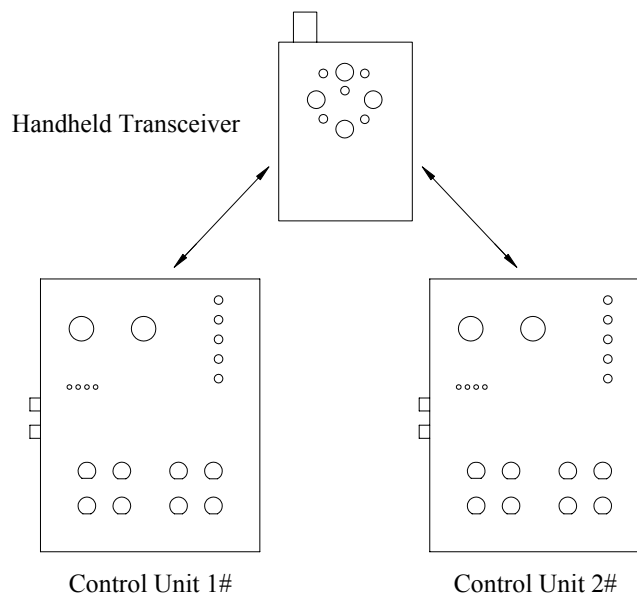


Traffic Light Control Unit Manual

I. System Principle

This system is composed of two control units and one handheld transceiver. Where control units named as 1# and 2# receive the signal and control the external device. 1# control unit and 2# control unit can work alone in single mode, They can also work exclusively in dual mode. The handheld transceiver can control the control units via wireless radio and display the work status of the control units. The sketch map is shown below:



II. Function description:

1. Power-on/Reset status: While the power switch turns to 'ON', the following actions will be executed.

- a) When Pin 2 of 'GATE SENSOR' socket keeps in low level, the inside relays will control pin 1 of 'MOTOR' socket to export voltage 13.8v and pin 4 to connect to grounding. When Pin 2 of 'GATE SENSOR' socket inputs a high level (>5V), the pin 1 of 'MOTOR' socket is hung.
- b) Pin 1 of 'SIGNAL' socket exports 13.8V voltage, Pin 2 connects to grounding.
- c) The four LEDs of 'LOW FULL' indicates the voltage status.

2. Working in Single mode ('MODE' Switch of Control unit 1# and 2# both turns to 'SINGLE' position.)

- a) The indicator Led of Single Mode will turn on, and at the same time 'FLAG1' indicator Led of Control Unit 1# and 'FLAG2' indicator Led of Control Unit 2# will turn on.

- b) When the relays control pin 2 of 'SIGNAL' to connect grounding, if pin 1 of HOSE SENSOR connects to grounding, Pin 1 of SIREN socket will export 13.8V and Pin 2 will connect to grounding.
- c) Press '1' key of the handheld transceiver, the relays of control unit 1# will control pin 3 of 'SIGNAL' socket to disconnect or connect to grounding alternately, at the same time Pin 4 of 'MOTOR' socket will export 13.8V voltage and pin 1 will connect to grounding. When Pin 5 of 'GATE SENSOR' socket inputs high level (>5V), Pin 4 of 'MOTOR' socket will disconnect with the interior voltage.
- d) Press '2' key of the handheld transceiver, Control unit 2# will execute the same actions as 1#.
- e) Press 'ALARM' key of the handheld transceiver, the relays will control pin 2 of SIGNAL to connect to grounding and pin 1 of SIREN to 13.8V voltage as well.
- f) Press the 'RESET' key of the handheld transceiver, Pin 1 of 'SIGNAL' socket will export 13.8V voltage, Pin 2 will connect to grounding, pin 3 will disconnect with interior circuits. Pin 1 of SIREN socket will be hung.

