Quick Reference CPM90E3-A2

Interface

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Content

Bill of material

In the Starter Kit Box is:

- CPM90E3-XX-XXXX motor
- PCAN CAN – USB Interface(including Driver CD)
- CAN Terminator
- Analog Throttle
- Sub – D cable
- 2 × 16 mm² battery cable(red,black)
- USB stick with user manual and MotionWorkbench interface software
- Signal splitter cable

Installation Guide

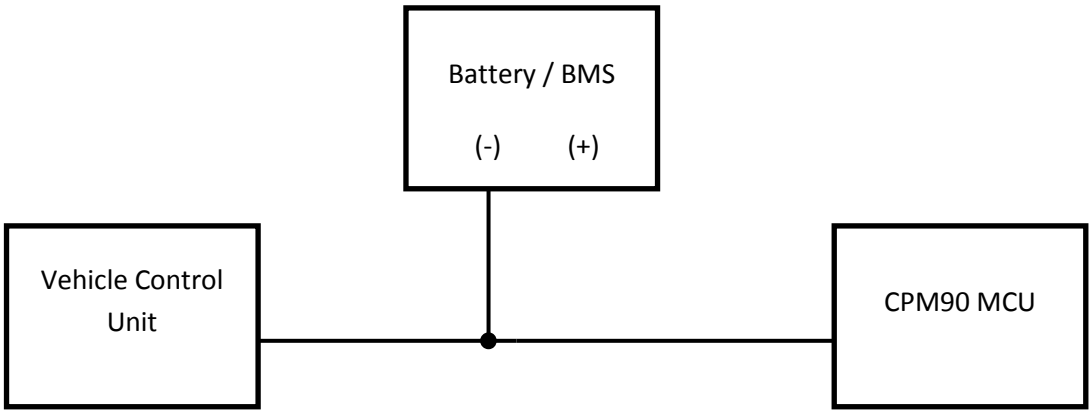
1. Install the driver for the PCAN USB to CAN interface using the included CD-ROM
2. Install the Motion Workbench from the USB – Stick. Click the *Installer.bat* file from USB – stick.
3. Please read the user manual carefully before run the motor. You must configure the motor depending on your power supply and application.

Electrical connection of the motor

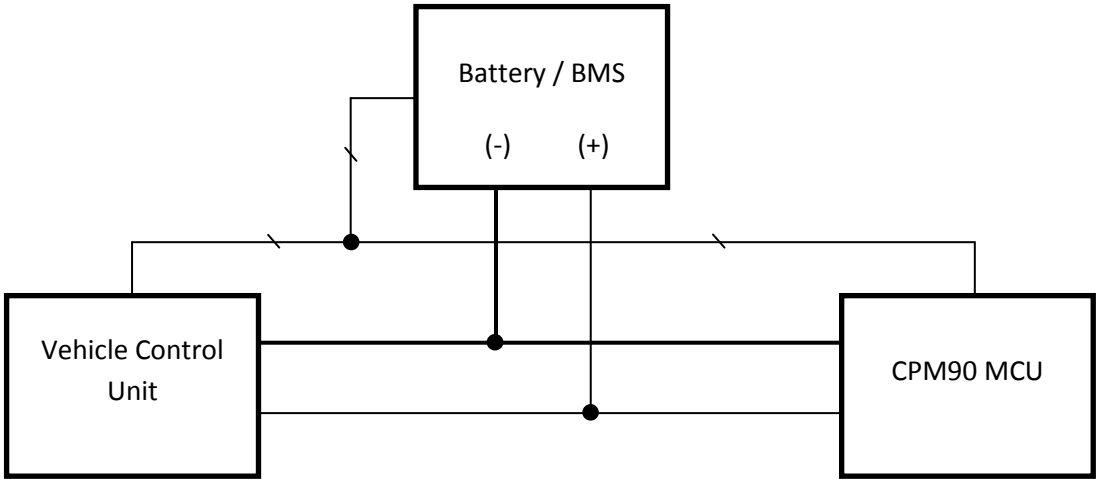
IMPORTANT NOTICE - Read carefully before proceeding with the electrical connections!

