User Manual for CAN-Switchbox from Serial No. 000030

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CAUTION FOR ALL U.S. CUSTOMERS

THIS PRODUCT IS NOT D.O.T. APPROVED AND INTENDED FOR
SHOW USE ONLY!
CAUTION: IF YOU ARE NOT A CERTIFIED MOTORCYCLE
TECHNICIAN PLEASE STOP HERE AND ASK YOUR LOCAL
MOTORCYCLE SHOP FOR PROFESSIONAL INSTALLATION!

Thank you for coosing the TLT-Moto CAN-Switchbox, which is assembled in Germany. This product is continually tested and developed of engineers and technicians who also drive motorcycle.
Please read and follow these instructions when mounting and connection the CAN-Switchbox.

1. Funktion of the CAN-Switchbox

The CAN-Switchbox is able to simmulate the original Right / Left- Hand-Controll-Module and also the speedometer of actual Dyna$^®$ and Softail$^®$.
Now you are able to use switches and push-bottom delivert from different supplier. .After the replacement the functions are the same as before.
Also the hazard warning flasher and the dom light, which is required in north america, are included. On custom bikes they often try to get an *clean* condition. This can be reached with our small box, which is only 60x50x10mm (2x2x0.5inch). You can put the small box on every position on the bike e. g. near the stearing stem. This is not far away from the plugs of the Hand-Controll-Modules.

2. Connection

The connection of our box is not difficult, but it should be done by an expert.
One side of all push-button and switches has to be connected to ground and the other side has to be connected to the CAN-Switchbox, please take a look of the schematic.
Please supply the CAN-Switchbox with switched PLUS. So the CAN-Switchbox would not empty the battery after a few weeks.
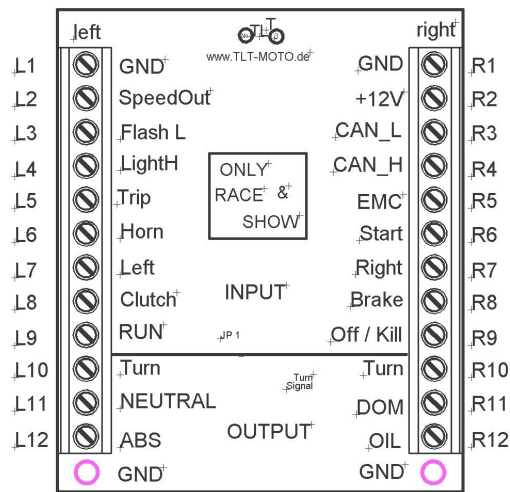
2.1 Pin assignment

Bild 2.1.1 pin-assignment

Pin-Assignment	Funktion	Connection
L1 – GND	Ground (GND) Powersupply	Ground e.g. for external speedometer
L2 – SpeedOut	speedometer output	input of external speedometer
L3 – Flash L	flasher	push button flasher
L4 – Flash H	high beam on / off	push button high beam
L5 – Trip	Trip	push button Trip
L6 – Horn	horn	push button horn
L7 – Left	indicator left on / off	push button indicator left
L8 – Clutch	clutch	clutch switch
L9 – RUN	RUN	[22B-2]Engine Stop
L10 – Turn	indicator left	+ indicator left
L11 – NEUTRAL	12 Volt for N-gear indicator	+ N-gear indicator
12 – ABS	12 Volt for Anti-lock braking system	+ ABS
R1 – GND	Ground (GND) Powersupply	[22B-1] 2 black Ground
R2 – +12V	+12 Volt power-supply	[22B-1] 1 red/orange +12V
R3 – CAN L	CAN_L	[22B-1] 4 white/black CAN Low

R4 – CAN H	CAN_H	[22B-1] 3 white/red CAN High
R5 – EMC	hazard warning on / off	push button hazard warning lights
R6 – Start	start engine	push button start engine
R7 – Right	indicator right on / off	push button right
R8 – Brake	brake	push button brake
R9 – Off/Kill	engine stop (Kill)	push button Kill
R10 – Turn	indicator right	+ indicator right
R11 – DOM	dom light	+ dom light
R12 – Oil	12 Volt for oil-pressure indicator	+ oil-pressure indicator

2.2 CAN-Switchbox connection

The CAN-Switchbox has to be connected to the motorcycle with the contacts L9 (RUN), R1 (GND), R2 (+12 V), R3 (CAN Low) and R4 (CAN High). You can find this signals on the plugs of the original Right / Left- Hand-Controll-Module. A cable-set to connect the CAN-Switchbox to the vehicle is available by TLT-Moto. You also can supply the CAN-Switchbox with switched PLUS. So the CAN-Switchbox would not empty the battery after a few weeks. The CAN-Switchbox only needs 15 mA in standby.

