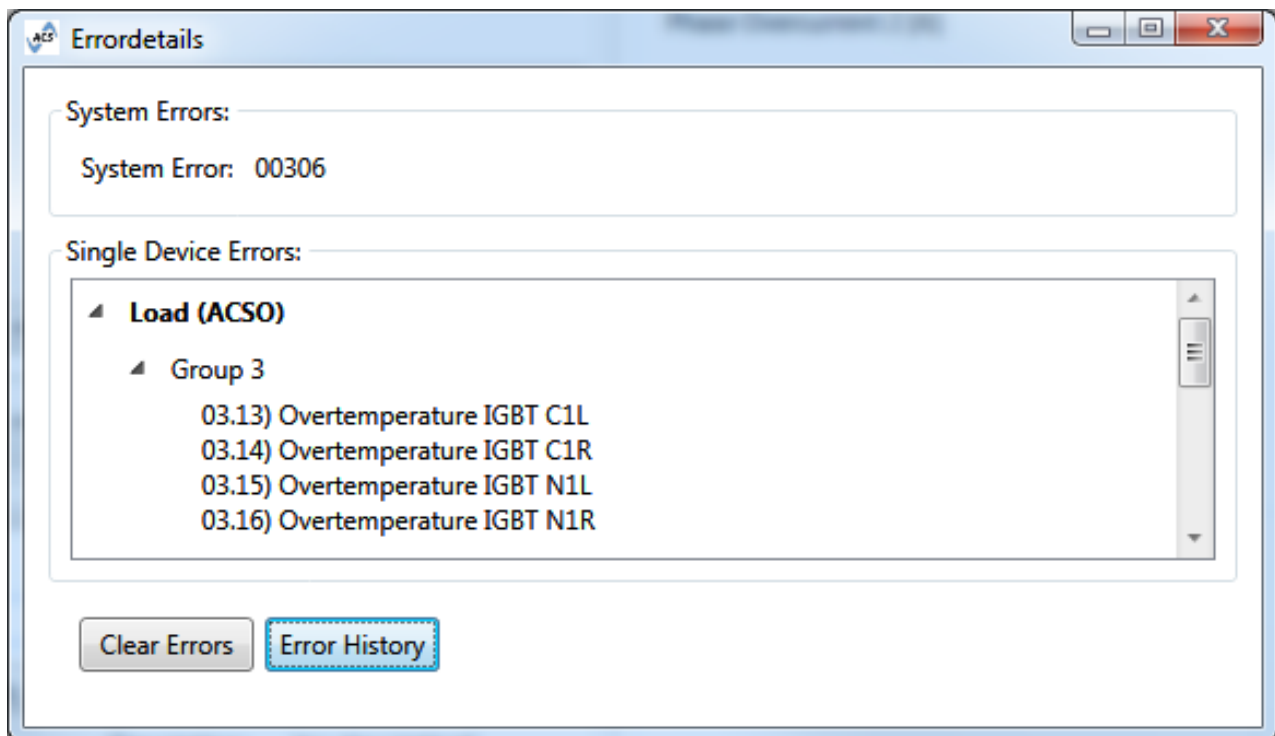




ACSControl

Software for operating the TC.ACS
full 4-Quadrant Grid Simulator



Error List

Version V01.00

General Information

Usage of the Document

This document serves as a guide and also as a reference work. Familiarize yourself with the contents of the document to operate the product efficiently. The document must be available at all times to the personnel who are operating the product.

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Customer Support

If you have any questions, your Regatron AG sales partner will be pleased to be of assistance. However, you can also reach Regatron Customer Support at tc.support@regatron.ch.