It is mandatory to connect and secure all the ground (battery minus) connections in the electrical system before connecting any communication lines. Failing to do so may lead to an irreversible failure of the motor controller unit.

The communication interfaces, i.e. the CAN bus, the digital I/Os and the analog inputs, ARE NOT PROTECTED against ground fault. Such a ground fault can occur for example while connecting a battery connector without a pre-mating ground contact.



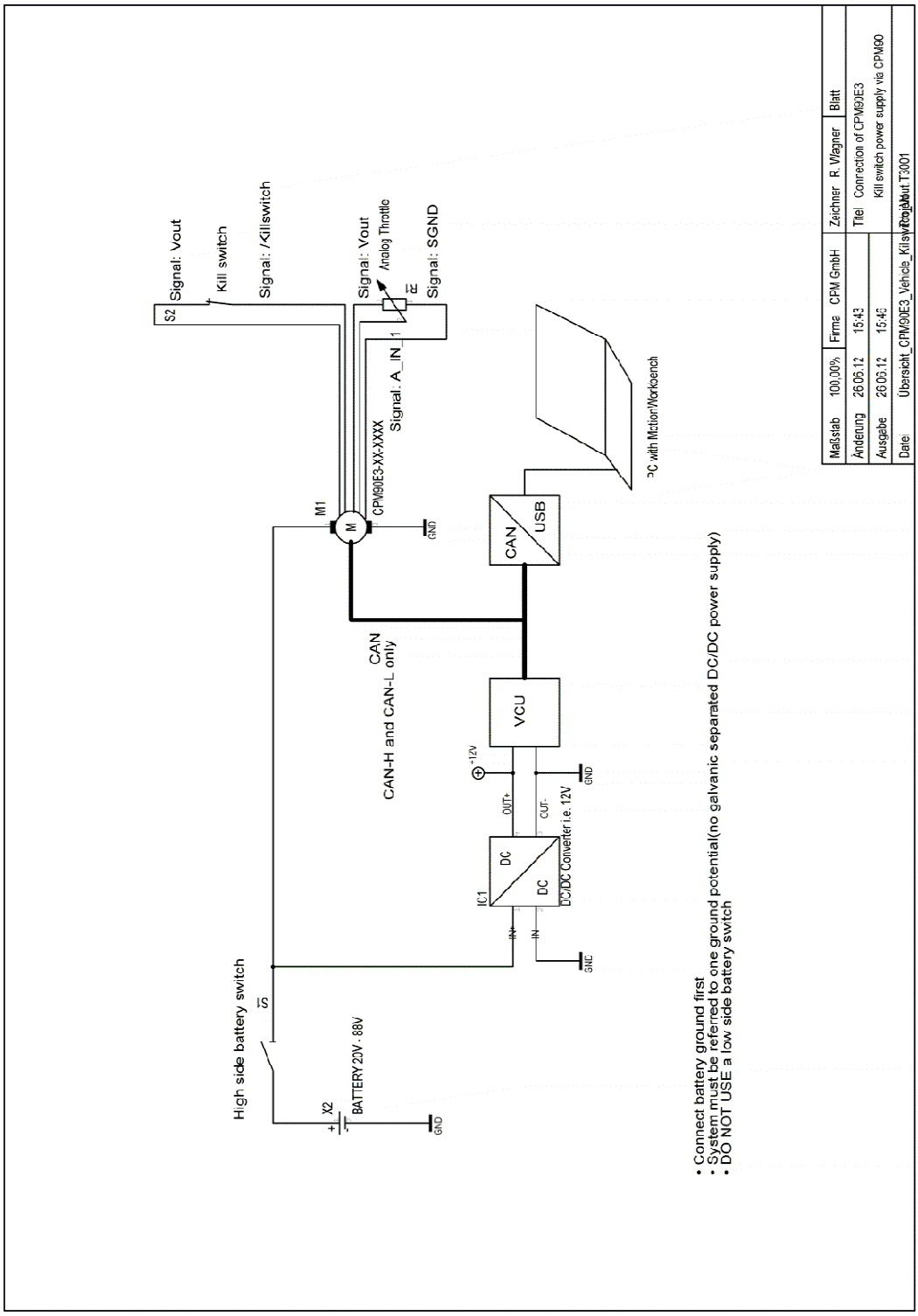
FIRST STEP: Connect the Battery GND within the complete system



