase**					ONLY LEVEL	Menu
Expert	1163	Equalization allowed		0:No	0:No	1:Yes	BOOL	1
Expert	1162	Force equalization		S	S	S	INT32	Signal
Expert	1291	Equalization before absorption phase		1:Yes	0:No	1:Yes	BOOL	1
Expert	1290	Equalization current	Adc	60	1	200	FLOAT	1
Expert	1164	Equalization voltage	Vdc	62.4	37.9	72	FLOAT	0.1
Expert	1165	Equalization duration	hours	0.5	0.2	10	FLOAT	0.25
Expert	1166	Number of cycles before an equalization		25	0	100	FLOAT	1
Expert	1284	Equalization with fixed interval		0:No	0:No	1:Yes	BOOL	1
Expert	1285	Weeks between equalizations	weeks	26	1	104	FLOAT	1
Expert	1168	End of equalization triggered with current		0:No	0:No	1:Yes	BOOL	1
Expert	1169	Current threshold to end equalization phase	Adc	4	1	30	FLOAT	1
Expert	**1453**	**Reduced floating phase**					ONLY LEVEL	Menu
Expert	1170	Reduced floating allowed		0:No	0:No	1:Yes	BOOL	1
Expert	1171	Floating duration before reduced floating	days	1	0	31	FLOAT	1
Expert	1172	Reduced floating voltage	Vdc	52.8	37.9	72	FLOAT	0.1
Expert	**1454**	**Periodic absorption phase**					ONLY LEVEL	Menu
Expert	1173	Periodic absorption allowed		0:No	0:No	1:Yes	BOOL	1
Expert	1174	Periodic absorption voltage	Vdc	57.6	37.9	72	FLOAT	0.1
Expert	1175	Reduced floating duration before periodic absorption	days	7	0	31	FLOAT	1
Expert	1176	Periodic absorption duration	hours	0.5	0	10	FLOAT	0.25
Expert	**1186**	**INVERTER**					ONLY LEVEL	Menu
Basic	1124	Inverter allowed		1:Yes	0:No	1:Yes	BOOL	1
Expert	1286	AC Output voltage	Vac	230	110	280	FLOAT	1

Expert	1548	AC voltage increase according to battery voltage		0:No	0:No	1:Yes	BOOL	1
Expert	1560	Max AC voltage increase with battery voltage	Vac	10	4	16	FLOAT	1
Expert	1112	Inverter frequency	Hz	50	45	65	FLOAT	0.1
Expert	1536	Inverter frequency increase when battery full		0:No	0:No	1:Yes	BOOL	1
Expert	1549	Inverter frequency increase according to battery voltage		0:No	0:No	1:Yes	BOOL	1
Expert	1546	Max frequency increase	Hz	4	0	10	FLOAT	0.1
Expert	1534	Speed of voltage or frequency change in function of battery		0	-4	3	FLOAT	1
Expert	**1420**	**Standby and turn on**					ONLY LEVEL	Menu
Basic	1187	Standby level	%	10	0	100	FLOAT	10
Expert	1189	Time delay between standby pulses	sec	0.8	0.2	10	FLOAT	0.2
Expert	1188	Standby number of pulses		1	1	10	FLOAT	1
Expert	1599	Softstart duration	sec	0	0	1	FLOAT	0.25
Expert	1438	Solsafe presence Energy source at AC-Out side		0:No	0:No	1:Yes	BOOL	1
QSP	1572	Modulator ru_soll		0:No	0:No	1:Yes	BOOL	1
Expert	**1197**	**AC-IN AND TRANSFER**					ONLY LEVEL	Menu
Expert	1128	Transfer relay allowed		1:Yes	0:No	1:Yes	BOOL	1
Expert	1580	Delay before closing transfer relay	min	0	0	30	FLOAT	0.25
Basic	1126	Smart-Boost allowed		1:Yes	0:No	1:Yes	BOOL	1
Inst.	1607	Limitation of the power Boost	%	100	0	100	FLOAT	5
Basic	1107	Maximum current of AC source (Input limit)	Aac	32	2	50	FLOAT	1
Expert	**1471**	**Max input current modification**					ONLY LEVEL	Menu
Expert	1566	Using a secondary value for the maximum current of the AC source		0:No	0:No	1:Yes	BOOL	1
Expert	1567	Second maximum current of the AC source (Input limit)	Aac	16	2	50	FLOAT	1
Expert	1527	Decrease max input limit current with AC-In voltage		0:No	0:No	1:Yes	BOOL	1
Expert	1554	Decrease of the max. current of the source with input voltage activated by remote entry		0:No	0:No	1:Yes	BOOL	1
Expert	1309	AC input low limit voltage to allow charger function	Vac	180	100	230	FLOAT	5
Expert	1433	Adaptation range of the input current according to the input voltage	Vac	10	4	30	FLOAT	1
Expert	1553	Speed of input limit increase		50	0	100	FLOAT	2
Expert	1295	Charge current decrease coef. at voltage limit to turn back in inverter mode	%	100	0	100	FLOAT	5
Expert	1436	Overrun AC source current limit without opening the transfer relay (Input limit)		1:Yes	0:No	1:Yes	BOOL	1
Basic	1552	Type of detection of the grid loss (AC-In)		2:Tolerant	1:Slow	4:Fast	LONG ENUM	Only 1 bit 1:Slow 2:Tolerant 4:Fast

Expert	1510	Tolerance on detection of AC-input loss (tolerant UPS mode)		100	2	120	FLOAT	2
Expert	1199	Input voltage giving an opening of the transfer relay with delay	Vac	200	80	230	FLOAT	5
Expert	1198	Time delay before opening of transfer relay	sec	8	0	30	FLOAT	1
Expert	1200	Input voltage giving an immediate opening of the transfer relay (UPS)	Vac	180	80	230	FLOAT	5
Inst.	1432	Absolute max limit for input voltage	Vac	270	235	290	FLOAT	5
QSP	1500	Standby of the charger allowed		1:Yes	0:No	1:Yes	BOOL	1
Expert	1505	Delta frequency allowed above the standard input frequency	Hz	5	0	35	FLOAT	0.1
Expert	1506	Delta frequency allowed under the standard input frequency	Hz	5	0	15	FLOAT	0.1
Expert	1507	Duration with frequency error before opening the transfer	sec	2	0	5	FLOAT	1
Expert	1575	AC-IN current active filtering (Not in parallel)		0:No	0:No	1:Yes	BOOL	1
Inst.	1557	Use an energy quota on AC-input		0:No	0:No	1:Yes	BOOL	1
Inst.	1559	AC-In energy quota	kWh	1	0.5	100	FLOAT	0.5
Expert	**1201**	**AUXILIARY CONTACT 1**					ONLY LEVEL	Menu
Expert	1202	Operating mode (AUX 1)		1:Automatic	1:Automatic	8:Manual OFF	LONG ENUM	Only 1 bit 1:Automatic 2:Reversed automatic 4:Manual ON 8:Manual OFF
Expert	1497	Combination of the events for the auxiliary contact (AUX 1)		0:Any (Function OR)	0:Any (Function OR)	1:All (Function AND)	LONG ENUM	Only 1 bit 0:Any (Function OR) 1:All (Function AND)
Expert	**1203**	**Temporal restrictions (AUX 1)**					ONLY LEVEL	Menu
Expert	**1204**	**Program 1 (AUX 1)**					ONLY LEVEL	Menu
Expert	1205	Day of the week (AUX 1)		None	0	127	LONG ENUM	Bit field
Expert	1206	Start hour (AUX 1)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1207	End hour (AUX 1)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1208**	**Program 2 (AUX 1)**					ONLY LEVEL	Menu
Expert	1209	Day of the week (AUX 1)		None	0	127	LONG ENUM	Bit field
Expert	1210	Start hour (AUX 1)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1211	End hour (AUX 1)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1212**	**Program 3 (AUX 1)**					ONLY LEVEL	Menu
Expert	1213	Day of the week (AUX 1)		None	0	127	LONG ENUM	Bit field
Expert	1214	Start hour (AUX 1)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1215	End hour (AUX 1)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Inst.	**1216**	**Program 4 (AUX 1)**					ONLY LEVEL	Menu
Inst.	1217	Day of the week (AUX 1)		None	0	127	LONG ENUM	Bit field
Inst.	1218	Start hour (AUX 1)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Inst.	1219	End hour (AUX 1)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1

Inst.	**1220**	**Program 5 (AUX 1)**					ONLY LEVEL	Menu
Inst.	1221	Day of the week (AUX 1)		None	0	127	LONG ENUM	Bit field
Inst.	1222	Start hour (AUX 1)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Inst.	1223	End hour (AUX 1)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1269**	**Contact active with a fixed time schedule (AUX 1)**					ONLY LEVEL	Menu
Expert	**1270**	**Program 1 (AUX 1)**					ONLY LEVEL	Menu
Expert	1271	Day of the week (AUX 1)		None	0	127	LONG ENUM	Bit field
Expert	1272	Start hour (AUX 1)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1273	End hour (AUX 1)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1274**	**Program 2 (AUX 1)**					ONLY LEVEL	Menu
Expert	1275	Day of the week (AUX 1)		None	0	127	LONG ENUM	Bit field
Expert	1276	Start hour (AUX 1)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1277	End hour (AUX 1)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1278**	**Program 3 (AUX 1)**					ONLY LEVEL	Menu
Expert	1279	Day of the week (AUX 1)		None	0	127	LONG ENUM	Bit field
Expert	1280	Start hour (AUX 1)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1281	End hour (AUX 1)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1455**	**Contact active on event (AUX 1)**					ONLY LEVEL	Menu
Expert	1225	Xtender is OFF (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1518	Xtender ON (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1543	Remote entry (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1226	Battery undervoltage alarm (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1227	Battery overvoltage (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1228	Inverter overload (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1229	Overtemperature (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1520	No overtemperature (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1231	Active charger (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1232	Active inverter (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1233	Active Smart-Boost (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1234	AC input presence but with fault (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1235	AC input presence (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1236	Transfer relay ON (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1237	AC out presence (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1238	Bulk charge phase (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1239	Absorption phase (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1240	Equalization phase (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1242	Floating (AUX 1)		0:No	0:No	1:Yes	BOOL	1

Expert	1243	Reduced floating (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1244	Periodic absorption (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Inst.	1601	AC-In energy quota (AUX1)		0:No	0:No	1:Yes	BOOL	1
Expert	**1245**	**Contact active according to battery voltage (AUX 1)**					ONLY LEVEL	Menu
Expert	1288	Use dynamic compensation of battery level (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1246	Battery voltage 1 activate (AUX 1)		1:Yes	0:No	1:Yes	BOOL	1
Expert	1247	Battery voltage 1 (AUX 1)	Vdc	46.8	36	72	FLOAT	0.1
Expert	1248	Delay 1 (AUX 1)	min	1	0	60	FLOAT	1
Expert	1249	Battery voltage 2 activate (AUX 1)		1:Yes	0:No	1:Yes	BOOL	1
Expert	1250	Battery voltage 2 (AUX 1)	Vdc	47.8	36	72	FLOAT	0.1
Expert	1251	Delay 2 (AUX 1)	min	10	0	60	FLOAT	1
Expert	1252	Battery voltage 3 activate (AUX 1)		1:Yes	0:No	1:Yes	BOOL	1
Expert	1253	Battery voltage 3 (AUX 1)	Vdc	48.5	36	72	FLOAT	0.1
Expert	1254	Delay 3 (AUX 1)	min	60	0	60	FLOAT	1
Expert	1255	Battery voltage to deactivate (AUX 1)	Vdc	54	36	72	FLOAT	0.1
Expert	1256	Delay to deactivate (AUX 1)	min	60	0	480	FLOAT	5
Expert	1516	Deactivate if battery in floating phase (AUX 1)		1:Yes	0:No	1:Yes	BOOL	1
Expert	**1257**	**Contact active with inverter power or Smart-Boost (AUX 1)**					ONLY LEVEL	Menu
Expert	1258	Inverter power level 1 activate (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1259	Power level 1 (AUX 1)	% Pnom	120	20	120	FLOAT	10
Expert	1260	Time delay 1 (AUX 1)	min	1	0	60	FLOAT	1
QSP	1644	Activated by AUX2 event partial overload		0:No	0:No	1:Yes	BOOL	1
Expert	1261	Inverter power level 2 activate (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1262	Power level 2 (AUX 1)	% Pnom	80	20	120	FLOAT	10
Expert	1263	Time delay 2 (AUX 1)	min	5	0	60	FLOAT	1
Expert	1264	Inverter power level 3 activate (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1265	Power level 3 (AUX 1)	% Pnom	50	20	120	FLOAT	10
Expert	1266	Time delay 3 (AUX 1)	min	30	0	60	FLOAT	1
Expert	1267	Inverter power level to deactivate (AUX 1)	% Pnom	40	20	120	FLOAT	10
Expert	1268	Time delay to deactivate (AUX 1)	min	5	0	60	FLOAT	5
Expert	**1503**	**Contact active according to battery temperature (AUX 1) With BSP or BTS**					ONLY LEVEL	Menu
Expert	1446	Contact activated with the temperature of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1447	Contact activated over (AUX 1)	°C	3	-10	50	FLOAT	1
Expert	1448	Contact deactivated below (AUX 1)	°C	5	-10	50	FLOAT	1
Expert	**1501**	**Contact active according to SOC (AUX 1) Only with BSP**					ONLY LEVEL	Menu
Expert	1439	Contact activated with the SOC 1 of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1

Expert	1440	Contact activated below SOC 1 (AUX 1)	% SOC	50	0	100	FLOAT	5
Expert	1581	Delay 1 (AUX 1)	hours	12	0	99	FLOAT	0.25
Expert	1582	Contact activated with the SOC 2 of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1583	Contact activated below SOC 2 (AUX 1)	% SOC	30	0	100	FLOAT	5
Expert	1584	Delay 2 (AUX 1)	hours	0.2	0	99	FLOAT	0.25
Expert	1585	Contact activated with the SOC 3 of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1586	Contact activated below SOC 3 (AUX 1)	% SOC	20	0	100	FLOAT	5
Expert	1587	Delay 3 (AUX 1)	hours	0	0	99	FLOAT	0.25
Expert	1441	Contact deactivated over SOC (AUX 1)	% SOC	90	0	100	FLOAT	5
Expert	1588	Delay to deactivate (AUX 1)	hours	0.2	0	10	FLOAT	0.25
Expert	1589	Deactivate if battery in floating phase (AUX 1)		1:Yes	0:No	1:Yes	BOOL	1
Expert	1512	Security, maximum time of contact (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	1514	Maximum time of operation of contact (AUX 1)	min	600	10	1200	FLOAT	10
Expert	1569	Reset all settings (AUX 1)		S	S	S	INT32	Signal
Expert	**1310**	**AUXILIARY CONTACT 2**					ONLY LEVEL	Menu
Expert	1311	Operating mode (AUX 2)		2:Reversed automatic	1:Automatic	8:Manual OFF	LONG ENUM	Only 1 bit 1:Automatic 2:Reversed automatic 4:Manual ON 8:Manual OFF
Expert	1498	Combination of the events for the auxiliary contact (AUX 2)		0:Any (Function OR)	0:Any (Function OR)	1:All (Function AND)	LONG ENUM	Only 1 bit 0:Any (Function OR) 1:All (Function AND)
Expert	**1312**	**Temporal restrictions (AUX 2)**					ONLY LEVEL	Menu
Expert	**1313**	**Program 1 (AUX 2)**					ONLY LEVEL	Menu
Expert	1314	Day of the week (AUX 2)		None	0	127	LONG ENUM	Bit field
Expert	1315	Start hour (AUX 2)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1316	End hour (AUX 2)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1317**	**Program 2 (AUX 2)**					ONLY LEVEL	Menu
Expert	1318	Day of the week (AUX 2)		None	0	127	LONG ENUM	Bit field
Expert	1319	Start hour (AUX 2)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1320	End hour (AUX 2)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1321**	**Program 3 (AUX 2)**					ONLY LEVEL	Menu
Expert	1322	Day of the week (AUX 2)		None	0	127	LONG ENUM	Bit field
Expert	1323	Start hour (AUX 2)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1324	End hour (AUX 2)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Inst.	**1325**	**Program 4 (AUX 2)**					ONLY LEVEL	Menu
Inst.	1326	Day of the week (AUX 2)		None	0	127	LONG ENUM	Bit field

