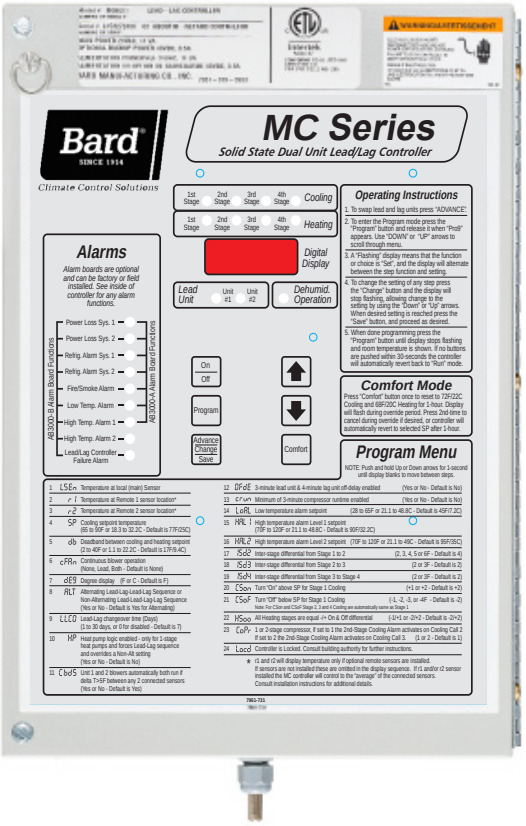
MC4002 Series Advanced Solid State Dual Unit Lead/Lag Controller with Ethernet Remote Communication Option

The MC4002 has 2 stages of cooling control available for each connected air conditioner. It is designed for systems with or without economizers and for systems with 2-stage or dual compressors. The 2nd stage available for each air conditioner permits complete and proper control when economizers are installed or when 2-stage or dual compressors are utilized. With the addition of a simple 2 wire humidity controller as an input signal, it can provide electric reheat dehumidification circuit. The controller can also be configured for use with heat pumps. (**NOTE:** The electric reheat dehumidification feature is not available when configured for heat pumps).

The MC4002, either in basic form or when equipped with optional alarm relay boards, is a fully functional controller with unique configurable capability. The MC4002 can be ordered as a basic controller only or factory equipped with one of two variations of alarm boards with varying amounts of alarm capabilities to fit the user's requirements. Ethernet communication option is also available.

If only the base controller is initially installed, it can be easily upgraded by simple snap-in of the alarm relay board and plug-in of the communication cable to the main controller board. Form C dry contact alarm relays are used, offering both NO and NC switching to meet the user's specific alarm protocol, providing complete flexibility to meet any user's requirements. All alarm actuations are individually indicated on the controller front panel, along with indication for active stages of cooling or heating, and which unit is currently "lead". A digital display indicates building temperature and is also used for all of the programming functions.



CONFORMS TO UL STD 916
CERTIFIED TO
CSA STD C22.2 NO. 205

Key Design Features

Controller:

- Electronic (non-mercury) design
- Programmable
- Works with or without economizers
- Dehumidification control option
- Can be used with heat pumps

Alarm Boards:

- Can be specified with or without alarm boards
- Alarms boards can be added at any time
- Alarm circuits can be NO or NC logic

Communication Board:

- Ethernet remote access for all controller functions
- Can be factory or field installed
- IPV6 with SNMP traps

Ease of Installation:

- Powered by 24V from A/C units
- Phasing of 24V from units is not required
- Durable metal enclosure adequately sized for ease of conduit and wire installation

Certifications & Approvals:

- Complies with FCC Rule 15, Subpart B, Class A
- This ISM device also complies w/Canadian ICES-001
- Complies with CE Standards EN55011/EN50081 and EN55024 for ISM Equipment, Class A
- ETL Conforms to UL916 Standard for Energy Management Equipment, Certified to CSA STD C22.2 No. 205

Controller Enclosure

- 20-Gauge Gray Pre-Painted Metal
- 9.25" W x 13.50" H x 3" D
- Hinged Cover
- Thirteen (13) .875" Diameter Knockouts