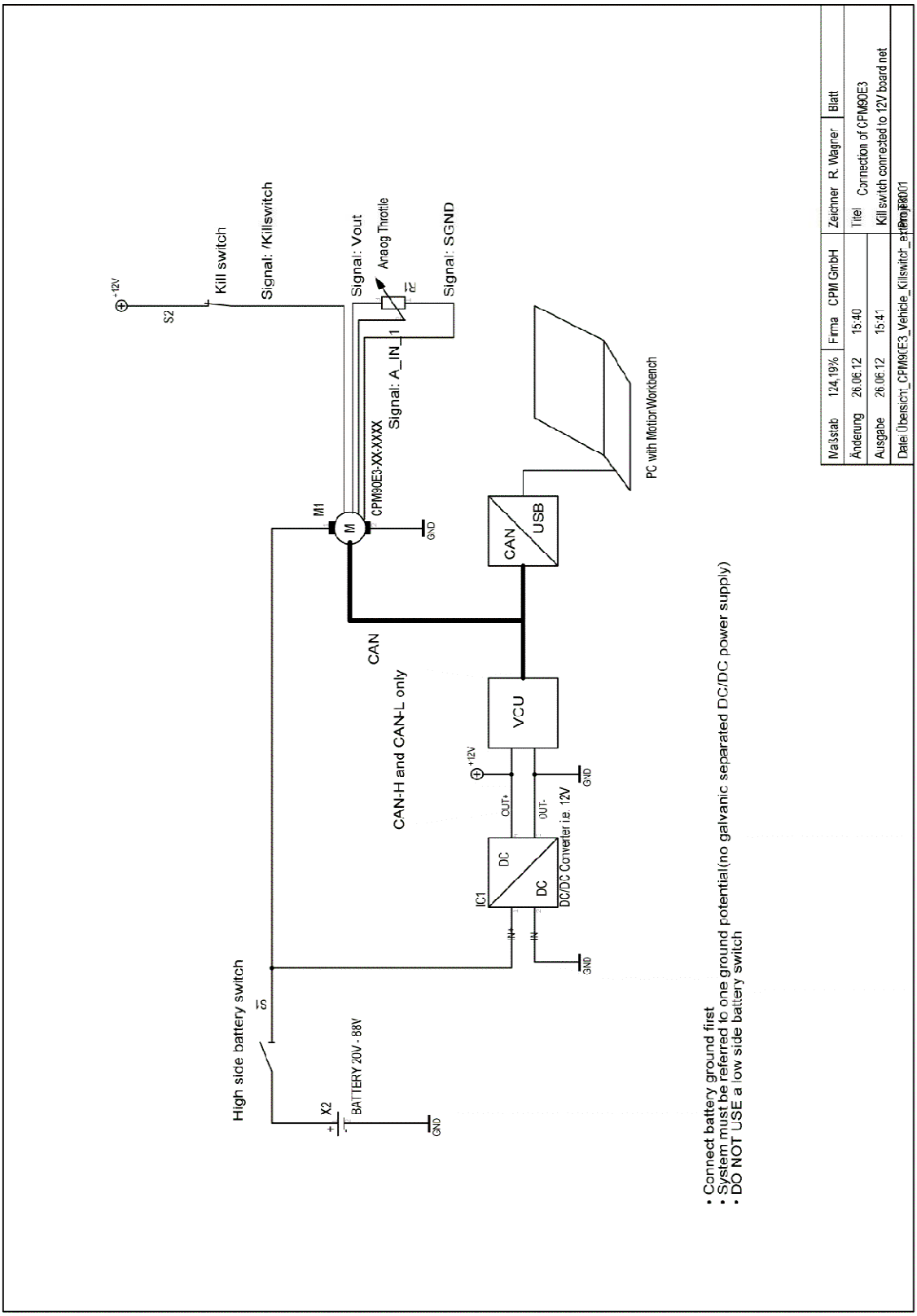
SECOND STEP: Connect the battery (+) and any communication lines

