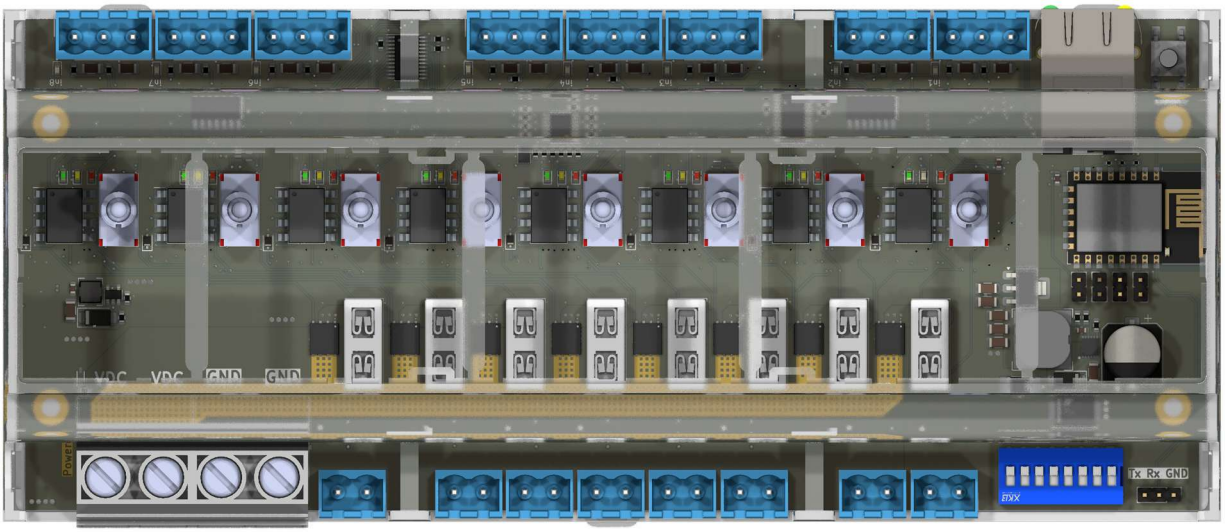
OPERATIONS AND MAINTENANCE MANUALS

MODULE YC-OB-D8

1. General Information

The module reads the input states (short-circuit via an external relay) and powers the assigned output terminals. Additionally, the device features an integrated bypass mode configurable via an internal DIP switch. When enabled, this function bypasses the internal control logic, establishing a direct logical link where an active state on the input immediately activates the corresponding output.



SUPPORTED DEVICES	YC-OB-D1	YC-OB-D2	YC-OB-D3	YC-OB-D4	YC-OB-D5	YC-OB-D6	YC-OB-D7	YC-OB-D8
DC lighting.	Yes	Yes*	Yes*	Yes*	No	No	No	Yes*
DC motors.	No	Yes	No	No	No	No	No	No
Servomechanisms.	No	Yes	No	No	No	No	No	No
High-current devices (pumps, cranes, heaters).	No	Yes***	Yes**	Yes	No	No	Yes	Yes***
Buttons, switches, contact switches.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Measuring devices with resistance output (thermistors, liquid level sensors).	No	No	No	No	Yes	No	No	No
Measuring devices with voltage output (thermocouples, battery testing).	No	No	No	No	Yes	No	No	No
Other devices with documented interface via TTL inputs (BMS, navigation, others).	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AC lighting.	No	No	No	No	No	No	Yes	No

Single-phase, three-phase AC motors.	No	No	No	No	No	No	Yes	No
AC devices.	No	No	No	No	No	No	Yes	No

* - without dim

** - up to 5 A

*** - up to 10 A

- A smart yacht system can be built based on a network of modules that allow control both from one central point and from multiple points using the logic contained in the modules themselves.
- The module can operate without connection with central unit or an instance of a control application, but it is highly recommended to ensure such communication.
- Each module (mother board) contains a UNOR3 connector and a number of inputs and outputs whose type, and number, depend on the type.
- During a malfunction, the use of a universal connector makes it possible to use microprocessors readily available worldwide, or to quickly replace the damaged processor with a spare.
- Each module contains a SPIGPIO pinout that allows it to be extended with additional functions.

COMPLIANCE WITH DIRECTIVES

Directive GPS 2001/95/WE

Directive EMC 2014/30/UE

Directive RED 2014/53/UE

Directive RoHS 2011/65/UE

Directive RoHS 2018/736

IMPORTANT INFORMATION

READ THIS DATASHEET BEFORE ATTEMPTING TO INSTALL THE DEVICE

Read the contents of the datasheet before installation. Failure to follow the recommendations in the datasheet and other requirements of diligence appropriate to the nature of the equipment may: prove hazardous to life/health, cause damage to the equipment or the installation to which it is connected, result in damage to other property, or violate other applicable regulations. The manufacturer of the equipment, Yacht Concept sp. z o.o., assumes no liability for damages (property and non-property) resulting from installation and/or use of the equipment not in accordance with the datasheet and/or due care in handling the equipment in question.