Controller Models Available

MC4002	Controller no alarms
MC4002-A	Controller with Base Alarm Board
MC4002-B	Controller with Enhanced Alarm Board
MC4002-AC	Controller w/Base Alarm & Ethernet Board
MC4002-BC	Controller w/Enhanced Alarm & Ethernet Board with SNMP Traps & IPV6

Alarm Board Add-Ons (Field-Installed)

AB3000-A	Base Alarm Board
AB3000-B	Enhanced Alarm Board

Communication Board Add-Ons (Field-Installed)

CB5000	Ethernet Communication Board with SNMP Traps and IPV6

Optional Equipment

8612-023B	Remote Temperature Sensor w/35' Cable

Feature Selection Guide	MC4002	MC4002-A	MC4002-AC	MC4002-B	MC4002-BC
2-unit lead/lag	Yes	Yes	Yes	Yes	Yes
Cooling stages	4	4	4	4	4
Heating stages (configured for A/C with electric heat)	2	2	2	2	2
Heating stages (configured for Heat Pump)	4	4	4	4	4
Selectable Inter-Stage & On/Off Differentials	Yes	Yes	Yes	Yes	Yes
Temperature control type	Electronic	Electronic	Electronic	Electronic	Electronic
Display (4 character .375" high LCD)	Digital	Digital	Digital	Digital	Digital
Stage “On” LED	4 cool/4 heat	4 cool/4 heat	4 cool/4 heat	4 cool/4 heat	4 cool/4 heat
Lead unit LED	Yes	Yes	Yes	Yes	Yes
Advance (switch) lead unit feature	Yes	Yes	Yes	Yes	Yes
One button comfort (72F Cooling, 68F Heating for 1-hour) feature	Yes	Yes	Yes	Yes	Yes
Local sensor (standard with controller)	Yes	Yes	Yes	Yes	Yes
Remote sensors option (See Notes 1 and 2)	2	2	2	2	2
Controller locking feature (prevents unauthorized changes)	Yes	Yes	Yes	Yes	Yes
Smoke/fire lockout circuit (immediate shutdown of controller & A/C)	Yes	Yes	Yes	Yes	Yes
Generator run feature (inhibits lag A/C unit operation)	Yes	Yes	Yes	Yes	Yes
Humidity control feature (See Note 3)	Yes	Yes	Yes	Yes	Yes
Heat pump control feature	Yes	Yes	Yes	Yes	Yes
Selectable continuous fan control, lead-both-none	Yes	Yes	Yes	Yes	Yes
Both fans On @ 5F delta T between 2 sensors (selectable)	Yes	Yes	Yes	Yes	Yes
Control strategy to limit excessive compressor cycling	Yes	Yes	Yes	Yes	Yes
-24/48Vdc backup power connection for emergency alarms	Yes	Yes	Yes	Yes	Yes
20-gauge metal controller enclosure	Yes	Yes	Yes	Yes	Yes
Power loss alarm relay for both units	No	Yes	Yes	Yes	Yes
HP/LP refrigerant lockout alarm relay for both units	No	Yes	Yes	Yes	Yes
Smoke/fire alarm relay	No	Yes	Yes	Yes	Yes
Low temperature alarm thermostat and relay	No	Yes	Yes	Yes	Yes
High temperature #1 alarm thermostat and relay	No	Yes	Yes	Yes	Yes
Power loss alarm LED for both units	No	Yes	Yes	Yes	Yes
HP/LP refrigerant lockout LED for both units	No	Yes	Yes	Yes	Yes
Smoke/fire LED	No	Yes	Yes	Yes	Yes
Low temperature alarm LED	No	Yes	Yes	Yes	Yes
High temperature #1 alarm LED	No	Yes	Yes	Yes	Yes
Ethernet Communication Board for Remote Connectivity	No	No	Yes	No	Yes
SNMP (Simple Network Management Protocol) traps and IPV6	No	No	Yes	No	Yes
High temperature #2 alarm relay	No	No	No	Yes	Yes
2nd stage cooling alarm relay	No	No	No	Yes	Yes
Controller failure alarm relay	No	No	No	Yes	Yes
Economizer relay (emergency vent strategy)	No	No	No	Yes	Yes
High temperature #2 alarm LED	No	No	No	Yes	Yes
Controller failure alarm LED	No	No	No	Yes	Yes

Note 1: Optional remote 35-foot space temperature sensors available, Bard PN 8612-023B. Controller automatically detects any connected sensors.

