

UR Robot Error Code

CB2:

```
#ifndef __ERRORCODES_H_
#define __ERRORCODES_H_

#define NO_ERROR 0
#define OUTBUFFER_OVERFLOW_ERROR 1
#define INBUFFER_OVERFLOW_ERROR 2
#define PROCESSOR_OVERLOADED_ERROR 3
#define BROKEN_COMMUNICATION_ERROR 4
/*Arguments from controlbox and nodes on secondary BUS:
  1: Communication with PC lost.
  2: Communication with primary MASTERBOARD uP lost
  3: Communication with secondary MASTERBOARD uP lost
  4: Communication with primary SCREEN uP lost
  5: Communication with secondary SCREEN uP lost
  6: Communication with primary EUROMAP67 uP lost
  7: Communication with secondary EUROMAP67 uP lost
  8: Communication with primary EUROMAP67 uP present, but euromap67 is disabled
  9: Communication with secondary EUROMAP67 uP present, but euromap67 is disabled
  10: Communication with primary Teach Pendant present, but Teach Pendant safety is disabled
  11: Communication with secondary Teach Pendant uP present, Teach Pendant safety is disabled
  65: Lost package from Primary Screen
  66: Lost package from Secondary Screen
  67: Lost package from Primary Euromap67
  68: Lost package from Secondary Euromap67
  69: Lost package from Secondary Masterboard
*/
#define HEAVY_PROCESSOR_LOAD_WARNING 5
#define MOTOR_ENCODER_INDEX_MOUNTING_OR_INTERRUPT_DRIFT_ERROR_DETECTED 6
#define JOINT_ENCODER_INDEX_INTERRUPT_DRIFT_ERROR_DETECTED 7
#define JOINT_ENCODER_INDEX_MIRROR_DETECTED 8 /* was ENCODER_INDEX_DRIFTED_ERROR */
#define OUTBUFFER_NOT_FULLY_SENT_ERROR 9
#define BROKEN_PC_COMMUNICATION_ERROR 10
#define BAD_CRC_ERROR 11
#define UNKNOWN_MESSAGE_ERROR 12
#define SEND_TO_ROBOT_FAILED_TO_COMPLETE_IN_TIME 13
#define DEBUG_ERROR 14
#define MASTER_SNIFFED_MESSAGE_ADRESSED_TO_INVALID_NODE_ID 15
#define MESSAGE_TYPE_DOES_NOT_MATCH_AMOUNT_OF_DATA 16
#define INBUFFER_OVERFLOW_ERROR_IN_MASTER_FROM_PC 17
```



```
#define MASTER_HAD_EXTRA_DATA_IN_BUFFER_FROM_PC 18
#define MASTER_HAD_NO_DATA_FROM_PC_TO_SEND_TO_JOINTS 19
#define FATAL_POWERBRIDGE_FAULT 20
#define ENCODER_JOINT_INTERRUPT_WITHOUT_CHANGE_ERROR 21
#define ENCODER_JOINT_INTERRUPT_WITH_TWO_STEP_CHANGE_ERROR 22
#define ENCODER_MOTOR_INTERRUPT_WITHOUT_CHANGE_ERROR 23
#define ENCODER_MOTOR_INTERRUPT_WITH_TWO_STEP_CHANGE_ERROR 24
#define JOINT_ENCODER_INDEX_DRIFT_DETECTED 25
#define MOTOR_ENCODER_INDEX_DRIFT_DETECTED 26
#define STRANGE_INTERRUPT_ERROR 27
#define DATA_AVAILABLE_BITS_WERE_ALL_ZERO 28
#define ETHERNET_PACKAGE_LOSS_DETECTED_FROM_PC_TO_MASTER 29
#define MASTER_RECIEVED_DATA_FROM_TOO_MANY_JOINTS_ERROR 30
#define JOINT_HAS_CAUGHT_WRONG_MESSAGE_FROM_MASTER 31
#define FLASH_WRITE_VERIFY_FAILED 32
#define CALIBRATION_FLASH_CHECKSUM_FAILED 33
#define CALIBRATION_DATA_OUT_OF_BOUNDS 34
#define JOINT_ID_IS_UNDEFINED 35
#define ILLEGAL_BOOTLOADER_COMMAND 36
#define INBUFFER_PARSE_ERROR 37
#define MASTER_GOT_JOINT_MESSAGES_IN_THE_WRONG_ORDER 38
#define COMMUNICATION_ANOMALY 39
#define ADCONVERTER_HIT_HIGH_LIMIT 40
#define CURRENT_REGULATION_INTEGRAL_PART_RUNAWAY_ERROR 41
#define MAX_MOTOR_SPEED_REACHED 42
#define JOINT_SERVO_DELTA_POSITION_TOO_LARGE 43
#define CRC_ERROR_POSSIBLY_FROM_JOINT 44
#define AD_CONVERTER_ERROR 45
#define BAD_ENCODER_MOUNTING_OR_GEARBOX_BROKEN_ERROR 46
#define ADCONVERTER_HIT_LOW_LIMIT 47
#define VOLTAGE_DROP_DETECTED 48
#define RS485_RECIEVE_ERROR 49
/*Arguments from controlbox:
 200: Secondary RS485 bus is down.
