



TRAILER LIGHTS CONTROL UNIT **MP4S** INSTALLATION MANUAL



QUASAR ELECTRONICS
ul. Cieślowskich 25K
03-017 Warszawa, Poland
tel. (22) 427-31-42..44

<http://www.quasarelectronics.pl>

[e-mail: biuro@quasarelectronics.pl](mailto:biuro@quasarelectronics.pl)



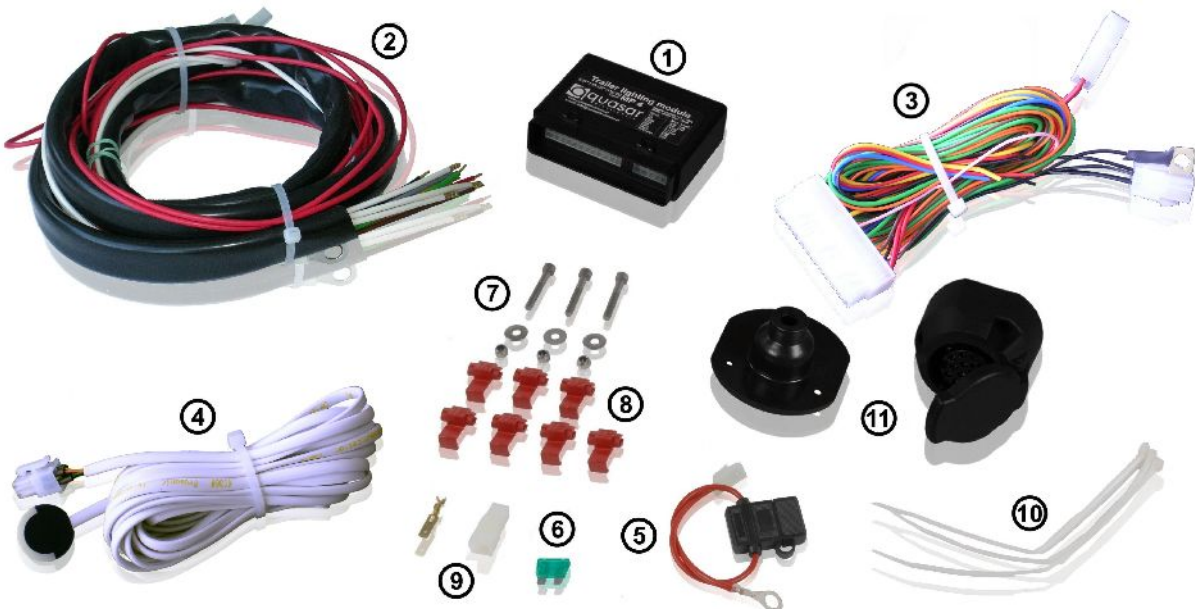
GENERAL FUNCTION DESCRIPTION

- The module is designed to control the trailer lighting system. The car rear light voltages are used to drive the controller module. The module inputs should be connected to the car rear lights driving wires according to required trailer lighting driving pattern. The module inputs for correct operation require only around 1 mA each (a 5W bulb is drawing 0.5 amp) and total current consumption does not activate overload sensing modules in the car's lighting system. The module will activate required lights on the trailer after receiving input driving signal.
- The controller can also work with electric installations in the cars where some of the lights perform two light intensity functions based on PWM (pulse width modulation) technique.
- The module is provided to control a lighting of the trailer through 13-pin socket used in camping trailers.

MODULE FUNCTIONS

- Driving the trailer lights according to required regulations;
- Sequential control of the trailer fog light (trailer fog light turning on indication with external LED);
- Cooperation with double or single filament bulb systems or LED;
- Automatic detection of a connected trailer (tested electric connection only);
- Indication of the trailer electric connection status with external LED;
- Parking sensor switching (turning ON/OFF);
- Car alarm interoperation option (output: "Alarm Info");
- Indication with the internal buzzer one of the trailer "stop" light bulb burnt or trailer "stop" light module output overload (short circuit);
- Powering the trailer from the car power supply;
- Automatic charge of trailer battery after car engine start;
- The trailer battery charge state indication by both central unit LED and external LED;
- Indication with internal buzzer the lack of trailer battery charging voltage (fuseblow).

ASSEMBLY KIT CONTENT



- (1) Main control unit – 1 pc.
- (2) Trailer socket harness MP4-W10 – 1 pc.
- (3) Main harness MP4S-W24 – 1 pc.
- (4) 3-color LED MP4S-W04-LED3 – 1 pc.
- (5) Fuse holder harness – 1 pc.
- (6) Fuse 30 A – 1 pc.
- (7) Mounting screw with a nut and washer – 3 pcs.
- (8) Fast connector – 7 pcs.
- (9) Connector with an insulating cover – 1 pc.
- (10) Cable tie – 3 pcs.
- (11) Trailer 13-pin socket with a gasket – 1 pc.