Note 2: Multiple Sensor Control Strategy:

A. If only the standard local sensor is used, it will govern space temperature control along with low and high temperature alarm monitoring.

B. If 1 remote sensor is installed and connected, the temperature readout display and the building temperature are controlled to an average of connected sensors. If there is more than 10F difference between the two sensors, the actual control will be governed by the hottest sensor for cooling and the coldest sensor for heating.

Note 3: Requires optional field installed humidity controller that closes on-rise, Bard PN 8403-038 recommended. Both HVAC unit must be equipped with electric heat for this sequence to work properly.

Specifications/Features for Basic Controller

MC4002 Basic Controller

- Input power: 18 to 32VAC, 60/50Hz, power is supplied from A/C #1 and/or A/C #2.
- Isolation circuitry: no line or low voltage phasing required.
- Backup power: connection for -24VDC or -48VDC (-20 to -56V) maintains microprocessor operation, front panel indication, and alarm relay operation during commercial power outages.
- Digital display: 4-character LCD
- Temperature display: F or C
- HVAC outputs: Form A (NO) relays (1A @ 24VAC).
- Cooling control stages: 2 for each A/C unit (4 total).
- Heating control stages: 1 for each A/C unit, 2 for each heat pump if so configured.
- Dehumidification circuit: requires optional humidity controller that closes on-rise as input signal, Bard Part #8403-038 recommended. Both HVAC units must be equipped with electric heat for this sequence to work properly.
- Locking feature, allows controller to be "locked" so no unauthorized changes to programming can be made.
- Operating temperature range: 0 to 120F (-18 to 49C)
- Storage temperature range: -20 to 140F (-29 to 60C)
- Temperature accuracy: +/- 1F from 60-85F (16-30C)
  +/- 1% outside 60-85F
- Lead/lag changeover time: 0 to 30 days
- Timing accuracy: +/- 1%
- Inter-stage time delay: 10 seconds between stages
- Inter-stage differential: Adjustable – See Controller Programmable Features (Page 6).
- On-Off differential: – See Controller Programmable Features (Page 6).
- Cooling set point range: 65 to 90F (18 to 32C)
- Comfort setting-Cooling 72F, Heating 68F, for 1 hour
- Dead band (difference between cooling and heating set points): 2F to 40F (1C to 24C)
- Fire/smoke interface: standard NC circuit jumper, remove for connection to building system control, shuts down both A/C units immediately. Field supplied fire/smoke device must have normally closed (NC) dry contact rated at 2A 24VAC minimum. Shielded cable (22-gauge minimum) must be used and shield grounded to controller enclosure.
- Generator run feature, inhibits lag A/C unit from operating if generator is operating (to limit amperage).
- Memory: EEPROM for set point and changeable parameters (maintains settings on power loss).
- Space temperature sensors: 1 local is standard, will accept up to 2 optional 35-foot remote sensors. When multiple sensors are used temperatures are averaged.
- LEDs for basic controller: Lead unit, Cooling stages 1 through 4, Heating stages 1 through 4, Dehumidification operation.
- Six (6) Push-button controls: On/Off switch-Change lead unit-Increase and Decrease set points-Program/Save-Comfort.
- Controller Enclosure: 20-gauge pre-painted steel, 9.25"W x 13.50"H x 3.00"D, hinged cover, thirteen (13) .875" diameter electrical knockouts.