*/
#define ROBOT_POWERUP_FAILURE 50
/*Arguments from controlbox:
 1: (OLD) The 24V I/O has voltage, but 24V regulator is off
 2: Voltage present at unpowered robot (OLD Robot voltage is not off after powerup)
 4: (OLD) Robot is not stopped, this is an error (Old Emergency Stop relays are on without
24V power!)
 5: 48V PSU voltage to low after powerup
 6: 48V PSU voltage to high after powerup
11: (OLD) Voltage not detected at 24V rail after startup
```



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```
15: Warning, Waiting for secondary masterboard processor
16: Warning, Waiting for screen (Check cable)
17: Warning, Waiting for euromap67 interface (Check ribbon cable)
18: Warning, Waiting for primary masterboard processor
19: Warning, Waiting for a valid "euromap67 activated" status bit from secondary masterbaord
processor
20: 5V measured too high, 5V, 3V3 or ADC malfunction
21: 5V measured too low, 5V, 3V3 or ADC malfunction
22: Robot current sensor output to high for offset calibration
23: Robot current sensor output to low for offset calibration
24: 48V PSU voltage not preset. Check internal connection. (Maybe it does not turn on or
maybe it has reverse polarization)
25: Robot voltage preset when the 48V PSU is powered up. (Transistors ON/OFF function might
be short circuited)
26: Voltage present on unpowered 48V PSU
27: 12V measured too high, 12V, 3V3 or ADC malfunction
28: 12V measured too low, 12V, 3V3 or ADC malfunction
29: -12V measured too high, Analog I/O malfunction
30: -12V measured too low, Analog I/O malfunction
31: The other SafetySys will not initialize. (Or euromap67, one or both masterboard uP will
not initialize)
40: # Wrong voltage from PSU1
41: # Wrong voltage from PSU2
42: # Voltage will not disappear from PSU
43: # Warning, waiting for CB2 type answer from primary processor
99: Wrong software on PCB
100: Cable not connected
101: Short Circuit in robot
102: Voltage rising too slow
103: Voltage did not reach appropriate level (E.g 48V != 48V)
*/
#define EMERGENCY_RELAY_FAILURE 51
#define EMERGENCY_STOP_BUTTON_PRESSED 52
#define IO_OVERCURRENT_DETECTED 53
#define POSSIBLE_SHORT_CIRCUIT_AT_24V_DETECTED 54 /* Not used. */
#define SAFETY_CIRCUIT_ABNORMAL_OPERATION 55 /* same as FATAL_SAFETY_ERROR 55 */
#define FATAL_SAFETY_ERROR 55
/* Arguments from controlbox:
11: (OLD) Stop indication and not emergency stop indication
12: (OLD) Robot voltage indic. error and not emergency stop indication
16: (OLD) Stop indication is low but should be high
17: (OLD) safetyErrorIntegratorB>=6000000
23: Safety Relay Output Error, malfunction on secondary uP control (minus connection)
(also OLD safety relay error)
```



24: Safety Relay Output Error, malfunction on ColdFire uP control (plus connection) (also OLD safety relay error)

33: Safety Relay Output Error, Relay is stock (in E67 module a reset on one uP will force the MAF-relay check signal to be high, and this error will appear) (also OLD safety relay error)

34: Safety Relay Output Error, Relays are off for no reason (also OLD safety relay error)

50: Voltage present on unpowered robot (Normally not possible when the communication with the joints are present, but if it is not, it is possible to backdrive the robot very fast because the H-bridge is none-active)

51: Voltage will not disappear from robot

52: 5V measured to low, 5V, 3V3 or ADC malfunction

53: 5V measured to high, 5V, 3V3 or ADC malfunction

90: Bootloader error, voltage too low (current might be too high)

91: Bootloader error, robot voltage higher than 48V + tolerance

100: Safety violation (Impossible Software Error)

101: Safety Channel Error In Masterboard (States are different)

102: Safety Channel Error In Screen (States are different)

103: Safety Channel Error In Euromap67 Interface (States are different)

109: Received FAULT message from PC.

110: Safety State is changing too often

111: On/Off State is changing too often

112: The two current sensors are too different

120: Robot current is too high in emergency stop state

121: Robot current is too high in safeguard stop state

130: The secondary uP is FAULT

131: At least one screen uP is FAULT

132: At least one euromap67 uP is FAULT

Arguments from joints

52: 5V measured to low, 5V, 3V3 or ADC malfunction

53: 5V measured to high, 5V, 3V3 or ADC malfunction

*/

#define OVERVOLTAGE_SHUTDOWN 56

#define JOINT_SERVO_DELTA_SPEED_TOO_LARGE 57

#define MOTOR_ENCODER_NOT_CALIBRATED 58

/*

0: Never calibrated

1: Wrongly calibrated, or joint could not decelerate well enough after motor init.