WATCH THE PARAMETERS

The device's power supply, permissible load or other characteristic parameters must comply with the device's specifications.

DO NOT MODIFY

Do not modify this device in any way not included in this datasheet.

OTHER DEVICES

The manufacturer, Yacht Concept sp. z o.o. will not be held responsible for any damage or loss of warranty privileges for other connected devices if the connection is not compliant with their datasheets.

TECHNICAL SUPPORT

If you have any technical questions or comments on the operation of the device, contact Yacht Concept technical support.

NOT A TOY

The product is not intended for children or pets.

SAFETY INFORMATION

ELECTRICITY

Dangers of life caused by electricity.

PROPER USAGE

The components of the system (individual devices) are designed for operation on yachts. Incorrect connection or use may cause fire or electric shock.

INSTALLATOR

Any work related to the installation of the device, especially work involving interference with the electrical system, can only be performed by a person with the appropriate qualifications or authorizations.

POWER SUPPLY

When installing the device, make sure to disconnect the power supply voltage in the circuit in which this device is connected or in the vicinity of which the installation takes place.

MOISTNESS

To avoid risk of electrical shock, do not operate the device with wet or moist hands. Do not use in damp or wet locations, near a bathtub, sink, shower, swimming pool, or anywhere else where water is present.

CONNECTORS BRIDGE

Do not connect inputs or outputs by bridges to achieve higher current. This may result in exceeding the maximum current and destroying the device.

2. TECHNICAL DATA

GENERAL DATA	
Module dimensions (h x d x l)	65.3 mm x 89.8 mm x 177.8 mm
Ambient temperature	-10°C to 50°C
Ambient humidity	75%
Weight	300g
POWER SUPPLY	
Supply voltage – min.	9 V
Supply voltage – max.	33 V
Current consumption – idle, typ.	0.05 A
COMMUNICATION	
Interfaces	Ethernet, UART TTL, Wi-Fi
Inputs	8 x Button / Logic
Outputs	8 x 10 A Switch
POWER TERMINAL BLOCK	
Connection method	Screw
Wire gauge min.	20 AWG
Wire gauge max.	6 AWG
INPUT/OUTPUT TERMINAL BLOCK	
Connection method	Screw
Wire gauge min.	28 AWG
Wire gauge max.	12 AWG

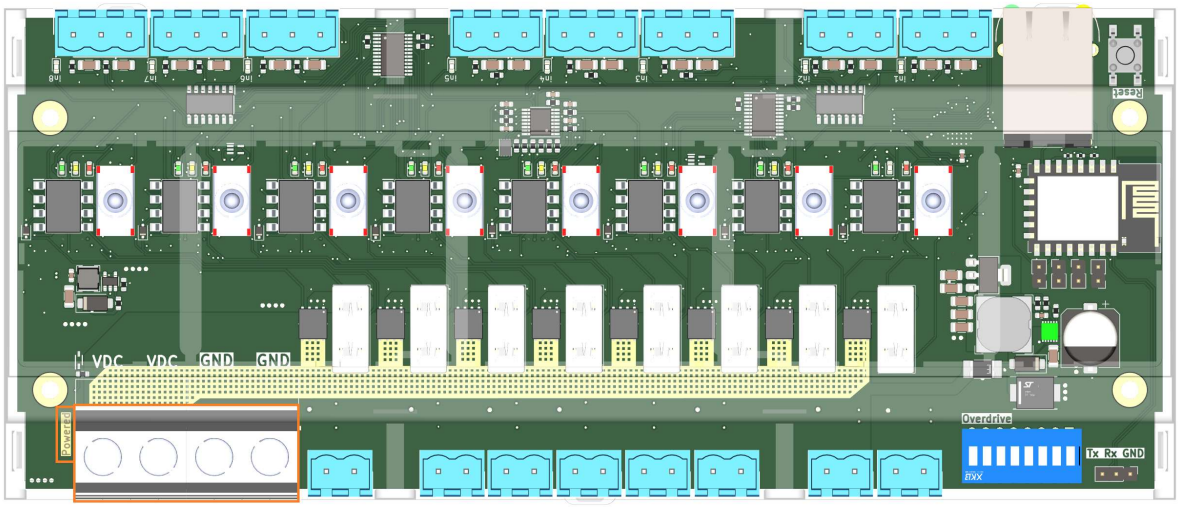
INPUTS & OUTPUTS

POWER SUPPLY

CONNECTORS	PARAMETERS	DESCRIPTION
Power In	9V DC - 33V DC	Module power input: • Up to 60A: single connection (1x VDC, 1x GND) • Above 60A: double connection (2x VDC, 2x GND)

LIGHT	DESCRIPTION
BLINKS	The module works properly.
FIXED OR NONE	The module is not responding.