Vehicle Integration Overview

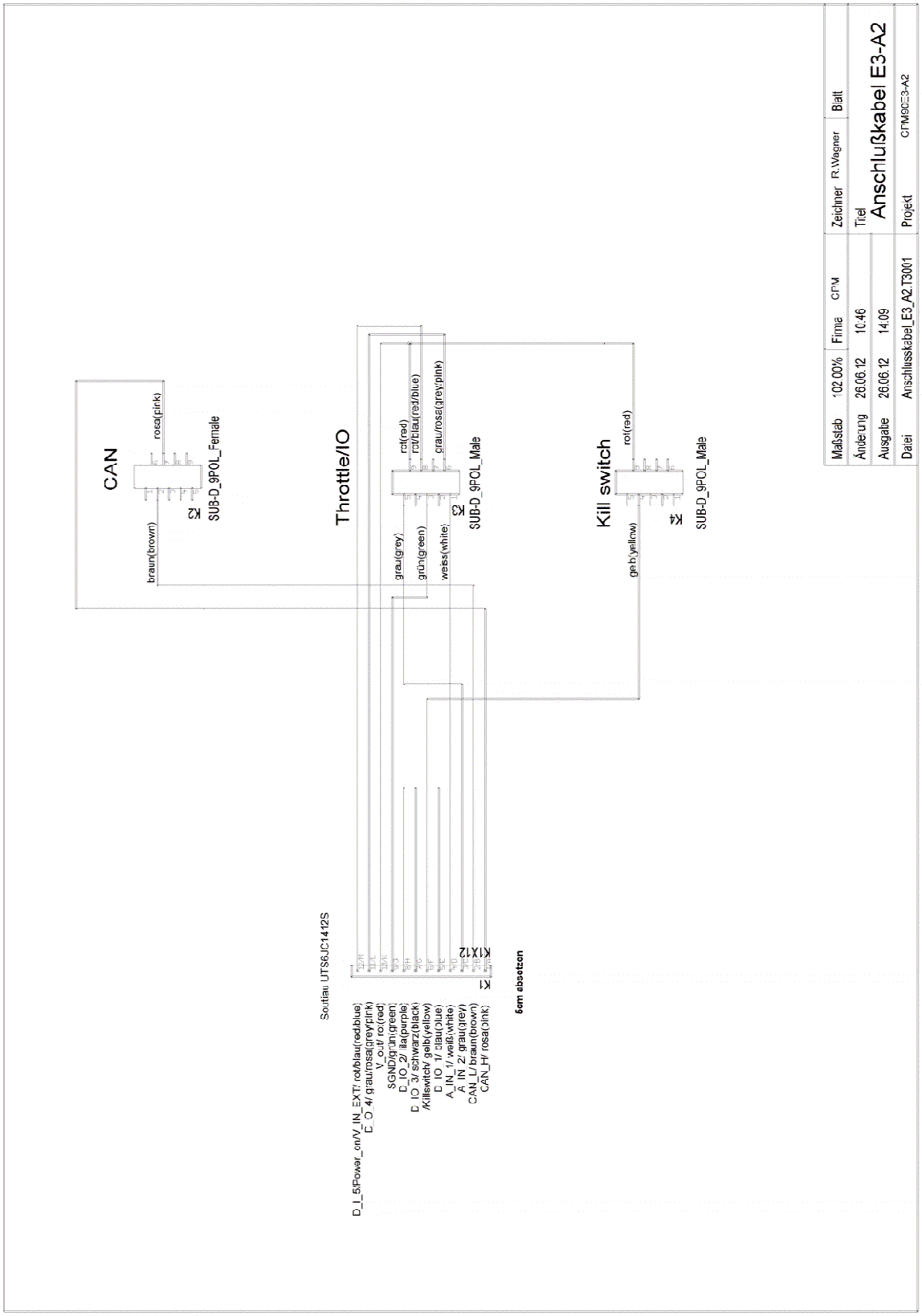
Kill switch using internal V_{out} power supply