*/

#define OVERCURRENT_SHUTDOWN 59

#define ROBOT_POWER_OFF_AT_HIGH_CURRENT 60

#define MISSED_JOINT_INDEX_MARK 61

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```
/* Arguments:
 * 11: Index mark could not be found during first five minutes of self-test
 * 20: Index mark could not be found during joint part d calibration
 */
#define THERMAL_SHUTDOWN 62
#define MOTOR_TEST_FAILED 63
/* Arguments:
 * The number telling which step the joint test failed in
 */
#define INTERFACE_CONNECTION_ERROR 64
/* Arguments from controlbox:
1: Safety error: Auto is active but reset is not.
2: Safety error: Reset button is stock
3: I/O overcurrent at 24V, max is 1200mA
4: I/O overcurrent at 24V, max is 2A*/
#define REBOOT_WARNING 65
/* Arguments from controlbox:
0: "no argument" (leaving fault or bootloader mode etc. - or "I am rebooting
because the other uP is)
1-199: Rebooting for the XX time.
200: Leaving fault
201: PC forced a reboot
202: I reboot because the other uP does.
*/
#define VERSION_MISMATCH_ERROR 66
#define CONFIGURATION_WARNING 67
/* Arguments from controlbox:
0: "no argument"
1: Euromap67 safety installed
2: Euromap67 safety uninstalled
3: Teach Pendant safety installed
4: Teach Pendant safety uninstalled
5: Error, cannot uninstall a none-installed interface
6: Booting for the first time
*/

#define SPI_ERROR 68
#define SEND_ERRORS_ACKNOWLEDGE_FROM_MASTER_TO_CONTROLLER 69 /* Used for handshake between
master and controller when the controller wants the master to send its errors */
#define CLOSE_TO_GEARBOX_BROKEN_ERROR_WARNING 70
#define JOINT_STARTUP_CHECK_ERROR 71
/* Args:
1 = Joint hardware is size 1 but software is not
```



```
2 = Joint hardware is size 2 but software is not
3 = Joint hardware is size 3 but software is not
4 = Joint hardware is size 4 but software is not
5 = Wrong hardware size read
6 = AD Converters for motor current not working
7 = Invalid value of the motor test results variable (>15, four bits are used)
8 = Motor short circuit to ground (motor indication signal is not high when all PWM
outputs are low)
9 = Error on either motor phase 1 or phase 3
10 = Error on motor phase 2
11 = Error in connection between phase 3 and motor indication signal
12 = Error combination 1
13 = Error combination 2
14 = Error combination 3
15 = Error combination 4

*/

#define NOTIFICATION_MESSAGE 72 /* This error code can be used to notify about some incident
that is not an error */
/* Args.:
*      1 = Masterboard recognized it was placed in a UR5 controller box (Message = Starting
UR5)
*      2 =                                UR10                                (Message = Starting
UR10)
*
*
*/

/* These errors come from robotinterface. */
#define ROBOT_MODE_CHANGED 100
#define REAL_ROBOT_CONNECTED 101
#define REAL_ROBOT_NOT_CONNECTED 102
#define UR_ETHERNET_ERROR 103
#define NO_COMMAND_SENT_TO_ROBOT_ERROR 104
#define JOINT_NOT_RESPONDING 105
#define ALL_JOINTS_NOT_RESPONDING 106
#define JOINT_HAD_TOO_MANY_ERRORS_IN_A_ROW 107
#define ALL_JOINTS_HAD_TOO_MANY_ERRORS_IN_A_ROW 108
#define SECURITY_STOP 109
#define JOINT_SECURITY_STOP 110
#define SOMETHING_IS_PULLING_THE_ROBOT 111
#define LARGE_POSITION_CHANGE_AT_STARTUP 112
```



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```
#define FORCE_AND_POWER_PROTECTIVE_STOP 113
#define HIGH_FORCE_AND_POWER_WARNING 114
#define WRONG_ROBOT_TYPE 115
#define REALTIME_PART_TOOK_TOO_LONG 116

/* These errors come from securitycheck */
#define SECURITY_CHECK_DELTA_POSITION_VIOLATION 150
#define SECURITY_CHECK_POSITION_LIMIT_VIOLATION 151
#define SECURITY_CHECK_DELTA_SPEED_VIOLATION 152
#define SECURITY_CHECK_VELOCITY_LIMIT_VIOLATION 153
#define SECURITY_CHECK_VELOCITY_DIR_VIOLATION 154
#define SECURITY_CHECK_ACCELERATION_DIR_VIOLATION 155
#define SECURITY_CHECK_TORQUE_LIMIT_VIOLATION 156

/* These errors come from the controller */
#define COLLISION_DETECTED 170
#define RUNTIME_ERROR 171
/*
 * Args:
 * 0. Runtime machine caught: RuntimeException
 *
 */
#define ILLEGAL_CONTROL_MODE 172
#define JOINT_LIMIT_DETECTED 173
#define SINGULARITY_DETECTED 174 /* TODO: This error is not used. I think we should delete it
to allow alternative usage /Emil */

/* These error come from calibration */
#define CALIBRATION_CHECKSUM_A_FAILED 180
#define CALIBRATION_CHECKSUM_C_FAILED 181
#define NO_CALIBRATION_FILE_FOUND 182
#define CALIBRATION_ANOMALY 183

/* Modbus communication errors */
#define MODBUS_ERROR 190

/* Force mode errors*/
#define FORCE_MODE_ERROR 191
/*
 * Args:
 * 1. Robot too close to singularity
 * 2. Distance from tcp to feature too small for force mode type 1
 * 3. Tool speed too low for force mode type 3
 * 4. Invalid force mode type
```

```
* 5. Position error too large
* 6. Orientation error too large
* 7. Joint firmware too old for force mode
*/
```

```
#endif
```

CB3:

```
# URTrans1.0_en
CODE_0=No error
```

```
CODE_1=Outbuffer overflow error
CODE_1A1=Buffer of stored warnings overflowed
CODE_1A2=Outbuffer to RS485 overflowed (problem with PCs message)
```

```
CODE_2=Inbuffer overflow error
CODE_3=Processor overloaded error
CODE_4=Broken communication
CODE_4A1=Communication with PC lost.
