



Installation

1061 SOUTH 800 EAST • OREM, UTAH 84097 • TELEPHONE 801.229.2800 • FACSIMILE 801.224.0355 • www.vantagecontrols.com

Master Controller — MC

Overview

The Master Controller is the main “CPU” of the Vantage QLink lighting System. Plug and Play design makes it easy to install in the Vantage Master Enclosure. An LCD interface provides immediate status and diagnostics. A 20-year Lithium battery (un-powered) retains memory and status in a power outage. The MC has real time and astronomical time clocks. QLink software is used to program the MC. The MC runs independent of a PC after initial setup and programming. Firmware upgrades may be downloaded as they become available*. Master Controllers operate as stand-alone or networked. A Vantage Network contains up to fifteen Master Controllers in a single Network.

InFusion Controller Specifications

Dimensions HWD	6.62" x 7.88" x 2.89" 168mm x 200mm x 73mm
Weight	2.4 lbs -or- 1.1kg
Voltage	120-240V, 50/60Hz
Maximum Power Draw	150W @ 120V/75W @ 240V
Maximum Length of MC Network	1000 feet / 304 meters
Wiring configuration MC Network	Daisy Chain
Max. Wire From IC to SC	200 feet / 61 meters
Station Bus Specification	2C 16AWG, non-shield, <30pF per foot Station Bus should be separated a minimum of 18" from other parallel communication and/or high voltage runs.
Max. # WireLink Stations	Up to 50 Stations
Max. Wire Length Station Bus (Bus Run 1 & 2 are the same bus)	2,000 feet of cabling max. No station more than 1,000 feet from Master.
Wire Configuration of Station Bus	Daisy Chain, Branch, Star
Ambient Operating Temperature	0-40°C / 32-104°F
Ambient Operating Humidity	5-95% non-condensing
Cooling	Convection

Software/Firmware

QLink 2.5 and 2.7 may be used with Windows 3.1 or higher.
QLink 3.0 and higher must be used with Windows 95 or higher.
QLink 3.5 and higher must be used with Windows 98 or higher.
Above QLink 3.5 must be used with Windows 2000/XP

*If upgrading firmware in a Revision “A” Master Controller, please contact Vantage technical support.

Installation

Installation of Vantage products should be performed or supervised by a *Certified Vantage Installer*. Plug the Master Controller into the enclosure. Make sure no wires or clutter are in the way before installing. Hold the MC by the front/top sides and press firmly (not hard) to insert. Make sure the Master is firmly seated and properly secured. European design modular Master Controller panels are available, part number MOD-MC (Not approved for US installation unless mounted in a UL approved Electrical Box).

The Master Controller is plugged into a Master Terminal Board. This board contains a Flash ROM chip that saves the programming in addition to the Master Controllers memory. This makes it possible to plug a new Master Controller in without connecting a computer to program it. The menu buttons must be used to program the Master from the Flash ROM chip.

Station Connection

WireLink™ stations connect to the station bus through the screw terminals. Station bus wire specifications are, Vantage wire (part VDA-0113) or equivalent – 2C twisted pair, **non-shielded**, 16AWG, less than 30pF per foot, CL3 wire. Maximum total

station bus wire = 2,000 feet. No station more than 1,000 feet from Master. Station Bus should be separated a minimum of 18" from other parallel communication and/or high voltage runs.

RS-232 Connections

The 25pin female connector on the front of the MC is called the Diagnostic port. This port is typically used to connect a PC to program/read the system. The Master Terminal Board also has an RS-232 port (Port A). Vantage recommends using this port for connecting the Q-Modem-A or the RF Enabler. Any compatible RS-232 device may be connected to this port, however; only one device should be connected at a time to any RS-232 port.

Vantage typically uses RX, TX and GND for communication but does have RTS and CTS for some applications. The modem uses GND, TX, RX, CTS and RTS along with the +12V screw terminal for power.

