

## 2 Wire Pedestrian Station Monitor Installation Instructions

This manual should be used in conjunction with the 2 Wire Navigator Installation Manual. The installer should be acquainted with the 2 Wire Navigator System and should consult its documentation for questions regarding the system.

The Ped Station Monitor (PSM) is designed to supplement the 2 Wire Navigator System in order to provide additional assurance that a failure of the system will not result in a false indication of the walk signal. It is important that this installation be thoroughly understood and that the electrical connections made be of the highest quality and integrity in order for the PSM to perform its intended function. If a 2 Wire Navigator System and PSM are being installed at the same time, it is recommended that you power up, test, and configure the 2 Wire Navigator System before inserting the PSM into the installation. The Navigator System should be proven to be working correctly prior to installing the PSM.

The PSM should be located beside the CCU. If the CCU is located on a shelf, the PSM may simply sit beside it on the shelf. Optionally, the PSM may be attached to the side of the CCU using the available mounting straps and screws provided.

Make the following cable connections with the CCU and PSM power off/disconnected. Connect the PSM cable assembly to the front of the PSM. The PSM cable assembly has 3 cables for connection to external points. These are numbered 1, 2, and 3. PSM cables 1 and 2 make parallel connections with CCU cables. All of these parallel connections are color matched.

PSM Cable #1 connects to the interconnect board using the same terminals as CCU Cable #1. Cable #1 allows the PSM to monitor the data communication from the push button stations to the CCU.

Cable #2 connects in parallel with the WALK portion of CCU cable #4. These are the connections in the cabinet which feed the 115 VAC pedestrian walk/don't walk signs. Cable #2 allows the PSM to compare data communication information with the ped walk sign status.

Cable #3 connects inside the PSM to a pair of relay contacts. In case of an alert condition (system shutdown), the relay contacts will close. Cable #3 may be used to send an alert signal to the traffic controller indicating that the system needs to be serviced.

Refer to the following page for wiring and PSM plug in details. Refer to the PSM product specification sheet for details on the operation of the PSM.

Following installation, the PSM should be reset and observed through at least 3 walk cycles on each phase. Following the third walk cycle, the PSM ID indicator lights should turn on for each push button station ID present on the intersection.

## Functional Description

The Ped Station Monitor has four separate and independent channels. Each channel connects to Navigator PBS field wires and corresponding WALK signal. These are the same signal connections as on the CCU. The monitor will read all data signals present on the PBS wires and ignore all except data specifically indicating a walk condition. There are 12 data numbers assigned to the 12 ID's available for PBS units. Whenever a number in the specified range is received, a comparison is made to the presence or absence of the WALK signal on the corresponding channel. 2-wire Navigator push button stations must be updated to version 1.33 or later in order to send the walk condition code during the walk period.

The primary function of the Monitor is to detect the presence of a Ped Station walk condition in the absence of a WALK signal to the ped head. As long as this condition is not detected, the Monitor will continuously energize the relay connecting power to the CCU. In the event the error condition is detected, the Monitor will immediately remove power from the relay which will disconnect power from the CCU. A grace period will allow a walk condition code to be received up to .5 second after the WALK signal has turned off.

A secondary function is to detect an unresponsive PBS. The PBS is programmed to send its walk code every 1.2 seconds during the walk. After the monitor has received a walk code for a specific ID through 3 consecutive walk cycles, that code will be stored in non-volatile memory and will be expected from that point on. Once a code is expected, if it is not received for 5 consecutive walk cycles, the Monitor will remove power from the CCU. There is a rear panel switch which allows the option of disabling this secondary shutdown feature if it is not desired.

Whenever there is a detected fault condition, a second relay contact will close which provides a contact closure available on the Monitor front connector as a signal to the traffic signal controller that an error condition has occurred. The two wire cable provides this connection.

The Monitor front panel has 17 green LED indicators. One of these is used to indicate a CCU power on condition for the Monitor. Each of the four channels, A, B, C, and D has a row of four LED's. The first three indicate the status of the ID's for that channel. The fourth indicates the status of the Walk input for that channel. During regular operation, a normally off ID LED indicates that that ID has not been identified as present. Following initial installation or reset, after 3 walk cycles the Monitor should have identified all the installed ID's, assuming the PBS ID's have been previously set. After an ID has been identified as present, its LED will be normally on. During a walk period, the PBS units will send their individual walk codes. When the Monitor receives a walk code, the associated ID LED will blink or flash.

In the event an error condition occurs, it will normally be associated with one particular ID. When the Monitor shuts down the CCU, the offending ID LED will flash repeatedly. In the event that an offending walk code was received by a channel differing from the ID of the received code, (for example, the code for A1 is received by channel B – this could happen if there is a short between channels) then all three ID LED's on the receiving channel will flash repeatedly. The remaining LED's will be off. The error condition will be stored in non-volatile memory such that a power outage will not clear the condition. The only way to clear the error condition is to press and hold a recessed front panel reset button for 5 seconds. This will not only clear the error condition, but will also clear the ID memory, which lists the identified ID's.

If the secondary shutdown feature is disabled by the rear panel switch, an unresponsive PBS will be indicated by its LED flashing after 5 consecutive walk cycles with no response. Otherwise, operation is not changed.

In the event that the monitor has shut down the CCU, one or more LED's will be flashing. A rapid flash of 4 flashes per second indicates that the error was due to a walk code received in the absence of a walk signal. A slower flash of 1 flash per second indicates that the error was due to an unresponsive PBS. This requires that the rear panel switch be set to enable this type of shutdown.

**INTERCONNECT BOARD**

