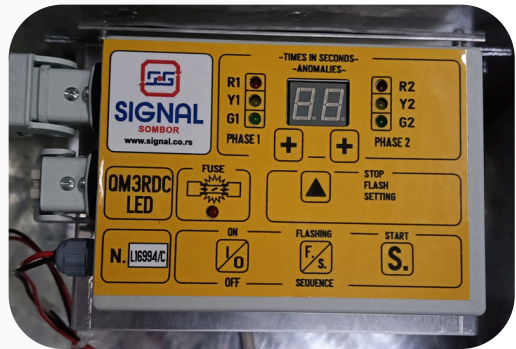# Portable traffic light   QM3RDC

U S E R   M A N U A L

SIGNAL

TO ENSURE THE ABSOLUTELY SAFE AND NECESSARY WORKING CONDITIONS OF THE DEVICE, READ THIS MANUAL CAREFULLY AND PAY ATTENTION TO THE INSTRUCTIONS AND WARNINGS BEFORE STARTING TO WORK WITH THE DEVICE.

Pay special attention to the instructions that follow these symbols:

NOTE

**Provides important information**

Failure to strictly follow the instructions and warnings can result in injury to persons or damage to equipment.

Non-adherence to instructions and warnings poses a significant risk of harm to individuals.

This manual reflects the features and precautions for the proper use of the equipment at the time of sale. SIGNAL reserves the right to update the product and/or instructions at any time and disclaims any liability arising from misinterpretation of this documentation."
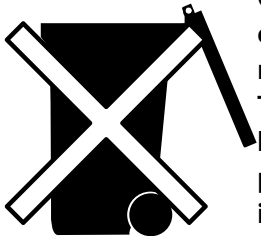
In accordance with the provisions of Legislative Ordinance No. 151 of July 25, 2005, components of this system cannot be disposed of as municipal waste, but rather as special waste. Therefore, at the end of its life cycle, after having carried out the necessary procedures for proper disposal, the system must be deposited in one of the recycling centers. Illegal disposal is subject to the penalties provided for in the applicable national regulations.

Content

1. Using the manual

This manual is considered essential part of the equipment

This manual provides information on:

- **Device function**
- **Technical specifications**
- **Installing**
- **Assembly and use**

Manual also provides information on:

- **Instructions on safe use**
- **List of functions**
- **Repair/ corrections instructions**
- **Spare parts and tools**

It is required that the operator of the light signal possesses knowledge and skills on electricity and/or road infrastructure

Keep this manual at appropriate casing within the traffic light unit, keep it safe from atmospheric influence

> **SIGNAL d.o.o disclaims any and all liability arising from unprofessional handling or use by an unauthorized person, use contrary to prescribed laws and regulations , incorrect installation, power supply failure, serious shortcomings in maintenance planning, unauthorized changes and interventions, use of unauthorized and inadequate spare parts, use not instructed by manual**

2. Function and application of portable traffic light

System consists of 2 portable units, each consisting of: metal base that houses system electronics and battery, 2 sturdy wheels for mobility, 3 traffic signal heads (lights) on a metal frame, the units metal base is made of anti-slip surface metal.
Traffic signal unit is easily movable and easy to manipulate with, because of its light weight.

Because of 2 work modes, QM3RDC portable traffic light is suitable for both permanent construction sites and mobile construction sites due to wireless (optional) synchronicity of 2 units.

Charging can be done using regular 12V car battery or charging unit

3. Specifications

Charging	Battery 12V
Consumption	≈ 1 A
Max. lights power	Max 32W @ 12V
Battery autonomy *	≈ 1 A
Operating temperature	-20 °C to +70 °C
Battery Lifespan	5 years

* Devices battery autonomy was tested in a laboratory at 20°C, using new and fully charged 100 Ah battery

• •

System consists of 2 portable / mobile traffic light units, each consisting of:

- Wheel cart, parking support leg, adjustable lever with a plastic grip, mast / lantern carrier pole, lid with external hinges - enabling 180° opening
- Lantern with 200mm diameter lights (3 pieces), multi-core cable, five-pin male connector
- Electronic control unit