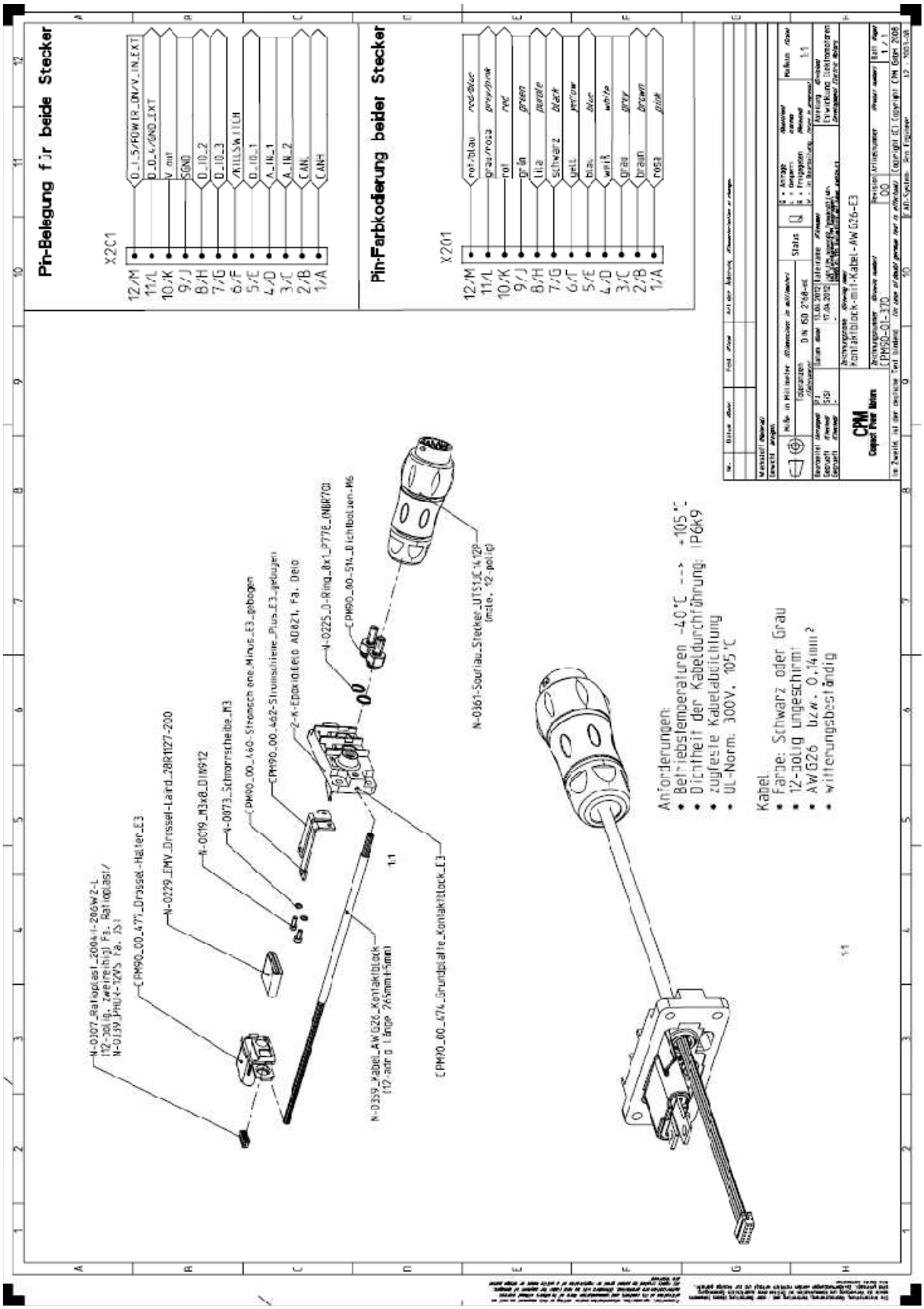
Kill switch using external power supply



Motor Signal Cable



Battery Connection including motor signal cable



Pin assignment

Pin	Colour	Signal	Comment	Regular Input range
1	pink	CAN_H	CAN	-5 V < U_i < 5 V
2	brown	CAN_L	CAN	-5 V < U_i < 5 V
3	grey	A_IN_2 (unused)	Analog input	0 ≤ U_i ≤ 15V(11 kΩ) 0 ≤ U_i ≤ 5 V(75 kΩ)
4	white	A_IN_1	Analog input	0 ≤ U_i ≤ 15 V(11 kΩ) 0 ≤ U_i ≤ 5 V(75 kΩ)
5	blue	D_IO_1 (unused)	Digital Input/ Output	0 ≤ U_i ≤ 5,5 V 0 ≤ U_{OL} ≤ 0,5 V 4,3 V ≤ U_{OH} ≤ 5 V
6	yellow	/Killswitch	Activation/deactivation of power Stage	0 ≤ U_i ≤ 15 V 0 ≤ U_{iL} ≤ 5 V 5 < U_{iH} ≤ 15 V
7	black	D_IO_3 (unused)	Digital Input/ Output	0 ≤ U_i ≤ 5,5 V 0 ≤ U_{OL} ≤ 0,5 V 4,3 V ≤ U_{OH} ≤ 5 V
8	purple	D_IO_2 (unused)	Digital Input/ Output	0 ≤ U_i ≤ 5,5 V 0 ≤ U_{OL} ≤ 0,5 V 4,3 V ≤ U_{OH} ≤ 5 V
9	green	SGND	Analog ground	I_{max} = 250 mA
10	red	V_OUT	Power supply for periphery	0 ≤ Io ≤ 75 mA Uo = 5V
11	grey/ pink	D_0_4 (unused), GND_Ext: for isolated CAN	Digital Output; for isolated CAN external GND	0V ≤ U_o ≤ 5 V
12	red / blue	D_I_5 (unused), V_IN_EXT: for isolated CAN	Digital Input; for isolated CAN external Supply (ref. GND_Ext)	0 ≤ U_i ≤ 5,5 V