CONTROLLER FUNCTIONS

SEQUENTIAL CONTROL OF THE TRAILER FOG LIGHT (54G)

In order to avoid blinding the driver by car's rear fog light glare reflected by the trailer's front surface, the sequential control of the trailer fog light is applied.

- Turning on the trailer fog light:
First turning the car fog light on and off causes the car fog light is turned off while the trailer fog light is turned on.
- Turning off the trailer fog light (54G):
The next turning the car fog light on and off causes both car and trailer fog lights are turned off.
- Indication the trailer fog light state with LED:
The LED is used for trailer fog light state indication. The LED should be mounted in the car rear window vicinity so as to be visible in the central rear-view mirror.

The car fog light (54G) controlling	Car fog light state	Trailer fog light state	LED
			● OFF
			● ON
			● ON
			● ON
			● OFF

CONNECTING IN CASE OF SINGLE-FILAMENT BULB PERFORMING TWO FUNCTIONS: POSITION AND FOG LIGHT

This function is designed for the cars where the position light and rear fog light are realized on a single filament bulb (Touran, CADDY, Octavia II, Astra III, Vectra C, Signum...). The position light function is realized by applying 4V RMS voltage to the bulb. The fog light is realized by applying 12V to the same bulb. In this case of driving car lamp, the appropriate module input of position light (left or right) should be connected with appropriate fog light input (left or right).

CONNECTING IN CASE OF SINGLE-FILAMENT BULB PERFORMING TWO FUNCTIONS: POSITION AND STOP LIGHT

This function is designed for the cars where the position light and stop light are realized on a single filament bulb. The position light function is realized by applying 4V RMS voltage to the bulb. The stop light is realized by applying 12V to the same bulb. In this case of driving car lamp, the appropriate module input of position light (left or right) should be connected with stop light input.

TEST OF TRAILER ELECTRICAL CONNECTION AND DISCONNECTION

Independently of trailer socket Pin 12 function ("trailer connected"), test of trailer electrical connection is provided through checking if the trailer stop light bulbs are connected. The bulb filaments perform as a sensor for the testing circuit. Minimal power load for proper work is 10 Watt. Pin 12 of the trailer plug should be connected to ground (Pin 3).

CAR ALARM INTEROPERABILITY

The control unit detects whether the trailer is unplugged and after approx. 1 second activate output "Alarm Info" setting it for approx. 1 second to ground level (max. 2A). This output can be connected to an existing car alarm or GPS monitoring. For example, this output could be connected to the door, hood or trunk switch, the ground level pulse will simulate the switch activation and trigger the alarm.

PARKING SENSORS INTEROPERABILITY

In the cars, where the ultrasonic parking sensors without "permanent obstacle" learning function are installed (the trailer becomes a permanent obstacle), the sensors can be blocked for the time when the trailer is plugged in. The module has a current output (max. load 2A) which connects to GROUND when the trailer is unplugged. Detection of trailer connection causes that the GROUND level will be disconnected on that output. This output could be used to powering the ultrasonic sensor control unit providing the ground level to it.

POWERING THE TRAILER FROM THE CAR POWER SUPPLY

The module enables powering the trailer from the car power supply. Maximum current load of the Pin 9 of trailer socket is 15 A.

TRAILER BATTERY CHARGE

The module provides trailer battery charge after the car engine starts. The car engine start is implicated when car battery voltage is above 13,5V. The maximum current load of the Pin 10 of trailer socket is 6 A.

THE MODULE STATUS INDICATION WITH 3-COLOR LED

The 3-color LED indicates the following module status:

LED color	Module status
GREEN	The trailer is electrically plugged to the car
RED	Trailer battery charge switched on (when car installation voltage is above 13,5 V)
YELLOW	The trailer fog light is turned on

THE INTERNAL BUZZER INDICATION THE STATE OF TRAILER STOP LIGHT BULBS AND THE LACK OF TRAILER BATTERY CHARGING VOLTAGE

Signalization	Description
1 BEEP	Detection the drop of load of output controlling the trailer "stop" light (one or two of the "stop" light bulbs are broken)
2 BEEPS	Detection the overload of output controlling the trailer "stop" light (circuit shortage to ground)
3 BEEPS	The lack of trailer battery charging voltage (fuseblow)

The trailer "stop" light circuit failures are indicated during the brake pedal pressing and 60 seconds after releasing the brake pedal.

If there are more than one failure (described in the table above) coming out at the same time, they are indicated successively with 3 seconds time intervals.



In a situation when the testing of the module installation cannot be done with a real trailer, a **TMP-02** tester can be used for simulating full electric driving load of the module outputs. The tester is available from **Quasar Electronics**.