Specifications/Features for Alarm Boards

MC4002-A w/Optional Base Alarm Board (Inputs/Outputs)

- Refrigerant alarm from A/C #1, input
- Refrigerant alarm from A/C #2, input
- Power loss alarm A/C #1, Form C (SPDT) output
- Power loss alarm A/C #2, Form C (SPDT) output
- Smoke/fire alarm, Form C (SPDT) output
- Low temperature alarm, Form C (SPDT) output
- 1st stage (H1) high temperature alarm, Form C (SPDT) output
- Refrigerant system lockout A/C #1, Form C (SPDT) output
- Refrigerant system lockout A/C #2, Form C (SPDT) output

Alarm relays can be wired for NO (close on alarm) or NC (open on alarm) strategy.

Alarm relays can be used individually if there are enough available building alarm points, or can be arranged into smaller groups or even a single group so that all alarm capabilities can be utilized.

When multiple alarms are grouped together and issued as a single alarm, there will be no off-site indication of which specific problem may have occurred, only that one of the alarms in the group has been triggered. The individual alarm problem will be displayed on the LED display on face of the controller.

MC4002-B w/Enhanced Version Alarm Board (Additional Outputs)

- All alarm inputs/outputs same as base version above, plus:
- 2nd stage (H2) high temperature alarm, Form C (SPDT) output
- 2nd stage cooling alarm, Form C (SPDT) output
- Controller system failure alarm, Form C (SPDT) output
- Emergency ventilation economizer outputs, Form A (SPNO) for both A/C #1 and A/C #2
  - Emergency ventilation option for either air conditioner with refrigerant alarm @ H1 high temp alarm set point
  - Emergency ventilation option for both air conditioners @ H2 high temp alarm set point

Note: All alarm/output relays are dry contacts rated 1A @ 24VAC, 1A @ 30VDC, 0.5A @ 150VDC

SPECIFICATIONS FOR OPTIONAL REMOTE COMMUNICATION BOARD

CB5000 COMMUNICATION BOARD

Note: *If this communication board was not originally factory installed it can be field-installed at anytime. Bard part number is CB5000. Either the –A or –B alarm board is required for CB5000 to operate properly. It allows remote access via Ethernet, depending upon level of authority assigned, to all functions of the controller system the same as it one was in the building where the controller system is physically installed.*

Required Input Connections to the CB5000 (these are all internal connections from either the alarm board or main controller board):

1. Fire/smoke connection from MC4002 main controller board.
2. Refrigerant lockout inputs.
3. If economizers are used an additional 24V signal wire is required from each air conditioner to the controller system.
4. Communication cable from CB5000 plugs into phone jack connection on main MC4002 controller board.

OPERATING SYSTEM

No special software is required to access the system. The CB5000 has a default address, simply follow these instructions:

TO ACCESS THE SYSTEM

1. Connect CAT 5 or CAT 6 Ethernet cable from computer to Ethernet port on the CB5000.
2. Change your computer's IP address as shown below to gain initial access to the CB5000.

NOTE 1: Record your computer's current IP settings **BEFORE** making any changes. You will need to reset back to these original settings once you've assigned an IP address to the CB5000.

For XP or Windows 2000:

1. Open Control Panel, double click Network Connections.
2. Double click Local Area Connection on the General tab and select Properties.
3. Using the General tab, scroll to Internet Protocol (TCP/IP).
4. Highlight Internet Protocol (TCP/IP) and select Properties.
5. Change the addresses as follows:

IP address:	192.168.1.50
Subnet mask:	255.255.255.0
Default gateway:	192.168.1.1
Preferred DNS server:	192.168.1.10
Alternate DNS server:	192.168.1.11

6. Click OK and close all windows.
7. Start your browser, enter the CB5000's default IP address **192.168.1.67** and hit Enter.
8. The MC4000 log-in page should appear.