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
102	01.02	Grid	Invalid State	Invalid State		contact customer support
105	01.05	Grid	Error flash write	Error when writing flash file		contact customer support
106	01.06	Grid	Timeout flash	Timeout when writing/deleting flash file		contact customer support
108	01.08	Grid	Invalid EEprom table	Initialization of parameters failed		contact customer support
114	01.14	Grid	Flash page full	Error when writing flash file		contact customer support
115	01.15	Grid	Invalid interrupt routine called	Requested state not available	Firmware failure	contact customer support
116	01.16	Grid	Old EEprom table loaded	Past to firmware update no up-to-date parameter table given yet	EEprom completely erased and firmware updated	contact customer support
201	02.01	Grid	Overcurrent phase SYM	Peak current in intermediate balancing circuit too high	In-phase load between phases and neutral too high Malfunction in balancing circuit	Reduce output power contact customer support
202	02.02	Grid	Overcurrent I_0	Circuit current too high	Total current to grid too high Common mode voltages can not be compensated	Reduce common mode voltage of test object Galvanically separate from grid
203	02.03	Grid	Overtemperature PCB	Overtemperature PCB	Ambient temperature too high Frontside fan defect	Reduce ambient temperature If frontside fans don't spin, contact customer support
204	02.04	Grid	Overtemperature CASE	Overtemperature case	Ambient temperature too high Rearside fan defect	Reduce ambient temperature If rearside fans don't spin, contact customer support
205	02.05	Grid	Overvoltage NP to PE	Midpoint voltage of dc link voltage too high in relation to PE	Common mode voltage of test object Ground fault of test object Hardware failure	Reduce common mode voltage of test object Galvanically separate from grid contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
206	02.06	Grid	Broken HW IGBT Temperature L1	Temperature sensor IGBT L1 disconnected	Gate driver cable disconnected Hardware failure	contact customer support
207	02.07	Grid	Broken HW IGBT Temperature L2	Temperature sensor IGBT L2 disconnected	Gate driver cable disconnected Hardware failure	contact customer support
208	02.08	Grid	Broken HW IGBT Temperature L3	Temperature sensor IGBT L3 disconnected	Gate driver cable disconnected Hardware failure	contact customer support
209	02.09	Grid	Broken HW IGBT Temperature SYM	Temperature sensor IGBT SYM disconnected	Gate driver cable disconnected Hardware failure	contact customer support
210	02.10	Grid	Broken HW Temperature PCB	Temperature sensor PCB disconnected	Controller board failure	contact customer support
211	02.11	Grid	Broken HW Temperature Case	Temperature sensor Case disconnected	NTC cable disconnected Hardware failure	contact customer support
301	03.01	Grid	Overcurrent Phase L1	Peak current phase L1 too high	Output power too high Mains undervoltage transient	Reduce output power. Check supply voltage
302	03.02	Grid	Overcurrent Phase L2	Peak current phase L2 too high	Output power too high Mains undervoltage transient	Reduce output power. Check supply voltage
303	03.03	Grid	Overcurrent Phase L3	Peak current phase L3 too high	Output power too high Mains undervoltage transient	Reduce output power. Check supply voltage
304	03.04	Grid	Fault Current (sum of Phase current)	Total of phase currents too high	Saturation of CM-inductor Ground fault ACS	contact customer support
305	03.05	Grid	Overvoltage grid	Phase to phase connection voltage too high	Overvoltage on grid	check voltage supply
306	03.06	Grid	Undervoltage grid	Phase to phase connection voltage too low	Undervoltage on grid	check voltage supply