During operation, the traffic light must be set to the working position with the safety locks/ screws secured. The battery compartment cover / lid must be closed and secured with screws, To protect the battery from atmospheric influence
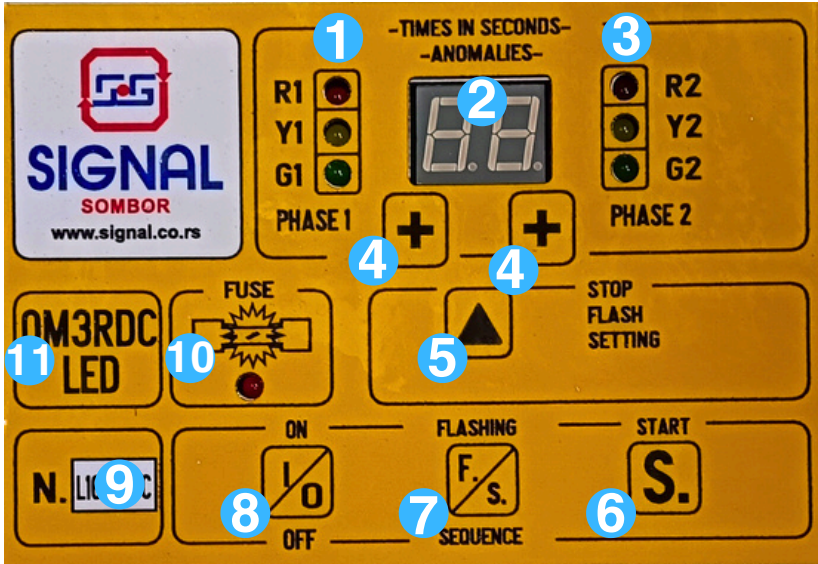
4. Control unit

Fig. 1 - Control Unit layout

 Digital control unit regulates the traffic light and battery functions. The image above shows all the parts of the controlling unit, and all are marked with Numbers , this will be used later on - during the description of control unit operations .

Number	Description
1	Traffic light 1 (unit 1)
2	Timer and errors display
3	Traffic light 2 (unit 2)
4	Time setting, 10`s and 1`s
5	Stopping and adjusting work mode
6	Starting traffic light work
7	Adjusting the work mode
8	Control unit on - off
9	Serial number
10	Warning: Blown fuse
11	Control unit model`s name / mark

5. Operating modes

This control unit model supports one way or two way traffic light operating

Synchronization of two traffic lights is performed either through a cable connecting the devices or during initial device setup.

⚠️ The synchronization of traffic light operation must be performed every 6 days, even if they are turned off without pressing the STOP button.

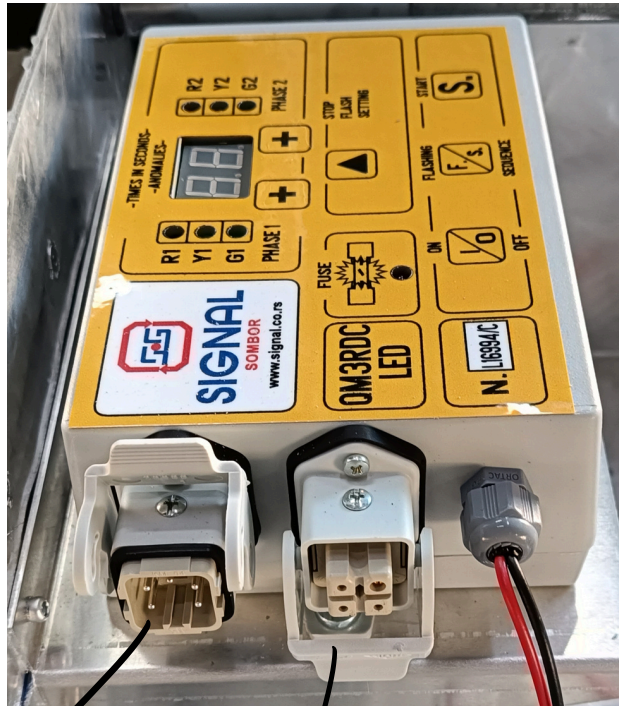For the information on changing the control unit's operating mode, please refer to Chapter 6.2

Fig. 2 - Connectors

Lantern connector

Communication cable connector

5.1 Cable mode operating

This mode of operation requires a connection cable for two control units (supplied separately). This connection ensures safer traffic light operation, as both control units work together to synchronize operation and warn of errors.

The connection cable, supplied according to customer requirements, can have a maximum length of up to 600 meters. The connection between the cable and the control unit is made via a four-pin (4 pin) connector.

In this mode of operation, time setting is performed only on the control unit of the device 1 (F1). The second unit is automatically programmed when the system is started. For starting the system, see chapter 7.