The default protocol for RS-232 communication is:

Baud: 19200
Parity: None
Total bits: 8
Stop bits: 1

Master Controller Setup in QLink

The Master Controller may be added in the Wiring view by right

clicking on **New Project** (Project House), and selecting Add Master Controller. Create Floors and Rooms before creating the MC. If keypads, loads or any item that requires a Master Controller are created first the software will automatically add a Master Controller to the project.

The Enclosure Definition window is opened when a Master Controller is created. Make sure the proper item is selected for the RS-232's (Port A) intended use. Please refer to online help in the QLink software or the *Vantage Software Reference Manual* for additional explanation.

Powering The Master Controller

Use a dedicated breaker to power the Master Controller and the Slave Controllers. Maximum power draw by the Master Controller is 1.25 amps or 150W @ 120V / 75W @ 240V. Slave Controllers are only 60W maximum. If the Slave Controllers are too far away to share the same breaker as the Master Controller it is still recommended that they have their own breaker.

Master to Master Wiring

When connecting multiple Master Enclosures, Vantage recommends the use of 18-gauge 2-conductor non-shielded wire from Master to Master. This is a polarized connection with “+” and “-” screw terminals for two runs of wire. The beginning and ending Master Enclosures will use one run and all Master Enclosures in-between will use two runs, i.e., one run connecting from the previous enclosure and the other run continuing to the next enclosure. The maximum wire length for all Master Network connections, totaled, should not exceed 1,000ft.

Master Terminal Board Terminator

If only one Master Controller is used, the Master Network Termination switch should be ON. This switch is located on the Master Terminal Board. If multiple Master Enclosures are used ONLY the first and last Master Terminal Boards should have the Master Network Termination switch ON.

Example: In a five Master Enclosure system, Masters 1 and 5 are not necessarily the first and last Masters, i.e., the "wiring" order could be 2-1-3-5-4. In this example, Master Enclosures 2 and 4 are the first and last masters in the network, so only these two would have the Master Network Termination switch ON, the other three must be OFF.

Master to Slave Wiring

Connecting a Master Enclosure to a Slave Enclosure requires 18-gauge 4-conductor non-shielded wire. Three of the wires are always used to connect the "Master" to the "Slave". This is a polarized connection with "+", "-", and Ground screw terminals for communication. The 4th wire is optional, for Manual Override. The maximum wire length for each Slave Enclosure run is 200ft. Each Slave Enclosure is homerun back to the Master Terminal Board.

External Power

The Master Terminal Board has 12VDC and 24VDC auxiliary power connections. The 12VDC connection is typically used for the Vantage Modem, RF Enabler and/or IP Enabler. The 24VDC connection should not be used with systems that have more than 30 "station bus type" stations connected. Total power is limited to 750ma.

Note: If four relay modules, model number **AR8008-120**, are connected to the Master Controller the 12VDC power supply limit drops to 250ma.

Manual Override

In the unlikely event of a Master Controller Failure, the Manual Override can be used to turn selected loads ON. If the system is in override, individual loads are controlled by dip-switches located on each Module in the enclosure. Manual Override control can be extended to other enclosures. It is common to extend Manual Override between a Master Enclosure and its Slave enclosures but not between Master Controllers. It is recommended that each Master Controller have its own Override Switch.

Operation of Buttons on Front of Master Controller

Overview:

The front panel of the Master Controller has four buttons that allow control of, or Status of the following elements:

1. Set Load Levels By:

- Master
- Module
- Load
- Level, Toggle or Increment (10%)

2. Set Station Switch Status (*not implemented*):

3. Set MasterTime:

- Time
 - Month/Date/Year/Hour/Minute/Second
- Calibrate Time Clock
 - '+' or '-' number of seconds per day

4. Diagnostics Of:

- Master
 - Version
 - Network Communications
 - TeleAccess Installed Status: Yes/No
 - Generate - Displays Master Address
- Station (*not implemented*)
- RS-232

- Displays Current RS-232 Settings
Only, i.e. PortA
19200,N,8,1

d. Gen

- Load Backup Flash (re-program MC from Flash Memory)

5. Prevent new MC from reading the backup flash:

- A Master Controller may have been pre-programmed. Use this option to prevent automatic programming from the backup flash.

Implementation:

If navigation stops working press the reset button on the Master Controller.