CODE_4A2=Communication with primary MASTERBOARD uP lost
CODE_4A3=Communication with secondary MASTERBOARD uP lost
CODE_4A4=Communication with primary Teach Pendant uP lost
CODE_4A5=Communication with secondary Teach Pendant uP lost
CODE_4A6=Communication with primary EUROMAP67 uP lost
CODE_4A7=Communication with secondary EUROMAP67 uP lost
CODE_4A8=Primary EUROMAP67 uP present, but euromap67 is disabled
CODE_4A8_explanation=Incorrect safety configuration
CODE_4A8_suggestion=Update the miscellaneous settings in the Safety Configuration
CODE_4A9=Secondary EUROMAP67 uP present, but euromap67 is disabled
CODE_4A9_explanation=Incorrect safety configuration
CODE_4A9_suggestion=Update the miscellaneous settings in the Safety Configuration
CODE_4A10=Primary Teach Pendant present, but Teach Pendant safety is disabled
CODE_4A10_explanation=Incorrect safety configuration
CODE_4A10_suggestion=Update the miscellaneous settings in the Safety Configuration
CODE_4A11=Secondary Teach Pendant uP present, Teach Pendant safety is disabled
CODE_4A11_explanation=Incorrect safety configuration
CODE_4A11_suggestion=Update the miscellaneous settings in the Safety Configuration
CODE_4A12=Communication with joint 0 lost
CODE_4A12_explanation=Serial communication problem with one or more joints
CODE_4A13=Communication with joint 1 lost
CODE_4A13_explanation=Serial communication problem with one or more joints
CODE_4A14=Communication with joint 2 lost
```




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CODE_4A14_explanation=Serial communication problem with one or more joints
CODE_4A15=Communication with joint 3 lost
CODE_4A15_explanation=Serial communication problem with one or more joints
CODE_4A16=Communication with joint 4 lost
CODE_4A16_explanation=Serial communication problem with one or more joints
CODE_4A17=Communication with joint 5 lost
CODE_4A17_explanation=Serial communication problem with one or more joints
CODE_4A18=Communication with tool lost
CODE_4A18_explanation=Serial communication problem with one or more joints
CODE_4A65=Lost package from Primary Teach Pendant
CODE_4A66=Lost package from Secondary Teach Pendant
CODE_4A67=Lost package from Primary Euromap67
CODE_4A68=Lost package from Secondary Euromap67
CODE_4A69=Lost package from Secondary Masterboard
CODE_4A70=Lost package from joint 0
CODE_4A70_explanation=Serial communication problem with one or more joints
CODE_4A71=Lost package from joint 1
CODE_4A71_explanation=Serial communication problem with one or more joints
CODE_4A72=Lost package from joint 2
CODE_4A72_explanation=Serial communication problem with one or more joints
CODE_4A73=Lost package from joint 3
CODE_4A73_explanation=Serial communication problem with one or more joints
CODE_4A74=Lost package from joint 4
CODE_4A74_explanation=Serial communication problem with one or more joints
CODE_4A75=Lost package from joint 5
CODE_4A75_explanation=Serial communication problem with one or more joints
CODE_4A76=Lost package from tool
CODE_4A76_explanation=Serial communication problem with one or more joints
CODE_4A77=Lost package from uPA to joints
CODE_4A78=Lost package from uPA to teach pendant
CODE_4A79=Lost package from uPA to uPB
CODE_4A80=Lost package from uPB
CODE_4A81=Packet counter disagreement in packet from Primary Screen
CODE_4A82=Packet counter disagreement in packet from Secondary Screen
CODE_4A83=Packet counter disagreement in packet from Primary Euromap67
CODE_4A84=Packet counter disagreement in packet from Secondary Euromap67
CODE_4A85=Packet counter disagreement in packet from Secondary Masterboard
CODE_4A86=Packet counter disagreement in packet from joint 0
CODE_4A87=Packet counter disagreement in packet from joint 1
CODE_4A88=Packet counter disagreement in packet from joint 2
CODE_4A89=Packet counter disagreement in packet from joint 3
CODE_4A90=Packet counter disagreement in packet from joint 4
CODE_4A91=Packet counter disagreement in packet from joint 5
CODE_4A92=Packet counter disagreement in packet from tool

CODE_4A93=Packet counter disagreement in packet from processor A to joints

CODE_4A94=Packet counter disagreement in packet from processor A to B

CODE_4A95=Packet counter disagreement in packet from processor A to Teach pendant and euromap

CODE_5=Heavy processor load warning

CODE_10=Broken PC communication error

CODE_10A1=Lost packet from PC

CODE_10A101=PC packet received too early

CODE_10A102=Packet counter does not match

CODE_10A103=PC is sending packets too often

CODE_11=Bad CRC error

CODE_11_explanation=Serial communication problem with joint

CODE_11_suggestion=Check green 2-wire connectors and wires in joints

CODE_12=Unknown message error

CODE_14=Debug message

CODE_17=Inbuffer overflow in package from PC

CODE_17_explanation=Communication error between Masterboard and Motherboard

CODE_17_suggestion=Check ethernet connection between circuit boards

CODE_23=Failed to create ErrCode-message-queue

CODE_23A1=The queue-id pointer is invalid (NULL)

CODE_23A2=The queue-id is invalid!