LIGHT	DESCRIPTION
WHITE "Powered"	Power supply indication.

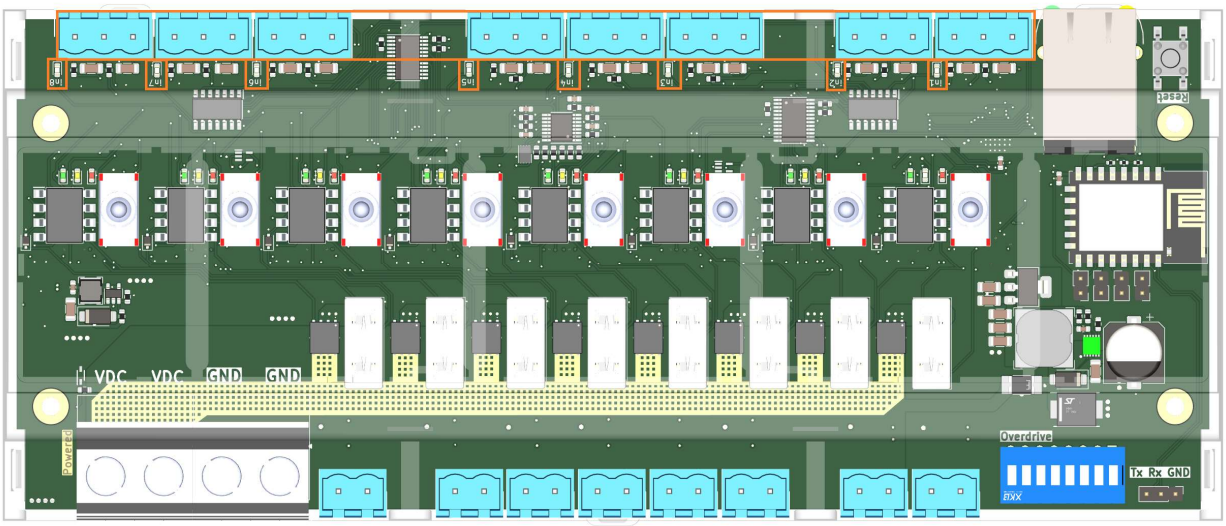


- Module must be powered by 9VDC to 33VDC stabilized power supply with short circuit protection. Connecting higher voltage or voltage not matching the load's voltage may cause damage to the device.

INPUTS

CONNECTORS	DESCRIPTION
Input 1 - 8	Open/short between Vdc and IN 2,5V to VDC for logic "1"

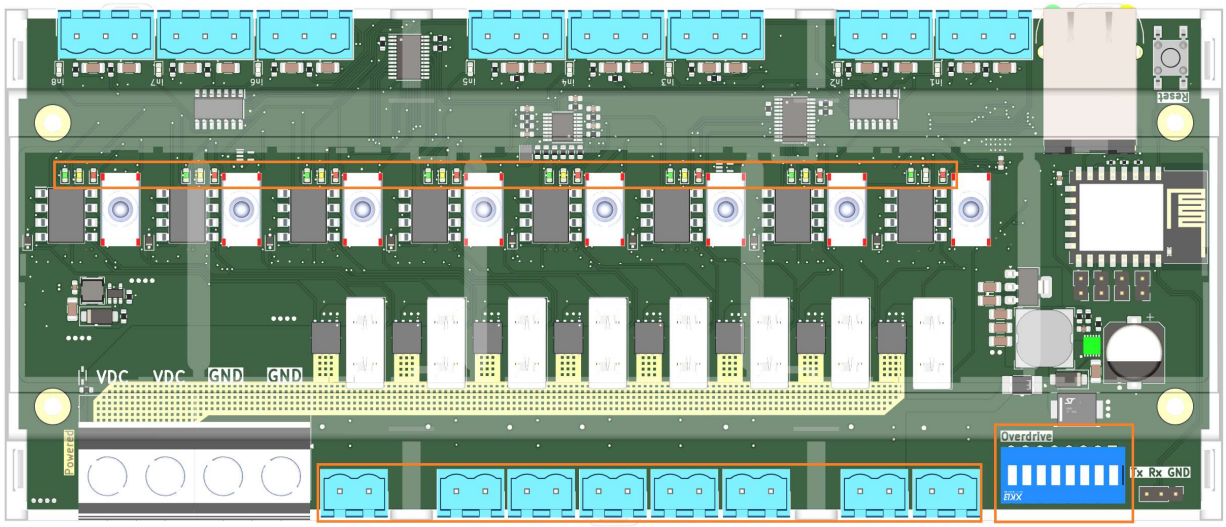
LIGHT	DESCRIPTION
BLUE	Logic "1" indication.