2.3 push-button Connection

On pole of the push-button is connected to the input of the CAN-Switchbox, the other pole of the push-button is connected to the ground (GND) of the vehicle. On the polarity of the buttons must not be taken.
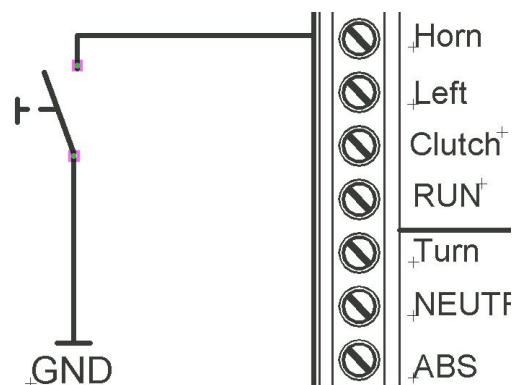

Bild 2.3.1 connection of the push-button

2.4 Indicator light connection

The + pole of the indicator light is connected to the output of the CAN-Switchbox, the other pole of the indicator light is connected to the ground (GND) of the vehicle. It is set 12 volts by the CAN switchbox to the indicatorl light. For 12 volt LED a series resistor is not necessary.
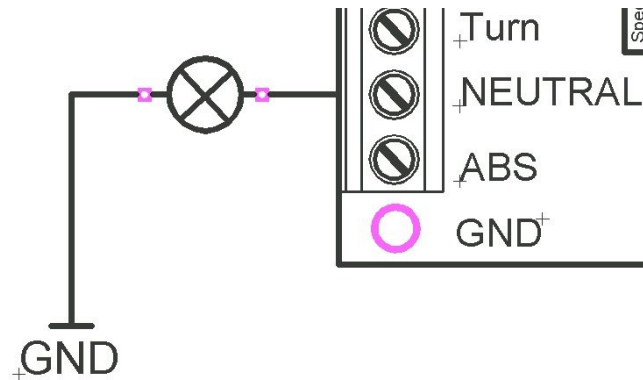
Bild 2.4.1 connection of a indicator light

2.5 Turn indicater connection

The + pole of the turn indicator is connected to the output of the CAN-Switchbox, the other pole of the indicator is connected to the ground (GND) of the vehicle. It is set 12 volts by the CAN switchbox to the turn indicator light. A load resistor is not necessary.
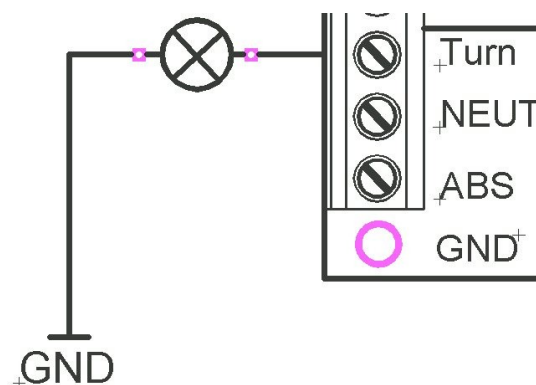
Bild 2.5.1 connection of a indicator