CODE_23A2_explanation=(queue-id >= C_MSG_QUEUE_NUM), C_MSG_QUEUE_NUM = 'maximum number of message-queues'

CODE_23A2_suggestion=queue-id MUST be a value in the range from 0 to C_MSG_QUEUE_NUM-1

CODE_23A3=Message-buffer length out of range!

CODE_23A3_explanation=The message-buffer length is zero or greater than MSG_QUEUE_MAX_SIZE, MSG_QUEUE_MAX_SIZE = 'maximum number of messages in a queue'

CODE_23A3_suggestion=The message-buffer length must be within the valid range [1:MSG_QUEUE_MAX_SIZE]

CODE_24=Put access to ErrCode-message-queue failed!

CODE_24A2=The queue-id is invalid!

CODE_24A2_explanation=(queue-id >= C_MSG_QUEUE_NUM), C_MSG_QUEUE_NUM = 'maximum number of message-queues'

CODE_24A2_suggestion=queue-id MUST be a value in the range from 0 to C_MSG_QUEUE_NUM-1

CODE_24A6=The queue referenced by queue-id has not been created!

CODE_24A7=The Message-Queue is full!

CODE_25=Get access from the ErrCode-message-queue failed
CODE_25A2=The queue-id is invalid!
CODE_25A2_explanation=(queue-id >= C_MSG_QUEUE_NUM), C_MSG_QUEUE_NUM = 'maximum number of message-queues'
CODE_25A2_suggestion=queue-id MUST be a value in the range from 0 to C_MSG_QUEUE_NUM-1
CODE_25A6=The message-queue referenced by queue-id has not been created!

CODE_26=Motor Encoder index drift detected
CODE_26_explanation=Joint mechanical problem
CODE_26_suggestion=Replace joint

CODE_27=Calibration data is invalid or does not exist, selftest is needed!

CODE_29=Online Calibration data checksum failed

CODE_30=Master received data from too many joints

CODE_31=Caught wrong message (not from master)
CODE_31_explanation=Serial communication problem with joint
CODE_31_suggestion=Check green 2-wire connectors and wires in joints

CODE_32=Flash write verify failed
CODE_33=Calibration flash checksum failed

CODE_34=Program flash checksum failed
CODE_34A0=Program flash checksum failed during bootloading
CODE_34A1=Program flash checksum failed at runtime

CODE_35=Joint ID is undefined
CODE_36=Illegal bootloader command

CODE_37=Inbuffer parse error
CODE_37_explanation=Serial communication problem with joint
CODE_37_suggestion=Check green 2-wire connectors and wires in joints

CODE_38=Online RAM test failed
CODE_38A1=Data-bus test failed
CODE_38A2=Address-bus stuck-high test failed
CODE_38A3=Address-bus stuck-low test failed
CODE_38A4=Address-bus shorted test failed
CODE_38A5=Memory-cell test failed

CODE_39=Logic and Temporal Monitoring Fault
CODE_39A1=Max current deviation failure



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CODE_39A2=Max joint-encoder speed exceeded
CODE_39A3=Max motor-encoder speed exceeded
CODE_39A4=Illegal state change in joint detected
CODE_39A5=Too fast state change in joint detected
CODE_39A6=5V regulator voltage too low
CODE_39A7=5V regulator voltage too high
CODE_39A100=Watchpoint fault: ADC task timeout
CODE_39A101=Watchpoint fault: Motor-Control task timeout
CODE_39A102=Watchpoint fault: Motor-encoder task timeout
CODE_39A103=Watchpoint fault: Joint-encoder task timeout
CODE_39A104=Watchpoint fault: Communication task timeout
CODE_39A105=Watchpoint fault: RAM-test task timeout
CODE_39A106=Watchpoint fault: CalVal-test task timeout
CODE_39A107=Watchpoint fault: ROM-test task timeout

CODE_40=AD-Converter hit high limit joint
CODE_40_explanation=EMC issue external or electronics internal
CODE_40_suggestion=Check grounding and shielding for EMC problems

CODE_44=CRC check failure on primary bus
CODE_44A0=Joint 0
CODE_44A1=Joint 1
CODE_44A2=Joint 2
CODE_44A3=Joint 3
CODE_44A4=Joint 4
CODE_44A5=Joint 5
CODE_44A6=Tool
CODE_44_explanation=Serial communication problem with joint or secondary bus node
CODE_44_suggestion=Check green 2-wire connectors and wires in joints

CODE_45=AD-Converter error

CODE_46=Loose gearbox or bad encoder mounting
CODE_46_explanation=Mechanical problem in gear related to encoder mounting
CODE_46_suggestion=Replace joint

CODE_47=AD-Converter hit low limit
CODE_47_explanation=EMC issue external or electronics internal
CODE_47_suggestion=Check grounding and shielding for EMC problems

CODE_48=Powerbus voltage drop detected.