For Vista or Windows 7:

1. Open Control Panel, click Network & Internet.
2. Click Network & Sharing Center.
3. Click Local Area Network link.
4. Click Properties.
5. Highlight Internet Protocol Version 4 (TCP/IPV6) and select Properties.
6. Change the addresses as follows:

IP address:	192.168.1.50
Subnet mask:	255.255.255.0
Default gateway:	192.168.1.1
Preferred DNS server:	192.168.1.10
Alternate DNS server:	192.168.1.11

7. Click OK and close all windows.
8. Start your browser, enter the CB5000's default IP address **192.168.1.67** and hit Enter.
9. The MC4000 log-in page should appear.

LOG IN PAGE

1. Type in "Admin" for the user name and "Bard" for the password. These are case sensitive. Hit "Log In".
2. Click the "System Setup" button.

SYSTEM SETUP PAGE

Note: *If the remote user is on a different subnet than the CB5000 it is recommended that Static IP Addressing be used rather than DHCP.*

IF YOUR NETWORK USES STATIC IP ADDRESSING

1. Enter the correct address information provided by your IT department and click the "Save Config" button.
2. The assumption is that the new IP address has already been configured into the network to get through any firewall(s).
3. Disconnect the Ethernet cable from the computer and plug into your router.
4. Change your computer system's IP address back to their previous settings from **Note 1.**
5. Type the new IP address into the browser and make any changes to the MC4000 system before logging out.

IF YOUR NETWORK USES DHCP

1. Check the "Enable DHCP" box.
2. Click "Save Config" box (it will take several seconds before you receive a message that you are now offline. At this point the unit is now running in DHCP mode).
3. Change your computer system's IP address back to their previous settings from **Note 1.**
4. Type **CB5000** in the browser's URL address bar to access the CB5000.

NOTE 2: If you need to get back to the CB5000 default IP setting simply hold the reset button next to the phone jack for 5+ seconds, then release.

USER PAGE

1. The designated Admin person can assign up to 9 additional users and set-up as Admin, Write or Read authority.
2. User Name and password must be assigned, each must be at least 3 characters long, and are case sensitive.
3. Only "Admin" can add, change or delete users and has access to all controller pages.
4. "Write" can make changes to the controller settings and operating characteristics, and has access to only Log In, System Status, Setpoints, and Log Out pages.
5. "Read" can only view Status and Setpoints pages and cannot make any changes.

SYSTEM STATUS PAGE

1. <u>This page shows the overall HVAC status of:</u>
   a. Active cooling or heating stages or dehumidification mode (requires humidity sensor)
   b. Active controller outputs (blower, cooling Stage 1 or 2, heating) to each air conditioner
   c. Which unit is the Lead unit
   d. Power loss or refrigerant lock-out for each air conditioner
   e. If economizers are used if on or off (**Note:** older style EIFM economizers require a simple relay kit for this feature to work, Bard Part Number 8620-221)
2. <u>General status of:</u>
   a. Dehumidification Active or not
   b. Backup Generator Active or not (if tied to generator run controls to inhibit lag unit operation during generator run)
   c. Alarm board connected or not
   d. Controller system Locked or Unlocked
   e. Comfort mode Active or not
3. <u>Temperatures:</u>
   a. Average temperature (if more than one sensor used, if not will read same as Local sensor)
   b. Local sensor at controller
   c. Remote 1 or Remote 2 if connected
4. <u>General Alarm Status:</u>
   a. Fire/Smoke, Clear or Alarm
   b. Low Temp, Clear or Alarm
   c. High Temp #1, Clear or Alarm
   d. High Temp #2, Clear or Alarm
   e. Controller Failure, Clear or Alarm

SETPOINTS PAGE (Note: "Read" level authority can view this screen but cannot make any changes. "Admin" and "Write" authority can make changes)

1. <u>General Setpoints</u>
   a. On initial installation and start-up all selectable characteristics are set to factory default settings.
   b. Each of these points has a drop-down menu for ease of use.
2. <u>Alarm Board Setpoints</u>
   a. Low temperature alarm setpoint
   b. High temperature alarm #1 setpoint
   c. High temperature alarm #2 setpoint
3. <u>System Overrides</u>
   a. System 1 Cooling Override
   b. System 1 Heating Override
   c. System 2 Cooling Override
   d. System 2 Heating Override
   e. Turn Power On to the System (**Note:** Cannot remotely turn the controller system Off)
   f. Lock/Unlock Controller
   g. Advance Lead to Lag Unit
   h. Comfort Mode
   i. Restore System Defaults
   j. Reset Controller. There are built-in routines to prevent the controller system from getting "locked up", but this also allows a manual remote reset as a backup before having a service call to the site.