5.2 Wireless mode

 This operating mode REQUIRES the presence of personnel

This mode of operation allows the traffic light units to operate without any type of connection. This configuration is suitable for use on temporary construction sites with a working duration of a few hours, where personnel are always present.

This type of device can be used as a replacement for regular starters in situations where the mobile construction site is constantly moving.

Since the system synchronization is independent for each control unit, as well as for error system management, it is necessary to periodically check the status of the two traffic lights and resynchronize the system at each battery change and in each case every 6 days. For details on Synchronization, see Chapter 7.

6. Control unit configuration

This chapter provides a detailed description of system configuration based on the desired operating mode.

6.1 Time setup

The procedure for setting the time and subsequent startup is shown below.

Turn the unit on

Press	⏻	If control Unit is turned off
Press	▲	until F1 or F2 appears
Press	▲	to start changing red-red (cancelation time)
Press	+	to set time
Press	▲	to start change - green time sequence 1
Press	+	to set time
Press	▲	to start change - green time sequence 2
Press	+	to set time
Press	▲	to interrupt the procedure

At this point F1 or F2 should appear on the screen

⚠ **Make sure to set the same times on both units**

Press S. simultaneously on both units to Start

For cable mode, it is sufficient to set the traffic light time only on control unit 1 (F1). In this mode, control unit 2 (F2) must be checked by pressing the START button. All other operations, including starting the device, must be performed on the control unit of Unit 1 (F1).

NOTE For times longer than 99 seconds, it is possible to set the control unit so that the time is 5 times longer (from 5 to 495 seconds). See chapter 5.

6.2 Advanced settings

The traffic light unit has a simple menu for changing some basic parameters. Below is a list:

- ## Chosing F1 or F2

  - Yellow regime (standard/Eastern Europe). This regime is used in Italy and other EU countries . This sequence provides for the yellow light to come on immediately after the green light for a duration of 5 seconds. In this mode, the yellow light comes on together with the last 2 seconds of the 'red' time and 3 seconds after the green signal goes off.

- ## x5 / times 5 Regime - (1 = 5 seconds)

  - When activated, it multiplies   entered value by 5. If, for example setting up the unit to red-red at 30, it will transfer to 150 seconds interval

- ## Mode (cable, wireless)

  - This setting defines the work regime of the Unit , as defined in chapter 5

STOP Make sure you made the same settings on both units, except the "phase"

- To change these parameters, you need to access the configuration menu. The unit's display, used for navigating through menus, is divided as follows:

-
- the first digit, tens place - displays a letter from A to E.

- The second digit/character, indicates the value of the selected menu in numbers 1- 9

Below is an example of the display for accessing the menu:

Accessing the Menu:

- **Disconnect the Units battery**
- **Press and hold S. (start)/(6) and On/Off (8)**
- **Reattach the unit (holding the buttons)**
- **Countdown 5 to 0 will appear**
- **Release the buttons as soon as countdown is finished (menu for changing different parameters will appear)**
- **Use + button under given depiction, in order to change value of the current Menu**
- **Use + button in order to navigate to the next Menu**
- **Take a look at configuration below**

Menu	Description	Value
A	**device**	**A1 - device 1** **A2 - device 2**
b	**yellow (Eastern Europe)**	**b0 -yellow, Italian** **b1 - yellow, eastern Europe**
C	**time X 5**	**C0 - time X 1** **C1 - time X 5**
d	**Connection mode**	**d0 - wireless** **d1 - cable connected**
E	**Work mode**	**E0 - regular** **E1 - countdown**

Once the configuration is complete, press the Stop button (5) to exit the configuration menu.

⚠️ **Advanced Menu settings must be performed at both units.**

6.3 Control Unit Reset

Resetting process is similar to accessing the menu process, explained in the previous chapter.

Resetting the control Unit involves restoring values/settings to default settings (factory settings). Bellow is the table of default settings.

Description	Value
Device	1
Continuous mode	Off (time X 1)
"Yellow" mode	European mode
Time red-red	10 seconds
Time - green light 1	10 seconds
Time - green light 2	10 seconds

The reset procedure is described below.

- Disconnect the units battery
- Press and hold both / 2 '+' buttons (the ones bellow the screen)
- Reattach the battery to the unit (holding the buttons)
- Countdown 5 to 0 will appear (as shown at the image bellow)
- Release the buttons as soon as countdown is finished (menu for changing different parameters will appear)
- Once the countdown is complete, the unit will return to its set parameters.