CODE_48_explanation=Error on 48V powerbus
CODE_48_suggestion=Check 48V output from PSU. Check current-distributor PCB. Replacement of 48V PSU or current-distributor is necessary

CODE_49=RS485 receive warning

CODE_49A200=Secondary RS485 bus is down

CODE_50=Robot powerup failure

CODE_50_explanation=Electrical error control box

CODE_50_suggestion=Remove all external connections to I/O-interface of Masterboard. Check for short circuit. Argument of error code specifies in details what causes the error.

CODE_50A1=Voltage detected at 24V rail before startup

CODE_50A2=Voltage present at unpowered robot

CODE_50A5=Powersupply voltage too low

CODE_50A6=Powersupply voltage too high

CODE_50A100=Cable not connected

CODE_50A101=Short circuit in robot detected

CODE_50A102=Voltage rising too slowly

CODE_50A103=Voltage failed to reach acceptable level

CODE_50A11=Voltage not detected at 24V rail after startup

CODE_50A15=Warning, waiting for SafetySYS2

CODE_50A16=The Teach Pendant does not respond

CODE_50A16_explanation=Loose wire or incorrect safety configuration

CODE_50A16_suggestion=Check the cable or change in the Safety Configuration of the Installation the miscellaneous settings

CODE_50A17=The Euromap67 interface does not respond

CODE_50A17_explanation=Loose wire or incorrect safety configuration

CODE_50A17_suggestion=Check the cable or change in the Safety Configuration of the Installation the miscellaneous settings

CODE_50A18=Warning, waiting for SafetySYS1

CODE_50A20=5V, 3V3 or ADC error (5V too high)

CODE_50A21=5V, 3V3 or ADC error (5V too low)

CODE_50A22=Robot current sensor reading too high

CODE_50A23=Robot current sensor reading too low

CODE_50A24=48V not present (Check internal connection)

CODE_50A25=Robot voltage present at 48V PSU powereup

CODE_50A26=Voltage present on unpowered 48V power supply

CODE_50A27=12V, 3V3 or ADC error (12V too high)

CODE_50A28=12V, 3V3 or ADC error (12V too low)

CODE_50A29=Analog I/O error (-12V too high)

CODE_50A30=Analog I/O error (-12V too low)

CODE_50A31=The other safetySYS do not initialize

CODE_50A99=Wrong software on PCB

CODE_51=CRC check failure on secondary bus

CODE_51A0=Processor B

CODE_51A1=Primary screen processor

CODE_51A2=Secondary screen processor

CODE_51A3=Primary E67

CODE_51A4=Secondary E67

CODE_53=IO overcurrent detected

CODE_53_explanation=Masterboard error

CODE_53_suggestion=Remove all external connections to I/O-interface of Masterboard. Check for short circuit

CODE_53AMASTER=, max is 800mA

CODE_53AT00L=, max is 600mA

CODE_55=Safety system error

CODE_55_explanation=Safety system malfunction

CODE_55_suggestion=Check Motherboard, Masterboard, Screenboard, Current distributor(Euromap, if installed). Bypass safety connections to I/O-interface of Masterboard

CODE_55A23=Safety relay error (minus connection)

CODE_55A24=Safety relay error (plus connection)

CODE_55A33=Safety relay error (a relay is stuck)

CODE_55A34=Safety relay error (relays are not on)

CODE_55A50=Voltage present at unpowered robot

CODE_55A51=Voltage will not disappear from robot

CODE_55A52=5V, 3V3 or ADC error (5V too low)

CODE_55A53=5V, 3V3 or ADC error (5V too high)

CODE_55A90=Bootloader error, robot voltage too low or current too high

CODE_55A91=Bootloader error, robot voltage too high

CODE_55A100=Safety violation

CODE_55A101=Safety Channel Error In Masterboard

CODE_55A102=Safety Channel Error In Screen

CODE_55A103=Safety Channel Error In Euromap67 Interface

CODE_55A109=Received fault message from PC

CODE_55A110=Safety State is changing too often

CODE_55A111=On/Off State is changing too often

CODE_55A112=Robot current sensors readings differ

CODE_55A120=Robot current is too high while emergency stopped

CODE_55A121=Robot current is too high while safeguard stopped

CODE_56=Overvoltage shutdown

CODE_56_explanation=Voltage exceeded 55V

CODE_56_suggestion=Check Energy Eaters. Replace Energy Eater

CODE_57=Brake release failure

CODE_57A1=Joint did not move or motor encoder is not functioning

CODE_57A2=Large movement detected during brake release

CODE_58=Motor encoder not calibrated

CODE_59=Overcurrent shutdown

CODE_59_explanation=Overcurrent in joint

CODE_59_suggestion=Check for short circuit. Check program for singularity issues. Replace joint if necessary

CODE_62=Joint temperature

CODE_62A1=High (80 C)

CODE_62A11=Shut down (85 C)

CODE_62A13=Static load too high