2.6 Connection of a speedometer e.g. from motogadget®

If the original speedometer unit is removed, the CAN-Switchbox sends signals, which simulated the speedometer, to the CAN-board electronics of the bike. In this case, there are no error messages and you can use the bike with a foreign speedometer. The CAN-Switchbox also supplies the speedometer with speed-pulses (GND-pulse). By a pull-up resistor, the pulse output (OPEN COLLECTOR) can be adjusted to any voltage. Simply connect SpeedOut with a 4 kiloohm resistor (4KΩ) to the operating voltage (e.g. 12V).
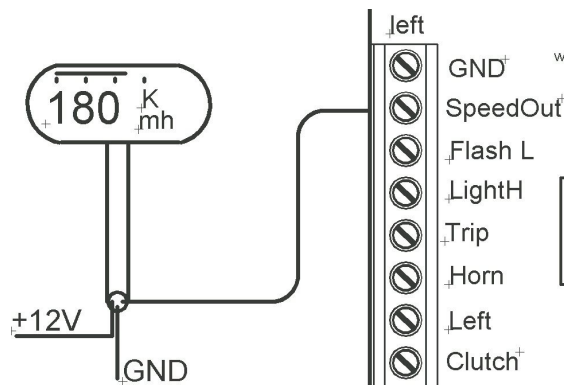

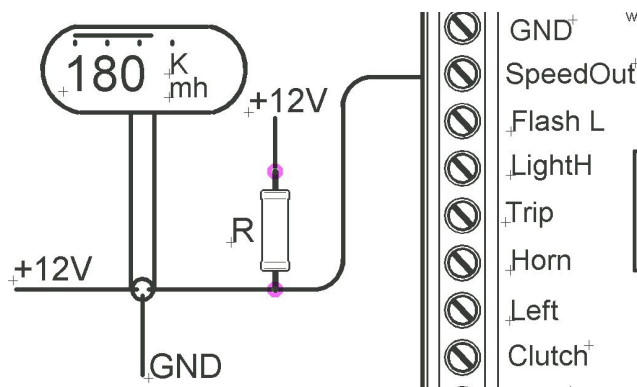**Bild 2.6.1 connection without pull-up resistor**

Bild 2.6.2 connection with pull-up resistor (4KΩ)

3 technical data

length / width / height:	70 mm / 60 mm / 20 mm
weight:	32g
mounting holes:	2 x M3, 10 mm deep
operating voltage:	7–18 V
standby current :	15 mA
operating temperature:	-25 – +80

