

WHELEN[®]

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Operating Guide: MPC01 Multi-Purpose Controller

Automotive: Serial Communication

Safety First

This document provides all the necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of your new product, the installation technician and operator must read this manual completely. Important information is contained herein that could prevent serious injury or damage.

- **Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.**
- **If mounting this product requires drilling holes, the installer MUST be sure that no vehicle components or other vital parts could be damaged by the drilling process. Check both sides of the mounting surface before drilling begins. Also de-burr any holes and remove any metal shards or remnants. Install grommets into all wire passage holes.**
- **If this manual states that this product may be mounted with suction cups, magnets, tape or Velcro®, clean the mounting surface with a 50/50 mix of isopropyl alcohol and water and dry thoroughly.**
- **Do not install this product or route any wires in the deployment area of your air bag. Equipment mounted or located in the air bag deployment area will damage or reduce the effectiveness of the air bag, or become a projectile that could cause serious personal injury or death. Refer to your vehicle owner's manual for the air bag deployment area. The User/Installer assumes full responsibility to determine proper mounting location, based on providing ultimate safety to all passengers inside the vehicle.**
- **For this product to operate at optimum efficiency, a good electrical connection to chassis ground must be made. The recommended procedure requires the product ground wire to be connected directly to the NEGATIVE (-) battery post.**
- **If this product uses a remote device to activate or control this product, make sure that this device is located in an area that allows both the vehicle and the device to be operated safely in any driving condition.**
- **Do not attempt to activate or control this device in a hazardous driving situation.**
- **If this product contains strobe light(s), halogen light(s) or high-intensity LEDs, do not stare directly into these lights. Momentary blindness and/or eye damage could result.**
- **Use only soap and water to clean the outer lens. Use of other chemicals could result in premature lens cracking (crazing) and discoloration. Lenses in this condition have significantly reduced effectiveness and should be replaced immediately. Inspect and operate this product regularly to confirm its proper operation and mounting condition. Do not use a pressure washer to clean this product.**
- **It is recommended that these instructions be stored in a safe place and referred to when performing maintenance and/or reinstallation of this product.**
- **FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE AND/OR SERIOUS INJURY TO YOU AND YOUR PASSENGERS!**

For warranty information regarding this product, visit www.whelen.com/warranty

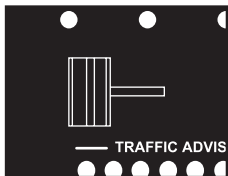
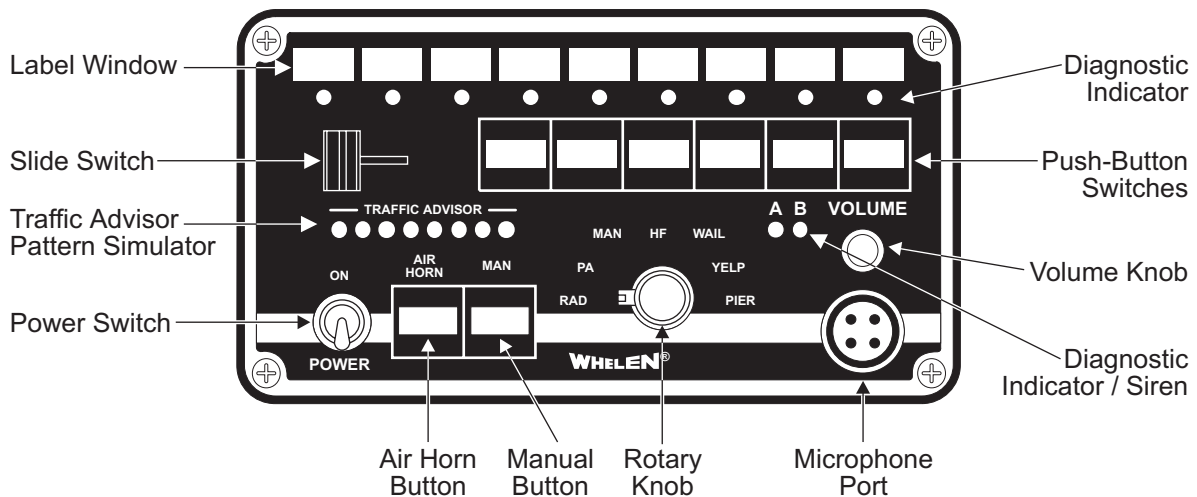
IMPORTANT!!!