CODE_62A3=Static load too high warning

CODE_63=Selftest failed

CODE_68=SPI error

CODE_70=Close to gearbox shear limit

CODE_70_explanation=Acceleration / deceleration too high. Mechanical problem in gear related to encoder mounting

CODE_70_suggestion=Reduce acceleration in user program. Replace joint if necessary

CODE_71=Startup check error

CODE_71A1=Hardware is size1, software is not

CODE_71A2=Hardware is size2, software is not

CODE_71A3=Hardware is size3, software is not

CODE_71A4=Hardware is size4, software is not

CODE_71A5=Invalid hardware size read

CODE_71A6=Motor indication signal not working

CODE_71A7=Phase 1 and phase 2 not working

CODE_71A8=Phase 2 not working

CODE_71A9=Phase 1 not working

CODE_71A10=Invalid motor test result

CODE_71A11=ADC calibration failed

CODE_72A1=0 PSUs are active

CODE_72A2=1 PSU active, but we expect 2 (UR10)

CODE_72A3=2 PSUs active, but we expect 1 (UR5)

CODE_73=Brake test failed during selftest, check brakepin

CODE_74=Joint encoder warning

CODE_74A2=Speed reading is not valid

CODE_74A8=Supply voltage is out of range

CODE_74A16=Temperature is out of range

CODE_74A64=Signal low =Too far from magnetic ring

CODE_74A128=Signal saturation =Too close to magnetic ring

CODE_75=Joint encoder error

CODE_75A1=Invalid decode: Readhead misalignment, ring damaged or external magnetic field present.

CODE_75A4=System error=malfuction or inconsistent calibration detected

CODE_75A32=Signal lost =Misaligned readhead or damaged ring

CODE_76=Joint encoder communication CRC error

CODE_100=Robot changed mode

CODE_100_explanation=Status warning, general modus change

CODE_100_suggestion=Check preceding errors in log history

CODE_101=Real Robot Connected

CODE_102=Real Robot not connected - Simulating Robot

CODE_103=UR Ethernet Error

CODE_103A1=3 packages in a row lost from Safety Control Board

CODE_104=Error=Empty command sent to robot

CODE_111=Something is pulling the robot

CODE_116=Realtime part warning

CODE_116_explanation=Possible CPU-overload due to structure of user program

CODE_116_suggestion=Restructure user program

CODE_117=Restart SCB failed

CODE_117_explanation=The Safety Control Board couldn't be rebooted from the controller.

CODE_117_suggestion=Reboot the robot

CODE_150=Protective Stop: Position close to joint limits

CODE_151=Protective Stop: Tool orientation close to limits

CODE_152=Protective Stop: Position close to safety plane limits

CODE_153=Protective Stop: Position deviates from path

CODE_154=Protective Stop: Position in singularity

CODE_154_explanation=Robot can not move linear in a singularity

CODE_154_suggestion=Use jointspace movement or change the motion

CODE_155=Protective Stop: Robot cannot maintain its position, check if payload is correct

CODE_156=Protective Stop: Wrong payload or mounting detected when entering Teach mode

CODE_156_explanation=The robot may move unexpected due to wrong settings

CODE_156_suggestion=Verify that the TCP configuration and mounting in the used installation is correct

CODE_172=Illegal control mode



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CODE_184=Joint self test not completed

CODE_191=Safety system violation

CODE_191A1=Joint position limit violated

CODE_191A2=Joint speed limit violated

CODE_191A3=TCP speed limit violated

CODE_191A4=TCP position limit violated

CODE_191A5=TCP orientation limit violated

CODE_191A6=Power limit violated

CODE_191A7=Joint torque window violated

CODE_191A8=Joint torque window too large

CODE_191A9=Reduced mode output violation

CODE_191A10=Safeguard stop output violation

CODE_191A11=Emergency stop output violation

CODE_191A12=Momentum limit violation

CODE_191A13=Robot moving output violation

CODE_191A14=Robot is not braking in stop mode

CODE_191A15=Robot is moving in stop mode

CODE_191A16=Robot did not stop in time

CODE_191A17=Received a null vector for TCP orientation

CODE_191A18=Robot not stopping output violation

CODE_191A19=Invalid safety IO configuration

CODE_191A20=Configuration information or limit sets not received

CODE_191A21=The other safety processor detected a violation

CODE_191A22=Received unknown command from PC

CODE_191A23=Invalid setup of safety limits

CODE_191A24=Reduced Mode Output set, while it should not be

CODE_191A25=Reduced Mode Output not set, while it should be

CODE_191A26=Not Reduced Mode Output set, while it should not be