Below is an example of the Unit Reset countdown
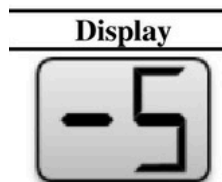
Display

6.4 List of errors and messages

	Message	Description
W I R E L E S S	F1	When the control unit is set to 'Stop', F is shown at the display, followed by the number of the Unit, in this example - Unit 1
	F2	When the control unit is set to 'Stop', F is shown at the display, followed by the number of the Unit, in this case - Unit 2
	Lb	Low battery - Battery level is low , needs replacement soon.
	Eb	Battery Error - battery is discharged, causing the traffic light to shut down, but the controlling unit remains operative.
	E˺	Red light needs replacement. Control Unit flashes - indicating an error
	E-	Yellow light needs replacement. Control Unit flashes - indicating an error
	E_	Green light needs replacement. Control Unit flashes - indicating an error
	EF	Fuse error
C A B L E	E1	Fuse error - Unit 1 (F1)
	E2	Fuse error - Unit 2 (F2)
	E3	Green light needs to be changed - Unit 2 (F2)
	E4	Yellow light needs to be changed - Unit 2 (F2)
	E5	Red light needs to be changeg - Unit 2 (F2)
	E6	There is a problem communicating with 2nd Unit / battery empty

⚠ If Eb or Lb error is shown, to restart the unit - press START to clear the error, after battery replacement

7. System (2 units) startup

The system startup procedure is linked to the selected operating mode. In one case, it is sufficient to start only one control unit, while in the other, synchronization of two control units is required.

To ensure proper system operation, the operator (at the time of activation) must verify that no battery level messages are displayed on the screens of both traffic lights. If a low battery message appears on one of the two traffic lights, the operator must replace the batteries before using the system.

7. 1 Cable connection operating Mode

Between the two operating modes, cable connected mode is more simpler one. After the 2 units are properly installed and connected via cable, it is sufficient to put Unit 2 on Hold by pressing I/O button. At this point next steps need to be done on Unit 1 (F1). While you wait: red, green, yellow lamps of Unit 2 keep blinking - indicating Unit 2 is ready. Red Light of unit 2 is also on.

To run the system press 'S.' (start) /(6) on Unit 1 (F1)

If any unexpected errors, that may present safety hazard - occur - system will flash/flicker, notifying the operator

7.2 Wireless mode (Quartz mode)

QM3RDC traffic light control unit keeps the two Units synchronized through an internal clock that must be synchronized by starting both units simultaneously.

Before starting the system, check if control units are set to STOP. In other words F1 or F2 should be visible on the screen

STOP Don't use 2 control units with the same operating phase. If that is the case check the chapter 5.2.

STOP Check if 'time settings' are the same at both control units

Due to the aforementioned reasons, the sequence must start simultaneously. Therefore, it is recommended to access both Units (traffic lights) to facilitate synchronization of the control units.

8. Shutting down the system/ turning off

To stop the system press Stop (5) - F1 or F2 will appear on the screen.

- In wireless (quartz) mode - this operation needs to be done on both units.
- In cable connected mode - operation has to be done on unit 1 only (F1).

Pressing I / O (8) will result in turning off the system. Both signal lamps and control unit will be shut down.

- If in wireless (quartz) mode, and STOP (5) is not pressed - countdown sequence continues, even if control unit is off. Hence, when control unit is turned on again- it will be synchronized with other control Unit.

⚠️ Synchronization of control units has to be performed once every 6 days, even if units were shut down without pressing STOP (5) button.

9. Traffic Light - Flashing mode

By Pressing 'F.S.' (7) the Unit will start flashing yellow. By pressing 'F.S.' again - the Unit will continue with regular mode (red, yellow, green), unless Stop (5) was not previously pressed.

10. Battery replacement

Battery replacement may be performed at any time due to inner battery powering the control units clock.
That's why readjustment of control units is not needed after battery replacement, unless it took 6 days since last synchronization.

11. Assembling / Disassembling

1 Loosen the fastening nuts.

2 Fold the support pole, as shown

3 Use the handle to move

⚠ Tighten the nuts after unfolding the traffic light.

Transport Handle

Tightening nuts

Min 180 cm

Max 235 cm

68 cm

74 cm (84 cm chiuso)

47 cm

1

2

3

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