Inst.	1327	Start hour (AUX 2)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Inst.	1328	End hour (AUX 2)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Inst.	**1329**	**Program 5 (AUX 2)**					ONLY LEVEL	Menu
Inst.	1330	Day of the week (AUX 2)		None	0	127	LONG ENUM	Bit field
Inst.	1331	Start hour (AUX 2)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Inst.	1332	End hour (AUX 2)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1378**	**Contact active with a fixed time schedule (AUX 2)**					ONLY LEVEL	Menu
Expert	**1379**	**Program 1 (AUX 2)**					ONLY LEVEL	Menu
Expert	1380	Day of the week (AUX 2)		None	0	127	LONG ENUM	Bit field
Expert	1381	Start hour (AUX 2)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1382	End hour (AUX 2)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1383**	**Program 2 (AUX 2)**					ONLY LEVEL	Menu
Expert	1384	Day of the week (AUX 2)		None	0	127	LONG ENUM	Bit field
Expert	1385	Start hour (AUX 2)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1386	End hour (AUX 2)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1387**	**Program 3 (AUX 2)**					ONLY LEVEL	Menu
Expert	1388	Day of the week (AUX 2)		None	0	127	LONG ENUM	Bit field
Expert	1389	Start hour (AUX 2)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	1390	End hour (AUX 2)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**1456**	**Contact active on event (AUX 2)**					ONLY LEVEL	Menu
Expert	1333	Xtender is OFF (AUX 2)		1:Yes	0:No	1:Yes	BOOL	1
Expert	1519	Xtender ON (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1544	Remote entry (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1334	Battery undervoltage alarm (AUX 2)		1:Yes	0:No	1:Yes	BOOL	1
Expert	1335	Battery overvoltage (AUX 2)		1:Yes	0:No	1:Yes	BOOL	1
Expert	1336	Inverter overload (AUX 2)		1:Yes	0:No	1:Yes	BOOL	1
Expert	1337	Overtemperature (AUX 2)		1:Yes	0:No	1:Yes	BOOL	1
Expert	1521	No overtemperature (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1339	Active charger (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1340	Active inverter (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1341	Active Smart-Boost (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1342	AC input presence but with fault (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1343	AC input presence (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1344	Transfer contact ON (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1345	AC out presence (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1346	Bulk charge phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1347	Absorption phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1

Expert	1348	Equalization phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1350	Floating (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1351	Reduced floating (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1352	Periodic absorption (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Inst.	1602	AC-In energy quota (AUX2)		0:No	0:No	1:Yes	BOOL	1
QSP	1643	Partial overload		0:No	0:No	1:Yes	BOOL	1
Expert	**1353**	**Contact active according to battery voltage (AUX 2)**					ONLY LEVEL	Menu
Expert	1354	Use dynamic compensation of battery level (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1355	Battery voltage 1 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1356	Battery voltage 1 (AUX 2)	Vdc	48	36	72	FLOAT	0.1
Expert	1357	Delay 1 (AUX 2)	min	5	0	60	FLOAT	1
Expert	1358	Battery voltage 2 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1359	Battery voltage 2 (AUX 2)	Vdc	46.1	36	72	FLOAT	0.1
Expert	1360	Delay 2 (AUX 2)	min	5	0	60	FLOAT	1
Expert	1361	Battery voltage 3 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1362	Battery voltage 3 (AUX 2)	Vdc	44.2	36	72	FLOAT	0.1
Expert	1363	Delay 3 (AUX 2)	min	5	0	60	FLOAT	1
Expert	1364	Battery voltage to deactivate (AUX 2)	Vdc	50.4	36	72	FLOAT	0.1
Expert	1365	Delay to deactivate (AUX 2)	min	5	0	480	FLOAT	5
Expert	1517	Deactivate if battery in floating phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	**1366**	**Contact active with inverter power or Smart-Boost (AUX 2)**					ONLY LEVEL	Menu
Expert	1367	Inverter power level 1 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1368	Power level 1 (AUX 2)	% Pnom	120	20	120	FLOAT	10
Expert	1369	Time delay 1 (AUX 2)	min	0	0	60	FLOAT	1
Expert	1370	Inverter power level 2 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1371	Power level 2 (AUX 2)	% Pnom	80	20	120	FLOAT	10
Expert	1372	Time delay 2 (AUX 2)	min	5	0	60	FLOAT	1
Expert	1373	Inverter power level 3 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1374	Power level 3 (AUX 2)	% Pnom	50	20	120	FLOAT	10
Expert	1375	Time delay 3 (AUX 2)	min	30	0	60	FLOAT	1
Expert	1376	Inverter power level to deactivate (AUX 2)	% Pnom	40	20	120	FLOAT	10
Expert	1377	Time delay to deactivate (AUX 2)	min	5	0	60	FLOAT	5
Expert	**1504**	**Contact active according to battery temperature (AUX 2) With BSP or BTS**					ONLY LEVEL	Menu
Expert	1457	Contact activated with the temperature of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1458	Contact activated over (AUX 2)	°C	3	-10	50	FLOAT	1
Expert	1459	Contact deactivated below (AUX 2)	°C	5	-10	50	FLOAT	1

Expert	**1502**	**Contact active according to SOC (AUX 2) Only with BSP**					ONLY LEVEL	Menu
Expert	1442	Contact activated with the SOC 1 of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1443	Contact activated below SOC 1 (AUX 2)	% SOC	50	0	100	FLOAT	5
Expert	1590	Delay 1 (AUX 2)	hours	12	0	99	FLOAT	0.25
Expert	1591	Contact activated with the SOC 2 of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1592	Contact activated below SOC 2 (AUX 2)	% SOC	30	0	100	FLOAT	5
Expert	1593	Delay 2 (AUX 2)	hours	0.2	0	99	FLOAT	0.25
Expert	1594	Contact activated with the SOC 3 of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1595	Contact activated below SOC 3 (AUX 2)	% SOC	20	0	100	FLOAT	5
Expert	1596	Delay 3 (AUX 2)	hours	0	0	99	FLOAT	0.25
Expert	1444	Contact deactivated over SOC (AUX 2)	% SOC	90	0	100	FLOAT	5
Expert	1597	Delay to deactivate (AUX 2)	hours	0.2	0	10	FLOAT	0.25
Expert	1598	Deactivate if battery in floating phase (AUX 2)		1:Yes	0:No	1:Yes	BOOL	1
Expert	1513	Security, maximum time of contact (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	1515	Maximum time of operation of contact (AUX 2)	min	600	10	1200	FLOAT	10
Expert	1570	Reset all settings (AUX 2)		S	S	S	INT32	Signal
Expert	**1489**	**AUXILIARY CONTACTS 1 AND 2 EXTENDED FUNCTIONS**					ONLY LEVEL	Menu
Expert	1491	Generator control active		0:No	0:No	1:Yes	BOOL	1
Expert	1493	Number of starting attempts		5	0	20	FLOAT	1
Expert	1492	Starter pulse duration (with AUX2)	sec	3	1	20	FLOAT	1
Expert	1494	Time before a starter pulse	sec	3	1	20	FLOAT	1
Expert	1574	Main contact hold/interrupt time	sec	0	0	30	FLOAT	1
Expert	**1101**	**SYSTEM**					ONLY LEVEL	Menu
Expert	**1537**	**Remote entry (Remote ON/OFF)**					ONLY LEVEL	Menu
Expert	1545	Remote entry active		1:Open	0:Closed	1:Open	LONG ENUM	Only 1 bit 0:Closed 1:Open
Expert	1538	Prohibits transfert relay		0:No	0:No	1:Yes	BOOL	1
Expert	1539	Prohibits inverter		0:No	0:No	1:Yes	BOOL	1
Expert	1540	Prohibits charger		0:No	0:No	1:Yes	BOOL	1
Expert	1541	Prohibits Smart-Boost		0:No	0:No	1:Yes	BOOL	1
Expert	1542	Prohibits grid feeding		0:No	0:No	1:Yes	BOOL	1
Expert	1566	Using a secondary value for the maximum current of the AC source		0:No	0:No	1:Yes	BOOL	1
Expert	1567	Second maximum current of the AC source (Input limit)	Aac	16	2	50	FLOAT	1
Expert	1554	Decrease of the max. current of the source with input voltage activated by remote entry		0:No	0:No	1:Yes	BOOL	1
Expert	1576	ON/OFF command		0:No	0:No	1:Yes	BOOL	1

Expert	1578	Activated by AUX1 state		0:No	0:No	1:Yes	BOOL	1
Expert	1579	Prohibits battery priority		0:No	0:No	1:Yes	BOOL	1
Inst.	1600	Disable minigrid mode		0:No	0:No	1:Yes	BOOL	1
QSP	1640	Clear AUX2 event partial overload		0:No	0:No	1:Yes	BOOL	1
Inst.	1647	Prohibits charger using only power from AC-Out		0:No	0:No	1:Yes	BOOL	1
Expert	1296	Batteries priority as energy source (Not recommended in parallel)		0:No	0:No	1:Yes	BOOL	1
Expert	1297	Battery priority voltage	Vdc	51.6	37.9	72	FLOAT	0.1
Expert	1565	Buzzer alarm duration	min	0	0	60	FLOAT	1
Expert	**1129**	**Auto restarts**					ONLY LEVEL	Menu
Expert	1130	After battery undervoltage		1:Yes	0:No	1:Yes	BOOL	1
Expert	1304	Number of batteries undervoltage allowed before definitive stop		3	1	20	FLOAT	1
Expert	1404	Time period for batteries undervoltages counting	sec	0	0	3000	FLOAT	60
Expert	1305	Number of batteries critical undervoltage allowed before definitive stop		10	1	20	FLOAT	1
Expert	1405	Time period for critical batteries undervoltages counting	sec	10	0	3000	FLOAT	5
Expert	1131	After battery overvoltage		1:Yes	0:No	1:Yes	BOOL	1
Expert	1132	After inverter or Smart-Boost overload		1:Yes	0:No	1:Yes	BOOL	1
Expert	1533	Delay to restart after an overload	sec	5	2	120	FLOAT	1
Expert	1134	After overtemperature		1:Yes	0:No	1:Yes	BOOL	1
Expert	1111	Autostart to the battery connection		0:No	0:No	1:Yes	BOOL	1
Expert	**1484**	**System earthing (Earth - Neutral)**					ONLY LEVEL	Menu
Expert	1485	Prohibited ground relay		1:Yes	0:No	1:Yes	BOOL	1
Expert	1486	Continuous neutral		0:No	0:No	1:Yes	BOOL	1
Inst.	1628	Xtender watchdog enabled (SCOM)		0:No	0:No	1:Yes	BOOL	1
Inst.	1629	Xtender watchdog delay (SCOM)	sec	60	10	300	FLOAT	10
QSP	1616	Use of functions limited to a number of days		0:No	0:No	1:Yes	BOOL	1
QSP	1391	Number of days without functionalitie's restrictions	days	0	0	1300	FLOAT	1
QSP	1617	Transfer relay disabled after timeout		0:No	0:No	1:Yes	BOOL	1
QSP	1618	Inverter disabled after timeout		1:Yes	0:No	1:Yes	BOOL	1
QSP	1619	Charger disabled after timeout		0:No	0:No	1:Yes	BOOL	1
QSP	1620	Smart-Boost disabled after timeout		1:Yes	0:No	1:Yes	BOOL	1
QSP	1621	Grid feeding disabled after timeout		0:No	0:No	1:Yes	BOOL	1
Basic	1395	Restore default settings		S	S	S	INT32	Signal
Inst.	1287	Restore factory settings		S	S	S	INT32	Signal
Inst.	1550	Parameters saved in flash memory		1:Yes	0:No	1:Yes	BOOL	1
Inst.	1415	ON of the Xtenders		S	S	S	INT32	Signal
Inst.	1399	OFF of the Xtenders		S	S	S	INT32	Signal

Expert	1468	Reset of all the inverters		S	S	S	INT32	Signal
Expert	**1282**	**MULTI XTENDER SYSTEM**					ONLY LEVEL	Menu
Expert	1283	Integral mode		1:Yes	0:No	1:Yes	BOOL	1
Expert	1461	Multi inverters allowed		1:Yes	0:No	1:Yes	BOOL	1
Expert	1462	Multi inverters independents. Need reset {1468}		0:No	0:No	1:Yes	BOOL	1
Expert	1555	Battery cycle synchronized by the master		1:Yes	0:No	1:Yes	BOOL	1
Expert	1547	Allow slaves standby in multi-Xtender system		1:Yes	0:No	1:Yes	BOOL	1
Expert	1571	Splitphase: L2 with 180 degrees phaseshift		0:No	0:No	1:Yes	BOOL	1
QSP	1558	Separated Batteries		0:No	0:No	1:Yes	BOOL	1
Inst.	1437	Minigrid compatible		0:No	0:No	1:Yes	BOOL	1
Inst.	1577	Minigrid with shared battery energy		0:No	0:No	1:Yes	BOOL	1
Inst.	1556	Is the central inverter in distributed minigrid		0:No	0:No	1:Yes	BOOL	1
Expert	**1522**	**GRID-FEEDING**					ONLY LEVEL	Menu
Expert	1127	Grid feeding allowed		0:No	0:No	1:Yes	BOOL	1
Expert	1523	Max grid feeding current	Aac	10	0	50	FLOAT	0.2
Expert	1524	Battery voltage target for forced grid feeding	Vdc	48	37.9	72	FLOAT	0.1
Expert	1525	Forced grid feeding start time	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	1526	Forced grid feeding stop time	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Inst.	1610	Use of the defined phase shift curve for injection		0:No	0:No	1:Yes	BOOL	1
Inst.	1622	Cos phi at P = 0%		0: Cos phi 1	-0.1: Inductive 0.90	+0.1: Capacitive 0.90	FLOAT	0.01
Inst.	1623	Cos phi at the power defined by param {1613}		0: Cos phi 1	-0.1: Inductive 0.90	+0.1: Capacitive 0.90	FLOAT	0.01
Inst.	1613	Power of the second cos phi point in % of Pnom	%	50	20	85	FLOAT	5
Inst.	1624	Cos phi at P = 100%		+0.1: Capacitive 0.90	-0.1: Inductive 0.90	+0.1: Capacitive 0.90	FLOAT	0.01
Inst.	1627	ARN4105 frequency control enabled		0:No	0:No	1:Yes	BOOL	1
Inst.	1630	Delta from user frequency to start derating	Hz	1	0	3.9	FLOAT	0.1
Inst.	1631	Delta from user frequency to reach 100% derating	Hz	2	0	3.9	FLOAT	0.1
QSP	1561	Correction for XTS saturation Reg U		0	-300	300	FLOAT	1
QSP	1562	Correction for XTS saturation Reg I		0	-300	300	FLOAT	1
QSP	1648	Imagnet INT level adjustment for correction		0	-300	300	FLOAT	1
QSP	1649	Imagnet ERROR level adjustment for correction		0	-300	300	FLOAT	1

The cos phi parameter range goes from -0.1 (Inductive 0.9) to +0.1 (Capacitive 0.9) by 0.01 steps.