OUTPUTS

CONNECTORS	PARAMETERS	DESCRIPTION
Output 1 - 8	Supply voltage. Maximum current 10 A.	Output to switch on any DC receiver.
Lever Switch 1-8	3 – position switch (On/Auto/Off)	ON: Constant output; AUTO: Logic-controlled operation; OFF: Output permanently disabled.
DIP Switch 1-8	On/Off	ON: Bypasses control logic. Direct input-to-output connection (logic high on input results in active output). Off: Normal Mode. Logic bypass disabled

LIGHT COLOR	DESCRIPTION
GREEN	The output works normally.
ORANGE	MOSFET-triggered backflow protection.
RED	The overload of the output. Fuse burnt.

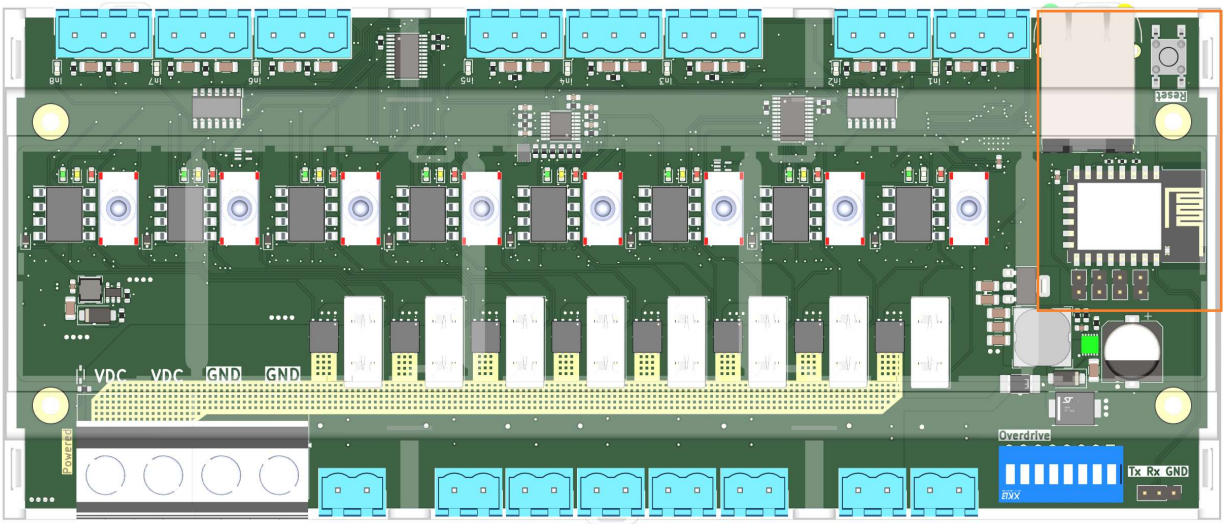


COMMUNICATION

The element responsible for the logic of the performed actions, and for communication with the central unit is the communication chip, which is mounted on each module. The circuit consists of 2 processors: Atmega1284 communicating with peripherals, and ESP8266 responsible for Ethernet network communication, and Wi-Fi wireless communication.

The microprocessors communicate with each other using the SPI bus. SPI was also used to communicate with the ENC2j50 chip responsible for Ethernet. An SPI bus has been provided on the ICSP pin for communication with additional peripherals in the future.

Each chip has a built-in Wi-Fi antenna for general-purpose use, or in cases where connecting a cable network is not possible. The chip itself can also serve with other Wi-Fi compatible devices.



WIRELESS COMMUNICATION

Wi-Fi

Each communication board has a built-in Wi-Fi modem based on the ESP8266 chip. The wireless network can be used for:

- Installation of modules in places where there is no cable network.
- Install software updates and scripts.
- Communication with other devices via API (Including light bulbs and smart sockets)

WI-FI	
Interfaces	Wi-Fi, nRF
Inputs	nRF socket
Protocols	802.11 b/g/n
Frequency range	2.4 GHz – 2.5 GHz (2 400 MHz – 2483.5 MHz)
Tx power	802.11 b: +20 dBm 802.11 g: +17 dBm 802.11 n: +14 dBm
Rx sensitivity	802.11 b: -91 dBm (11 Mbps) 802.11 g: -75 dBm (54 Mbps) 802.11 n: -72 dBm (MCS7)
Security	WPA/WPA2
Encryption	WEP/TKIP/AES
Network protocols	IPv4, TCP/UDP/HTTP

WIRED COMMUNICATION

Ethernet

Each communication system has an Ethernet interface operating in the 10/100Mbit standard. Through this interface, all communication of the modules with each other and with the central application takes place.

