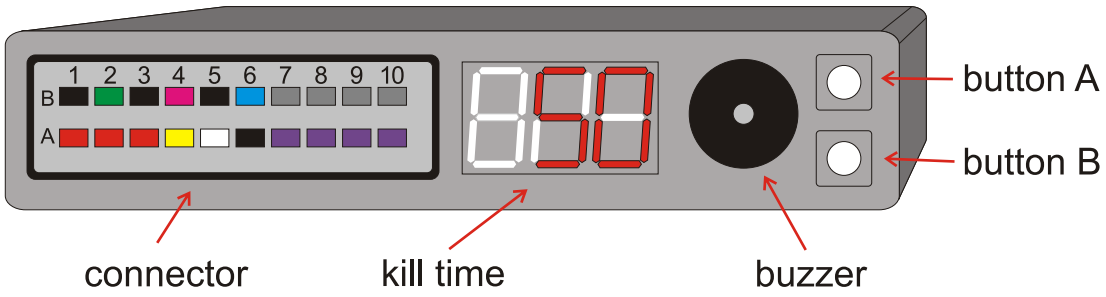
User manual

SHIFTING CONTROLL 3
www.QS.vyrobce.cz

Quickshifter unit “Shifting ContRoll 3” (hereinafter referred to as QS) is used for shorter shifitng time by upward and downward (only for some bikes). QS unit controls ignition coils, injectors, shift light and autoblipper actuator (or AB module). Kill time for upwards shifting is setable for each gear (for bike with gear position sensor only). Setting is by QS unit buttons.

Easy checking shifting sensor functionality. Move shifting lever to higher gear, buzzer is beeping and display show UP-UP.Move shifting lever to lower gear, buzzer is beeping and display show DOWN-dn. In standby mode is current kill time shown. When you change gear, time is change by “Multi mode” settings.

QS unit can be used on closed road only. Incorrect use or connection may result damage of motorcycle parts or cause an injury.



A1	power supply +12V (10-18V)
B1	ground (negative pole)
A2,A3	+12V supply for accessories (max 6A for each pin)
A6,B3,B5	ground inputs/outputs (max 6A for each pin)
A4	12V output to ignition coils (max. current 12A)
A5	12V output to injectors (max. current 12A)
A7-A10	output OUT1 - OUT4 (switchning negative, max. 12A)
B2	TPS input
B4	input from gear position switch
B6	RPM input (from tacho, ign.coils or injectors)
B7-B10	input IN1 - IN4

QS unit connection

All ignition coils and all injectors have +12V supply, the same as all the injectors. Colors of wires may vary on different motorcycle models. The general connection is on wiring diagram bellow. Connection for your specific bike is in the end of manual or on www.QS.vyrobce.cz

1) Interrupt the +12V supply wire to ignition coils. Connect the red wire from the QS unit (position A1) into the wire with 12 volts (after putting the key into the ignition there is a +12V on). Connect the yellow wire from the QS unit (position A4) into the wire leading to ignition coils.

2) Interrupt the +12V supply wire leading to injectors. Insulate the live wire end. Connect the white wire from QS unit (position A5) into the wire leading to injectors. Connecting is not neccesary for all bike. For GSX-R mode required.

3) Connect the black wire of the QS unit (position B1) into the minus terminal or somewhere to a motorcycle frame.