Be sure to not only read this entire manual but also SAVE this and all Serial Communication manuals. They contain important data that may need to be referenced in the future. Consider storing these manuals in a 3-ring binder for easy referencing.

Please note that the installation procedure outlined in this manual is drawn from information supplied by factory authorized installation technicians.

This manual is written with the assumption that the MPC01 Multi-Purpose Controller and BLDISTI Power Distribution Center have already been installed and wired in your vehicle.

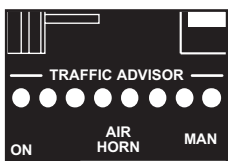
Section 1: The MPC01 Controls



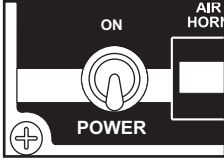
SLIDE SWITCH: The first 3 of the 9 controls are selected with the Slide Switch. The slide switch has 4 positions: **Position #0** (farthest to the left)-This is an OFF position. When the slide switch is in this position, none of the programmed functions of the remaining 3 positions are active. **Position #1** (one detent to the right of the OFF position). When the slide switch is in this position, the programmed function for this position is active. To deactivate position #1 functions, move the slide switch all the way to the left (Position #0). **Position #2** (two detents to the right of the OFF position). When the slide switch is in this position, the programmed function for this position is active. To deactivate position #2 functions, move the slide switch all the way to the left (Position #0). **Position #3** (three detents to the right of the OFF position). When the slide switch is in this position, the programmed function for this position is active. To deactivate position #3 functions, move the slide switch all the way to the left (Position #0).



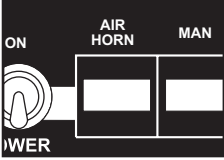
THE LABEL WINDOW: This displays the names of the configurations for a specific switch or button (called controls). There are 9 label windows; one for each of the 9 controls.



TRAFFIC ADVISOR™: If the vehicle is equipped with a Whelen Traffic Advisor, the Traffic Advisor pattern simulator displays the currently selected Traffic Advisor flash sequence (e.g.: If the Traffic Advisor is a flash-to-left pattern, the pattern simulator will sequentially flash from right to left).

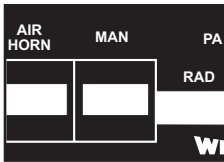


POWER: This switch has 2 positions: Down (MPC01 Off) and Up (MPC01 On). When this switch is in the Off position, the entire network is inoperative and none of the installed serial communication components will function. When the switch is in the On position, all of the network components are functional and may be activated at the operator's discretion.

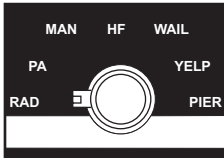


AIR HORN: The Air Horn button produces a simulated air horn tone from your vehicle's loudspeaker. This tone is generated for as long as the Air Horn button is pressed.

Note: *The Air Horn button does not function when the Rotary Knob is in the RAD position.*



MANUAL BUTTON: The Manual button generates a variety of tones depending on what position the Rotary Knob is in. For further explanation of this button's function, refer to the Rotary Knob section of this manual.



ROTARY KNOB: The Rotary Knob controls the siren and PA (Public Address) functions of the serial communications network. There are 7 positions that may be selected. Each position and its function is outlined below:

RAD (Radio Repeat) - When the rotary knob is in the RAD position, any signal that is received by the vehicle's two-way radio will be simultaneously broadcast over the vehicle's loudspeaker (the two-way radio must be connected to the network as described in the MPC01 Installation Manual). This function overrides any other siren functions.

PA (Public Address) - When the rotary knob is in the PA position, public address functions are operational. Messages may be broadcast over the vehicle's loudspeaker when the microphone, connected to the Microphone Port, is in use. The volume level of PA transmissions is controlled by the Volume Knob. If the Manual button is pressed while the Rotary Knob is in this position, a "ramp-up" siren tone will be generated by your vehicle's loudspeaker. This tone is generated until the Manual button is released. The tone then changes to a "ramp-down". The Air Horn tone may be generated by pressing the vehicle's steering wheel horn button (if the vehicle's horn has been wired to the Serial Communication Network).