1.3 Xtender infos

Nr	Xtender information description	Short desc.	Unit on the RCC	Unit	Format	Related parameter or description
3000	Battery voltage	Ubat	Vdc	V	FLOAT	
3001	Battery temperature	Tbat	°C	°C no sensor : return ~32767 °C	FLOAT	Value given by the external battery temperature sensor BTS-01
3002	Temperature compensation of battery voltage	Comp°C	Ctmp	Ctmp	FLOAT	
3003	Dynamic compensation of battery voltage	Comp P	Cdyn	Cdyn	FLOAT	
3004	Wanted battery charge current	Ibat	Ausr	A	FLOAT	
3005	Battery charge current	Ibat (m)	Adc	A	FLOAT	
3006	Battery voltage ripple	Ubat ond	Vrip	V	FLOAT	
3007	State of charge	SOC	%	%	FLOAT	
3008	Low Voltage Disconect	LVD	LVD	V	FLOAT	
3010	Battery cycle phase	Phase		0:Invalid value 1:Bulk 2:Absorpt. 3:Equalise 4:Floating 5:R.float. 6:Per.abs. 7:Mixing 8:Forming	SHORT ENUM	See parameter {1137}
3011	Input voltage	U in	Vac	V	FLOAT	See parameter {1197}
3012	Input current	I in	Aac	A	FLOAT	
3013	Input power	P in	kVA	kVA	FLOAT	Less accurate than info 3138
3017	Input limit value	I Limit Val	ILim	A	FLOAT	
3018	Input limite reached	P sharing		0:Off 1:On	SHORT ENUM	L*, see parameter {1107}
3019	Boost active	Boost		0:Off 1:On	SHORT ENUM	B*, see parameter {1126}
3020	State of transfer relay	Transfert		0:Opened 1:Closed	SHORT ENUM	
3021	Output voltage	U out	Vac	V	FLOAT	See parameter {1286}
3022	Output current	I out	Aac	A	FLOAT	
3023	Output power	P out	kVA	kVA	FLOAT	Less accurate than info 3139

3028	Operating state	Mode		0:Invalid value 1:Inverter 2:Charger 3:Boost 4:Injection	SHORT ENUM	Give the current working mode of the inverter. See {1107} for Boost, {1522} for Injection (grid-feeding), charger and inverter mode are oblivious. Only in CSV file, the value 6 indicate that the xtender is off.
3030	State of output relay	Rel out		0:Opened 1:Closed	SHORT ENUM	
3031	State of auxiliary relay 1	Aux 1		0:Opened 1:Closed	SHORT ENUM	See parameter {1201}
3032	State of auxiliary relay 2	Aux 2		0:Opened 1:Closed	SHORT ENUM	See parameter {1201}
3045	Nbr. of overloads	n ovld			FLOAT	
3046	Nbr. overtemperature	n ovtmp			FLOAT	
3047	Nbr. batterie overvoltage	n ovvolt			FLOAT	
3049	State of the inverter	XT state		0:Off 1:On	SHORT ENUM	
3050	Number of battery elements	Bat cells			FLOAT	
3051	Search mode state	SB state		0:Off 1:On	SHORT ENUM	See parameter {1187}
3054	Relay aux 1 mode	Aux 1		0:Invalid value 1:A 2:I 3:M 4:M 5:G	SHORT ENUM	0: Invalid value 1: Automatic 2: Reversed automatic 3: Manual ON 4: Manual OFF 5: Coupled for generator start
3055	Relay aux 2 mode	Aux 2		0:Invalid value 1:A 2:I 3:M 4:M 5:G	SHORT ENUM	See info (3055)
3056	Lockings flag	Lockings			FLOAT	Bit 0: forbidden inverter {1124} Bit 1: forbidden charger {1125} Bit 2: forbidden boost {1126} Bit 3: forbidden transfert {1128} Bit 4: forbidden injection {1127} Bit 8: forbidden multi {1461} Bit 9: multi independants allowed {1462} Bit 10: standy slave allowed {1547}

3074	State of the ground relay	Rel_gnd		0:Opened 1:Closed	SHORT ENUM	
3075	State of the neutral transfer relay	Rel_neutral		0:Opened 1:Closed	SHORT ENUM	
3076	Discharge of battery of the previous day	E out YD	kWh	kWh	FLOAT	
3078	Discharge of battery of the current day	E out Day	kWh	kWh	FLOAT	
3080	Energy AC-In from the previous day	Eac in YD	kWh	kWh	FLOAT	
3081	Energy AC-In from the current day	Eac in Day	kWh	kWh	FLOAT	
3082	Consumers energy of the previous day	Eac out YD	kWh	kWh	FLOAT	
3083	Consumers energy of the current day	Eac out Dy	kWh	kWh	FLOAT	
3084	Input frequency	F in	Hz	Hz	FLOAT	Replace info 3014
3085	Output frequency	F out	Hz	Hz	FLOAT	Replace info 3024
3086	Remote entry state	RME		0:RM EN 0 1:RM EN 1	SHORT ENUM	
3087	Output active power	Pout a	W	W	FLOAT	Less accurate than info 3136
3088	Input active power	P in a	W	W	FLOAT	Less accurate than info 3137
3089	Defined phase				FLOAT	1=L1, 2=L2, 4=L3
3090	Battery voltage (minute min)	Ubat-	Vdc	V	FLOAT	1 minute minimum
3091	Battery voltage (minute max)	Ubat+	Vdc	V	FLOAT	1 minute maximum
3092	Battery voltage (minute avg)	Ubat	Vdc	V	FLOAT	1 minute average
3093	Battery charge current (minute min)	Ibat-	Adc	A	FLOAT	1 minute minimum
3094	Battery charge current (minute max)	Ibat+	Adc	A	FLOAT	1 minute maximum
3095	Battery charge current (minute avg)	Ibat	Adc	A	FLOAT	1 minute average
3096	Output power min (minute min)	Pout-	kVA	kVA	FLOAT	1 minute minimum
3097	Output power (minute max)	Pout+	kVA	kVA	FLOAT	1 minute maximum
3098	Output power (minute avg)	Pout	kVA	kVA	FLOAT	1 minute average
3099	Output active power (minute min)	Pout-a	kW	kW	FLOAT	1 minute minimum
3100	Output active power (minute max)	Pout+a	kW	kW	FLOAT	1 minute maximum
3101	Output active power (minute avg)	Pout a	kW	kW	FLOAT	1 minute average
3102	Electronic temperature 1 (minute min)	Dev1-	°C	°C	FLOAT	1 minute minimum
3103	Electronic temperature 1 (minute max)	Dev1+	°C	°C	FLOAT	1 minute maximum
3104	Electronic temperature 1 (minute avg)	Dev1	°C	°C	FLOAT	1 minute average
3105	Electronic temperature 2 (minute min)	Dev2-	°C	°C	FLOAT	1 minute minimum
3106	Electronic temperature 2 (minute max)	Dev2+	°C	°C	FLOAT	1 minute maximum
3107	Electronic temperature 2 (minute avg)	Dev2	°C	°C	FLOAT	1 minute average
3108	Output frequency (minute min)	Fout-	Hz	Hz	FLOAT	1 minute minimum
3109	Output frequency (minute max)	Fout+	Hz	Hz	FLOAT	1 minute maximum
3110	Output frequency (minute avg)	Fout	Hz	Hz	FLOAT	1 minute average

3111	Input voltage (minute min)	Uin-	Vac	V	FLOAT	1 minute minimum
3112	Input voltage (minute max)	Uin+	Vac	V	FLOAT	1 minute maximum
3113	Input voltage (minute avg)	Uin	Vac	V	FLOAT	1 minute average
3114	Input current (minute min)	Iin-	Aac	A	FLOAT	1 minute minimum
3115	Input current (minute max)	Iin+	Aac	A	FLOAT	1 minute maximum
3116	Input current (minute avg)	Iin	Aac	A	FLOAT	1 minute average
3117	Input active power (minute min)	Pin-a	kW	kW	FLOAT	1 minute minimum
3118	Input active power (minute max)	Pin+a	kW	kW	FLOAT	1 minute maximum
3119	Input active power (minute avg)	Pin a	kW	kW	FLOAT	1 minute average
3120	Input frequency (minute min)	Fin-	Hz	Hz	FLOAT	1 minute minimum
3121	Input frequency (minute max)	Fin+	Hz	Hz	FLOAT	1 minute maximum
3122	Input frequency (minute avg)	Fin	Hz	Hz	FLOAT	1 minute average
3124	ID type	Idt			FLOAT	XTH family = 1, XTM family = 256 et XTS family = 512
3125	ID Power	Power	VA	VA	FLOAT	
3126	ID Uout	Uout	Vac	V	FLOAT	
3127	ID batt voltage	Idv	Vdc	V	FLOAT	
3128	ID Iout nom	Ionom	Aac	A	FLOAT	
3129	ID HW	HW			FLOAT	
3130	ID SOFT msb	Smsb			FLOAT	See section "Software version encoding"
3131	ID SOFT lsb	Slsb			FLOAT	See section "Software version encoding"
3132	ID HW PWR	HWpwr			FLOAT	
3133	Parameter number (in code)	pCod			FLOAT	
3134	Info user number	iCod			FLOAT	
3135	ID SID	SID			FLOAT	
3136	Output active power	Pout a	kW	kW	FLOAT	More accurate than info 3087
3137	Input active power	P in a	kW	kW	FLOAT	More accurate than info 3088
3138	Input power	P in	kVA	kVA	FLOAT	More accurate than info 3013
3139	Output power	P out	kVA	kVA	FLOAT	More accurate than info 3023
3140	System debug 1	DBG1			FLOAT	
3141	System debug 2	DBG2			FLOAT	
3142	System state machine	SSM			FLOAT	
3154	Input frequency	F in	Hz	Hz	FLOAT	
3155	Desired AC injection current	Injc	Aac	A	FLOAT	
3156	ID FID msb				FLOAT	See section "FID encoding"
3157	ID FID lsb				FLOAT	See section "FID encoding"
3158	AC injection current limited (ARN4105)	Injm	Aac		FLOAT	ARN4105, maximum current that can be injected actually, grid frequency dependance

3159	AC injection current, type of limitation (ARN4105)	Injt		0:No limit 1:Freeze 2:NotImax	SHORT ENUM	ARN4105, current limitation depending on grid frequency : 0 : no limitation 1 : Value was frozen, grid frequency is >= 50.2Hz 2 : Value not frozen but not at maximum, grid frequency is < 50.2Hz
3160	Source of limitation of the functions charger or injector	LimSrc		0:Invalid value 1:Ubatt 2:Ubattp 3:Ubattpp 4:Ibatt 5:Pchar 6:UbattInj 7:Iinj 8:Imax 9:Ilim 10:Ithermal 11:PchNeg	SHORT ENUM	Limitation source is : 0: Invalid value 1: U batt (actual phase of charge cycle) 2: U batt peak 3: U batt peak peak 4: I batt ({1138}) 5: P charger 6: U batt injection 7: I injection ({1523}) 8: I max 9: I input limit ({1107}) 10 : I thermal 11 : Pcharger only neg ACout
3161	Battery priority active	batPr		0:Off 1:On	SHORT ENUM	Target voltage for charge/inject is battery priotrity (displayed on RCC with "BP") (Only v1.6.x)
3162	Forced grid feeding active	InjFo		0:Off 1:On	SHORT ENUM	Target voltage for charge/inject is forced injection (displayed on RCC with "IF") (Only v1.6.x)
3164	Battery voltage target for charger/injection		Vdc		FLOAT	DC voltage référence for charge and injection stage. Higher battery voltage can result in injection and lower battery voltage can result in battery charge if allowed.
3165	Allowed charge current in limited charger mode		Aac		FLOAT	AC max current allowed for charging stage to ensure power from Acout.
3166	Current on converter output stage DC/AC		Aac		FLOAT	
3167	Voltage on converter output stage DC/AC		Vac		FLOAT	
3168	Over temperature state			0:No Error 1:TR.Alarm 2:TR.Error 3:EL.Error 4:EL.Stop	SHORT ENUM	Thermal state : 0 = thermal OK 1 = Transformer alarm 2 = Transformer error 4 = Electronique error 8 = Electronique error halted

1.4 RCC parameters

Level	Nr	RCC / Xcom-232i parameter description	Unit	Default	Min	Max	Scom format	Increment
Basic	5000	Language			0	3	INT32	1
Expert	**5036**	**OTHER LANGUAGES**					ONLY LEVEL	Menu
Basic	5038	Choice of the second language		2:French	1:English	128:Slovak	LONG ENUM	Only 1 bit 1:English 2:French 4:German 8:Spanish 16:Dutch 32:Latinoellinika 64:Italian 128:Slovak
Basic	5039	Choice of the third language		4:German	1:English	128:Slovak	LONG ENUM	Only 1 bit 1:English 2:French 4:German 8:Spanish 16:Dutch 32:Latinoellinika 64:Italian 128:Slovak
Basic	5040	Choice of the fourth language		8:Spanish	1:English	128:Slovak	LONG ENUM	Only 1 bit 1:English 2:French 4:German 8:Spanish 16:Dutch 32:Latinoellinika 64:Italian 128:Slovak
Basic	5002	Date	Seconds	0	0	0	INT32	1
V.O.	5012	User level		16	0	111	Not supported	
Expert	5019	Force remote control to user BASIC level		S	S	S	INT32	Signal
Expert	**5057**	**DATALOGGER**					ONLY LEVEL	Menu

Expert	5101	Datalogger enabled		1:Automatic	1:Automatic	4:No	LONG ENUM	Only 1 bit 1:Automatic 2:Yes 4:No
Expert	5059	Save today's datas		S	S	S	INT32	Signal
Inst.	5109	Datalogger reset when modifying the installation		0:No	0:No	1:Yes	BOOL	1
Inst.	5120	Erase the 30 oldest log files from the SD card		S	S	S	INT32	Signal
Expert	5123	Activation of R&D tracks		0:No	0:No	1:Yes	BOOL	1
QSP	5076	Track 1: device		1:XT	1:XT	8:VarioString	LONG ENUM	Only 1 bit 1:XT 2:BSP 4:VarioTrack 8:VarioString
QSP	5063	Track 1: UID		1	1	15	FLOAT	1
QSP	5077	Track 1: reference		140	0	255	FLOAT	1
QSP	5078	Track 2: device		1:XT	1:XT	8:VarioString	LONG ENUM	Only 1 bit 1:XT 2:BSP 4:VarioTrack 8:VarioString
QSP	5064	Track 2: UID		1	1	15	FLOAT	1
QSP	5079	Track 2: reference		141	0	255	FLOAT	1
QSP	5080	Track 3: device		1:XT	1:XT	8:VarioString	LONG ENUM	Only 1 bit 1:XT 2:BSP 4:VarioTrack 8:VarioString
QSP	5065	Track 3: UID		1	1	15	FLOAT	1
QSP	5081	Track 3: reference		142	0	255	FLOAT	1
QSP	5082	Track 4: device		1:XT	1:XT	8:VarioString	LONG ENUM	Only 1 bit 1:XT 2:BSP 4:VarioTrack 8:VarioString
QSP	5066	Track 4: UID		1	1	15	FLOAT	1
QSP	5083	Track 4: reference		160	0	255	FLOAT	1
Basic	**5013**	**SAVE AND RESTORE FILES**					ONLY LEVEL	Menu
Basic	5041	Save all files (system backup)		S	S	S	INT32	Signal

Basic	5068	Restore all files (system recovery)		S	S	S	INT32	Signal
Basic	5070	Apply configuration files (masterfile)		S	S	S	INT32	Signal
Expert	5032	Separator of the .csv files		1:Automatic	1:Automatic	4:,	LONG ENUM	Only 1 bit 1:Automatic 2:; 4:,
Expert	**5069**	**Advanced backup functions**					ONLY LEVEL	Menu
Expert	5030	Save messages		S	S	S	INT32	Signal
Expert	**5049**	**Save and restore RCC files**					ONLY LEVEL	Menu
Expert	5015	Save RCC parameters		S	S	S	INT32	Signal
Expert	5016	Load RCC parameters		S	S	S	INT32	Signal
Inst.	5097	Create RCC configuration file (masterfile)		S	S	S	INT32	Signal
Expert	5098	Load RCC configuration file (masterfile)		S	S	S	INT32	Signal
Expert	**5050**	**Save and restore Xtender files**					ONLY LEVEL	Menu
Expert	5017	Save Xtender parameters		S	S	S	INT32	Signal
Expert	5018	Load Xtender parameters		S	S	S	INT32	Signal
Inst.	5033	Create Xtender configuration file (masterfile)		S	S	S	INT32	Signal
Expert	5034	Load Xtender configuration file (masterfile)		S	S	S	INT32	Signal
Expert	5045	Load Xtender parameters preset		1	1	1	Not supported	
Expert	**5051**	**Save and restore BSP files**					ONLY LEVEL	Menu
Expert	5052	Save BSP parameters		S	S	S	INT32	Signal
Expert	5053	Load BSP parameters		S	S	S	INT32	Signal
Inst.	5054	Create BSP configuration file (masterfile)		S	S	S	INT32	Signal
Expert	5055	Load BSP configuration file (masterfile)		S	S	S	INT32	Signal
Expert	**5084**	**Save and restore VarioTrack files**					ONLY LEVEL	Menu
Expert	5085	Save VarioTrack parameters		S	S	S	INT32	Signal
Expert	5086	Load VarioTrack parameters		S	S	S	INT32	Signal
Inst.	5087	Create VarioTrack configuration file (masterfile)		S	S	S	INT32	Signal
Expert	5088	Load VarioTrack configuration file (masterfile)		S	S	S	INT32	Signal
Expert	**5114**	**Save and restore VarioString files**					ONLY LEVEL	Menu
Expert	5115	Save VarioString parameters		S	S	S	INT32	Signal
Expert	5116	Load VarioString parameters		S	S	S	INT32	Signal
Inst.	5117	Create VarioString configuration file (masterfile)		S	S	S	INT32	Signal
Expert	5118	Load VarioString configuration file (masterfile)		S	S	S	INT32	Signal
Inst.	5047	Format the SD card		S	S	S	INT32	Signal
Expert	5061	Start update		S	S	S	INT32	Signal
Inst.	**5042**	**MODIFICATION OF ACCESS LEVELS OF MANY PARAMETERS**					ONLY LEVEL	Menu