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
307	03.07	Grid	Overvoltage DC	Overvoltage on dc voltage link	Regenerative power too high load cycles too fast	Reduce regenerative power slower load cycles Activate power forward (contact customer support)
308	03.08	Grid	Undervoltage DC	Undervoltage on dc voltage link	Output power too high load cycles too fast	Reduce regenerative power (reduce load) slower load cycles Activate power forward (contact customer support)
309	03.09	Grid	Voltagefault NP	Error voltage NP	In phase load at output too high Balancing circuit defect	Reduce phase load at output contact customer support
310	03.10	Grid	Frequency grid	Frequency deviation grid	Grid frequency beyond tolerance	Check waveform of grid voltages
311	03.11	Grid	Synchronisation grid	Failure in grid synchronization	PLL cannot synchronize to grid Frequency beyond tolerance	Check waveform of grid voltages
312	03.12	Grid	Timeout charging	Timeout while charging the intermediate circuit	Precharge circuit defect Charging current too low	contact customer support
313	03.13	Grid	Overtemperature1	Overtemperature phase L1	Temperature of cooling liquid too high	Reduce temperature of cooling liquid
314	03.14	Grid	Overtemperature2	Overtemperature phase L2	Temperature of cooling liquid too high	Reduce temperature of cooling liquid
315	03.15	Grid	Overtemperature3	Overtemperature phase L3	Temperature of cooling liquid too high	Reduce temperature of cooling liquid
316	03.16	Grid	Overtemperature4	Overtemperature phase SYM	Temperature of cooling liquid too high	Reduce temperature of cooling liquid
401	04.01	Grid	DESAT Phase L1 S1	Fast hardware detection of overcurrent in bridge phase L1 S1	IGBT phase L1 defect	In case of repeated occurrence contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
402	04.02	Grid	DESAT Phase L1 S2	Fast hardware detection of overcurrent in bridge phase L1 S2	IGBT phase L1 defect	In case of repeated occurrence contact customer support
403	04.03	Grid	DESAT Phase L1 S3	Fast hardware detection of overcurrent in bridge phase L1 S3	IGBT phase L1 defect	In case of repeated occurrence contact customer support
404	04.04	Grid	DESAT Phase L1 S4	Fast hardware detection of overcurrent in bridge phase L1 S4	IGBT phase L1 defect	In case of repeated occurrence contact customer support
405	04.05	Grid	DESAT Phase L2 S1	Fast hardware detection of overcurrent in bridge phase L2 S1	IGBT phase L2 defect	In case of repeated occurrence contact customer support
406	04.06	Grid	DESAT Phase L2 S2	Fast hardware detection of overcurrent in bridge phase L2 S2	IGBT phase L2 defect	In case of repeated occurrence contact customer support
407	04.07	Grid	DESAT Phase L2 S3	Fast hardware detection of overcurrent in bridge phase L1 S1	IGBT phase L2 defect	In case of repeated occurrence contact customer support
408	04.08	Grid	DESAT Phase L2 S4	Fast hardware detection of overcurrent in bridge phase L2 S4	IGBT phase L2 defect	In case of repeated occurrence contact customer support
409	04.09	Grid	DESAT Phase L3 S1	Fast hardware detection of overcurrent in bridge phase L3 S1	IGBT phase L3 defect	In case of repeated occurrence contact customer support
410	04.10	Grid	DESAT Phase L3 S2	Fast hardware detection of overcurrent in bridge phase L3 S2	IGBT phase L3 defect	In case of repeated occurrence contact customer support
411	04.11	Grid	DESAT Phase L3 S3	Fast hardware detection of overcurrent in bridge phase L3 S3	IGBT phase L3 defect	In case of repeated occurrence contact customer support
412	04.12	Grid	DESAT Phase L3 S4	Fast hardware detection of overcurrent in bridge phase L3 S4	IGBT phase L3 defect	In case of repeated occurrence contact customer support
413	04.13	Grid	DESAT Phase L4 S1	Fast hardware detection of overcurrent in bridge phase L4 S1	IGBT phase L4/SYM defect	In case of repeated occurrence contact customer support
414	04.14	Grid	DESAT Phase L4 S2	Fast hardware detection of overcurrent in bridge phase L4 S2	IGBT phase L4/SYM defect	In case of repeated occurrence contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
415	04.15	Grid	DESAT Phase L4 S3	Fast hardware detection of overcurrent in bridge phase L4 S3	IGBT phase L4/SYM defect	In case of repeated occurrence contact customer support
416	04.16	Grid	DESAT Phase L4 S4	Fast hardware detection of overcurrent in bridge phase L4 S4	IGBT phase L4/SYM defect	In case of repeated occurrence contact customer support
504	05.04	Grid	Undervoltage +15V1	Undervoltage in 15 V voltage supply	Power supply of controller board cannot be sustained. Defect IGBT-driver or IGBT	contact customer support
505	05.05	Grid	Overvoltage +15V1	Overvoltage in 15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support
506	05.06	Grid	Undervoltage +15V	Undervoltage in 15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support
507	05.07	Grid	Overvoltage +15V	Overvoltage in 15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support
508	05.08	Grid	Undervoltage -15V	Undervoltage in -15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support
509	05.09	Grid	Overvoltage -15V	Overvoltage in -15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support
512	05.12	Grid	Undervoltage +24V	Undervoltage in 24 V voltage supply	Power supply defect	contact customer support
513	05.13	Grid	Overvoltage +24V	Overvoltage in 24 V voltage supply	Power supply defect	contact customer support
601	06.01	Grid	Overcurrent PLD L1	HW overcurrent cutoff phase L1	Fast increase of current in phase 1 Phase short-circuit IGBT defect	In case of repeated occurrence contact customer support
602	06.02	Grid	Overcurrent PLD L2	HW overcurrent cutoff phase L2	Fast increase of current in phase 2 Phase short-circuit IGBT defect	In case of repeated occurrence contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
603	06.03	Grid	Overcurrent PLD L3	HW overcurrent cutoff phase L3	Fast increase of current in phase 3 Phase short-circuit IGBT defect	In case of repeated occurrence contact customer support
604	06.04	Grid	Overcurrent PLD SYM	HW overcurrent cutoff phase SYM	Fast increase of current in phase SYM Phase short-circuit IGBT defect	In case of repeated occurrence contact customer support
607	06.07	Grid	Error PLD	Error in PLD	PLD defect	contact customer support
713	07.13	Grid	Communication watchdog	Monitoring of communication with external control (i.e. ACSControl) has been triggered	Communication connection broken between control and TC.ACS	Check USB or Ethernet connection
801	08.01	Grid	Timeout ACSIO Communication	Internal communication failure	Communication connection broken	In case of repeated occurrence contact customer support
804	08.04	Grid	Timeout ACSIO Startup Communication	Internal communication failure	Communication connection broken	In case of repeated occurrence contact customer support
901	09.01	Grid	I^2t Phase L1	Overload interval triggered. Too much power put out	Input current exceeds I^2t limit	Reduce load, reduce interval of overload
902	09.02	Grid	I^2t Phase L2	Overload interval triggered. Too much power put out	Input current exceeds I^2t limit	Reduce load, reduce interval of overload
903	09.03	Grid	I^2t Phase L3	Overload interval triggered. Too much power put out	Input current exceeds I^2t limit	Reduce load, reduce interval of overload
904	09.04	Grid	U^2t UN-NP	Monitoring of damping resistance, harmonic load too high	Reference voltage at output beyond specification (voltage as related to frequency) Test object generates too high harmonic shares in current Saturation of the CM-Inductor	Check reference voltage against characteristic. Check output current against harmonics