Signals are referenced to signal ground unless specified otherwise.

Absolute Maximum Ratings for input signals

Pin	Colour	Signal	Absolute Maximum Ratings
1	pink	CANH	-40 V < U < 40 V; |CAN_H – CAN_L| ≤ 5V
2	brown	CANL	-40 V < U < 40 V; |CAN_H – CAN_L| ≤ 5V
3	grey	A_IN_2 (unused)	-5 V ≤ U ≤ 33 V(11 kΩ) -5V ≤ U ≤ 11 V(75 kΩ)
4	white	A_IN_1	-5 V ≤ U ≤ 33 V(11 kΩ) -5 V ≤ U ≤ 11 V(75 kΩ)
5	blue	D_IO_1 (unused)	-0,5 ≤ U_i ≤ 6,0 V -50 mA ≤ I_o ≤ 75 mA
6	yellow	/Killswitch	-0,5 ≤ U_i ≤ 15 V
7	black	D_IO_3 (unused)	-0,5 ≤ U_i ≤ 6,0 V -50 mA ≤ I_o ≤ 75 mA
8	purple	D_IO_2 (unused)	-0,5 ≤ U_i ≤ 6,0 V -50 mA ≤ I_o ≤ 75 mA
9	green	SGND	DO NOT CONNECT TO POWER GND, Imax = 250 mA
10	red	V_OUT	0 ≤ I_o ≤ 75 mA
11	grey/ pink	D_0_4 (unused), GND_Ext: for isolated CAN	-0,5 V ≤ U_o ≤ 60 V -0,1 A ≤ I_o ≤ 0,1 A DO NOT CONNECT TO SGND
12	red / blue	D_I_5 (unused), V_IN_EXT: for isolated CAN	-5 mA ≤ I_i ≤ 3 mA -0,5 V ≤ U_i ≤ 70 V; 5 V ≤ U_i ≤ 15 V; (Reference: GND_Ext)

Signals are referenced to signal ground unless specified otherwise.

The total current of all digital output (including V_{out}) must be lower than 75 mA.