Inst.	5043	Change all parameters access level to:		1:Choose	1:Choose	8:INSTALLER	LONG ENUM	Only 1 bit 1:Choose 2:BASIC 4:EXPERT 8:INSTALLER
Inst.	5044	Restore default access level of all parameters		S	S	S	INT32	Signal
Basic	**5007**	**BACKLIGHT**					ONLY LEVEL	Menu
Basic	5093	Backlight mode		1:Delayed	1:Delayed	4:ON	LONG ENUM	Only 1 bit 1:Delayed 2:OFF 4:ON
Basic	5009	Backlight switch off after	sec	120	5	120	FLOAT	5
Expert	5026	Red backlight flashing on Xtender off and faulty		1:Yes	0:No	1:Yes	BOOL	1
Basic	**5021**	**EXTENDED AND SPECIAL FUNCTIONS**					ONLY LEVEL	Menu
Basic	5006	Display contrast	%	50	0	100	FLOAT	5
Expert	5073	Choice of standard display		2:Xtender	1:Clock	16:VarioString	LONG ENUM	Only 1 bit 1:Clock 2:Xtender 4:BSP 8:VarioTrack 16:VarioString
Inst.	5111	Displaying of configuration assistant on startup		1:Automatic	1:Automatic	4:By default {5073}	LONG ENUM	Only 1 bit 1:Automatic 2:Hidden menu 4:By default {5073}
Expert	5010	Come back to standard display after	sec	600	5	600	FLOAT	5
Expert	5011	Visibility of the transitory messages	sec	60	0	180	FLOAT	5
Basic	5027	Acoustic alarm active		1:Yes	0:No	1:Yes	BOOL	1
Expert	5031	Remote control acoustic alarm duration	sec	120	5	120	FLOAT	5
Expert	5056	Switching ON and OFF of system on level "VIEW ONLY"		1:Yes	0:No	1:Yes	BOOL	1
Expert	5071	Reset of all the remotes control		S	S	S	INT32	Signal
Expert	5121	Reset all devices of the system		S	S	S	INT32	Signal
QSP	**5090**	**Update FID (only 1 device)**					ONLY LEVEL	Menu
QSP	5091	Choose device type		1:XT	1:XT	8:VarioString	LONG ENUM	Only 1 bit 1:XT 2:BSP 4:VarioTrack 8:VarioString

QSP	5092	Choose device id (UID)		1	1	30	FLOAT	1
QSP	5062	Update device FID (only 1 device)		S	S	S	INT32	Signal
Expert	**5094**	**SCOM**					ONLY LEVEL	Menu
Expert	5105	Test of the modem's GPRS signal level (Xcom-GSM)		S	S	S	INT32	Signal
QSP	5008	Activation of push frames to Xcom server		1:Yes	0:No	1:Yes	BOOL	1
Inst.	5067	Clear info {17019} Maximum time interval between two scom requests		S	S	S	INT32	Signal
Inst.	5072	Xcom Portal watchdog activation		1:Automatic	1:Automatic	4:No	LONG ENUM	Only 1 bit 1:Automatic 2:Yes 4:No
Inst.	5113	Delay before Xcom Portal watchdog forces reconnection	minutes	15	5	1440	FLOAT	5
QSP	5119	Device identification (LEDs) with the SCOM address		0	0	831	FLOAT	1
QSP	5095	Enable SCOM watchdog		0:No	0:No	1:Yes	BOOL	1
QSP	5096	SCOM watchdog delay before reset of Xcom-232i	sec	60	10	300	FLOAT	10
QSP	5103	Activation of the watchdog hardware (deactivation restarts the Xcom-232i)		0:No	0:No	1:Yes	BOOL	1
QSP	5104	Clears the restart flag of Xcom-232i		S	S	S	INT32	Signal
QSP	5035	Erase messages		S	S	S	INT32	Signal

1.5 BSP parameters

Level	Nr	BSP parameter description	Unit	Default	Min	Max	Scom format	Increment
Basic	**6000**	**BASIC SETTINGS (BSP)**					ONLY LEVEL	Menu
Basic	6057	Voltage of the system		1:Automatic	1:Automatic	8:48V	LONG ENUM	Only 1 bit 1:Automatic 2:12V 4:24V 8:48V
Basic	6001	Nominal capacity	Ah	110	20	20000	FLOAT	10
Basic	6002	Nominal discharge duration (C-rating)	h	20	1	100	FLOAT	1
Basic	6017	Nominal shunt current	A	500	10	10000	FLOAT	10
Basic	6018	Nominal shunt voltage	mV	50	10	200	FLOAT	10
Expert	6003	Reset of battery history		S	S	S	INT32	Signal
Basic	6004	Restore default settings		S	S	S	INT32	Signal
Inst.	6005	Restore factory settings		S	S	S	INT32	Signal
Expert	**6016**	**ADVANCED SETTINGS (BSP)**					ONLY LEVEL	Menu
Expert	6031	Reset of user counters		S	S	S	INT32	Signal

Expert	6055	Manufacturer SOC for 0% displayed	%	30	0	60	FLOAT	5	
Expert	6056	Manufacturer SOC for 100% displayed	%	100	80	100	FLOAT	5	
Expert	6042	Activate the end of charge synchronization		0:No	0:No	1:Yes	BOOL	1	
Expert	6024	End of charge voltage level	V	52.8	31.9	70.1	FLOAT	0.1	
Expert	6025	End of charge current level	%cap	2	0	500	FLOAT	1	
Expert	6065	Minimum duration before end of charge	min	5	5	300	FLOAT	5	
Expert	6048	Temperature correction of the end of charge voltage	mV/°C/cell	0	-8	0	FLOAT	1	
Expert	6044	Activate the state of charge correction by the open circuit voltage		1:Yes	0:No	1:Yes	BOOL	1	
Expert	6058	Battery charge current centralized regulation activated		0:No	0:No	1:Yes	BOOL	1	
Expert	6059	Max battery charge current	A	60	0	10000	FLOAT	10	
Expert	6019	Self-discharge rate	%/month	3	0	25	FLOAT	0.1	
Expert	6020	Nominal temperature	°C	20	0	40	FLOAT	1	
Expert	6021	Temperature coefficient	%cap/°C	0.5	0	3	FLOAT	0.0999756	
Expert	6022	Charge efficiency factor	%	90	50	100	FLOAT	1	
Expert	6023	Peukert's exponent		1.2	1	1.5	FLOAT	0.0100098	
Expert	6049	Use C20 Capacity as reference value		1:Yes	0:No	1:Yes	BOOL	1	

1.6 BSP infos

Nr	BSP information description	Short desc.	Unit on the RCC	Unit	Format	Related parameter or description
7000	Battery voltage	Ubat	Vdc	V	FLOAT	
7001	Battery current	Ibat	Adc	Adc	FLOAT	
7002	State of Charge	SOC	%	%	FLOAT	
7003	Power	Pbat	W	W	FLOAT	
7004	Remaining autonomy	Trem		minutes	FLOAT	in discharge, number of minutes before 0 % between -60000 and 0, in charge, always NAN
7006	Relative capacity	Crel	%	%	FLOAT	deprecated, return 100 % in version >= 1.5.6
7007	Ah charged today	0d<	Ah	Ah	FLOAT	
7008	Ah discharged today	0d>	Ah	Ah	FLOAT	
7009	Ah charged yesterday	-1d<	Ah	Ah	FLOAT	
7010	Ah discharged yesterday	-1d>	Ah	Ah	FLOAT	
7011	Total Ah charged	tot<	kAh	kAh	FLOAT	
7012	Total Ah discharged	tot>	kAh	kAh	FLOAT	
7013	Total time	Ttot	days	days	FLOAT	
7017	Custom charge Ah counter	cus<	Ah	Ah	FLOAT	

7018	Custom discharge Ah counter	cus>	Ah	Ah	FLOAT	
7019	Custom counter duration	Tcus	h	h	FLOAT	
7029	Battery temperature	Tbat	°C	°C	FLOAT	
7030	Battery voltage (minute avg)	Ubat	Vdc	V	FLOAT	
7031	Battery current (minute avg)	Ibat	Adc	Adc	FLOAT	
7032	State of Charge (minute avg)	SOC	%	%	FLOAT	
7033	Battery temperature (minute avg)	Tbat	°C	°C	FLOAT	
7034	ID type	Idt			FLOAT	BSP500 and BSP1200 = 10241d (0x2801)
7035	ID batt voltage	Idv	Vdc	V	FLOAT	
7036	ID HW	HW			FLOAT	
7037	ID SOFT msb	Smsb			FLOAT	See section "Software version encoding"
7038	ID SOFT lsb	Slsb			FLOAT	See section "Software version encoding"
7039	Parameter number (in code)	pCod			FLOAT	
7040	Info user number	iCod			FLOAT	
7041	ID SID	SID			FLOAT	
7047	Manufacturer State of Charge	mSOC	%	%	FLOAT	
7048	ID FID msb				FLOAT	See section "FID encoding"
7049	ID FID lsb				FLOAT	See section "FID encoding"
7059	Local daily communication error counter (CAN)	locE			FLOAT	
7060	Number of parameters (in flash)	pFsh			FLOAT	

1.7 Xcom-CAN BMS parameters

Level	Nr	Xcom-CAN parameter description	Unit	Default	Min	Max	Scom format	Increment
Basic	**6060**	**BASIC SETTINGS (Xcom-CAN BMS)**					ONLY LEVEL	Menu
Basic	6004	Restore default settings		S	S	S	INT32	Signal
Inst.	6005	Restore factory settings		S	S	S	INT32	Signal
Expert	**6061**	**ADVANCED SETTINGS (Xcom-CAN BMS)**					ONLY LEVEL	Menu
Expert	6070	SOC level under which battery discharge is stopped	%	0	0	100	FLOAT	1
Expert	6062	SOC level for backup	%	100	0	100	FLOAT	1
Expert	6063	SOC level for grid feeding	%	100	0	100	FLOAT	1
Expert	6071	Use battery priority as energy source when SOC >= SOC for backup (not recommended in parallel)		1:Yes	0:No	1:Yes	BOOL	1
Expert	6068	Allow user to define the maximum charge current of the battery		0:No	0:No	1:Yes	BOOL	1
Expert	6069	Maximum charge current defined by user	A	10	0	10000	FLOAT	10
Expert	6066	Manufacturer SOC for 0% displayed	%	0	0	60	FLOAT	5
Expert	6067	Manufacturer SOC for 100% displayed	%	100	80	100	FLOAT	5
Expert	6064	Use battery current limits instead of recommended values		0:No	0:No	1:Yes	BOOL	1

1.8 Xcom-CAN BMS infos

Nr	Xcom-CAN information description	Short desc.	Unit on the RCC	Unit	Format	Related parameter or description
7000	Battery voltage	Ubat	Vdc	V	FLOAT	
7001	Battery current	Ibat	Adc	Adc	FLOAT	
7002	State of Charge	SOC	%	%	FLOAT	
7003	Power	Pbat	W	W	FLOAT	
7007	Ah charged today	0d<	Ah	Ah	FLOAT	
7008	Ah discharged today	0d>	Ah	Ah	FLOAT	
7029	Battery temperature	Tbat	°C	°C	FLOAT	
7030	Battery voltage (minute avg)	Ubat	Vdc	V	FLOAT	
7031	Battery current (minute avg)	Ibat	Adc	Adc	FLOAT	
7032	State of Charge (minute avg)	SOC	%	%	FLOAT	
7033	Battery temperature (minute avg)	Tbat	°C	°C	FLOAT	
7047	Manufacturer State of Charge	mSOC	%	%	FLOAT	
7053	Battery Type	bTyp			FLOAT	
7054	BMS Version	BMSv			FLOAT	

7055	Battery Capacity	bCap	Ah	Ah	FLOAT	
7056	Reserved Manufacturer ID	bmid			FLOAT	
7057	State Of Health	SOH	%		FLOAT	
7058	High resolution manufacturer State of Charge	hSOC	%		FLOAT	
7061	Charge voltage limit	UChL	Vdc	V	FLOAT	
7062	Discharge voltage limit	UDiL	Vdc	V	FLOAT	
7063	Charge current limit	IChL	Adc	A	FLOAT	
7064	Discharge current limit	IDiL	Adc	A	FLOAT	
7065	Recommended charge current	IChR	Adc	A	FLOAT	
7066	Recommended discharge current	IDiR	Adc	A	FLOAT	

1.9 VarioTrack parameters

Level	Nr	VarioTrack parameter description	Unit	Default	Min	Max	Scom format	Increment
Basic	**10000**	**BASIC SETTINGS**					ONLY LEVEL	Menu
Expert	10054	Block manual programming (dip-switch)		0:No	0:No	1:Yes	BOOL	1
Basic	10001	Voltage of the system		1:Automatic	1:Automatic	8:48V	LONG ENUM	Only 1 bit 1:Automatic 2:12V 4:24V 8:48V
Basic	10037	Synchronisation battery cycle with Xtender		1:Yes	0:No	1:Yes	BOOL	1
Basic	10005	Floating voltage	Vdc	54.4	37.9	68.2	FLOAT	0.1
Basic	10009	Absorption voltage	Vdc	57.6	37.9	68.2	FLOAT	0.1
Basic	10017	Equalization allowed		0:No	0:No	1:Yes	BOOL	1
Basic	10021	Equalization voltage	Vdc	62.4	52.1	68.2	FLOAT	0.1
Basic	10056	Restore default settings		S	S	S	INT32	Signal
Inst.	10057	Restore factory settings		S	S	S	INT32	Signal
Expert	**10003**	**BATTERY MANAGEMENT AND CYCLE**					ONLY LEVEL	Menu
Basic	10037	Synchronisation battery cycle with Xtender		1:Yes	0:No	1:Yes	BOOL	1
Expert	10002	Battery charge current	Adc	80	0	80	FLOAT	2
Expert	10334	Battery undervoltage	Vdc	40	34	68.2	FLOAT	0.1
Expert	10036	Temperature compensation	mV/°C/cell	-3	-8	0	FLOAT	1
Expert	**10004**	**Floating phase**					ONLY LEVEL	Menu
Basic	10005	Floating voltage	Vdc	54.4	37.9	68.2	FLOAT	0.1
Expert	10006	Force phase of floating		S	S	S	INT32	Signal

Expert	**10007**	**Absorption phase**						ONLY LEVEL	Menu
Expert	10008	Absorption phase allowed			1:Yes	0:No	1:Yes	BOOL	1
Basic	10009	Absorption voltage	Vdc	57.6	37.9	68.2	FLOAT	0.1
Expert	10010	Force absorption phase		S	S	S	INT32	Signal
Expert	10011	Absorption duration	min	120	5	510	FLOAT	5
Expert	10012	End of absorption triggered by the current		0:No	0:No	1:Yes	BOOL	1
Expert	10013	Current threshold to end absorption phase	Adc	10	2	80	FLOAT	2
Expert	**10016**	**Equalization phase**						ONLY LEVEL	Menu
Basic	10017	Equalization allowed			0:No	0:No	1:Yes	BOOL	1
Expert	10018	Force equalization		S	S	S	INT32	Signal
Basic	10021	Equalization voltage	Vdc	62.4	52.1	68.2	FLOAT	0.1
Expert	10020	Equalization current	Adc	80	2	80	FLOAT	2
Expert	10022	Equalization duration	min	30	5	510	FLOAT	5
Expert	10052	Equalization with fixed interval			1:Yes	0:No	1:Yes	BOOL	1
Expert	10025	Days between equalizations	days	26	1	365	FLOAT	1
Expert	10026	End of equalization triggered by the current		0:No	0:No	1:Yes	BOOL	1
Expert	10027	Current threshold to end equalization phase	Adc	10	4	30	FLOAT	1
Expert	10019	Equalization before absorption phase			1:Yes	0:No	1:Yes	BOOL	1
Expert	**10028**	**New cycle**						ONLY LEVEL	Menu
Expert	10029	Force a new cycle		S	S	S	INT32	Signal
Expert	10030	Voltage level 1 to start a new cycle	Vdc	48.8	37.9	68.2	FLOAT	0.1
Expert	10031	Time period under voltage level 1 to start a new cycle	min	30	0	240	FLOAT	1
Expert	10032	Voltage level 2 to start a new cycle	Vdc	47.2	37.9	68.2	FLOAT	0.1
Expert	10033	Time period under voltage level 2 to start a new cycle	min	2	0	240	FLOAT	1
Expert	10034	Cycling restricted			1:Yes	0:No	1:Yes	BOOL	1
Expert	10035	Minimal delay between cycles	hours	1	0	540	FLOAT	1
Expert	10085	Battery overvoltage level	Vdc	68.2	37.9	68.2	FLOAT	0.1
Expert	10086	Restart voltage level after an battery overvoltage	Vdc	64.8	37.9	68.2	FLOAT	0.1
Expert	**10038**	**SYSTEM**						ONLY LEVEL	Menu
Expert	10054	Block manual programming (dip-switch)			0:No	0:No	1:Yes	BOOL	1
Expert	10060	Check Earthing			1:No control	1:No control	8:Floating battery	LONG ENUM	Only 1 bit 1:No control 2:Neg bat pole earth 4:Pos bat pole earth 8:Floating battery
Inst.	10087	Disabling of the display button			0:No	0:No	1:Yes	BOOL	1
Expert	**10312**	**Remote entry (Remote ON/OFF)**						ONLY LEVEL	Menu