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
1605	16.05	Grid	Safety relais open	ISR failure	no ISR voltage supply	Check plug on X112-2 check external voltage supply 24 V of safety circuit
1606	16.06	Grid	Power Enable ACSO	HW connection failure	HW connection broken	In case of repeated occurrence contact customer support
1607	16.07	Grid	Undefined State	Internal firmware failure	Firmware failure	contact customer support
3206	32.06	Grid	Error Checksum	RS232 communication failure	RS232 cable too long	Check cable length Reduce connectors
3207	32.07	Grid	Error Parity	RS232 communication failure	RS232 cable too long	Check cable length Reduce connectors
3208	32.08	Grid	Error Overrun	RS232 communication failure	RS232 cable too long	Check cable length Reduce connectors
3209	32.09	Grid	Error Framing	RS232 communication failure	RS232 cable too long	Check cable length Reduce connectors
3210	32.10	Grid	Error Break	RS232 communication failure	RS232 cable too long	Check cable length Reduce connectors
3216	32.16	Grid	Timeout	Timeout in talk communication / incomplete message	Connection failure at communication interface external/internal	Check external communication interfaces contact customer support
4201	01.05	Load	Error flash write	Error when writing flash file		contact customer support
4202	01.06	Load	Timeout flash	Timeout when writing/deleting flash sector		
4204	01.08	Load	Invalid EEprom table	Initialization of parameters failed		contact customer support
4209	01.13	Load	XINF access timing violation	Timing violates access to external repository		contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
4210	01.14	Load	Flash page full	Flash is full		In case of repeated occurrence contact customer support
4211	01.15	Load	Invalid interrupt routine called	Requested state not available		In case of repeated occurrence contact customer support
4212	01.16	Load	Old EEprom table loaded	Internal nonvolatile storage full	Might occur after firmware update of MainDSP	In case of repeated occurrence contact customer support
4297	02.01	Load	Overcurrent phase A1L	Overcurrent phase A1L	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart
4298	02.02	Load	Overcurrent phase A1R	Overcurrent phase A1R	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart
4299	02.03	Load	Overcurrent phase B1L	Overcurrent phase B1L	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
4300	02.04	Load	Overcurrent phase B1R	Overcurrent phase B1R	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart
4301	02.05	Load	Overcurrent phase C1L	Overcurrent phase C1L	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart
4302	02.06	Load	Overcurrent phase C1R	Overcurrent phase C1R	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart
4303	02.07	Load	Overcurrent phase N1L	Overcurrent phase N1L	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
4304	02.08	Load	Overcurrent phase N1R	Overcurrent phase A1L	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart
4305	02.09	Load	Overcurrent phase A2	Overcurrent phase A2	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart
4306	02.10	Load	Overcurrent phase B2	Overcurrent phase B2	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart
4307	02.11	Load	Overcurrent phase C2	Overcurrent phase C2	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
4308	02.12	Load	Overcurrent phase N2	Overcurrent phase N2	Load resistance too low Load transformer saturation due to too high voltage time area according to waveform put out Load capacitance, too steep voltage slope Function generator / analog reference value not zero before restart	If capacities are set, reduce max du/dt (ACSControl -> UserConfig Page). Reduce load. Avoid transformer saturation by selecting an appropriate waveform. Function generator / analog reference value stop before restart
4310	02.14	Load	Overcurrent Sum of phase currents	Overcurrent of total of phase currents	Short-circuit to earth Load with earthed neutral conductor	Separate neutral conductor from earth Galvanically isolate system contact customer support
4311	02.15	Load	Overcurrent Earth	Overcurrent earth	Short-circuit to earth Load with earthed neutral conductor	Separate neutral conductor from earth Galvanically isolate system contact customer support
4312	02.16	Load	DC-Overvoltage	Overvoltage dc link	Regenerative power too high Load cycles too fast Consecutive fault from device error on grid side (no regeneration possible)	Reduce regenerative power Slower load cycles Activate power feed forward (contact customer support)
4397	03.01	Load	Overvoltage phase A	Overvoltage at output terminal phase A/L1	External voltage too high	Reduce external voltage
4398	03.02	Load	Overvoltage phase B	Overvoltage at output terminal phase B/L2	External voltage too high	Reduce external voltage
4399	03.03	Load	Overvoltage phase C	Overvoltage at output terminal phase C/L3	External voltage too high	Reduce external voltage
4400	03.04	Load	Overvoltage phase N	Overvoltage at output terminal phase N	External voltage too high	Reduce external voltage

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
4404	03.08	Load	Overtemperature PCB	Overtemperature PCB	Ambient temperature too high Frontside fan defect	Reduce ambient temperature If frontside fans don't spin, contact customer support
4405	03.09	Load	Overtemperature IGBT A1L	Overtemperature IGBT A1L	Overtemperature phase A Temperature of cooling liquid too high DC part in output current too high	Reduce temperature of cooling liquid Reduce DC-part in output current
4406	03.10	Load	Overtemperature IGBT A1R	Overtemperature IGBT A1R	Overtemperature phase A Temperature of cooling liquid too high DC part in output current too high	Reduce temperature of cooling liquid Reduce DC-part in output current
4407	03.11	Load	Overtemperature IGBT B1L	Overtemperature IGBT B1L	Overtemperature phase B Temperature of cooling liquid too high DC part in output current too high	Reduce temperature of cooling liquid Reduce DC-part in output current
4408	03.12	Load	Overtemperature IGBT B1R	Overtemperature IGBT B1R	Overtemperature phase B Temperature of cooling liquid too high DC part in output current too high	Reduce temperature of cooling liquid Reduce DC-part in output current
4409	03.13	Load	Overtemperature IGBT C1L	Overtemperature IGBT C1L	Overtemperature phase C Temperature of cooling liquid too high DC part in output current too high	Reduce temperature of cooling liquid Reduce DC-part in output current
4410	03.14	Load	Overtemperature IGBT C1R	Overtemperature IGBT C1R	Overtemperature phase C Temperature of cooling liquid too high DC part in output current too high	Reduce temperature of cooling liquid Reduce DC-part in output current
4411	03.15	Load	Overtemperature IGBT N1L	Overtemperature IGBT N1L	Overtemperature phase N Temperature of cooling liquid too high DC part in output current too high	Reduce temperature of cooling liquid Reduce DC-part in output current