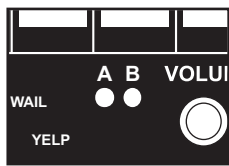
MAN (Manual Siren) - When the rotary knob is in the MAN position, pressing the Manual button generates a tone that rises in pitch to a preset level. This tone is generated for as long as the MAN button is pressed. The same tone may be generated by pressing the vehicle's steering wheel horn button (if the vehicle's horn has been wired to the Serial Communication Network). Please note that the microphone will override the siren function.

HF (Hands Free Operation) - When the rotary knob is in the HF position, the siren functions of the network are placed in a stand-by mode. Siren tones are activated by a single tap on the MAN button or a single tap on the vehicle's steering wheel horn button (if the vehicle's horn has been wired to the Serial Communication Network). This enables the vehicle operator to control siren functions without having to remove their hands from the steering wheel. The first tap produces a Wail tone (a steady, rise and fall sound). A second tap produces a Yelp tone (a fast, rise and fall tone). A third tap produces a Piercer™ tone (a very fast, rise and fall tone). The next tap returns the siren to a Wail tone and the cycle repeats itself. Two quick, successive taps will stop the siren.

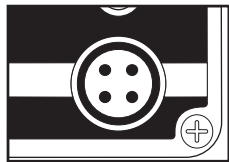
WAIL (Wail Tone) - When the rotary knob is in the WAIL position, a steady, rise and fall tone is produced. A single tap on the MAN button or a single tap on the vehicle's steering wheel horn button (if the vehicle's horn has been wired to the network), changes the siren tone to a Yelp pattern (a fast, rise and fall tone). A second tap, and the siren returns to the Wail tone. Please note that the microphone will override the siren function.

YELP (Yelp Tone) - When the rotary knob is in the YELP position, a fast, rise and fall tone is produced. Pressing the MAN button or the vehicle's steering wheel horn button (if the vehicle's horn has been wired to the network), changes the siren tone to a Piercer™ tone. Pressing the button again causes the siren to return to the "Yelp" tone. Please note that the microphone will override the siren function.

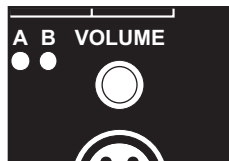
PIER (Piercer™ Tone) - When the rotary knob is in the PIER position, an extremely fast, rise and fall tone is produced. Pressing the MAN button or the vehicle's steering wheel horn button (if the vehicle's horn has been wired to the network), changes the siren tone to a simulated Air Horn tone for as long as the button is pressed. Releasing the button causes the siren to return to the Piercer tone. Please note that the microphone will override the siren function.



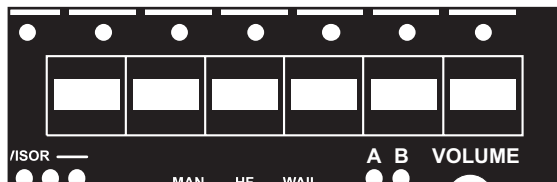
DIAGNOSTIC INDICATOR/Siren: These diagnostic indicators monitor any speakers connected to the network. Indicator "A" monitors speaker #1. Monitor "B" will monitor a second speaker (if the vehicle is equipped with a second speaker). When a speaker is active, or in use, its indicator will be on. If a problem is detected with a speaker, its indicator will flash, thus alerting the operator to the failed speaker's condition. If enabled by the factory or a factory authorized representative, a series of 3 separate alarm tones will be heard from the MPC01 whenever a failure has been detected.



MICROPHONE PORT: The mounting location for the network microphone. A microphone must be connected to this port if the PA functions of the network are to be used.



VOLUME KNOB: The Volume Knob controls the volume of the Radio Rebroadcast feature and Public Address functions. Volume is increased by rotating the knob in a clockwise direction. Rotating the Volume Knob in a counter-clockwise direction decreases the volume produced by these features. The Volume Knob has no effect on any siren tones produced.