Expert	10313	Remote entry active		2:Open	1:Closed	4:Edge	LONG ENUM	Only 1 bit 1:Closed 2:Open 4:Edge
Expert	10314	ON/OFF command		0:No	0:No	1:Yes	BOOL	1
Expert	10315	Activated by AUX1 state		0:No	0:No	1:Yes	BOOL	1
Expert	10316	Start equalization		0:No	0:No	1:Yes	BOOL	1
Expert	10317	Send a message when remote entry changes state		0:No	0:No	1:Yes	BOOL	1
Expert	10075	Type of MPP tracking		1:P&O	1:P&O	4:Upv fixed	LONG ENUM	Only 1 bit 1:P&O 2:OC ratio 4:Upv fixed
Expert	10053	Open circuit ratio -> MPP	%	80	1	99	FLOAT	1
Expert	10103	PV voltage fixed -> MPP	Vdc	70	0	145	FLOAT	1
Expert	10335	Partial shading check		0:No	0:No	1:Yes	BOOL	1
Expert	10336	Time between checks	min	5	1	30	FLOAT	1
Inst.	10342	VarioTrack watchdog enabled (SCOM)		0:No	0:No	1:Yes	BOOL	1
Inst.	10343	VarioTrack watchdog delay (SCOM)	sec	60	10	300	FLOAT	10
Expert	10200	Reset PV energy meter		S	S	S	INT32	Signal
QSP	10201	Reset total produced PV energy meter		S	S	S	INT32	Signal
Expert	10043	Reset daily solar production meters		S	S	S	INT32	Signal
Expert	10044	Reset daily min-max		S	S	S	INT32	Signal
Basic	10056	Restore default settings		S	S	S	INT32	Signal
Inst.	10057	Restore factory settings		S	S	S	INT32	Signal
Inst.	10058	Parameters saved in flash memory		1:Yes	0:No	1:Yes	BOOL	1
Expert	10039	ON of the VarioTrack		S	S	S	INT32	Signal
Expert	10040	OFF of the VarioTrack		S	S	S	INT32	Signal
Expert	10051	Reset of all VarioTrack		S	S	S	INT32	Signal
Expert	**10088**	**AUXILIARY CONTACT 1**					ONLY LEVEL	Menu
Expert	10089	Operating mode (AUX 1)		1:Automatic	1:Automatic	8:Manual OFF	LONG ENUM	Only 1 bit 1:Automatic 2:Reversed automatic 4:Manual ON 8:Manual OFF
Expert	10090	Combination of the events for the auxiliary contact (AUX 1)		0:Any (Function OR)	0:Any (Function OR)	1:All (Function AND)	LONG ENUM	Only 1 bit 0:Any (Function OR) 1:All (Function AND)
Expert	**10092**	**Contact activated in night mode (AUX 1)**					ONLY LEVEL	Menu

Expert	10093	Activated in night mode (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10094	Delay of activation after entering night mode (AUX 1)	min	1	0	1440		FLOAT	1
Expert	10095	Activation time for the auxiliary relay in night mode (AUX 1)	min	1	0	1440		FLOAT	1
Expert	**10318**	**Contact active with a fixed time schedule (AUX 1)**						ONLY LEVEL	Menu
Expert	10319	Contact activated with fixed time schedule (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10320	Start hour (AUX 1)	Minutes	420=07:00	0=00:00	1440=24:00		INT32	1
Expert	10321	End hour (AUX 1)	Minutes	1200=20:00	0=00:00	1440=24:00		INT32	1
Expert	**10096**	**Contact active on event (AUX 1)**						ONLY LEVEL	Menu
Expert	10198	VarioTrack is ON (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10091	VarioTrack is OFF (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10308	Remote entry (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10097	Battery undervoltage (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10334	Battery undervoltage	Vdc	40	34	68.2		FLOAT	0.1
Expert	10098	Battery overvoltage (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10099	Earth fault (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10100	PV error (48h without charge) (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10102	Overtemperature (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10104	Bulk charge phase (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10105	Absorption phase (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10106	Equalization phase (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10107	Floating (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10108	Reduced floating (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10109	Periodic absorption (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	**10110**	**Contact active according to battery voltage (AUX 1)**						ONLY LEVEL	Menu
Expert	10111	Battery voltage 1 activate (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10112	Battery voltage 1 (AUX 1)	Vdc	46.8	36	72		FLOAT	0.1
Expert	10113	Delay 1 (AUX 1)	min	1	0	60		FLOAT	1
Expert	10114	Battery voltage 2 activate (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10115	Battery voltage 2 (AUX 1)	Vdc	47.8	36	72		FLOAT	0.1
Expert	10116	Delay 2 (AUX 1)	min	10	0	60		FLOAT	1
Expert	10117	Battery voltage 3 activate (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	10118	Battery voltage 3 (AUX 1)	Vdc	48.5	36	72		FLOAT	0.1
Expert	10119	Delay 3 (AUX 1)	min	60	0	60		FLOAT	1
Expert	10120	Battery voltage to deactivate (AUX 1)	Vdc	54	36	72		FLOAT	0.1
Expert	10121	Delay to deactivate (AUX 1)	min	60	0	480		FLOAT	5
Expert	10122	Deactivate if battery in floating phase (AUX 1)			0:No	0:No	1:Yes	BOOL	1

Expert	**10123**	**Contact active according to battery temperature (AUX 1) With BSP or BTS**					ONLY LEVEL	Menu
Expert	10124	Contact activated with the temperature of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	10125	Contact activated over (AUX 1)	°C	3	-10	50	FLOAT	1
Expert	10126	Contact deactivated below (AUX 1)	°C	5	-10	50	FLOAT	1
Expert	10127	Only activated if the battery is not in bulk phase (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	**10128**	**Contact active according to SOC (AUX 1) Only with BSP**					ONLY LEVEL	Menu
Expert	10129	Contact activated with the SOC 1 of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	10130	Contact activated below SOC 1 (AUX 1)	% SOC	50	0	100	FLOAT	5
Expert	10131	Delay 1 (AUX 1)	hours	12	0	99	FLOAT	0.25
Expert	10132	Contact activated with the SOC 2 of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	10133	Contact activated below SOC 2 (AUX 1)	%	30	0	100	FLOAT	5
Expert	10134	Delay 2 (AUX 1)	hours	0.2	0	99	FLOAT	0.25
Expert	10135	Contact activated with the SOC 3 of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	10136	Contact activated below SOC 3 (AUX 1)	%	20	0	100	FLOAT	5
Expert	10137	Delay 3 (AUX 1)	hours	0	0	99	FLOAT	0.25
Expert	10138	Contact deactivated over SOC (AUX 1)	% SOC	90	0	100	FLOAT	5
Expert	10139	Delay to deactivate (AUX 1)	hours	0.2	0	10	FLOAT	0.25
Expert	10140	Deactivate if battery in floating phase (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	10141	Reset all settings (AUX 1)		S	S	S	INT32	Signal
Expert	**10142**	**AUXILIARY CONTACT 2**					ONLY LEVEL	Menu
Expert	10143	Operating mode (AUX 2)		1:Automatic	1:Automatic	8:Manual OFF	LONG ENUM	Only 1 bit 1:Automatic 2:Reversed automatic 4:Manual ON 8:Manual OFF
Expert	10144	Combination of the events for the auxiliary contact (AUX 2)		0:Any (Function OR)	0:Any (Function OR)	1:All (Function AND)	LONG ENUM	Only 1 bit 0:Any (Function OR) 1:All (Function AND)
Expert	**10146**	**Contact activated in night mode (AUX 2)**					ONLY LEVEL	Menu
Expert	10147	Activated in night mode (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10148	Delay of activation after entering night mode (AUX 2)	min	1	0	1440	FLOAT	1
Expert	10149	Activation time for the auxiliary relay in night mode (AUX 2)	min	1	0	1440	FLOAT	1
Expert	**10322**	**Contact active with a fixed time schedule (AUX 2)**					ONLY LEVEL	Menu
Expert	10323	Contact activated with fixed time schedule (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10324	Start hour (AUX 2)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	10325	End hour (AUX 2)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**10150**	**Contact active on event (AUX 2)**					ONLY LEVEL	Menu

Expert	10199	VarioTrack is ON (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10145	VarioTrack is OFF (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10309	Remote entry (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10151	Battery undervoltage (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10334	Battery undervoltage	Vdc	40	34	68.2	FLOAT	0.1
Expert	10152	Battery overvoltage (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10153	Earth fault (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10154	PV error (48h without charge) (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10156	Overtemperature (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10158	Bulk charge phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10159	Absorption phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10160	Equalization phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10161	Floating (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10162	Reduced floating (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10163	Periodic absorption (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	**10164**	**Contact active according to battery voltage (AUX 2)**					ONLY LEVEL	Menu
Expert	10165	Battery voltage 1 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10166	Battery voltage 1 (AUX 2)	Vdc	46.8	36	72	FLOAT	0.1
Expert	10167	Delay 1 (AUX 2)	min	1	0	60	FLOAT	1
Expert	10168	Battery voltage 2 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10169	Battery voltage 2 (AUX 2)	Vdc	47.8	36	72	FLOAT	0.1
Expert	10170	Delay 2 (AUX 2)	min	10	0	60	FLOAT	1
Expert	10171	Battery voltage 3 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10172	Battery voltage 3 (AUX 2)	Vdc	48.5	36	72	FLOAT	0.1
Expert	10173	Delay 3 (AUX 2)	min	60	0	60	FLOAT	1
Expert	10174	Battery voltage to deactivate (AUX 2)	Vdc	54	36	72	FLOAT	0.1
Expert	10175	Delay to deactivate (AUX 2)	min	60	0	480	FLOAT	5
Expert	10176	Deactivate if battery in floating phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	**10177**	**Contact active according to battery temperature (AUX 2) With BSP or BTS**					ONLY LEVEL	Menu
Expert	10178	Contact activated with the temperature of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10179	Contact activated over (AUX 2)	°C	3	-10	50	FLOAT	1
Expert	10180	Contact deactivated below (AUX 2)	°C	5	-10	50	FLOAT	1
Expert	10181	Only activated if the battery is not in bulk phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	**10182**	**Contact active according to SOC (AUX 2) Only with BSP**					ONLY LEVEL	Menu
Expert	10183	Contact activated with the SOC 1 of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10184	Contact activated below SOC 1 (AUX 2)	% SOC	50	0	100	FLOAT	5

Expert	10185	Delay 1 (AUX 2)	hours	12	0	99	FLOAT	0.25
Expert	10186	Contact activated with the SOC 2 of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10187	Contact activated below SOC 2 (AUX 2)	%	30	0	100	FLOAT	5
Expert	10188	Delay 2 (AUX 2)	hours	0.2	0	99	FLOAT	0.25
Expert	10189	Contact activated with the SOC 3 of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10190	Contact activated below SOC 3 (AUX 2)	%	20	0	100	FLOAT	5
Expert	10191	Delay 3 (AUX 2)	hours	0	0	99	FLOAT	0.25
Expert	10192	Contact deactivated over SOC (AUX 2)	% SOC	90	0	100	FLOAT	5
Expert	10193	Delay to deactivate (AUX 2)	hours	0.2	0	10	FLOAT	0.25
Expert	10194	Deactivate if battery in floating phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	10195	Reset all settings (AUX 2)		S	S	S	INT32	Signal
Expert	**10202**	**AUXILIARY CONTACT 3**					ONLY LEVEL	Menu
Expert	10203	Operating mode (AUX 3)		1:Automatic	1:Automatic	8:Manual OFF	LONG ENUM	Only 1 bit 1:Automatic 2:Reversed automatic 4:Manual ON 8:Manual OFF
Expert	10204	Combination of the events for the auxiliary contact (AUX 3)		0:Any (Function OR)	0:Any (Function OR)	1:All (Function AND)	LONG ENUM	Only 1 bit 0:Any (Function OR) 1:All (Function AND)
Expert	**10205**	**Contact activated in night mode (AUX 3)**					ONLY LEVEL	Menu
Expert	10206	Activated in night mode (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10207	Delay of activation after entering night mode (AUX 3)	min	1	0	1440	FLOAT	1
Expert	10208	Activation time for the auxiliary relay in night mode (AUX 3)	min	1	0	1440	FLOAT	1
Expert	**10326**	**Contact active with a fixed time schedule (AUX 3)**					ONLY LEVEL	Menu
Expert	10327	Contact activated with fixed time schedule (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10328	Start hour (AUX 3)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	10329	End hour (AUX 3)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**10209**	**Contact active on event (AUX 3)**					ONLY LEVEL	Menu
Expert	10210	VarioTrack is ON (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10211	VarioTrack is OFF (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10310	Remote entry (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10212	Battery undervoltage (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10213	Battery overvoltage (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10214	Earth fault (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10215	PV error (48h without charge) (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10216	Overtemperature (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10217	Bulk charge phase (AUX 3)		0:No	0:No	1:Yes	BOOL	1

Expert	10218	Absorption phase (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10219	Equalization phase (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10220	Floating (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10221	Reduced floating (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10222	Periodic absorption (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	**10223**	**Contact active according to battery voltage (AUX 3)**					ONLY LEVEL	Menu
Expert	10224	Battery voltage 1 activate (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10225	Battery voltage 1 (AUX 3)	Vdc	46.8	36	72	FLOAT	0.1
Expert	10226	Delay 1 (AUX 3)	min	1	0	60	FLOAT	1
Expert	10227	Battery voltage 2 activate (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10228	Battery voltage 2 (AUX 3)	Vdc	47.8	36	72	FLOAT	0.1
Expert	10229	Delay 2 (AUX 3)	min	10	0	60	FLOAT	1
Expert	10230	Battery voltage 3 activate (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10231	Battery voltage 3 (AUX 3)	Vdc	48.5	36	72	FLOAT	0.1
Expert	10232	Delay 3 (AUX 3)	min	60	0	60	FLOAT	1
Expert	10233	Battery voltage to deactivate (AUX 3)	Vdc	54	36	72	FLOAT	0.1
Expert	10234	Delay to deactivate (AUX 3)	min	60	0	480	FLOAT	5
Expert	10235	Deactivate if battery in floating phase (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	**10236**	**Contact active according to battery temperature (AUX 3) With BSP or BTS**					ONLY LEVEL	Menu
Expert	10237	Contact activated with the temperature of battery (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10238	Contact activated over (AUX 3)	°C	3	-10	50	FLOAT	1
Expert	10239	Contact deactivated below (AUX 3)	°C	5	-10	50	FLOAT	1
Expert	10240	Only activated if the battery is not in bulk phase (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	**10241**	**Contact active according to SOC (AUX 3) Only with BSP**					ONLY LEVEL	Menu
Expert	10242	Contact activated with the SOC 1 of battery (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10243	Contact activated below SOC 1 (AUX 3)	% SOC	50	0	100	FLOAT	5
Expert	10244	Delay 1 (AUX 3)	hours	12	0	99	FLOAT	0.25
Expert	10245	Contact activated with the SOC 2 of battery (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10246	Contact activated below SOC 2 (AUX 3)	%	30	0	100	FLOAT	5
Expert	10247	Delay 2 (AUX 3)	hours	0.2	0	99	FLOAT	0.25
Expert	10248	Contact activated with the SOC 3 of battery (AUX 3)		0:No	0:No	1:Yes	BOOL	1
Expert	10249	Contact activated below SOC 3 (AUX 3)	%	20	0	100	FLOAT	5
Expert	10250	Delay 3 (AUX 3)	hours	0	0	99	FLOAT	0.25
Expert	10251	Contact deactivated over SOC (AUX 3)	% SOC	90	0	100	FLOAT	5
Expert	10252	Delay to deactivate (AUX 3)	hours	0.2	0	10	FLOAT	0.25
Expert	10253	Deactivate if battery in floating phase (AUX 3)		0:No	0:No	1:Yes	BOOL	1