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
4412	03.16	Load	Overtemperature IGBT N1R	Overtemperature IGBT N1R	Overtemperature phase N Temperature of cooling liquid too high DC part in output current too high	Reduce temperature of cooling liquid Reduce DC-part in output current
4497	04.01	Load	DESAT Phase A1L	Fast detection of overcurrent in bridge phase A1L	IGBT Phase A defect	In case of repeated occurrence contact customer support
4498	04.02	Load	DESAT Phase A1R	Fast detection of overcurrent in bridge phase A1R	IGBT Phase A defect	In case of repeated occurrence contact customer support
4499	04.03	Load	DESAT Phase B1L	Fast detection of overcurrent in bridge phase B1L	IGBT Phase B defect	In case of repeated occurrence contact customer support
4500	04.04	Load	DESAT Phase B1R	Fast detection of overcurrent in bridge phase B1R	IGBT Phase B defect	In case of repeated occurrence contact customer support
4501	04.05	Load	DESAT Phase C1L	Fast detection of overcurrent in bridge phase C1L	IGBT Phase C defect	In case of repeated occurrence contact customer support
4502	04.06	Load	DESAT Phase C1R	Fast detection of overcurrent in bridge phase C1R	IGBT Phase C defect	In case of repeated occurrence contact customer support
4503	04.07	Load	DESAT Phase N1L	Fast detection of overcurrent in bridge phase N1L	IGBT Phase N defect	In case of repeated occurrence contact customer support
4504	04.08	Load	DESAT Phase N1R	Fast detection of overcurrent in bridge phase N1R	IGBT Phase N defect	In case of repeated occurrence contact customer support
4506	04.10	Load	Power Enable ACSC	Internal HW connection defect	HW connection broken Communication abort CTR.ACSC	In case of repeated occurrence contact customer support
4507	04.11	Load	Power Enable ACSI	Internal HW connection defect	HW connection broken Communication abort CTR.ACSI	In case of repeated occurrence contact customer support
4508	04.12	Load	Power Enable Safety Relais	ISR failure	no ISR voltage supply	Check plug on X112-1. Check external voltage supply 24 V of safety circuit

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
4509	04.13	Load	Invalid Sens Voltage Phase A	Invalid sense voltage phase A/L3	Sense voltage of phase A beyond specified area Sense measuring configured wrong (scaling factor)	Check measuring of sense voltage Check scaling factor Check transformer turns ratio
4510	04.14	Load	Invalid Sens Voltage Phase B	Invalid sense voltage phase B/L3	Sense voltage of phase B beyond specified area Sense measuring configured wrong (scaling factor)	Check measuring of sense voltage Check scaling factor Check transformer turns ratio
4511	04.15	Load	Invalid Sens Voltage Phase C	Invalid sense voltage phase C/L3	Sense voltage of phase C beyond specified area Sense measuring configured wrong (scaling factor)	Check measuring of sense voltage Check scaling factor Check transformer turns ratio
4597	05.01	Load	Overvoltage +15V	Overvoltage in 15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support
4598	05.02	Load	Undervoltage +15V	Undervoltage in 15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support
4599	05.03	Load	Overvoltage +15V1	Overvoltage in 15 V voltage supply	Power supply of IGBT cannot be sustained. Defect IGBT-driver or IGBT	contact customer support
4600	05.04	Load	Undervoltage +15V1	Undervoltage in 15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support
4601	05.05	Load	Overvoltage +15V2	Overvoltage in 15 V voltage supply	Power supply of IGBT cannot be sustained. Defect IGBT-driver or IGBT	contact customer support
4602	05.06	Load	Undervoltage +15V2	Undervoltage in 15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support
4603	05.07	Load	Overvoltage -15V	Overvoltage in -15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support
4604	05.08	Load	Undervoltage -15V	Undervoltage in -15 V voltage supply	Power supply of controller board cannot be sustained.	contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
4605	05.09	Load	Overvoltage +24V	Overvoltage in 24 V voltage supply	Auxiliary power supply defect	contact customer support
4606	05.10	Load	Undervoltage +24V	Undervoltage in 24 V voltage supply	Auxiliary power supply defect	contact customer support
4697	06.01	Load	Overcurrent PLD A1L	HW overcurrent cutoff phase A	Fast increase of current in phase A Phase short-circuit IGBT defect	Check output wiring If problem occurs without load connected, contact customer support
4698	06.02	Load	Overcurrent PLD A1R	HW overcurrent cutoff phase A	Fast increase of current in phase A Phase short-circuit IGBT defect	Check output wiring If problem occurs without load connected, contact customer support
4699	06.03	Load	Overcurrent PLD B1L	HW overcurrent cutoff phase B	Fast increase of current in phase B Phase short-circuit IGBT defect	Check output wiring If problem occurs without load connected, contact customer support
4700	06.04	Load	Overcurrent PLD B1R	HW overcurrent cutoff phase B	Fast increase of current in phase B Phase short-circuit IGBT defect	Check output wiring If problem occurs without load connected, contact customer support
4701	06.05	Load	Overcurrent PLD C1L	HW overcurrent cutoff phase C	Fast increase of current in phase C Phase short-circuit IGBT defect	Check output wiring If problem occurs without load connected, contact customer support
4702	06.06	Load	Overcurrent PLD C1R	HW overcurrent cutoff phase C	Fast increase of current in phase C Phase short-circuit IGBT defect	Check output wiring If problem occurs without load connected, contact customer support
4703	06.07	Load	Overcurrent PLD N1L	HW overcurrent cutoff phase N	Fast increase of current in phase N Phase short-circuit IGBT defect	Check output wiring If problem occurs without load connected, contact customer support
4704	06.08	Load	Overcurrent PLD N1R	HW overcurrent cutoff phase N	Fast increase of current in phase N Phase short-circuit IGBT defect	Check output wiring If problem occurs without load connected, contact customer support
4705	06.09	Load	Overload i^2t IA	Overload phase A	Overload interval phase A triggered. Load too high (too much power)	Reduce load