4 Disclaimer

THE CAN SWITCHBOX SHOULD NEVER BE OPENED OR CHANGED, IN THIS EVENT WILL VOID ANY WARRANTY . TLT-MOTO SHALL NOT BE LIABLE FOR ANY DIRECT, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND ARISING OUT OF THE USE, INSTALLATION OR CONNECTION OF CAN SWITCHBOX OR DELIVERED EQUIPMENT. INCLUDING, BUT ALL DAMAGE TO PERSONS AND PROPERTY DAMAGE OF. THE USE IN THE FIELD OF PUBLIC TRAFFIC IS AT YOUR OWN RISK.
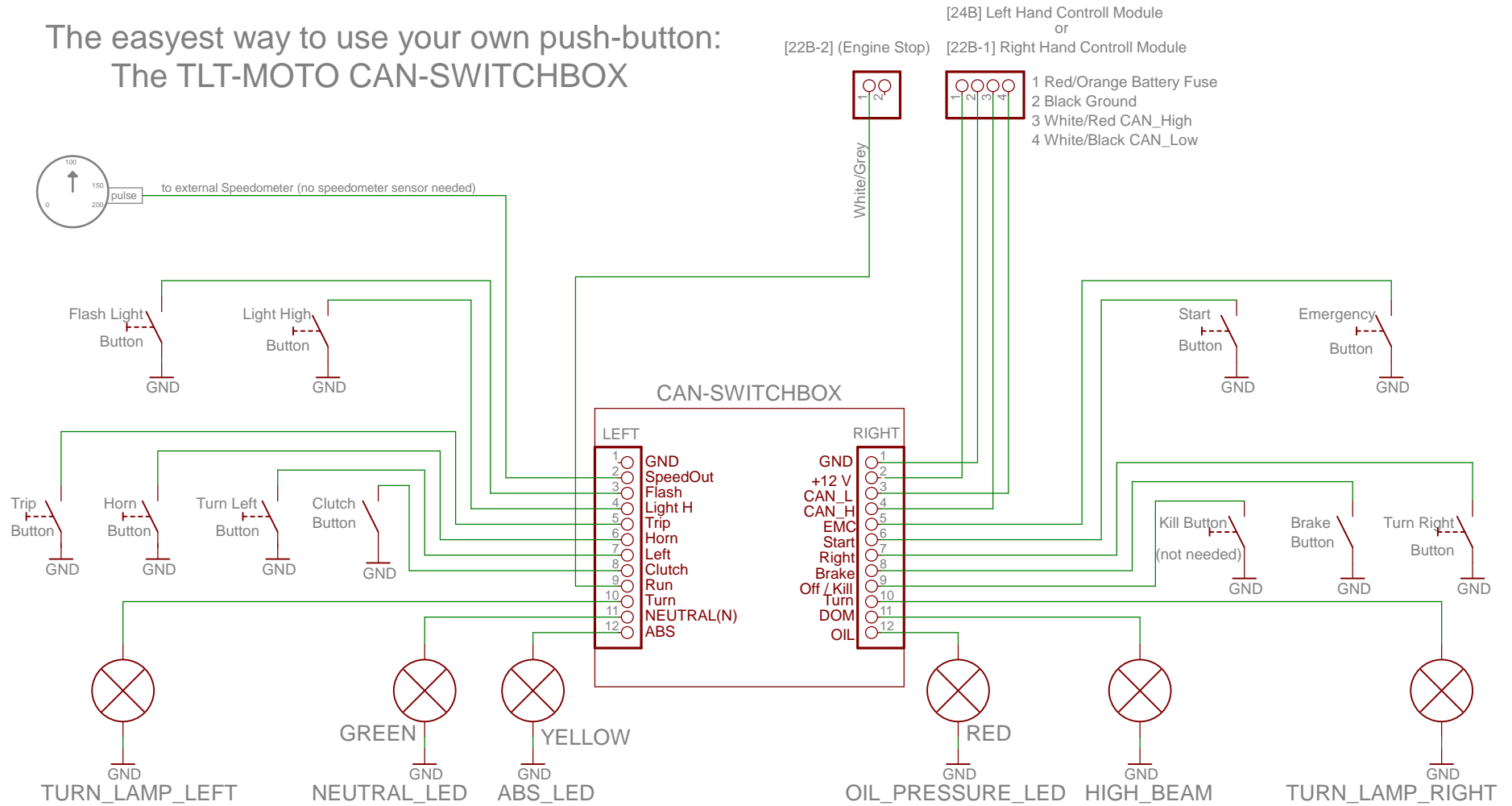
Finally

If you have a motorcycle equipped with the CAN switchbox, then we look forward to a photo of your machine in order to publish it in our gallery.
Please mail photos to TLT-Moto@gmx.de .

Der Umwelt zuliebe keine gedruckte Anleitung
Anleitung unter www.tlt-moto.de

The easyest way to use your own push-button:
The TLT-MOTO CAN-SWITCHBOX

[24B] Left Hand Controll Module
or
[22B-2] (Engine Stop)   [22B-1] Right Hand Controll Module

1 Red/Orange Battery Fuse
2 Black Ground
3 White/Red CAN_High
4 White/Black CAN_Low

White/Grey

to external Speedometer (no speedometer sensor needed)

pulse

Flash Light
Button

Light High
Button

GND

GND

Start
Button

Emergency
Button

GND

GND

CAN-SWITCHBOX

LEFT

1	GND
2	SpeedOut
3	Flash
4	Light H
5	Trip
6	Horn
7	Left
8	Clutch
9	Run
10	Turn
11	NEUTRAL(N)
12	ABS

RIGHT

GND	1
+12 V	2
CAN_L	3
CAN_H	4
EMC	5
Start	6
Right	7
Brake	8
Off / Kill	9
Turn	10
DOM	11
OIL	12

Trip
Button

Horn
Button

Turn Left
Button

Clutch
Button

GND

GND

GND

GND

Kill Button

(not needed)

Brake
Button

Turn Right
Button

GND

GND

GND

GREEN

YELLOW

RED

GND

GND

GND

GND

GND

GND

GND

TURN_LAMP_LEFT

NEUTRAL_LED

ABS_LED

OIL_PRESSURE_LED

HIGH_BEAM

TURN_LAMP_RIGHT

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