Expert	10254	Reset all settings (AUX 3)		S	S	S	INT32	Signal
Expert	**10255**	**AUXILIARY CONTACT 4**					ONLY LEVEL	Menu
Expert	10256	Operating mode (AUX 4)		1:Automatic	1:Automatic	8:Manual OFF	LONG ENUM	Only 1 bit 1:Automatic 2:Reversed automatic 4:Manual ON 8:Manual OFF
Expert	10257	Combination of the events for the auxiliary contact (AUX 4)		0:Any (Function OR)	0:Any (Function OR)	1:All (Function AND)	LONG ENUM	Only 1 bit 0:Any (Function OR) 1:All (Function AND)
Expert	**10258**	**Contact activated in night mode (AUX 4)**					ONLY LEVEL	Menu
Expert	10259	Activated in night mode (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10260	Delay of activation after entering night mode (AUX 4)	min	1	0	1440	FLOAT	1
Expert	10261	Activation time for the auxiliary relay in night mode (AUX 4)	min	1	0	1440	FLOAT	1
Expert	**10330**	**Contact active with a fixed time schedule (AUX 4)**					ONLY LEVEL	Menu
Expert	10331	Contact activated with fixed time schedule (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10332	Start hour (AUX 4)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	10333	End hour (AUX 4)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**10262**	**Contact active on event (AUX 4)**					ONLY LEVEL	Menu
Expert	10263	VarioTrack is ON (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10264	VarioTrack is OFF (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10311	Remote entry (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10265	Battery undervoltage (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10266	Battery overvoltage (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10267	Earth fault (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10268	PV error (48h without charge) (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10269	Overtemperature (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10270	Bulk charge phase (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10271	Absorption phase (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10272	Equalization phase (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10273	Floating (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10274	Reduced floating (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10275	Periodic absorption (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	**10276**	**Contact active according to battery voltage (AUX 4)**					ONLY LEVEL	Menu
Expert	10277	Battery voltage 1 activate (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10278	Battery voltage 1 (AUX 4)	Vdc	46.8	36	72	FLOAT	0.1
Expert	10279	Delay 1 (AUX 4)	min	1	0	60	FLOAT	1
Expert	10280	Battery voltage 2 activate (AUX 4)		0:No	0:No	1:Yes	BOOL	1

Expert	10281	Battery voltage 2 (AUX 4)	Vdc	47.8	36	72	FLOAT	0.1
Expert	10282	Delay 2 (AUX 4)	min	10	0	60	FLOAT	1
Expert	10283	Battery voltage 3 activate (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10284	Battery voltage 3 (AUX 4)	Vdc	48.5	36	72	FLOAT	0.1
Expert	10285	Delay 3 (AUX 4)	min	60	0	60	FLOAT	1
Expert	10286	Battery voltage to deactivate (AUX 4)	Vdc	54	36	72	FLOAT	0.1
Expert	10287	Delay to deactivate (AUX 4)	min	60	0	480	FLOAT	5
Expert	10288	Deactivate if battery in floating phase (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	**10289**	**Contact active according to battery temperature (AUX 4) With BSP or BTS**					ONLY LEVEL	Menu
Expert	10290	Contact activated with the temperature of battery (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10291	Contact activated over (AUX 4)	°C	3	-10	50	FLOAT	1
Expert	10292	Contact deactivated below (AUX 4)	°C	5	-10	50	FLOAT	1
Expert	10293	Only activated if the battery is not in bulk phase (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	**10294**	**Contact active according to SOC (AUX 4) Only with BSP**					ONLY LEVEL	Menu
Expert	10295	Contact activated with the SOC 1 of battery (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10296	Contact activated below SOC 1 (AUX 4)	% SOC	50	0	100	FLOAT	5
Expert	10297	Delay 1 (AUX 4)	hours	12	0	99	FLOAT	0.25
Expert	10298	Contact activated with the SOC 2 of battery (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10299	Contact activated below SOC 2 (AUX 4)	%	30	0	100	FLOAT	5
Expert	10300	Delay 2 (AUX 4)	hours	0.2	0	99	FLOAT	0.25
Expert	10301	Contact activated with the SOC 3 of battery (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10302	Contact activated below SOC 3 (AUX 4)	%	20	0	100	FLOAT	5
Expert	10303	Delay 3 (AUX 4)	hours	0	0	99	FLOAT	0.25
Expert	10304	Contact deactivated over SOC (AUX 4)	% SOC	90	0	100	FLOAT	5
Expert	10305	Delay to deactivate (AUX 4)	hours	0.2	0	10	FLOAT	0.25
Expert	10306	Deactivate if battery in floating phase (AUX 4)		0:No	0:No	1:Yes	BOOL	1
Expert	10307	Reset all settings (AUX 4)		S	S	S	INT32	Signal

1.10 VarioTrack infos

Nr	VarioTrack information description	Short desc.	Unit on the RCC	Unit	Format	Related parameter or description
11000	Battery voltage	Ubat	Vdc	V	FLOAT	
11001	Battery current	Ibat	Adc	A	FLOAT	
11002	Voltage of the PV generator	Upv	Vdc	V	FLOAT	

11004	Power of the PV generator	Psol	kW	kW	FLOAT	
11005	Battery temperature	Tbat	°C	°C	FLOAT	
11006	Production in (Ah) for the current day	Cd	Ah	Ah	FLOAT	
11007	Production in (kWh) for the current day	Ed	kWh	kWh	FLOAT	
11008	Produced energy resettable counter	kWhR	kWh	kWh	FLOAT	
11009	Total produced energy	MWhT	MWh	MWh	FLOAT	
11010	Production in (Ah) for the previous day	Cd-1	Ah	Ah	FLOAT	
11011	Production in (Wh) for the previous day	Ed-1	kWh	kWh	FLOAT	
11012	Number of parameters (in code)	pCod			FLOAT	
11013	Number of parameters (in flash)	pFla			FLOAT	
11014	Number of infos users	iCod			FLOAT	
11015	Model of VarioTrack	Type		0:VT-80 1:VT-65	SHORT ENUM	
11016	Operating mode	Mode		0:Night 1:StartUp 2:--- 3:Charger 4:--- 5:Security 6:OFF 7:--- 8:Charge 9:Charge V 10:Charge I 11:Charge T 12:Ch. Ibsp	SHORT ENUM	See the VarioTrack user manual for a description of the modes. Mode 3: is available up to VT code version 1.5.8. Modes 8: to 11: are available from VT code version 1.5.10.
11017	Max PV voltage for the current day	PVmx	Vdc	V	FLOAT	
11018	Max battery current of the current day	Ibmx	Adc	A	FLOAT	
11019	Max power production for the current day	PVxP	kW	kW	FLOAT	
11020	Max battery voltage for the current day	Bmax	Vdc	V	FLOAT	
11021	Min battery voltage for the current day	Bmin	Vdc	V	FLOAT	
11025	Number of irradiation hours for the current day	Sd	h	h	FLOAT	
11026	Number of irradiation hours for the previous day	Sd-1	h	h	FLOAT	

11034	Type of error	Err		0:No Error 1:BatOverV 2:Earth 3:No Batt 4:OverTemp 5:BatOverV 6:PvOverV 7:Others 8:--- 9:--- 10:--- 11:--- 12:HardErr	SHORT ENUM	See the VarioTrack user manual for a description of these errors
11037	Number of days before next equalization	EqIn	days	days	FLOAT	
11038	Battery cycle phase	Phas		0:Bulk 1:Absorpt. 2:Equalize 3:Floating 4:--- 5:--- 6:R.float. 7:Per.abs. 8:--- 9:--- 10:--- 11:---	SHORT ENUM	
11039	Battery voltage (minute avg)	UbaM	Vdc	V	FLOAT	
11040	Battery current (minute avg)	IbaM	Adc	A	FLOAT	
11041	PV voltage (minute avg)	UpvM	Vdc	V	FLOAT	
11043	PV power (minute avg)	PsoM	kW	kW	FLOAT	
11044	Battery temperature (minute avg)	TbaM	°C	°C	FLOAT	
11045	Electronic temperature 1 (minute avg)	Dev1	°C	°C	FLOAT	
11046	Electronic temperature 2 (minute avg)	Dev2	°C	°C	FLOAT	
11047	ID type	Idt			FLOAT	VT65 and VT80 = 9079d (0x2601)
11048	ID batt voltage	Idv	Vdc	V	FLOAT	
11049	ID HW	HW			FLOAT	
11050	ID SOFT msb	Smsb			FLOAT	See section "Software version encoding"
11051	ID SOFT lsb	Slsb			FLOAT	See section "Software version encoding"

11052	ID SID	SID			FLOAT	
11061	State of auxiliary relay 1	Aux 1		0:Opened 1:Closed	SHORT ENUM	
11062	State of auxiliary relay 2	Aux 2		0:Opened 1:Closed	SHORT ENUM	
11063	Relay aux 1 mode	Aux 1		0:--- 1:A 2:I 3:M 4:M 5:G	SHORT ENUM	
11064	Relay aux 2 mode	Aux 2		0:--- 1:A 2:I 3:M 4:M 5:G	SHORT ENUM	
11066	Synchronisation state	Sync		0:--- 1:--- 2:--- 3:--- 4:XTslave 5:VTslave 6:--- 7:--- 8:VTmaster 9:Autonom. 10:VSslave 11:VSmaster	SHORT ENUM	
11067	ID FID msb				FLOAT	See section "FID encoding"
11068	ID FID lsb				FLOAT	See section "FID encoding"
11069	State of the VarioTrack	VT state		0:Off 1:On	SHORT ENUM	
11076	Local daily communication error counter (CAN)	locEr			FLOAT	
11077	State of auxiliary relay 3	Aux 3		0:Opened 1:Closed	SHORT ENUM	
11078	State of auxiliary relay 4	Aux 4		0:Opened 1:Closed	SHORT ENUM	

11079	Relay aux 3 mode	Aux 3		0:--- 1:A 2:I 3:M 4:M 5:G	SHORT ENUM	
11080	Relay aux 4 mode	Aux 4		0:--- 1:A 2:I 3:M 4:M 5:G	SHORT ENUM	
11082	Remote entry state	RME		0:RM EN 0 1:RM EN 1	SHORT ENUM	

1.11 VarioString parameters

Level	Nr	VarioString parameter description	Unit	Default	Min	Max	Scom format	Increment
Basic	**14000**	**BASIC SETTINGS**					ONLY LEVEL	Menu
Expert	14174	Block manual programming (dip-switch)		0:No	0:No	1:Yes	BOOL	1
Expert	14001	Battery charge current (VS-120)	Adc	120	0	120	FLOAT	2
Expert	14217	Battery charge current (VS-70)	Adc	70	0	70	FLOAT	1
Basic	14002	Configuration of PV modules (VS-120)		1:Automatic	1:Automatic	8:Parallel	LONG ENUM	Only 1 bit 1:Automatic 2:Independent 4:Serial 8:Parallel
Basic	14067	Restore default settings		S	S	S	INT32	Signal
Inst.	14068	Restore factory settings		S	S	S	INT32	Signal
Expert	**14003**	**BATTERY MANAGEMENT AND CYCLE**					ONLY LEVEL	Menu
Basic	14036	Synchronisation battery cycle with Xtender		1:Yes	0:No	1:Yes	BOOL	1
Expert	14001	Battery charge current (VS-120)	Adc	120	0	120	FLOAT	2
Expert	14217	Battery charge current (VS-70)	Adc	70	0	70	FLOAT	1
Expert	14216	Battery undervoltage	Vdc	40	34	68.2	FLOAT	0.1
Expert	14035	Temperature compensation	mV/°C/cell	-3	-8	0	FLOAT	1
Expert	**14004**	**Floating phase**					ONLY LEVEL	Menu
Expert	14005	Floating voltage	Vdc	54.4	37.9	68.2	FLOAT	0.1

Expert	14006	Force phase of floating		S	S	S	INT32	Signal
Expert	**14007**	**Absorption phase**					ONLY LEVEL	Menu
Expert	14008	Absorption phase allowed		1:Yes	0:No	1:Yes	BOOL	1
Expert	14009	Absorption voltage	Vdc	57.6	37.9	68.2	FLOAT	0.1
Expert	14010	Force absorption phase		S	S	S	INT32	Signal
Expert	14011	Absorption duration	min	120	5	510	FLOAT	5
Expert	14012	End of absorption triggered by the current		0:No	0:No	1:Yes	BOOL	1
Expert	14013	Current threshold to end absorption phase	Adc	10	2	120	FLOAT	2
Expert	**14016**	**Equalization phase**					ONLY LEVEL	Menu
Expert	14017	Equalization allowed		0:No	0:No	1:Yes	BOOL	1
Expert	14018	Force equalization		S	S	S	INT32	Signal
Expert	14021	Equalization voltage	Vdc	62.4	52.1	68.2	FLOAT	0.1
Expert	14020	Equalization current	Adc	80	2	120	FLOAT	2
Expert	14022	Equalization duration	min	30	5	510	FLOAT	5
Expert	14023	Equalization with fixed interval		1:Yes	0:No	1:Yes	BOOL	1
Expert	14024	Days between equalizations	days	26	1	365	FLOAT	1
Expert	14025	End of equalization triggered by the current		0:No	0:No	1:Yes	BOOL	1
Expert	14026	Current threshold to end equalization phase	Adc	10	4	30	FLOAT	1
Expert	14019	Equalization before absorption phase		1:Yes	0:No	1:Yes	BOOL	1
Expert	**14027**	**New cycle**					ONLY LEVEL	Menu
Expert	14028	Force a new cycle		S	S	S	INT32	Signal
Expert	14029	Voltage level 1 to start a new cycle	Vdc	48.8	37.9	68.2	FLOAT	0.1
Expert	14030	Time period under voltage level 1 to start a new cycle	min	30	0	240	FLOAT	1
Expert	14031	Voltage level 2 to start a new cycle	Vdc	47.2	37.9	68.2	FLOAT	0.1
Expert	14032	Time period under voltage level 2 to start a new cycle	min	2	0	240	FLOAT	1
Expert	14033	Cycling restricted		1:Yes	0:No	1:Yes	BOOL	1
Expert	14034	Minimal delay between cycles	hours	1	0	540	FLOAT	1
Expert	14065	Battery overvoltage level	Vdc	68.2	37.9	68.2	FLOAT	0.1
Expert	14066	Restart voltage level after a battery overvoltage	Vdc	64.8	37.9	68.2	FLOAT	0.1
Expert	**14037**	**SYSTEM**					ONLY LEVEL	Menu
Expert	14174	Block manual programming (dip-switch)		0:No	0:No	1:Yes	BOOL	1
Expert	14040	Type of battery grounding		1:No control	1:No control	8:Bat floating	LONG ENUM	Only 1 bit 1:No control 2:Bat+ grounded 4:Bat- grounded 8:Bat floating
Expert	**14194**	**Configuration for VS-120**					ONLY LEVEL	Menu