Ethernet	
Connector	RJ-45
Standard	802.3
Base-T Networks	10
Duplex modes	Full & half
SPI interface	Clock speed up to 20 MHz
Buffer	8 kB Transmit/Receive packet dual port SRAM

FEATURES

MODULES	YC-OB-D1	YC-OB-D2	YC-OB-D3	YC-OB-D4	YC-OB-D5	YC-OB-D6	YC-OB-D7	YC-OB-D8
Button / Logic inputs	8	4	8	8	0	12	5	8
Button / Logic override switches	No	No	Yes	Yes	No	No	Yes	Yes
Output status LED indicator	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Voltage/current measurement inputs	0	0	0	0	7	0	0	0
Voltage/current measurement outputs	8	4	8	8	0	0	5	8
Resistance measurement inputs	0	0	0	0	6	0	0	0
Temperature sensor inputs	0	0	0	0	6	0	0	0
LED outputs	8	0	0	0	0	0	0	0
Motor outputs	0	2	0	0	0	0	0	0
10A AC 5A DC relay outputs	0	0	8	0	0	0	0	0
40A DC switch outputs	0	0	0	8	0	0	0	0
10A DC switch outputs	0	0	0	0	0	0	0	8
16A 230V AC RELAY outputs	0	0	0	0	0	0	5	0
Hardware Bypass Mode	No	No	No	No	No	No	No	Yes

The modules according to the table have different features. Below are the specifications of the various inputs and outputs that support the features. Before installation, read the data sheet carefully and follow the recommendations.

READ IMPORTANT INFORMATION

READ SAFETY INFORMATION

FOLLOW THE PARAMETERS

3. MANUAL

INPUTS USAGE SCENARIOS

1. Interface with External Logic Signal Devices:

- Description: For devices that output a distinct logic signal.
- Connection:
    - Connect the signal output from the external device to the "In" terminal of the circuit.
    - Connect the ground of the external device to the "Ref" terminal of the circuit.

2. Interface with Ground-Shorting Devices:

- Description: For devices that communicate by alternately shorting their output to ground or leaving it open.
- Connection:
    - Connect the output of the device to the "In" terminal of the circuit.
    - Additionally, short the top pin (adjacent to the "In" terminal) to the "In" terminal. This ensures a defined voltage level when the device output is open.

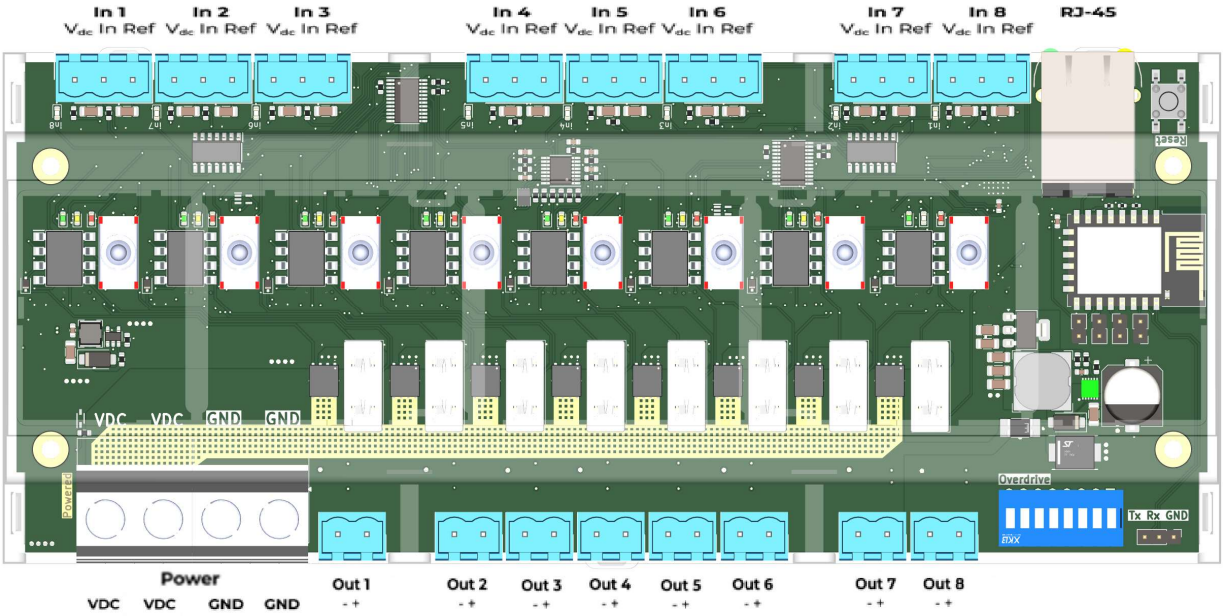
3. Interface with Contact-Based Devices:

- Description: For devices that use two contacts which either establish a connection (short) or break it (open).
- Connection:
    - Connect one of the contacts to the "+VDC" terminal of the circuit.
    - Connect the other contact to the "In" terminal of the circuit. The circuit will then interpret the connection status of the contacts based on the voltage at the "In" terminal.