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
4706	06.10	Load	Overload I ² t IB	Overload phase B	Overload interval phase B triggered. Load too high (too much output power)	Reduce load
4707	06.11	Load	Overload I ² t IC	Overload phase C	Overload interval phase C triggered. Load too high (too much output power)	Reduce load
4708	06.12	Load	Overload I ² t IN	Overload phase N	Overload interval phase N triggered. Load too high (too much output power)	Reduce load
4709	06.13	Load	Overload I ² t IA Out Cap	Overload I ² t IA Out Cap	Frequency and amplitude of voltage for output filter too high in phase A Output filter oscillation (Loadmode)	Reduce frequency or amplitude of voltage in phase A/L1 Loadmode circuit with more damping
4710	06.14	Load	Overload I ² t IB Out Cap	Overload I ² t IB Out Cap	Frequency and amplitude of voltage for output filter too high in phase B Output filter oscillation (Loadmode)	Reduce frequency or amplitude of voltage in phase B/L2 Loadmode circuit with more damping
4711	06.15	Load	Overload I ² t IC Out Cap	Overload I ² t IC Out Cap	Frequency and amplitude of voltage for output filter too high in phase C Output filter oscillation (Loadmode)	Reduce frequency or amplitude of voltage in phase C/L3 Loadmode circuit with more damping
4712	06.16	Load	Overload I ² t IN Out Cap	Overload I ² t IN Out Cap	Frequency and amplitude of voltage for output filter too high in phase N Output filter oscillation (Loadmode)	Reduce frequency or amplitude of voltage in phase N Loadmode circuit with more damping
4797	07.01	Load	Preset distribution bus has no connection	Multi-unit connection (X601/X602) between the devices is not given	Multi-unit connection (X601/X602) between the devices is broken No master on the bus or master offline	Check multi-unit connection (X601/X602) between the devices Turn on master device Configure master device as master
4809	07.13	Load	Communication watchdog	Monitoring of communication with external control (i.e. ACSControl) has been triggered	Communication connection broken between control and TC.ACS	Check USB or Ethernet connection