(Always do step "A" (below) first before starting each of the steps, 1-5 below)

- Press any of the four buttons on the Master Controller to access the menu functions.

1. How to set Load Levels:

- Press arrow keys so the cursor is on the *L* in Load, then press the button under *Sel*.
- Move the cursor to *Ma1* (Master#), *Mo1* (Module#), *Ld1* (Load#). Each of these selections can be changed by pressing the *Inc* (increment), button when the cursor is on that item, i.e. change the *Ma1* to *Ma2*, etc.
- When selections are made the load can be toggled or incremented in 10% steps.

2. How to set Station Switch Status:

- Currently not implemented

3. How to set or Calibrate Master Controller Time:

- Press arrow keys so the cursor is on the *T* in Time, then press the button under *Sel*.
 - To Set/Change the time and date on the Master Controller, place the cursor on *Set* and press *Sel*.
 - Each component of the date and time can be decremented or incremented.
 - To Calibrate the Master Controller's internal clock, place the cursor on *Calibrate* and press *Sel*.
 - The internal Master clock speed can be decremented or incremented to + or - 58 seconds daily.

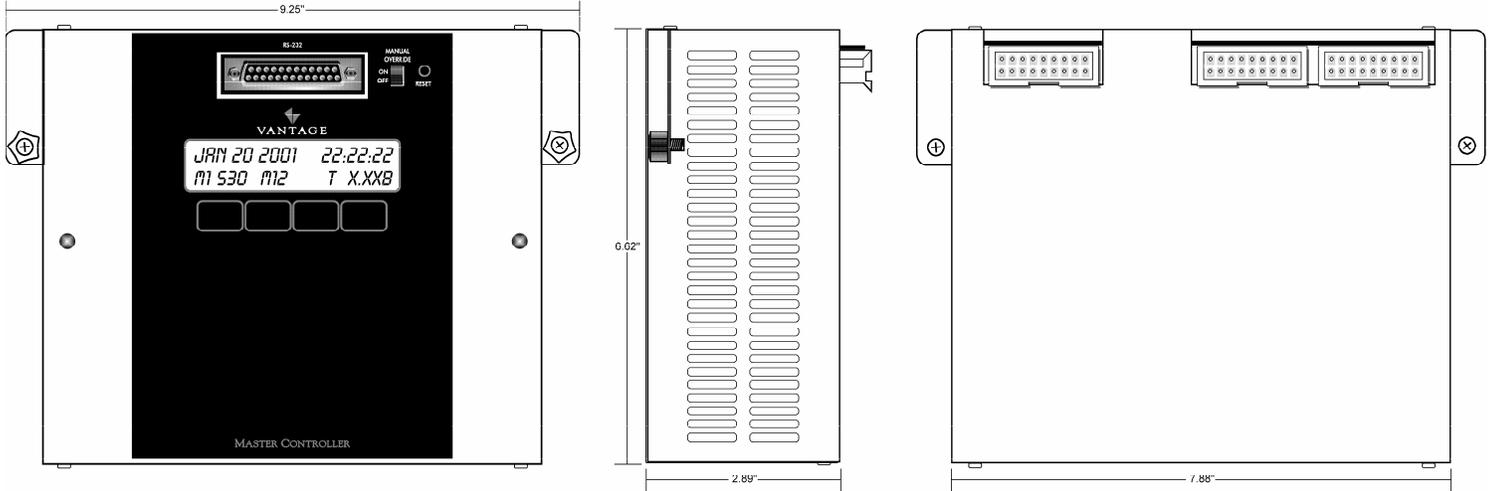
4. How to run Diagnostics and Reports:

- Press the arrow keys so the cursor is on the *D* in *Diag*, then press *Sel*.
 - For Master diagnostics place the cursor on *Mast* and press *Sel*.
 - Select *Ver* for Master Firmware Version.
 - Select *Net* for network communications.
 - Select *Tele* to see if TeleAccess has been installed.
 - Select *Gen* to see the Master Address.
 - For Station diagnostics (*not implemented*)
 - For RS-232 diagnostics place the cursor on *RS232* and press *Sel*.
 - The current port, baud rate, parity, Total bits, and Stop bits is displayed.
 - For Gen diagnostics place the cursor on *Gen* and press *Sel*.
 - With the cursor on *Ldbk Flash*, press *Sel* and the Master Controller will be reprogrammed from the Backup Flash. When display reads "Backup Flash Loaded", Press Exit until display returns to normal.