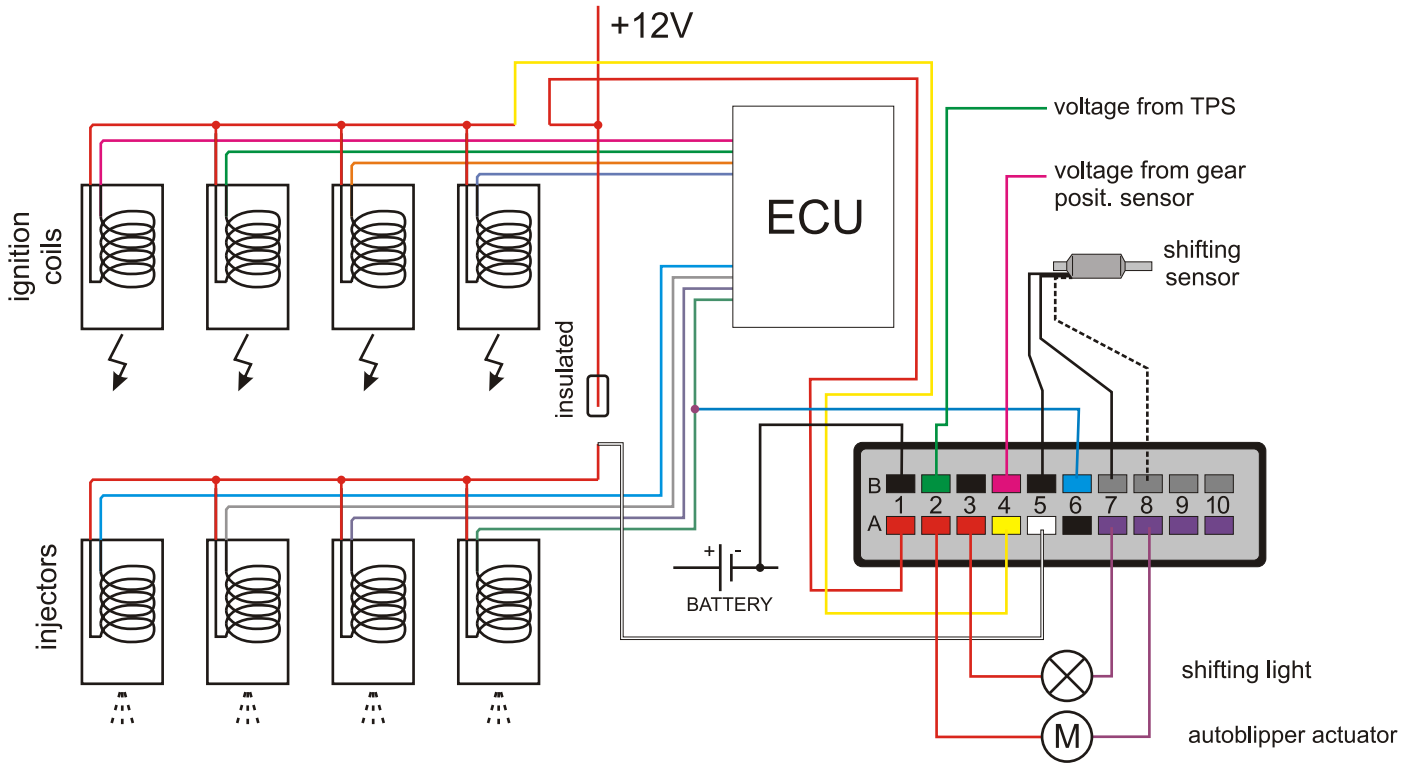
4) Connect the shifting sensor to QS wiring harness (2pins connector in QS bundle, positions B5 and B7). Connect shifting sensor for autoblipper to position B8 and B5. (B5 is common ground)

5) Connect the blue wire from the QS unit (position B6) to a random injector or signal for speedometer if you want to use a shifting light. Use a wire with a different color on an injector (a controlled minus terminal by an engine ECU).

6) Connect the pink wire from the QS unit (position B4) into an output from the gear position sensor if you want to use a function of a different kill times for each gear.

7) Join the shifting light connector to the QS unit wiring harness black 2pin connector (position A3-positive pole and A7-negative pole).

8) Throttle position - is neccesary for autoblipper function. Connect output from TPS to green wire in QS unit (position B2)



Sensor instalation

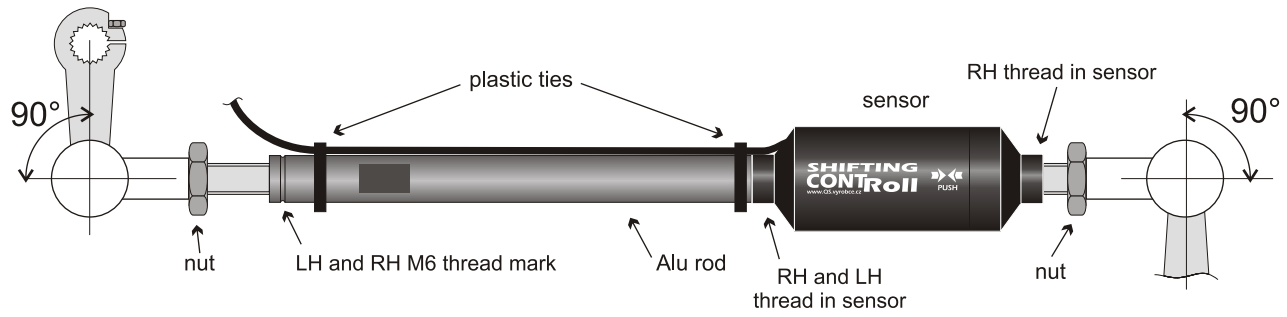
Modify the length of the aluminium rod with the sensor attached to match the original shifting rod length. You can cut maximum 15mm of each end.