Note:

Ensure that external devices comply with the voltage specifications of the circuit to prevent damage and ensure accurate operation. Proper grounding practices should be followed to minimize noise and interference.

INPUTS & OUTPUTS SCHEME



POWER TERMINAL BLOCK	
Connection method	Screw
Wire gauge min.	20 AWG
Wire gauge max.	6 AWG
Contact material	Copper Alloy
INPUT/OUTPUT TERMINAL BLOCK	
Connection method	Screw
Wire gauge min.	28 AWG
Wire gauge max.	12 AWG
Contact material	Copper Alloy
Contact plating	Nickel
FUSE 1-8	
Type	ATM
Model	297 seria Mini
Value	Up to 10A
BUTTON INPUT 1-8	
Input type	3.3 V logic input with pull-up
Pull-up resistance	20 – 60 kOhm
LEVER SWITCH 1-8	
Mechanical resistance	40 000 make-and-break cycles
Contact resistance	10 mOhm initial @ 2-4VDC, 100 mA for both silver and gold plated contacts
Insulation resistance	1 000 MOhm
Dielectric strength	1 000 Vrms @sea level
10A SWITCH OUTPUT 1-8	
Switch type	Fused high side semiconductor switch
Input voltage range	9 V – 33 V
Rated output current	10 A

Electronic OC protection trip – max.	12 A
Overcurrent timeout – typ.	660 us
Fuse rating	10 A

4. PARTS LIST

Item	Qty	Reference(s)	Value	Footprint
1	1	C1	EEEFT1H331GP	Capacitor_SMD:CP_Elec_10x10.5
2	4	C2,C7,C1107,C1207	100n 50V	Capacitor_SMD:C_1206_3216Metric
3	25	C3, C11, C13, C101, C301, C306, C401, C406, C501, C506, C601, C606, C701, C706, C801, C806, C901, C906, C1003, C1004, C1005, C1006, C1009, C1011, C1016	100n	Capacitor_SMD:C_0603_1608Metric
4	3	C4, C5, C6	22u 10V	Capacitor_SMD:C_1206_3216Metric
5	1	C8	100n 100V	Capacitor_SMD:C_1206_3216Metric
6	3	C9, C10, C1008	10u	Capacitor_SMD:C_1206_3216Metric
7	10	C12, C14, C15, C305, C405, C505, C605, C705, C805, C905	10n	Capacitor_SMD:C_1206_3216Metric
8	1	C102	100p	Capacitor_SMD:C_0603_1608Metric
9	9	C103, C203, C303, C403, C503, C603, C703, C803, C903	10u 25V	Capacitor_SMD:C_1206_3216Metric
10	1	C104	100n 25V	Capacitor_SMD:C_0603_1608Metric
11	1	C111	1u 6V3	Capacitor_SMD:C_0603_1608Metric
12	1	C112	1u 25V	Capacitor_SMD:C_1206_3216Metric
13	16	C202, C204, C302, C304, C402, C404, C502, C504, C602, C604, C702, C704, C802, C804, C902, C904	1u 100V	Capacitor_SMD:C_1206_3216Metric
14	8	C207, C307, C407, C507, C607, C707, C807, C907	1n	Capacitor_SMD:C_0603_1608Metric
15	2	C1001, C1002	18p	Capacitor_SMD:C_0402_1005Metric
16	24	C1101, C1102, C1103, C1104, C1106, C1108, C1109, C1110, C1111, C1112, C1113, C1201, C1202, C1203, C1204, C1205, C1206, C1208, C1209, C1210, C1211, C1212, C1213	1n 50V	Capacitor_SMD:C_1206_3216Metric
17	1	D1	SM15T33A	DIOM8059X265N
18	2	D2,D103	SK16	Diode_SMD:D_SMA
19	2	D3,D13	LED white	LED_SMD:LED_0603_1608Metric
20	8	D4,D304,D404,D504,D604,D704,D804,D904	LED_O	LED_SMD:LED_0603_1608Metric
21	32	D5,D6,D7,D8,D9,D10,D11,D12,D203,D207,D303,D307,D403,D407,D503,D507,D603,D607,D703,D707,D803,D807,D903,D907,D1101,D1102,D1105,D1106,D1201,D1202,D1205,D1206	BAT54J	Diode_SMD:D_SOD-323F
22	9	D102,D206,D306,D406,D506,D606,D706,D806,D906	BAT54S	Package_TO_SOT_SMD:SOT-23
23	9	D104,D209,D309,D409,D509,D609,D709,D809,D909	8.0SMDJ33A	SamacSys_Parts:8.0SMDJ33A