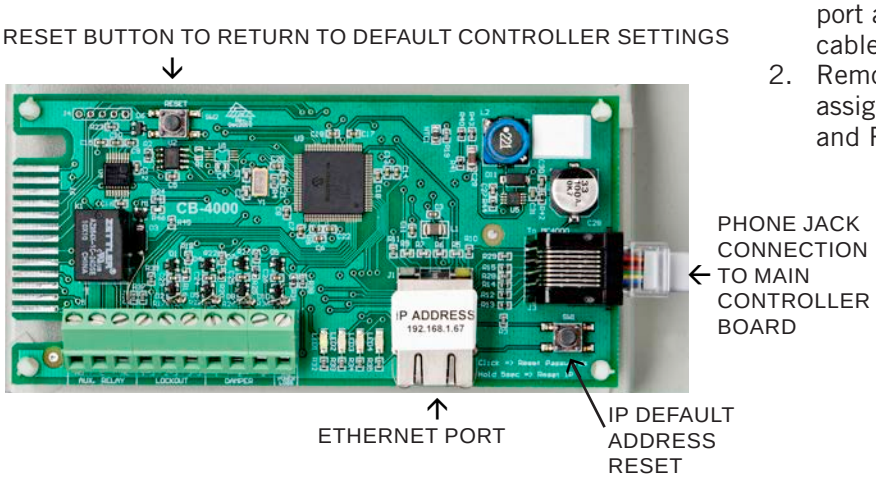
LOG OUT BUTTON

1. Clicking this button will automatically log you off the controller remote access.
2. To log back in will require entering assigned IP address into your browser and entering valid User Name and Password.

CONNECT TO NETWORK

1. After initial set-up using laptop computer, disconnect computer cable from the Ethernet port and connect the CAT 5 or CAT 6 network cable.
2. Remote access is now available using the assigned IP address and valid User Name and Password (case sensitive).

CB5000 COMMUNICATION BOARD

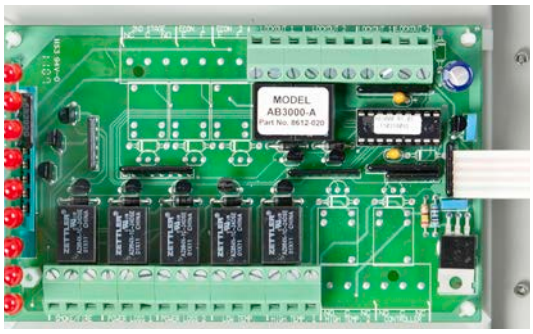


MC4002 Interior View

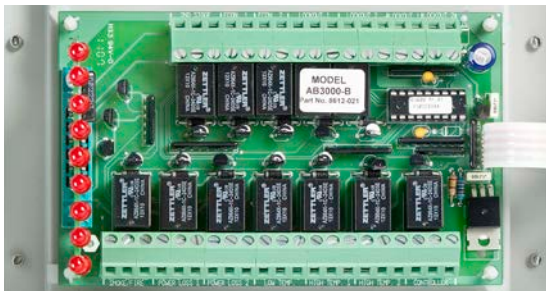
MC4002-A Interior View
(Also represents MC4002-B)

MC4002-AC Interior View
(Also represents MC4002-BC)