Connect the aluminium rods and tighten with the supplied bolts.

Adjust the shifting rod length so the angle is approx. 90° +/- 10° to lever, then use a locking agent on the bolts.

Be sure the shifting rod has moves freely by shifting through the gears. Use the plastic cable ties to fix the cable in place.

Check the function of the sensor before driving. The QS must be powered. By pressing the shift lever, the tone from the QS must be heard and the switching function will be displayed - UP for shifting higher gear, or DOWN for shifting lower gear. When the sensor is stationary, the QS must be silent.



QS ECU settings

In table (page 6) are MENU items with default values.

Enter to MENU: hold buttons A and B together for 2sec
Movement in MENU: button A = up, button B = down
Enter to item : hold button B for 2 sec
Change value : button A=up, button B = down
Save value: hold button B for 2 sec
Exit item without save: hold button A for 2 sec
Exit from Menu: hold button A for 2 sec

Kill time for QS (upwards shifting): MENU A0-A5

QS unit use kill time MENU A0 (Single mode) when is no signal from gear postion sensor on input position B4. Otherwise is used Multi time by values MENU A1-A5. Use longer time if the shifting does not finish properly. Display show actual shifting time in standby mode.

Blipping time: MENU B0-B1

RPM increasing by downwards shifting is defined by 2 points “time of throttle actuator activation vs RPM”. Between this points is linear interpolation.

Gear positon settings: MENU C0-C6

It is neccesary for Multi time (different time for each gear by upwards shifting). In this case QS unit don´t activate QS on 5th gear and don´t activate AB on 1st gear. Connect pink wire (position B4) from QS unit to Gear postition sensor (Suzuki, Kawasaki, Triumph a some else). Go to "C0" in MENU, shift neutral and hold button B for 2 sec. Saved voltage is shown on display (e.g. 22=2.2V). Same steps for other gears. Error "E01" on display shown higher voltage than 5V on this input.

Ignition mode: MENU D0

(only for upwards shifting)
0=standard - ignition coils and injectors are cut-off for time shown on display
1=GSX-R - use for some GSX-R bikes shown "FI" on dashboard by upwards shifting. Injectors connection is neccesary for this mode.
2=Ignition ON - output to ignition coils is permanently on
3=Injection ON - output to injectors is permanently on

Shifting mode: MENU D1

Single mode = same kill time for all gears(MENU A0)
Multi mode = different kill time for each gear (MENU A1-A5)
Auto mode = automatic choice Single mode or Multi mode by voltage on pink wire (position B4). Zero voltage => Single mode, voltage 0,1-5V => Multi mode

Ignition - injection overlap: MENU D2

Time between injectors switch on to ignition coils switch on.

RPM factor: MENU D3

QS unit can read RPM from::
1) output from ECU to dashboard (some bikes have 2 impulses for 1 rev e.g. Honda and Yamaha; some bikes have 1 impulse for 1 rev)
2) ignition coil - older bikes 1imp/1rev, new bike with sequential control has 1imp/2rev
3) injector - sequential control = 1imp/2rev

Right setting is important for items MENU H0, H1 and H2. For checking set item MENU H0 to 40 (i.e. 4000 RPM), run engine to 4000 RPM - in this time will decimal point on display will be switch on. In otherwise change RPM factor.

Delay between shifting: MENU D4

Time setting [ms] for next upward shifting

Delay between blipping: MENU D5

Time setting [ms] for next downward shifting

Warm-up inactive time: MENU D6

Nastavení času v desetinách sekundy určující dobu mezi automatickým přidáváním plynu během aktivace funkce "Ohřev motoru"

Warm-up active time: MENU D7

Nastavení času v desetinách sekundy určující dobu přidání plynu během aktivace funkce "Ohřev motoru"

RPM for Shift light: MENU H0

Setting RPM for Shift light activation. Value is in 100x RPM, e.g. 112=11.200 RPM. Connection blue wire on position B6 is required. (see page 2, section 5).