24	8	D201, D301, D401, D501, D601, D701, D801, D901	BAT54A	Package_TO_SOT_SMD:SOT-23
25	8	D202, D302, D402, D502, D602, D702, D802, D902	LED_G	LED_SMD:LED_0603_1608Metric
26	8	D208, D308, D408, D508, D608, D708, D808, D908	LED_R	LED_SMD:LED_0603_1608Metric
27	8	D1103, D1104, D1107, D1108, D1203, D1204, D1207, D1208	BAT54C	Package_TO_SOT_SMD:SOT-23
28	1	F1	1812L110_33MR	1812L010DR
29	8	F2, F3, F4, F5, F6, F7, F8, F9	3568	3568
30	1	FB1	Ferrite_Bead	Capacitor_SMD:C_0603_1608Metric
31	4	H101, H102, H103, H104	MountingHole	MountingHole:MountingHole_3.2mm_M3_Pad_TopBottom
32	2	IC1, IC2	74AHC1G14GW,125	SOT65P210X110-5N
33	1	IC3	LR12LG-G	SOIC127P600X175-8N
34	2	IC4, IC5	74HC14D,653	SOIC127P600X175-14N
35	8	in1, in2, in3, in4, in5, in6, in7, in8	LED_B	LED_SMD:LED_0603_1608Metric
36	8	J1, J2, J3, J4, J5, J6, J7, J8	TBP01R2-508-02BE	SamacSys_Parts:TBP01R2-508-02BE
37	8	J9, J10, J11, J12, J13, J14, J15, J16	TBP01R2-508-03BE	SamacSys_Parts:TBP01R2-508-03BE
38	2	J18, J19	VP026584000AG	libs:VP026584000AG
39	1	J20	08B0-1D1T-06-F	08B01D1T06F
40	1	L1	SRN1060-100M	Inductor_SMD:L_Bourns-SRN1060
41	1	L102	SRN4018-100M	Inductor_SMD:L_Bourns-SRN4018
42	8	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8	AONS66641	SamacSys_Parts:AONS66641
43	24	Q9, Q201, Q203, Q301, Q303, Q308, Q401, Q403, Q408, Q501, Q503, Q508, Q601, Q603, Q608, Q701, Q703, Q708, Q801, Q803, Q808, Q901, Q903, Q908	2N7002	Package_TO_SOT_SMD:SOT-23
44	8	Q202, Q302, Q402, Q502, Q602, Q702, Q802, Q902	BSS84	Package_TO_SOT_SMD:SOT-23
45	16	Q206, Q306, Q406, Q506, Q606, Q706, Q806, Q906, Q1101, Q1102, Q1103, Q1104, Q1201, Q1202, Q1203, Q1204	BC857	PPackage_TO_SOT_SMD:SOT-23
46	8	Q207, Q307, Q407, Q507, Q607, Q707, Q807, Q907	BC846	Package_TO_SOT_SMD:SOT-23
47	1	R1	64k9	Resistor_SMD:R_0603_1608Metric
48	1	R2	24k9	Resistor_SMD:R_0603_1608Metric
49	33	R3, R217, R218, R219, R221, R317, R318, R319, R321, R417, R418, R419, R421, R517, R518, R519, R521, R617, R618, R619, R621, R717, R718, R719, R721, R817, R818, R819, R821, R917, R918, R919, R921	100k	Resistor_SMD:R_0603_1608Metric
50	1	R4	6k	Resistor_SMD:R_0603_1608Metric
51	9	R5,R204,R304,R404,R504,R604,R704,R804, R904	33k	Resistor_SMD:R_0603_1608Metric
52	8	R6, R7, R8, R9, R10, R11, R12, R13	470	Resistor_SMD:R_0603_1608Metric
53	24	R14, R112, R113, R206, R306, R406, R506, R606, R706, R806, R906, R1001, R1010, R1011, R1014, R1015, R1101, R1102, R1119, R1120, R1201, R1202, R1219, R1220	3k3	Resistor_SMD:R_0603_1608Metric
54	26	R15, R203, R220, R303, R307, R320, R403, R407, R420, R503, R507, R520, R603, R607, R620, R703, R707, R720, R803, R807, R820, R903, R907, R920, R1003, R1004	1k	Resistor_SMD:R_0603_1608Metric
55	91	R16, R101, R103, R105, R106, R107, R108, R111, R114, R115, R116, R201, R202, R205, R301, R302, R305, R313, R401, R402, R405,	10k	Resistor_SMD:R_0603_1608Metric