PUSH-BUTTON SWITCHES: The push-button switches activate specific, pre-programmed functions of the network. These 6 buttons are referred to as controls 4 (furthest button to the left) through 9 (furthest button to the right). Refer to the Slide Switch section for information on the first 3 controls. If you are not sure exactly how each control is configured, the configuration report, included with the MPC01, details the customized functions for each control. Although each control is custom configured, controls 8 and 9 can be programmed to handle specific functions of the network:

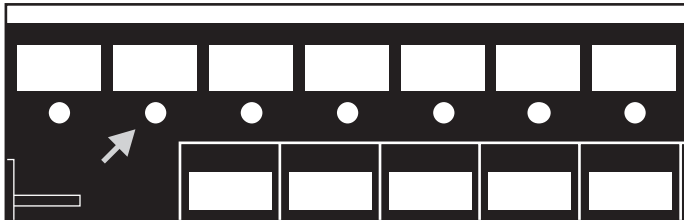
Control 8 is typically designated to control Traffic Advisor™ functions, if the vehicle is equipped with a Traffic Advisor. There are 4 patterns that are pre-programmed by the factory. Although specific patterns can be configured at the customer's request, the basic, non-custom patterns are described here for example purposes:

- Press Control 8 Sequence to Left
- Press Control 8 a second time Sequence to Right
- Press Control 8 a third time Split Pattern
- Press Control 8 a fourth time Flashing Pattern

To terminate Traffic Advisor operation, press and hold Control 8.

Control 9: In the default configuration, control 9 is programmed as the low power operation switch. Pressing Control 9 once, initiates low-intensity light operation. When the low-power mode has been activated, the diagnostic indicator below Label Window 9 lights up to inform the operator that the low-power operation mode is active. Pressing Control 9 a second time, returns the system to normal, full power operation. Control 9 is also the SI-TEST® initiation button. Refer to the SI-TEST section for information.

Si-Test™: SI-TEST is a diagnostic feature of the serial communication network. When SI-TEST is activated, the MPC01 polls each installed network component and confirms it's operating status. To initiate a SI-TEST, press and hold control 9 for at least 5 seconds. As each component is tested, it's diagnostic indicator will turn on if there is no problem detected, or flash if a failure has been detected. If enabled by the factory or a factory authorized representative, a series of 3, separate alarm tones will be heard from the MPC01 whenever a failure has been detected. NOTE: Installed network speakers are tested by generating an ultra-high frequency through each speaker. Although these tones are inaudible to humans, be sure that there is nobody within at least 5 feet of the vehicle's speakers when SI-TEST is running.



DIAGNOSTIC INDICATOR: There are 9 diagnostic indicators; one for each of the 9 controls. Below each Label Window, there is a diagnostic indicator that is programmed to monitor the operation of that window's control. When a diagnostic indicator lamp is on, all of the programmed functions for that control are functioning properly. If a diagnostic indicator is flashing, one or more of the components being monitored are not functioning. If enabled by the factory, a series of 3, separate alarm tones will be heard from the MPC01 whenever a failure has been detected.

Section 2 / Additional Features: The MPC01 has been designed to incorporate auxiliary input and output features into the serial communication network. This enables the MPC01 to not only control non-network components, but to allow non-network components to activate specific network functions.

Auxiliary Input: The MPC01 may be connected to 2, non-network components. This allows auxiliary switches, such as the vehicle's neutral safety switch, a K-9 thermostat or a burglar alarm, to activate a pre-programmed, network component. For example: When the interior temperature of the vehicle has exceeded the K-9 thermostat's pre-set level, the MPC01 will automatically activate a specific, K-9 alarm that will alert the operator to the situation. Refer to the wiring diagram for wiring details.

Auxiliary Output: The MPC01 may be connected to 2, non-network components. This allows the MPC01 to control auxiliary relays, such as a gunlock. For example: Pushing control button 5 releases the vehicle's gunlock. Refer to the wiring diagram for wiring details.

SPECIFICATIONS

V IN13.2VDC 20%
 I IN / STANDBY.....< 10mA
 I IN / BACK LIGHT..... < 100mA
 I IN / HORN 5 AMPS / MAX
 V / HORN RING V IN OR GROUND
 I / HORN RING..... 10mA / MIN
 5 AMPS / MAX

RADIO

V RADIO 0db / MAX / @ 600~
 BANDWIDTH 300Hz - 10KHz

COMMUNICATIONS

RS485 9600 BPS
 V AUDIO 0db / MAX / @ 600~
 BANDWIDTH.....300Hz - 10KHz +/-3db

AUXILIARY INPUT

AUX IN 1 / ENABLE - < 1 VDC
 AUX IN 2 / ENABLE - < 1 VDC
 AUX OUT 1 / ACTIVE - < 1 VDC
 AUX OUT 2 / ACTIVE - < 1 VDC

WIRING DIAGRAM

NOTE: All fuses and fuse blocks are customer supplied.