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
4897	08.01	Load	Timeout ACSIO Communication	Internal firmware error	Hardware defect	contact customer support
4898	08.02	Load	Timeout AMC1210 Communication	Internal firmware error	Hardware defect	contact customer support
4899	08.03	Load	Data not ready AMC1210	Internal firmware error	Hardware defect	contact customer support
4900	08.04	Load	Overrun transmit buffer ACSIO	Internal firmware error	Hardware defect	contact customer support
5004	09.08	Load	Broken HW PCB Temperature	Temperature sensor PCB not connected	Failure controller board	contact customer support
5005	09.09	Load	Broken HW IGBT Temperature A1L	Temperature sensor IGBT AL not connected	Gate driver cable disconnected Hardware defect	contact customer support
5006	09.10	Load	Broken HW IGBT Temperature A1R	Temperature sensor IGBT AR not connected	Gate driver cable disconnected Hardware defect	contact customer support
5007	09.11	Load	Broken HW IGBT Temperature B1L	Temperature sensor IGBT BL not connected	Gate driver cable disconnected Hardware defect	contact customer support
5008	09.12	Load	Broken HW IGBT Temperature B1R	Temperature sensor IGBT BR not connected	Gate driver cable disconnected Hardware defect	contact customer support
5009	09.13	Load	Broken HW IGBT Temperature C1L	Temperature sensor IGBT CL not connected	Gate driver cable disconnected Hardware defect	contact customer support
5010	09.14	Load	Broken HW IGBT Temperature C1R	Temperature sensor IGBT CR not connected	Gate driver cable disconnected Hardware defect	contact customer support
5011	09.15	Load	Broken HW IGBT Temperature N1L	Temperature sensor IGBT NL not connected	Gate driver cable disconnected Hardware defect	contact customer support
5012	09.16	Load	Broken HW IGBT Temperature N1R	Temperature sensor IGBT NR not connected	Gate driver cable disconnected Hardware defect	contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
5097	10.01	Load	Overvoltage Sense phase A	Sense voltage phase A/L1 too high	Sense voltage of phase A/L1 beyond specified area	Check sense voltage Adapt voltage limits
5098	10.02	Load	Overvoltage Sense phase B	Sense voltage phase B/L2 too high	Sense voltage of phase B/L2 beyond specified area	Check sense voltage Adapt voltage limits
5099	10.03	Load	Overvoltage Sense phase C	Sense voltage phase C/L3 too high	Sense voltage of phase C/L3 beyond specified area	Check sense voltage Adapt voltage limits
5701	16.05	Load	Safety relais open	ISR failure	no ISR voltage supply	Check plug on X112-2 Check external voltage supply 24 V of safety circuit
5703	16.07	Load	Undefined State	Invalid state of statemachine	Internal firmware failure	contact customer support
5704	16.08	Load	State change not possible	Device cannot reach requested state	Output capacities cannot be discharged Poorly adjusted voltage measuring	contact customer support
7302	32.06	Load	Error Checksum	RS232 communication failure	RS232 cable too long	Check cable length Reduce connectors
7303	32.07	Load	Error Parity	RS232 communication failure	RS232 cable too long	Check cable length Reduce connectors
7304	32.08	Load	Error Overrun	RS232 communication failure	RS232 cable too long	Check cable length Reduce connectors
7305	32.09	Load	Error Framing	RS232 communication failure	RS232 cable too long	Check cable length Reduce connectors
7306	32.10	Load	Error Break	RS232 communication failure	RS232 cable too long	Check cable length Reduce connectors
7307	32.11	Load	Timeout processing Answer	Timeout in Talk communication / message cannot be replied	Internal error	Check external communication interfaces In case of repeated occurrence contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
7311	32.15	Load	Error Debug	Debug-failure		contact customer support
7312	32.16	Load	Timeout	Timeout in talk communication / incomplete message	Connection failure at communication interface external/internal	Check external communication interfaces contact customer support
8192		Control	-	No MDIO communication possible to PHY of EtherCAT Port 0 or wrong PHY	Hardware problem. CTR.ACSC hardware needs to be checked in the area EtherCAT Port 0.	contact customer support
8193		Control	-	No MDIO communication possible to PHY of EtherCAT Port 1 or wrong PHY	Hardware problem. CTR.ACSC hardware needs to be checked in the area EtherCAT Port 1.	contact customer support
8194		Control	-	Failure in configuration of Clock Synthesizer	Hardware problem. CTR.ACSC hardware needs to be checked in the area of Clock Synthesizer.	contact customer support
8195		Control	-	Failure in configuration of I/O Expander	Hardware problem. CTR.ACSC hardware needs to be checked in the area I/O Expander.	contact customer support
8196		Control	-	Failure in communication with external RTC	Hardware problem. CTR.ACSC hardware needs to be checked in the area of external RTC.	contact customer support
8197		Control	-	Real time invalid	Real time hasn't been set on the device or back-up battery is empty.	contact customer support
8198		Control	-	I2C error I/O Expander	Hardware problem. CTR.ACSC hardware needs to be checked in the area I/O Expander.	contact customer support
8199		Control	-	I2C error external RTC	Hardware problem. CTR.ACSC hardware needs to be checked in the area of external RTC.	contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
8200		Control	-	EEprom failure when deleting table 1	Hardware problem. CTR.ACSC hardware needs to be checked in the area NOR Flash.	contact customer support
8201		Control	-	EEprom failure when deleting table 2	Hardware problem. CTR.ACSC hardware needs to be checked in the area NOR Flash.	contact customer support
8202		Control	-	EEprom failure when loading or saving persistent parameters	Hardware problem. CTR.ACSC hardware needs to be checked in the area NOR Flash.	contact customer support
8203		Control	-	EEprom failure when loading or saving licenses	Hardware problem. CTR.ACSC hardware needs to be checked in the area NOR Flash.	contact customer support
8204		Control	-	Table of persistent parameters not up to date	New persistent parameters have been initialized and saved. These might need to adjusted to the application	contact customer support
8205		Control	-	No valid table of persistent parameters	All persistent parameters have been reset to default values	contact customer support
8206		Control	-	License table not up to date	License table has been converted to new format. Licenses should be checked.	contact customer support
8207		Control	-	No valid license table	No valid license table provided	contact customer support
8208		Control	-	Timeout in Talk communication via slave port DPRAM	Hardware problem. Connection between CTR.ACSC and CTR.ACSO must be checked.	contact customer support
8209		Control	-	Error in checksum of Talk communication	Checksum of a received Talk frame was invalid.	Check connection (USB, Ethernet)