3. Working in Dual mode. ('MODE' Switch of Control unit 1# and 2# both turns to 'DUAL' position):

- a). The indicator Led of 'Dual Mode' will turn on. If both control unit 1# and 2# can communicate well with each other and each one can work in good condition, the indicator LEDs of both 'FLAG1' and 'FLAG2' will turn on, otherwise they will flash to indicate there is malfunction.
- b). When the relays control pin 2 of 'SIGNAL' to connect to grounding, if pin 1 of 'HOSE SENSOR' socket connects to grounding, Pin 1 of SIREN socket will export 13.8V and Pin 2 will connect to grounding.
- c). While press '1' key of the handheld transceiver, Control unit 1# will communicate with 2# via wireless radio. If control unit 2# keeps in closed status (i.e. control unit 2# of pin 2 of GATE SENSOR socket inputs high level(>5V)), The relays of control unit 1# control pin 1 of 'SIGNAL' socket to export 13.8V voltage and to disconnect or connect pin 3 to grounding alternately. At the same time, Pin 4 of MOTOR socket will export 13.8V voltage and pin 1 will connect to grounding. When pin 5 of 'GATE SENSOR' socket inputs high level(>5V), Pin 4 of 'MOTOR' socket will disconnect with interior voltage. Otherwise when control unit 2# keeps in open status(i.e. control unit 2# of pin 2 of GATE SENSOR socket keeps in low level), it will be closed first and then execute the above actions.
- d). While press '2' key of the handheld transceiver, Control unit 2# will communicate with 1# via wireless radio. If control unit 1# keeps in closed status (i.e. control unit 1# of pin 2 of GATE SENSOR socket inputs high level(>5V)), The relays of control unit 2# control pin 1 of 'SIGNAL' socket to export 13.8V voltage and to disconnect or connect

Pin 3 to grounding alternately. At the same time, Pin 4 of MOTOR socket will export 13.8V voltage and pin 1 will connect to grounding. When pin 5 of 'GATE SENSOR' socket inputs high level(>5V), Pin 4 of 'MOTOR' socket will disconnect with interior voltage. Otherwise when control unit 1# keeps in open status(i.e. control unit 1# of pin 2 of GATE SENSOR socket keeps in low level), it will be closed first and then execute the above actions.

- e). Press 'ALARM' key of the handheld transceiver, both control unit 1# and 2# of Pin 1 of 'SIGNAL' socket will export 13.8V voltage and pin 2 connect to grounding, at the same time pin 1 of SIREN will connect to 13.8V voltage as well.
- f) . Press the 'RESET' key of the handheld transceiver, both control unit 1# and 2# of Pin 1 of 'SIGNAL' socket will export 13.8V voltage, Pin 2 will connect to grounding, pin 3 will disconnect with interior circuits and Pin 1 of SIREN socket will be hung.

4. To Set the address code of control unit:

There are two groups of DIP switches (S8, S9) on the PCB of control unit. 32768 address codes can be set by setting DIP switches.

5. To read the parameters of control unit:

The parameters such as address codes, channel number or work frequency can be read with the configured software by connecting SET socket and PC serial interface.

III. Technical Specifications

Frequency range: 453.325~468.000MHz

Modulation mode: FM

Channels: 16

Antenna impedance: 50Ω

Receiving sensitivity: $\leq 0.25\mu\text{V}(12\text{dB SINAD})$

1st IF: 21.4MHz

2nd IF: 455KHz

Audio distortion: $\leq 3\%$

Adjacent channel selectivity: $\geq 65\text{dB}$

Adjacent channel power: $\geq 65\text{dB}$

Output Power: $\leq 4\text{W}$

Frequency Stability: $\pm 5\text{ppm}$

Channel Spacing: 25KHz

Frequency deviation: $\leq 5\text{KHz}$

Spurious rejections: $\geq 70\text{dB}$

Relative humidity: 95% RH non-condensing

Ambient temperature: -20~55°C

DC Voltage range: 10.8V~13.8V

Maximum current: $\leq 9\text{A}$

Stand-by current: $\leq 300\text{mA}$

iv. Panel parts and corresponding interior connection position description.
(Please refer to the attachment)

Note:

The operation of Traffic Light Control Unit may interfere with medical devices like hearing aids and pacemakers. Please always keep at least 30 centimeters away from the antenna of the Control Unit when the Control Unit is turn on.

FCC Compliance

This equipment has been tested and found to comply with the part 90 of the FCC Rules. Modifications not authorized by the manufacturer may void users authority to operate this device.

FCC Licensing Requirements

Your radio must be properly licensed Federal Communications Commission prior to use. Your dealer can assist you in meeting these requirements. Your dealer will program each radio with your authorized frequencies, signaling codes, etc., and will be there to meet your communications needs as your system expands.

Safety:

It is important that the operator is aware of and understands hazards common to the operation of any radio.

READ THIS IMPORTANT INFORMATION ON SAFE AND EFFICIENT OPERATION.

Please always keep at least 30 centimeters away from the antenna of the Control Unit when the Control Unit is turn on.

Safety and Training Information



ATTENTION: Restricted occupational use to satisfy FCC RF exposure limits.

This radio is NOT intended for use by the “General Population”. It has been designed for and classified as “Occupational Use Only”, which means it must be used only during the course of employment by individuals that are aware of the hazards, and the ways to minimize such hazards. Radio intended for occupational service only required training is in the instruction manual which must be reviewed prior to operation.

This radio has been tested and complies with the FCC RF exposure limits for “Occupational Use Only”.