Expert	14041	Type of PV grounding		1:No control	1:No control	8:PV floating	LONG ENUM	Only 1 bit 1:No control 2:PV+ grounded 4:PV- grounded 8:PV floating
Expert	14175	Type of PV1 grounding		1:No control	1:No control	8:PV floating	LONG ENUM	Only 1 bit 1:No control 2:PV+ grounded 4:PV- grounded 8:PV floating
Expert	14042	Type of PV2 grounding		1:No control	1:No control	8:PV floating	LONG ENUM	Only 1 bit 1:No control 2:PV+ grounded 4:PV- grounded 8:PV floating
Expert	**14180**	**Type of MPPT algorithm**					ONLY LEVEL	Menu
Expert	14043	Type of MPP tracking algorithm PV		8:LSF	1:P&O	8:LSF	LONG ENUM	Only 1 bit 1:P&O 2:OC ratio 4:Upv fixed 8:LSF
Expert	14044	PV voltage fixed (for PV in series)	Vdc	700	400	900	FLOAT	10
Expert	14179	PV voltage fixed (for PV in //)	Vdc	500	200	600	FLOAT	10
Expert	14045	Ratio of PV open circuit voltage		0.7	0.5	1	FLOAT	0.010009766
Expert	14176	Type of MPP tracking algorithm PV1		8:LSF	1:P&O	8:LSF	LONG ENUM	Only 1 bit 1:P&O 2:OC ratio 4:Upv fixed 8:LSF
Expert	14177	PV1 voltage fixed	Vdc	500	200	600	FLOAT	10
Expert	14178	Ratio of PV1 open circuit voltage		0.7	0.5	1	FLOAT	0.010009766
Expert	14046	Type of MPP tracking algorithm PV2		8:LSF	1:P&O	8:LSF	LONG ENUM	Only 1 bit 1:P&O 2:OC ratio 4:Upv fixed 8:LSF
Expert	14047	PV2 voltage fixed	Vdc	500	200	600	FLOAT	10
Expert	14048	Ratio of PV2 open circuit voltage		0.7	0.5	1	FLOAT	0.010009766

Inst.	14192	Establishment time (Algo MPPT)	sec	0	0	300	FLOAT	1
Inst.	14193	Averaging time (algo MPPT)	sec	0	0	300	FLOAT	1
Inst.	14190	PV wiring type erased from memory		S	S	S	INT32	Signal
Expert	**14195**	**Configuration for VS-70**					ONLY LEVEL	Menu
Expert	14196	Type of PV grounding		1:No control	1:No control	8:PV floating	LONG ENUM	Only 1 bit 1:No control 2:PV+ grounded 4:PV- grounded 8:PV floating
Expert	**14180**	**Type of MPPT algorithm**					ONLY LEVEL	Menu
Expert	14197	Type of MPP tracking algorithm PV		8:LSF	1:P&O	8:LSF	LONG ENUM	Only 1 bit 1:P&O 2:OC ratio 4:Upv fixed 8:LSF
Expert	14198	PV voltage fixed	Vdc	500	200	600	FLOAT	10
Expert	14199	Ratio of PV open circuit voltage		0.7	0.5	1	FLOAT	0.010009766
Inst.	14192	Establishment time (Algo MPPT)	sec	0	0	300	FLOAT	1
Inst.	14193	Averaging time (algo MPPT)	sec	0	0	300	FLOAT	1
Expert	**14200**	**Remote entry (Remote ON/OFF)**					ONLY LEVEL	Menu
Expert	14201	Remote entry active		2:Open	1:Closed	4:Edge	LONG ENUM	Only 1 bit 1:Closed 2:Open 4:Edge
Expert	14202	ON/OFF command		0:No	0:No	1:Yes	BOOL	1
Expert	14203	Activated by AUX1 state		0:No	0:No	1:Yes	BOOL	1
Expert	14204	Start equalization		0:No	0:No	1:Yes	BOOL	1
Expert	14205	Send a message when remote entry changes state		0:No	0:No	1:Yes	BOOL	1
Inst.	14218	VarioString watchdog enabled (SCOM)		0:No	0:No	1:Yes	BOOL	1
Inst.	14219	VarioString watchdog delay (SCOM)	sec	60	10	300	FLOAT	10
Expert	14182	Reset PV energy meter		S	S	S	INT32	Signal
QSP	14183	Reset total produced PV energy meter		S	S	S	INT32	Signal
Expert	14051	Reset daily solar production meters		S	S	S	INT32	Signal
Expert	14052	Reset daily min-max		S	S	S	INT32	Signal
Basic	14067	Restore default settings		S	S	S	INT32	Signal
Inst.	14068	Restore factory settings		S	S	S	INT32	Signal
Inst.	14069	Parameters saved in flash memory		1:Yes	0:No	1:Yes	BOOL	1
Expert	14038	ON of the VarioString		S	S	S	INT32	Signal

Expert	14039	OFF of the VarioString			S	S	S	INT32	Signal
Expert	14059	Reset of all VarioString			S	S	S	INT32	Signal
Expert	**14070**	**AUXILIARY CONTACT 1**						ONLY LEVEL	Menu
Expert	14071	Operating mode (AUX 1)			1:Automatic	1:Automatic	8:Manual OFF	LONG ENUM	Only 1 bit 1:Automatic 2:Reversed automatic 4:Manual ON 8:Manual OFF
Expert	14072	Combination of the events for the auxiliary contact (AUX 1)			0:Any (Function OR)	0:Any (Function OR)	1:All (Function AND)	LONG ENUM	Only 1 bit 0:Any (Function OR) 1:All (Function AND)
Expert	**14073**	**Contact activated in night mode (AUX 1)**						ONLY LEVEL	Menu
Expert	14074	Activated in night mode (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14075	Delay of activation after entering night mode (AUX 1)	min		1	0	1440	FLOAT	1
Expert	14076	Activation time for the auxiliary relay in night mode (AUX 1)	min		1	0	1440	FLOAT	1
Expert	**14206**	**Contact active with a fixed time schedule (AUX 1)**						ONLY LEVEL	Menu
Expert	14207	Contact activated with fixed time schedule (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14208	Start hour (AUX 1)	Minutes		420=07:00	0=00:00	1440=24:00	INT32	1
Expert	14209	End hour (AUX 1)	Minutes		1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**14077**	**Contact active on event (AUX 1)**						ONLY LEVEL	Menu
Expert	14188	VarioString is ON (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14078	VarioString is OFF (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14214	Remote entry (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14079	Battery undervoltage (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14216	Battery undervoltage	Vdc		40	34	68.2	FLOAT	0.1
Expert	14080	Battery overvoltage (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14081	Earth fault (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14082	PV error (48h without charge) (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14083	Overtemperature (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14084	Bulk charge phase (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14085	Absorption phase (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14086	Equalization phase (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14087	Floating (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14088	Reduced floating (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14089	Periodic absorption (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	**14090**	**Contact active according to battery voltage (AUX 1)**						ONLY LEVEL	Menu
Expert	14091	Battery voltage 1 activate (AUX 1)			0:No	0:No	1:Yes	BOOL	1
Expert	14092	Battery voltage 1 (AUX 1)	Vdc		46.8	36	72	FLOAT	0.1

Expert	14093	Delay 1 (AUX 1)	min	1	0	60	FLOAT	1
Expert	14094	Battery voltage 2 activate (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	14095	Battery voltage 2 (AUX 1)	Vdc	47.8	36	72	FLOAT	0.1
Expert	14096	Delay 2 (AUX 1)	min	10	0	60	FLOAT	1
Expert	14097	Battery voltage 3 activate (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	14098	Battery voltage 3 (AUX 1)	Vdc	48.5	36	72	FLOAT	0.1
Expert	14099	Delay 3 (AUX 1)	min	60	0	60	FLOAT	1
Expert	14100	Battery voltage to deactivate (AUX 1)	Vdc	54	36	72	FLOAT	0.1
Expert	14101	Delay to deactivate (AUX 1)	min	60	0	480	FLOAT	5
Expert	14102	Deactivate if battery in floating phase (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	**14103**	**Contact active according to battery temperature (AUX 1) With BSP or BTS**					ONLY LEVEL	Menu
Expert	14104	Contact activated with the temperature of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	14105	Contact activated over (AUX 1)	°C	3	-10	50	FLOAT	1
Expert	14106	Contact deactivated below (AUX 1)	°C	5	-10	50	FLOAT	1
Expert	14107	Only activated if the battery is not in bulk phase (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	**14108**	**Contact active according to SOC (AUX 1) Only with BSP**					ONLY LEVEL	Menu
Expert	14109	Contact activated with the SOC 1 of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	14110	Contact activated below SOC 1 (AUX 1)	% SOC	50	0	100	FLOAT	5
Expert	14111	Delay 1 (AUX 1)	hours	12	0	99	FLOAT	0.25
Expert	14112	Contact activated with the SOC 2 of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	14113	Contact activated below SOC 2 (AUX 1)	%	30	0	100	FLOAT	5
Expert	14114	Delay 2 (AUX 1)	hours	0.2	0	99	FLOAT	0.25
Expert	14115	Contact activated with the SOC 3 of battery (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	14116	Contact activated below SOC 3 (AUX 1)	%	20	0	100	FLOAT	5
Expert	14117	Delay 3 (AUX 1)	hours	0	0	99	FLOAT	0.25
Expert	14118	Contact deactivated over SOC (AUX 1)	% SOC	90	0	100	FLOAT	5
Expert	14119	Delay to deactivate (AUX 1)	hours	0.2	0	10	FLOAT	0.25
Expert	14120	Deactivate if battery in floating phase (AUX 1)		0:No	0:No	1:Yes	BOOL	1
Expert	14121	Reset all settings (AUX 1)		S	S	S	INT32	Signal
Expert	**14122**	**AUXILIARY CONTACT 2**					ONLY LEVEL	Menu
Expert	14123	Operating mode (AUX 2)		1:Automatic	1:Automatic	8:Manual OFF	LONG ENUM	Only 1 bit 1:Automatic 2:Reversed automatic 4:Manual ON 8:Manual OFF

Level	Ref	Description	Unit	0:Any (Function OR)	0:Any (Function OR)	1:All (Function AND)	Type	Only 1 bit
Expert	14124	Combination of the events for the auxiliary contact (AUX 2)		0:Any (Function OR)	0:Any (Function OR)	1:All (Function AND)	LONG ENUM	Only 1 bit 0:Any (Function OR) 1:All (Function AND)
Expert	**14125**	**Contact activated in night mode (AUX 2)**					ONLY LEVEL	Menu
Expert	14126	Activated in night mode (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14127	Delay of activation after entering night mode (AUX 2)	min	1	0	1440	FLOAT	1
Expert	14128	Activation time for the auxiliary relay in night mode (AUX 2)	min	1	0	1440	FLOAT	1
Expert	**14210**	**Contact active with a fixed time schedule (AUX 2)**					ONLY LEVEL	Menu
Expert	14211	Contact activated with fixed time schedule (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14212	Start hour (AUX 2)	Minutes	420=07:00	0=00:00	1440=24:00	INT32	1
Expert	14213	End hour (AUX 2)	Minutes	1200=20:00	0=00:00	1440=24:00	INT32	1
Expert	**14129**	**Contact active on event (AUX 2)**					ONLY LEVEL	Menu
Expert	14189	VarioString is ON (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14130	VarioString is OFF (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14215	Remote entry (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14131	Battery undervoltage (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14216	Battery undervoltage	Vdc	40	34	68.2	FLOAT	0.1
Expert	14132	Battery overvoltage (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14133	Earth fault (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14134	PV error (48h without charge) (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14135	Overtemperature (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14136	Bulk charge phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14137	Absorption phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14138	Equalization phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14139	Floating (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14140	Reduced floating (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14141	Periodic absorption (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	**14142**	**Contact active according to battery voltage (AUX 2)**					ONLY LEVEL	Menu
Expert	14143	Battery voltage 1 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14144	Battery voltage 1 (AUX 2)	Vdc	46.8	36	72	FLOAT	0.1
Expert	14145	Delay 1 (AUX 2)	min	1	0	60	FLOAT	1
Expert	14146	Battery voltage 2 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14147	Battery voltage 2 (AUX 2)	Vdc	47.8	36	72	FLOAT	0.1
Expert	14148	Delay 2 (AUX 2)	min	10	0	60	FLOAT	1
Expert	14149	Battery voltage 3 activate (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14150	Battery voltage 3 (AUX 2)	Vdc	48.5	36	72	FLOAT	0.1
Expert	14151	Delay 3 (AUX 2)	min	60	0	60	FLOAT	1
Expert	14152	Battery voltage to deactivate (AUX 2)	Vdc	54	36	72	FLOAT	0.1

Expert	14153	Delay to deactivate (AUX 2)	min	60	0	480	FLOAT	5
Expert	14154	Deactivate if battery in floating phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	**14155**	**Contact active according to battery temperature (AUX 2) With BSP or BTS**					ONLY LEVEL	Menu
Expert	14156	Contact activated with the temperature of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14157	Contact activated over (AUX 2)	°C	3	-10	50	FLOAT	1
Expert	14158	Contact deactivated below (AUX 2)	°C	5	-10	50	FLOAT	1
Expert	14159	Only activated if the battery is not in bulk phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	**14160**	**Contact active according to SOC (AUX 2) Only with BSP**					ONLY LEVEL	Menu
Expert	14161	Contact activated with the SOC 1 of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14162	Contact activated below SOC 1 (AUX 2)	% SOC	50	0	100	FLOAT	5
Expert	14163	Delay 1 (AUX 2)	hours	12	0	99	FLOAT	0.25
Expert	14164	Contact activated with the SOC 2 of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14165	Contact activated below SOC 2 (AUX 2)	%	30	0	100	FLOAT	5
Expert	14166	Delay 2 (AUX 2)	hours	0.2	0	99	FLOAT	0.25
Expert	14167	Contact activated with the SOC 3 of battery (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14168	Contact activated below SOC 3 (AUX 2)	%	20	0	100	FLOAT	5
Expert	14169	Delay 3 (AUX 2)	hours	0	0	99	FLOAT	0.25
Expert	14170	Contact deactivated over SOC (AUX 2)	% SOC	90	0	100	FLOAT	5
Expert	14171	Delay to deactivate (AUX 2)	hours	0.2	0	10	FLOAT	0.25
Expert	14172	Deactivate if battery in floating phase (AUX 2)		0:No	0:No	1:Yes	BOOL	1
Expert	14173	Reset all settings (AUX 2)		S	S	S	INT32	Signal

1.12 VarioString infos

Nr	VarioString information description	Short desc.	Unit on the RCC	Unit	Format	Related parameter or description
15000	Battery voltage	Ubat	Vdc	V	FLOAT	
15001	Battery current	Ibat	Adc	A	FLOAT	
15002	Battery cycle phase	Phas		0:Bulk 1:Absorpt. 2:Equalize 3:Floating 4:--- 5:--- 6:R.float. 7:Per.abs. 8:--- 9:--- 10:--- 11:---	SHORT ENUM	
15003	PV type of wiring	conf		0:Unknown 1:Independ. 2:Series 3:Parallel 4:Error	SHORT ENUM	
15004	PV voltage	Upv	Vdc	V	FLOAT	
15005	PV1 voltage	Upv1	Vdc	V	FLOAT	
15006	PV2 voltage	Upv2	Vdc	V	FLOAT	
15007	PV current	Ipv	Adc	A	FLOAT	
15008	PV1 current	Ipv1	Adc	A	FLOAT	
15009	PV2 current	Ipv2	Adc	A	FLOAT	
15010	PV power	Ppv	kW	kW	FLOAT	
15011	PV1 power	Ppv1	kW	kW	FLOAT	
15012	PV2 power	Ppv2	kW	kW	FLOAT	

15013	PV operating mode	Mode		0:Night 1:Security 2:OFF 3:Charge 4:ChargeV 5:Charge I 6:ChargeP 7:ChargeIpv 8:ChargeT 9:--- 10:Ch.Ibsp	SHORT ENUM	
15014	PV1 operating mode	Mod1		0:Night 1:Security 2:OFF 3:Charge 4:ChargeV 5:Charge I 6:ChargeP 7:ChargeIpv 8:ChargeT 9:--- 10:Ch.Ibsp	SHORT ENUM	
15015	PV2 operating mode	Mod2		0:Night 1:Security 2:OFF 3:Charge 4:ChargeV 5:Charge I 6:ChargeP 7:ChargeIpv 8:ChargeT 9:--- 10:Ch.Ibsp	SHORT ENUM	
15016	Production PV in (Ah) for the current day	Cd	Ah	Ah	FLOAT	
15017	Production PV in (kWh) for the current day	Ed	kWh	kWh	FLOAT	
15018	Production PV1 in (kWh) for the current day	Ed1	kWh	kWh	FLOAT	
15019	Production PV2 in (kWh) for the current day	Ed2	kWh	kWh	FLOAT	
15020	Produced PV energy resettable counter	kWhR	kWh	kWh	FLOAT	
15021	Produced PV1 energy resettable counter	kWh1	kWh	kWh	FLOAT	