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
8210		Control	-	Overflow of Talk receiving queue	Receiving queue for Talk communication has overflowed. There may be too many open connections or replies to requests have not been waited for	contact customer support
8211		Control	-	Test of slave port DPRAM Data lines failed	Hardware problem. Connection between CTR.ACSC and CTR.ASCO must be checked.	contact customer support
8212		Control	-	Test of slave port DPRAM Address lines failed	Hardware problem. Connection between CTR.ACSC and CTR.ASCO must be checked.	contact customer support
8213		Control	-	Test of slave port DPRAM Integrity failed	Hardware problem. Connection between CTR.ACSC and CTR.ASCO must be checked.	contact customer support
8214		Control	-	Slave Port DPRAM not connected or not ready	Hardware problem. Connection between CTR.ACSC and CTR.ASCO must be checked. Supply to CTR.ASCO must be checked	contact customer support
8215		Control	-	CTR.ACSCO not connected or not ready	Hardware problem. Connection between CTR.ACSC and CTR.ASCO must be checked. Supply to CTR.ASCO must be checked	contact customer support
8216		Control	-	Timeout when clearing errors (CTR.ACSCO and/or CTR.ACSI)	CTR.ACSI and/or CTR.ACSCO are not accessible, offline or defect.	contact customer support
8217		Control	-	Timeout when changing states from 'Standby' to 'Update' (CTR.ACSCO and/or CTR.ACSI)	CTR.ACSI and/or CTR.ACSCO are not accessible, offline or defect.	contact customer support
8218		Control	-	Timeout when changing states from 'Standby' to 'Test' (CTR.ACSCO and/or CTR.ACSI)	CTR.ACSI and/or CTR.ACSCO are not accessible, offline or defect.	contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
8219		Control	-	Timeout when changing states from 'Standby' to 'Ready to switch on' (CTR.ACSI)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support
8220		Control	-	Timeout when changing states from 'Update' to 'Standby' (CTR.ACISO and/or CTR.ACSI)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support
8221		Control	-	Timeout when changing states from 'Test' to 'Standby' (CTR.ACISO and/or CTR.ACSI)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support
8222		Control	-	Timeout when changing states from 'Ready to switch on' to 'Standby' (CTR.ACSI)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support
8223		Control	-	Timeout when changing states from 'Standby' to 'Switched on' (CTR.ACISO)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support
8224		Control	-	Timeout when changing states from 'Ready to switch on' to 'Standby' (CTR.ACISO and/or CTR.ACSI)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support
8225		Control	-	Timeout when changing states from 'Switched on' to 'Ready to switch on' (CTR.ACISO)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support
8226		Control	-	Timeout when changing states from 'Switched on' to 'Update' (CTR.ACISO)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support
8227		Control	-	Timeout when changing states from 'Switched on' to 'Standby' (CTR.ACSI)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
8228		Control	-	Timeout when changing states from 'Switched on' to 'Standby' (CTR.ACISO and/or CTR.ACSI)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support
8229		Control	-	Timeout when changing states from 'Switched on' to 'Ready to switch on' (CTR.ACISO)	CTR.ACSI and/or CTR.ACISO are not accessible, offline or defect.	contact customer support
8230		Control	-	Timeout when clearing errors (slave devices)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8231		Control	-	Timeout when changing states from 'Standby' to 'Update' (slave devices)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8232		Control	-	Timeout when changing states from 'Standby' to 'Test' (slave devices)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8233		Control	-	Timeout when changing states from 'Standby' to 'Ready to switch on' (slave devices)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8234		Control	-	Timeout when changing states from 'Update' to 'Standby' (slave devices)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8235		Control	-	Timeout when changing states from 'Test' to 'Standby' (slave devices)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8236		Control	-	Timeout when changing states from 'Ready to switch on' to 'Standby' (slave devices)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)

System Error	Single Device Error	Board	Error message TC.ACS (Long)	Description	Possible Cause	Counteraction
8237		Control	-	Timeout when changing states from 'Ready to switch on' to 'Switched on' (slave devices)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8238		Control	-	Timeout when changing states from 'Ready to switch on' to 'Switched on' (master device)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8239		Control	-	Timeout when changing states from 'Switched on' to 'Ready to switch on' (master device)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8240		Control	-	Timeout when changing states from 'Switched on' to 'Ready to switch on' (slave devices)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8241		Control	-	Timeout when changing states from 'Switched on' to 'Standby' (master device)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8242		Control	-	Timeout when changing states from 'Switched on' to 'Standby' (slave devices)	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
8243		Control	-	unexpectedly left EtherCAT state 'Operational'	One or more slave devices separated from EtherCAT, off line or defect.	Check multi-unit communication connections (X603/X604)
12032		Control		1st. customer-specific error	customer-specific	
...						
12287		Control		255. customer-specific error	customer-specific	