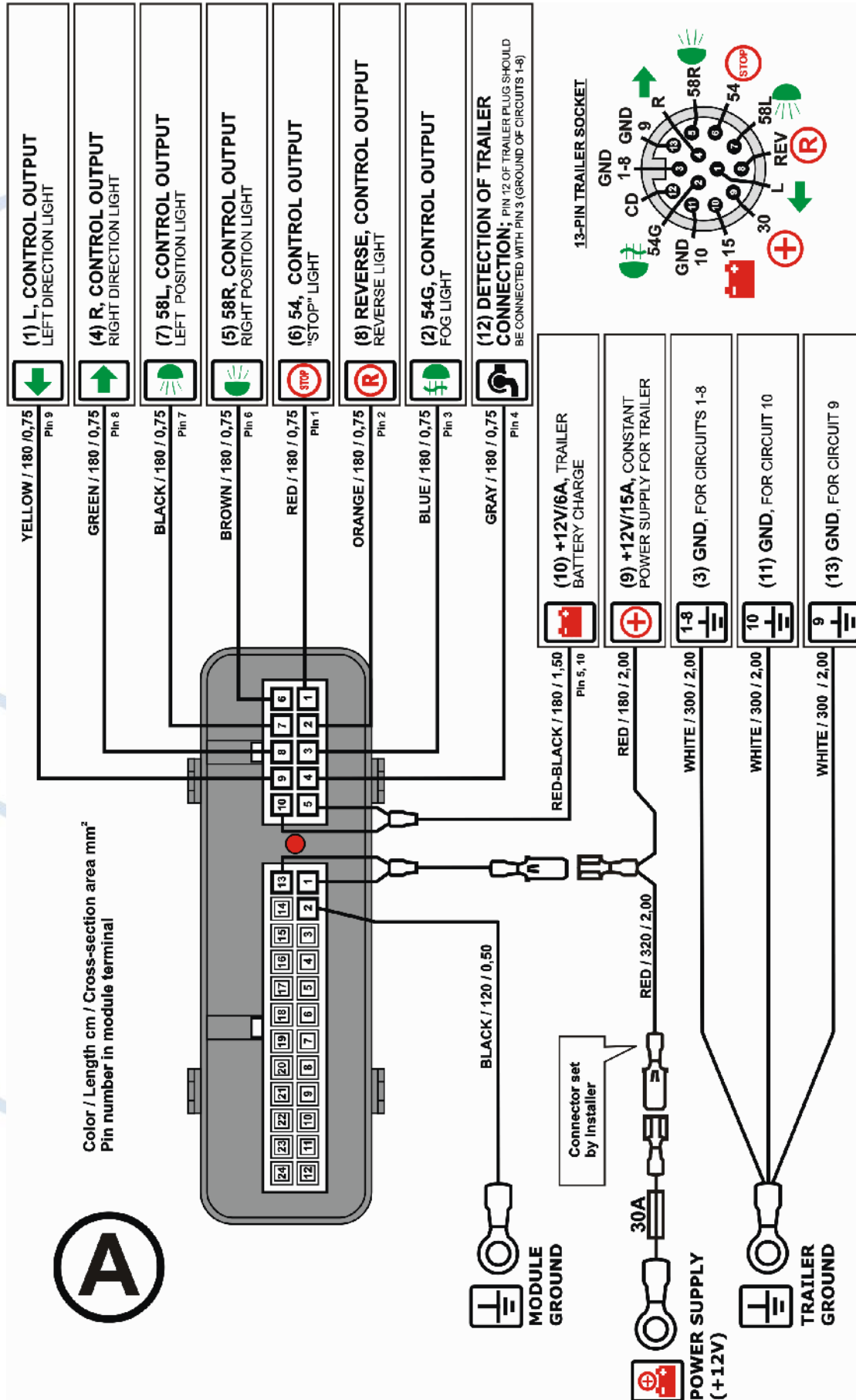
For more information please visit <http://www.quasarelectronics.pl>

TECHNICAL SPECIFICATION:

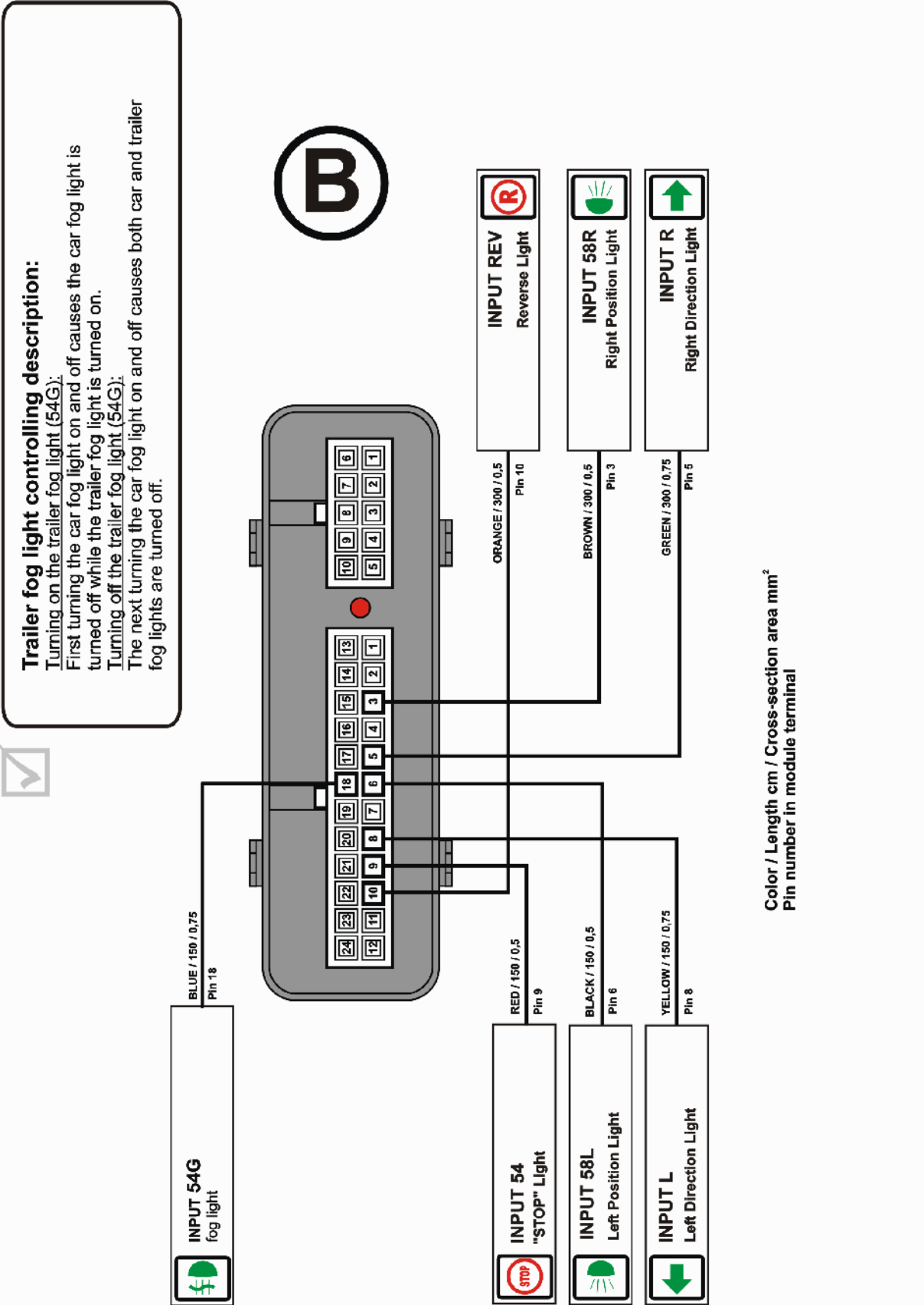
No.:	Parametr	Unit:	Value:	Notes:
1	Power supply voltage	V	+12	+/- 30%
2	Operating temperature range	°C	-30..+85	
3	Standby current	mA	10	
4	Current with maximum control settings	A	12	
5	Output load capacity			
	Left side direction indicator lights, 1/L (J10-9)	W	21+10	
	Right side direction indicator lights, 4/R (J10-8)	W	21+10	
	Left side position lights, registration plate, 7/58L (J10-7)	W	3 x 5	
	Right side position/clearance lights, 5/58R (J10-6)	W	3 x 5	
	Stop lights, 6/54 (J10-1)	W	3 x 21	
	Fog light - trailer 2/54g (J10-3)	W	2 x 21	
	Reverse light, 8/REV (J10-2)	W	2 x 21	
	Trailer power supply, 9/30	A	15	
	Trailer battery charge, 10/15 (J10-5,10)	A	6	
	AlarmInfo output (J24-21)	A	2	
	ParkSensor output (J24-22)	A	2	
6	RMS value of input control voltages			
	Stop lights (J24-9)	V	7 - 15	
	Position lights (J24-3,6)	V	4 - 15	
	Direction indicator lights (J24-5,8)	V	7 - 15	
	Fog light (J24-18)	V	9 - 15	
	Reverse light (J24-10)	V	7 - 15	
7	Module weight without cables	g	135	
8	Module outside dimensions	mm	98x86x34	Material: ABS
9	Case proofness index		IP-40	

CONNECTION DIAGRAMS

Connection of power supply and 13-pin trailer socket to module



Connection of module inputs to car lamp wires



3-color LED and optional outputs connection