5. How to prevent a new MC from reading the Backup Flash:

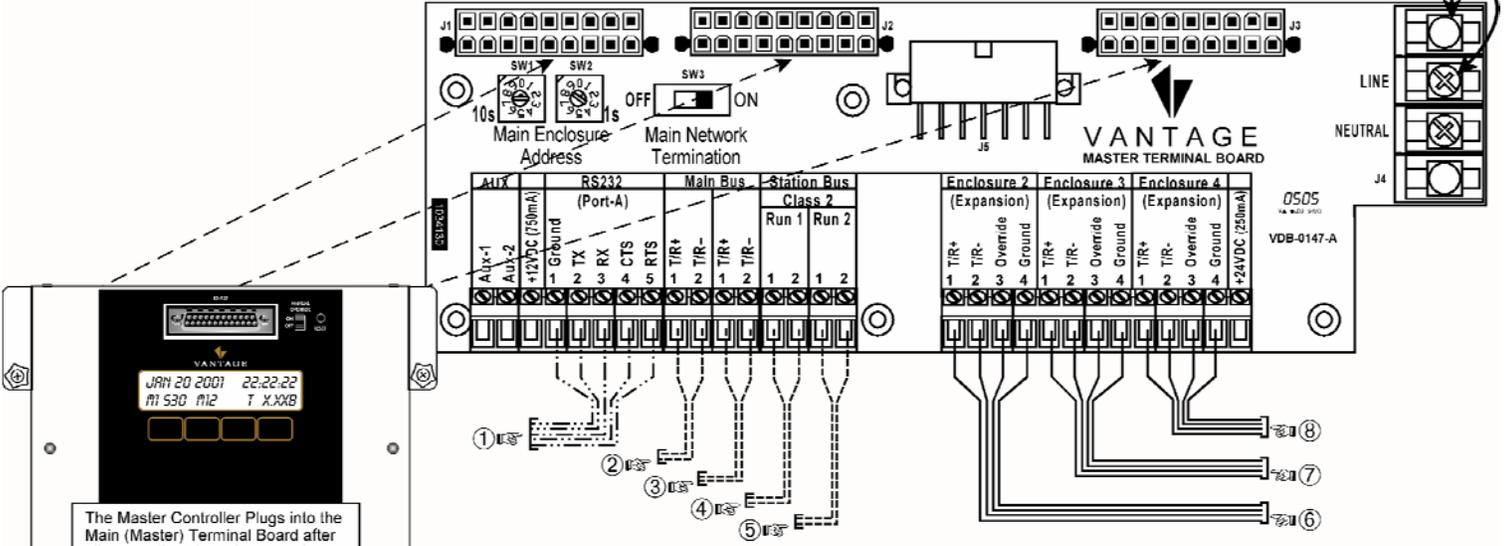
- (for older firmware) Hold buttons 1 and 2 in while plugging

in the Master Controller.



Torque: 18 inch pounds
Wire Range: 14-10 AWG*

(*Must match breaker wire gauge)



The Master Controller Plugs into the Main (Master) Terminal Board after all connections have been made.

- Wiring Key**
- ① RS232
 - ② Previous Main (Master) Terminal Board
 - ③ Next Main (Master) Terminal Board
 - ④ Station Bus Run-1
 - ⑤ Station Bus Run-2
- } Maximum Combined Stations 50
- ⑥ To Expansion (Slave) Terminal Board 2
 - ⑦ To Expansion (Slave) Terminal Board 3
 - ⑧ To Expansion (Slave) Terminal Board 4
- (See maximum wire lengths above)

- Wire Types**
- 6C 18-24AWG
 - - - 2C 18-16AWG
 - 4C 18AWG