15022	Produced PV2 energy resettable counter	kWh2	kWh	kWh	FLOAT	
15023	Total PV produced energy	MWhT	MWh	MWh	FLOAT	
15024	Total PV1 produced energy	MWh1	MWh	MWh	FLOAT	
15025	Total PV2 produced energy	MWh2	MWh	MWh	FLOAT	
15026	Production PV in (Ah) for the previous day	Cd-1	Ah	Ah	FLOAT	
15027	Production PV in (Wh) for the previous day	Ed-	kWh	kWh	FLOAT	
15028	Production PV1 in (Wh) for the previous day	Ed1-	kWh	kWh	FLOAT	
15029	Production PV2 in (Wh) for the previous day	Ed2-	kWh	kWh	FLOAT	
15030	Number of irradiation hours for the current day	Sd	h	h	FLOAT	
15031	Number of irradiation hours for the previous day	Sd-1	h	h	FLOAT	
15032	Battery temperature	Tbat	°C	°C	FLOAT	
15033	Max PV voltage for the current day	Upmx	Vdc	V	FLOAT	
15034	Max PV1 voltage for the current day	Upm1	Vdc	V	FLOAT	
15035	Max PV2 voltage for the current day	Upm2	Vdc	V	FLOAT	
15036	Max battery current of the current day	Ibmx	Adc	A	FLOAT	
15037	Max PV power for the current day	Ppmx	kW	kW	FLOAT	
15038	Max PV1 power for the current day	Ppm1	kW	kW	FLOAT	
15039	Max PV2 power for the current day	Ppm2	kW	kW	FLOAT	
15040	Max battery voltage for the current day	Ubmx	Vdc	V	FLOAT	
15041	Min battery voltage for the current day	Ubmn	Vdc	V	FLOAT	
15042	Time in absorption of the current day	Tabs	h	h	FLOAT	
15043	BAT- and Earth voltage	BatE	Vdc	V	FLOAT	
15044	PV- and Earth voltage	pv-E	Vdc	V	FLOAT	
15045	PV1- and Earth voltage	pv1E	Vdc	V	FLOAT	
15046	PV2- and Earth voltage	pv2E	Vdc	V	FLOAT	

15049	Type of error	Err		0:None 1:OverV_B 2:OverV_PV 3:OverV_PV1 4:OverV_PV2 5:OverI_PV 6:OverI_PV1 7:OverI_PV2 8:GroundBat 9:GroundPV 10:GroundPV1 11:GroundPV2 12:OverTemp 13:UnderV_B 14:Cabling 15:Other	SHORT ENUM	
15050	Synchronized with Xtender battery cycle	Sync		0:No 1:Yes	SHORT ENUM	
15051	Synchronisation state	Sync		0:--- 1:--- 2:--- 3:--- 4:XTslave 5:VTslave 6:--- 7:--- 8:VTmaster 9:Autonom 10:VSslave 11:VSmaster	SHORT ENUM	
15052	Number of days before next equalization	Eqln	days	days	FLOAT	
15053	Battery set point	Bset	Vdc	V	FLOAT	
15054	Battery voltage (minute avg)	Ubat	Vdc	V	FLOAT	
15055	Battery voltage (minute max)	Ubat+	Vdc	V	FLOAT	
15056	Battery voltage (minute min)	Ubat-	Vdc	V	FLOAT	
15057	Battery current (minute avg)	Ibat	Adc	A	FLOAT	
15058	PV voltage (minute avg)	Upv	Vdc	V	FLOAT	
15059	PV1 voltage (minute avg)	Upv1	Vdc	V	FLOAT	
15060	PV2 voltage (minute avg)	Upv2	Vdc	V	FLOAT	

15061	PV power (minute avg)	Ppv	kW	kW	FLOAT	
15062	PV1 power (minute avg)	Ppv1	kW	kW	FLOAT	
15063	PV2 power (minute avg)	Ppv2	kW	kW	FLOAT	
15064	Battery temperature (minute avg)	Tbat	°C	°C	FLOAT	
15065	Electronic temperature 1 (minute avg)	Dev1	°C	°C	FLOAT	
15066	Electronic temperature 1 (minute max)	Dev1+	°C	°C	FLOAT	
15067	Electronic temperature 1 (minute min)	Dev1-	°C	°C	FLOAT	
15068	Electronic temperature 2 (minute avg)	Dev2	°C	°C	FLOAT	
15069	Electronic temperature 2 (minute max)	Dev2+	°C	°C	FLOAT	
15070	Electronic temperature 2 (minute min)	Dev2-	°C	°C	FLOAT	
15071	Number of parameters (in code)	pCod			FLOAT	
15072	Number of parameters (in flash)	pFla			FLOAT	
15073	Number of infos users	iCod			FLOAT	
15074	ID type	Idt			FLOAT	VS120 = 12801d (0x3201), VS70 = 13057d (0x3301)
15075	ID bat voltage	Idv	Vdc	V	FLOAT	
15076	ID HW	HW			FLOAT	
15077	ID SOFT msb	Smsb			FLOAT	See section "Software version encoding"
15078	ID SOFT lsb	Slsb			FLOAT	See section "Software version encoding"
15079	ID SID	SID			FLOAT	
15088	State of auxiliary Aux 1	Aux 1		0:Opened 1:Closed	SHORT ENUM	
15089	State of auxiliary Aux 2	Aux 2		0:Opened 1:Closed	SHORT ENUM	
15090	Relay Aux 1 mode	Aux 1		0:--- 1:A 2:I 3:M 4:M	SHORT ENUM	
15091	Relay Aux 2 mode	Aux 2		0:--- 1:A 2:I 3:M 4:M	SHORT ENUM	
15102	ID FID msb				FLOAT	See section "FID encoding"
15103	ID FID lsb				FLOAT	See section "FID encoding"
15108	State of the VarioString	VS state		0:Off 1:On	SHORT ENUM	

| 15109 | Local daily communication error counter (CAN) | locEr | | | FLOAT | |
| 15111 | Remote entry state | RME | | 0:RM EN 0
1:RM EN 1 | SHORT
ENUM | |

1.13 RCC messages

Level	Nr	Messages
V.O.	0	Warning (000): Battery low
V.O.	1	Warning (001): Battery too high
V.O.	2	Warning (002): Bulk charge too long
V.O.	3	(003): AC-In synchronization in progress
V.O.	4	Warning (004): Input frequency AC-In wrong
V.O.	5	Warning (005): Input frequency AC-In wrong
V.O.	6	Warning (006): Input voltage AC-In too high
V.O.	7	Warning (007): Input voltage AC-In too low
V.O.	8	Halted (008): Inverter overload SC
V.O.	9	Halted (009): Charger short circuit
V.O.	10	(010): System start-up in progress
V.O.	11	Warning (011): AC-In Energy quota
V.O.	12	(012): Use of battery temperature sensor
V.O.	13	(013): Use of additional remote control
V.O.	14	Halted (014): Over temperature EL
V.O.	15	Halted (015): Inverter overload BL
V.O.	16	Warning (016): Fan error detected
V.O.	17	(017): Programing mode
V.O.	18	Warning (018): Excessive battery voltage ripple
V.O.	19	Halted (019): Battery undervoltage
V.O.	20	Halted (020): Battery overvoltage
V.O.	21	(021): Transfer not authorized, AC-Out current is higher than {1107}
V.O.	22	Halted (022): Voltage presence on AC-Out
V.O.	23	Halted (023): Phase not defined
V.O.	24	Warning (024): Change the clock battery
V.O.	25	Halted (025): Unknown Command board. Software upgrade needed
V.O.	26	Halted (026): Unknown Power board. Software upgrade needed
V.O.	27	Halted (027): Unknown extension board. Software upgrade needed
V.O.	28	Halted (028): Voltage incompatibility Power - Command

V.O.	29	Halted (029): Voltage incompatibility Ext. - Command
V.O.	30	Halted (030): Power incompatibility Power - Command
V.O.	31	Halted (031): Command board software incompatibility
V.O.	32	Halted (032): Power board software incompatibility
V.O.	33	Halted (033): Extension board software incompatibility
V.O.	34	Halted (034): FID corruption, call factory
V.O.	35	(035): Memory structure modified
V.O.	36	Halted (036): Parameter file lacking
V.O.	37	Warning (037): Message file lack. SW upgrade advised
V.O.	38	Warning (038): Upgrade of the device software advised
V.O.	39	Warning (039): Upgrade of the device software advised
V.O.	40	Warning (040): Upgrade of the device software advised
V.O.	41	Warning (041): Over temperature TR
V.O.	42	Halted (042): Unauthorized energy source at the output
V.O.	43	(043): Start of monthly test
V.O.	44	(044): End of successfully monthly test
V.O.	45	Warning (045): Monthly autonomy test failed
V.O.	46	(046): Start of weekly test
V.O.	47	(047): End of successfully weekly test
V.O.	48	Warning (048): Weekly autonomy test failed
V.O.	49	(049): Transfer opened because AC-In max current exceeded {1107}
V.O.	50	Error (050): Incomplete data transfer
V.O.	51	(051): The update is finished
V.O.	52	(052): Your installation is already updated
V.O.	53	Halted (053): Devices not compatible, software update required
V.O.	54	(054): Please wait. Data transfer in progress
V.O.	55	Error (055): No SD card inserted
V.O.	56	Warning (056): Upgrade of the RCC software advised
V.O.	57	(057): Operation finished successfully
V.O.	58	Halted (058): Master synchronization missing
V.O.	59	Halted (059): Inverter overload HW
V.O.	60	Warning (060): Time security 1512 AUX1
V.O.	61	Warning (061): Time security 1513 AUX2
V.O.	62	Warning (062): Genset, no AC-In coming after AUX command
V.O.	63	(063): Save parameter XT
V.O.	64	(064): Save parameter BSP
V.O.	65	(065): Save parameter VarioTrack

V.O.	71	Error (071): Insufficient disk space on SD card
V.O.	72	Halted (072): COM identification incorrect
V.O.	73	(073): Datalogger is enabled on this RCC
V.O.	74	(074): Save parameter Xcom-MS
V.O.	75	(075): MPPT MS address changed successfully
V.O.	76	Error (076): Error during change of MPPT MS address
V.O.	77	Error (077): Wrong MPPT MS DIP Switch position
V.O.	78	(078): SMS or email sent
V.O.	79	Halted (079): More than 9 XTs in the system
V.O.	80	Halted (080): No battery (or reverse polarity)
V.O.	81	Warning (081): Earthing fault
V.O.	82	Halted (082): PV overvoltage
V.O.	83	Warning (083): No solar production in the last 48h
V.O.	84	(084): Equalization performed
V.O.	85	Error (085): Modem not available
V.O.	86	Error (086): Incorrect PIN code, unable to initiate the modem
V.O.	87	Error (087): Insufficient Signal from GSM modem
V.O.	88	Error (088): No connection to GSM network
V.O.	89	Error (089): No Xcom server access
V.O.	90	(090): Xcom server connected
V.O.	91	Warning (091): Update finished. Update software of other RCC/Xcom-232i
V.O.	92	Error (092): More than 3 RCC or Xcom-232i in the system
V.O.	93	Error (093): More than 1 BSP in the system
V.O.	94	Error (094): More than 1 Xcom-MS in the system
V.O.	95	Error (095): More than 15 VarioTrack in the system
V.O.	121	Error (121): Impossible communication with target device
V.O.	122	Error (122): SD card corrupted
V.O.	123	Error (123): SD card not formatted
V.O.	124	Error (124): SD card not compatible
V.O.	125	Error (125): SD card format not recognized. Should be FAT
V.O.	126	Error (126): SD card write protected
V.O.	127	Error (127): SD card, file(s) corrupted
V.O.	128	Error (128): SD card file or directory could not be found
V.O.	129	Error (129): SD card has been prematurely removed
V.O.	130	Error (130): Update directory is empty
V.O.	131	(131): The VarioTrack is configured for 12V batteries
V.O.	132	(132): The VarioTrack is configured for 24V batteries

V.O.	133	(133): The VarioTrack is configured for 48V batteries
V.O.	134	(134): Reception level of the GSM signal
V.O.	137	(137): VarioTrack master synchronization lost
V.O.	138	Error (138): XT master synchronization lost
V.O.	139	(139): Synchronized on VarioTrack master
V.O.	140	(140): Synchronized on XT master
V.O.	141	Error (141): More than 1 Xcom-SMS in the system
V.O.	142	Error (142): More than 15 VarioString in the system
V.O.	143	(143): Save parameter Xcom-SMS
V.O.	144	(144): Save parameter VarioString
V.O.	145	Error (145): SIM card blocked, PUK code required
V.O.	146	Error (146): SIM card missing
V.O.	147	Error (147): Install R532 firmware release prior to install an older release
V.O.	148	(148): Datalogger function interrupted (SD card removed)
V.O.	149	Error (149): Parameter setting incomplete
V.O.	150	Error (150): Cabling error between PV and VarioString
V.O.	162	Error (162): Communication loss with RCC or Xcom-232i
V.O.	163	Error (163): Communication loss with Xtender
V.O.	164	Error (164): Communication loss with BSP
V.O.	165	Error (165): Communication loss with Xcom-MS
V.O.	166	Error (166): Communication loss with VarioTrack
V.O.	167	Error (167): Communication loss with VarioString
V.O.	168	(168): Synchronized with VarioString master
V.O.	169	(169): Synchronization with VarioString master lost
V.O.	170	Warning (170): No solar production in the last 48h on PV1
V.O.	171	Warning (171): No solar production in the last 48h on PV2
V.O.	172	Error (172): FID change impossible. More than one unit.
V.O.	173	Error (173): Incompatible Xtender. Please contact Studer Innotec SA
V.O.	174	(174): Inaccessible parameter, managed by the Xcom-CAN
V.O.	175	Halted (175): Critical undervoltage
V.O.	176	(176): Calibration setting lost
V.O.	177	(177): An Xtender has started up
V.O.	178	(178): No BSP. Necessary for programming with SOC
V.O.	179	(179): No BTS or BSP. Necessary for programming with temperature
V.O.	180	(180): Command entry activated
V.O.	181	Error (181): Disconnection of BTS
V.O.	182	(182): BTS/BSP battery temperature measurement used by a device

V.O.	183	Halted (183): An Xtender has lost communication with the system
V.O.	184	Error (184): Check phase orientation or circuit breakers state on AC-In
V.O.	185	Warning (185): AC-In voltage level with delay too low
V.O.	186	Halted (186): Critical undervoltage (fast)
V.O.	187	Halted (187): Critical overvoltage (fast)
V.O.	188	(188): CAN stage startup
V.O.	189	Error (189): Incompatible configuration file
V.O.	190	(190): The Xcom-SMS is busy
V.O.	191	(191): Parameter not supported
V.O.	192	(192): Unknown reference
V.O.	193	(193): Invalid value
V.O.	194	(194): Value too low
V.O.	195	(195): Value too high
V.O.	196	(196): Writing error
V.O.	197	(197): Reading error
V.O.	198	(198): User level insufficient
V.O.	199	(199): No data for the report
V.O.	200	Error (200): Memory full
V.O.	202	Warning (202): Battery alarm arrives
V.O.	203	(203): Battery alarm leaves
V.O.	204	Error (204): Battery stop arrives
V.O.	205	(205): Battery stop leaves
V.O.	206	Halted (206): Board hardware incompatibility
V.O.	207	(207): AUX1 relay activation
V.O.	208	(208): AUX1 relay deactivation
V.O.	209	(209): AUX2 relay activation
V.O.	210	(210): AUX2 relay deactivation
V.O.	211	(211): Command entry deactivated
V.O.	212	Error (212): VarioTrack software incompatibility. Upgrade needed
V.O.	213	(213): Battery current limitation by the BSP stopped
V.O.	214	Warning (214): Half period RMS voltage limit exceeded, transfer opened
V.O.	215	Warning (215): UPS limit reached, transfer opened
V.O.	216	Warning (216): Scom watchdog caused the reset of Xcom-232i
V.O.	217	Warning (217): CAN problem at Xtender declaration
V.O.	218	Warning (218): CAN problem while writing parameters
V.O.	222	(222): Front ON/OFF button pressed
V.O.	223	(223): Main OFF detected

V.O.	224	(224): Delay before closing transfer relay in progress {1580}
V.O.	225	Error (225): Communication with lithium battery lost
V.O.	226	(226): Communication with lithium battery restored