CODE_191A27=Not Reduced Mode Output not set, while it should be

CODE_191A28=Robot Emergency Stop exceeded maximum stop time

CODE_191A29=System Emergency Stop exceeded maximum stop time

CODE_191A30=Safeguard Stop exceeded maximum stop time

CODE_192=Safety system fault

CODE_192A1=Robot still powered in emergency stop

CODE_192A2=Robot emergency stop disagreement

CODE_192A3=System emergency stop disagreement

CODE_192A4=Safeguard stop disagreement

CODE_192A5=Euromap safeguard stop disagreement

CODE_192A6=Joint position disagreement

CODE_192A7=Joint speed disagreement

CODE_192A8=Joint torque disagreement



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CODE_192A9=TCP speed disagreement
CODE_192A10=TCP position disagreement
CODE_192A11=TCP orientation disagreement
CODE_192A12=Power disagreement
CODE_192A13=Joint torque window disagreement
CODE_192A14=Reduced mode input disagreement
CODE_192A15=Reduced mode output disagreement
CODE_192A16=Safety output failed
CODE_192A17=Safeguard stop output disagreement
CODE_192A18=The other safety processor is in fault
CODE_192A19=Emergency stop output disagreement
CODE_192A20=SPI output error detected
CODE_192A21=Momentum disagreement
CODE_192A22=Robot moving output disagreement
CODE_192A23=Wrong processor ID
CODE_192A24=Wrong processor revision
CODE_192A25=Potential brownout detected
CODE_192A26=Emergency stop output disagreement
CODE_192A27=Safeguard stop output disagreement
CODE_192A28=Robot not stopping output disagreement
CODE_192A29=Safeguard reset input disagreement
CODE_192A30=Safety processor booted up in fault mode
CODE_192A31=Reduced Mode Output disagreement
CODE_192A32=Not Reduced Mode Output disagreement
CODE_192A33=Checksum disagreement between uA and uB
CODE_192A34=User safety config checksum disagreement between uA and GUI
CODE_192A35=Robot config checksum disagreement between uA and GUI
CODE_192A36=Online RAM test failed
CODE_192A37=Not all safety related functionalities are running

CODE_193=One of the nodes is in fault mode
CODE_193A0=Joint 0
CODE_193A1=Joint 1
CODE_193A2=Joint 2
CODE_193A3=Joint 3
CODE_193A4=Joint 4
CODE_193A5=Joint 5
CODE_193A6=Tool
CODE_193A7=Screen 1
CODE_193A8=Screen 2
CODE_193A9=Euromap 1
CODE_193A10=Euromap 2

CODE_194=One of the nodes is not booted or not present



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CODE_194A0=Joint 0
CODE_194A1=Joint 1
CODE_194A2=Joint 2
CODE_194A3=Joint 3
CODE_194A4=Joint 4
CODE_194A5=Joint 5
CODE_194A6=Tool
CODE_194A7=Screen 1
CODE_194A8=Screen 2
CODE_194A9=Euromap 1
CODE_194A10=Euromap 2

CODE_195=Conveyor speed too high
CODE_195_explanation=Conveyor speed higher than robot is able to run
CODE_195_suggestion=Make sure that conveyor tracking is set correct up

CODE_196=MoveP speed too high
CODE_196_explanation=Too high speed in relation to blend radius
CODE_196_suggestion=Reduce speed or increase blend radius in user program

CODE_197=Blend overlap warning

CODE_200=Safety Control Board hardware error
CODE_200A1=Hardware ID is wrong
CODE_200A2=MCU type is wrong
CODE_200A3=Part ID is wrong
CODE_200A4=RAM test failed
CODE_200A5=Register test failed
CODE_200A6=pRom Crc test failed
CODE_200A7=Watchdog reset the processor
CODE_200A8=OVG signal test not passed
CODE_200A9=3V3A power good pin is low
CODE_200A10=3V3B power good pin is low
CODE_200A11=5V power good is low
CODE_200A12=3V3 voltage too low
CODE_200A13=3v3 voltage too high
CODE_200A14=48V input is too low
CODE_200A15=48V input is too high
CODE_200A16=24V I0 short circuited
CODE_200A17=PC current is too high
CODE_200A18=Robot voltage is too low
CODE_200A19=Robot voltage is too high
CODE_200A20=24V I0 voltage is too low
CODE_200A21=12V voltage is too high

CODE_200A22=12V voltage is too low

CODE_200A23=It took too long to stabilize 24V

CODE_200A24=It took too long to stabilize 24V IO

CODE_200A25=24V voltage is too high

CODE_200A26=24V IO voltage is too high

CODE_201=Setup of safety board failed - check Ethernet connecting between motherboard and safety control board

CODE_201_explanation=Invalid safety parameters have been received

CODE_201_suggestion=Verify that the setup of the Safety Configuration is valid

CODE_203=PolyScope detected a mismatch between the shown and (to be) applied safety parameters

CODE_203_explanation=The PolyScope continuously verifies that the shown safety parameters are equal to the running parameters

CODE_203_suggestion=Reload the installation