Shifting minimum RPM: MENU H1

Upward shifting is active above this RPM. See above (MENU H0) for more details. If no signal on blue wire (position B6), shifting will be activate in all RPM.

Blipping minimum RPM: MENU H2

Downward shifting is active above this RPM. See above (MENU H0) for more details.

TPS voltage: MENU H3

Nastavení hodnoty natočení plynové rukojeti pod kterou bude funkční autoblipper. Vstupte do položky H3. Zobrazeno je nastavené napětí v desetinách voltu - např. 22=2,2V. Na neutrál zvyšte otáčky motoru na cca 2000 ot/min a krátce stiskněte tlačítko B (zobrazí se naměřená hodnota). Poté podržením tlačítka B na 2 s dojde k uložení do paměti.

Intput 1-4: MENU L1-L4

Input settings:
0=input is not used
1=UPshifting input - sensor for upwards shifting has NO contact
2=UPshifting input inverted - sensor for upwards shifting has NC contact
3=DOWNshifting input - sensor for downwards shifting has NO contact
4=DOWNshifting input inverted - sensor for downwards shifting has NC contact
5=warm-up input - switch for “engine warm-up” has NO contact
6=warm-up input inverted - switch for “engine warm-up” has NC contact

Output 1-4: MENU L1-L4

Input settings:
0=output is not used
1=Shift Light - output is used for Shift light. Contact to ground in specific RPM (MENU H0)
2=blipper actuator - output is for autoblipper actuator or autoblipper module

Menu	Meaning	Default	Range	Note
A00	Shifting time – single mode	50	30-90	time in miliseconds (e.g. 50=50ms)
A01	Shifting time – gear #1	60	30-90	
A02	Shifting time – gear #2	56	30-90	
A03	Shifting time – gear #3	52	30-90	
A04	Shifting time – gear #4	50	30-90	
A05	Shifting time – gear #5	48	30-90	
B00	Blipping time for 2.000 RPM	80	30-220	
B01	Blipping time for 16.000 RPM	80	30-220	
C00	Voltage for gear N	50	0-50	×0,1 volt (e.g. 25=25×0,1=2,5 volt)
C01	1st gear voltage	22	0-50	
C02	2nd gear voltage	25	0-50	
C03	3rd gear voltage	32	0-50	
C04	4th gear voltage	38	0-50	
C05	5th gear voltage	44	0-50	
C06	6th gear voltage	48	0-50	
D00	Ignition mode	0	0-3	0=standard,1=GSX-R, 2=Ignition ON, 3=Injection ON
D01	Shifting mode	2	0-2	0=single, 1=multi, 2=auto selection
D02	Ignition-injection overlap	5	1-10ms	
D03	RPM factor	0	0-2	0=2 imp for 1 rev, 1=1 imp for 1 rev, 2=1 imp for 2 rev
D04	Delay between shifting	50	50-500	time in miliseconds (e.g. 50=50ms)
D05	Delay between blipping	10	50-500	time in miliseconds (e.g. 50=50ms)
D06	Warm-up inactive time	20	0,1-10s	time in 0,1 s (e.g. 20=2,0s)
D07	Warm-up active time	10	1-20s	time in 0,1 s (e.g. 10=1,0s)
H00	RPM for Shift light	100	10-160	×100 RPM (e.g. 85=85×100=8500RPM)
H01	Shifting minimum RPM	30	10-160	×100 RPM (e.g. 30=30×100=3000RPM)
H02	Blipping minimum RPM	30	10-160	×100 RPM (e.g. 30=30×100=3000RPM)
H03	TPS voltage	22	0-50	×0,1 volt (e.g. 22=22×0,1=2,2 volt)
J01	Input 1	1	0-4	0=unassigned, 1=UPshifting input, 2=UPshifting input inverted 3=DOWNshifting input, 4=DOWNshifting input inverted 5=warm-up input, 6=warm-up input inverted
J02	Input 2	3	0-4	
J03	Input 3	0	0-4	
J04	Input 4	0	0-4	
L01	Output 1	1	0-2	0=unassigned, 1=Shift Light, 2=blipper actuator
L02	Output 2	2	0-2	
L03	Output 3	0	0-2	
L04	Output 4	0	0-2	