		R413, R501, R502, R505, R513, R601, R602, R605, R613, R701, R702, R705, R713, R801, R802, R805, R813, R901, R902, R905, R913, R1016, R1103, R1104, R1106, R1107, R1109, R1110, R1112, R1114, R1115, R1116, R1117, R1118, R1121, R1122, R1124, R1125, R1127, R1128, R1130, R1132, R1133, R1134, R1135, R1136, R1203, R1204, R1206, R1207, R1209, R1210, R1212, R1214, R1215, R1216, R1217, R1218, R1221, R1222, R1224, R1225, R1227, R1228, R1230, R1232, R1233, R1234, R1235, R1236		
56	9	R17, R109, R315, R415, R515, R615, R715, R815, R915	30k	Resistor_SMD:R_0603_1608Metric
57	8	R18, R316, R416, R516, R616, R716, R816, R916	2k4	Resistor_SMD:R_0603_1608Metric
58	4	R19, R20, R21, R22	50R 1%	Resistor_SMD:R_0603_1608Metric
59	8	R23, R310, R410, R510, R610, R710, R810, R910	240R	Resistor_SMD:R_0603_1608Metric
60	2	R110, R122	150k	Resistor_SMD:R_0603_1608Metric
61	1	R117	180k	Resistor_SMD:R_0603_1608Metric
62	1	R123	12k	Resistor_SMD:R_0603_1608Metric
63	24	R211, R212, R223, R311, R312, R323, R411, R412, R423, R511, R512, R523, R611, R612, R623, R711, R712, R723, R811, R812, R823, R911, R912, R923	100R	Resistor_SMD:R_0603_1608Metric
64	8	R214, R314, R414, R514, R614, R714, R814, R914	10R	Resistor_SMD:R_0603_1608Metric
65	8	R222, R322, R422, R522, R622, R722, R822, R922	WSK1216L2000FEA	Resistor_SMD:R_0603_1608Metric
66	11	R1002, R1012, R1013, R1105, R1108, R1123, R1126 ,R1205, R1208, R1223, R1226	NM	Resistor_SMD:R_0603_1608Metric
67	1	R1005	2k 1%	Resistor_SMD:R_0402_1005Metric
68	8	R1111, R1113, R1129, R1131, R1211, R1213, R1229, R1231	2k	Resistor_SMD:R_0603_1608Metric
69	1	SW2	DS-08NINIGI	Package_DIP:DIP-16_W7.62mm_LongPads
70	1	SW101	2-1977223-4	libs:219772234
71	8	SW201, SW301, SW401, SW501, SW601, SW701, SW801, SW901	1MS3T1B1M2QES	libs:Switch-1MS3T1B1M2QES
72	1	U1	LMR38025S5QDRRRQ1	SON50P300X300X80-13N-D
73	1	U2	AMS1117-3.3	Package_TO_SOT_SMD:SOT-223-3_TabPin2
74	8	U3, U301, U401, U501, U601, U701, U801, U901	SN74LVC2G132DCTR	Package_SO:SSOP-8_2.95x2.8mm_P0.65mm
75	8	U4, U303, U403, U503, U603, U703, U803, U903	TS3021A	Package_TO_SOT_SMD:SOT-23-5
76	2	U101, U102	PCAL6416APW	Package_SO:TSSOP-24_4.4x7.8mm_P0.65mm
76	1	U103	MAX11617	Package_SO:QSOP-16_3.9x4.9mm_P0.635mm
77	1	U104	SN74LVC1G14DBV	Package_TO_SOT_SMD:SOT-23-5
78	1	U105	MCP1416	Package_TO_SOT_SMD:SOT-23-5
79	1	U106	AP63200WU	Package_TO_SOT_SMD:TSOT-23-6
80	1	U107	AP3012	Package_TO_SOT_SMD:SOT-23-5
81	1	U108	LM75BTP,147	Package_SON:SON-8-1EP_3x2mm_P0.5mm_EP1.4x1.6mm
82	8	U202, U302, U402, U502, U602, U702, U802, U902	TLP250H(TP1,F)	libs:SOP254P1000X425-8N

83	8	U204, U304, U404, U504, U604, U704, U804, U904	INA180A4	Package_TO_SOT_SMD:SOT-23-5
84	1	U1001	ENC28J60x-SS	Package_SO:SSOP-28_5.3x10.2mm_P0.65mm
85	1	U1002	ESP32-PICO-D4	Package_DFN_QFN:QFN-48-1EP_7x7mm_P0.5mm_EP5.3x5.3mm
86	1	U1004	ESP-12E	RF_Module:ESP-12E
87	2	U1101, U1201	LM339DR	Package_SO:SOIC-14_3.9x8.7mm_P1.27mm
88	8	U1102, U1103, U1104, U1105, U1202, U1203, U1204, U1205	TLVH431	Package_TO_SOT_SMD:SOT-23
89	1	Y1001	ABM8-25.000MHZ-B2-T	Crystal:Crystal_SMD_3225-4Pin_3.2x2.5mm
90	1	Z1	BZT52B5V1S_RRG	SODFL2612X110N