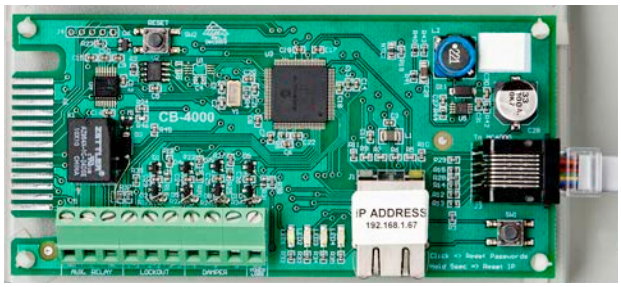
AB3000-A Base Version Alarm



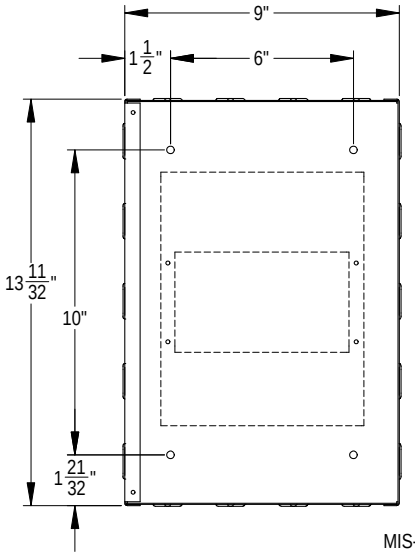
AB3000-B Enhanced Alarm Board



CB5000 Communication Board



Mounting Hole Layout



MIS-3760

General Programming Overview

MC4002 Controller Buttons and Function

On/Off Button

1. Press and release the On/Off button to turn On controller, 4-character display will illuminate and Lead unit LED will light.
2. Press and release the On/Off button to turn Off controller. Controller will go dark and A/C units will stop.

Comfort Button

1. Press and release the Comfort button to change the Cooling Set Point to 72F and the Heating Set Point to 68F for a period of 1 hour.
2. Set Points will return to the programmed settings automatically after 1 hour.
3. Pressing the Comfort button during the 1 hour period will deactivate the Set Point change.
4. The temperature display will flash the current temperature while in override mode.

Program Button

1. Press the Program button and release it when the message “Prog” appears on the display.
2. Refer to Programming Instructions and follow these commands to change from Default settings.

Advance/Change/Save Button

1. Press and release the Advance button to swap lead and lag unit positions.
2. When in Program mode the Down and Up buttons are used to scroll through the programming steps.
3. A flashing display means that the particular function of that programming step is “set”, and the display will alternate between the step function and the setting.
4. To change the setting press the Change button and the display will stop flashing, allowing change to the setting.
5. Use Down or Up arrows to change setting as desired, and press the Save button and proceed as desired.
6. When done with programming changes press the Program button until display stops flashing and room temperature is shown.

Up and Down Buttons

These buttons are used to change the settings in conjunction with the Advance/Change/Save button when in programming mode.

Controller Programmable Features and Default Settings

Order / Display	Description	Range / Choice	Default
LSEn	Temperature at local (main) sensor	—	—
SP	Cooling set point temperature	65 to 90F (18 to 32C)	77F (25C)
db	Deadband between cooling SP and heating set point	2 to 40F (1 to 24C)	17F (9.4C)
r1	Temperature at remote sensor 1 location, if connected	—	—
r2	Temperature at remote sensor 2 location, if connected	—	—
cFAn	Continuous blower operation	None, Lead, Both	None
deg	Controller system operates in F or C	F or C	F
Alt	Alternating Lead-Lag-Lead-Lag sequence or Non-Alternating Lead-Lead-Lag-Lag sequence — Yes = Alternating	Yes or No	Yes
LLCO	Lead-Lag changeover time (Days)	1 to 30 days, or 0 for disabled	7
HP	Heat pump logic enabled — only for 1-stage heat pumps and forces Lead-Lag sequence (overrides a Non-Alt setting)	Yes or No	No
Cbd5	Unit 1 and 2 blowers automatically both run if delta T >5F between any 2 connected sensors	Yes or No	Yes
OFde	3-minute lead unit & 4-minute lag unit off-delay enabled	Yes or No	No
crun	Minimum 3-minute compressor runtime enabled	Yes or No	No
LoAL	Low temperature alarm setpoint	28 to 65F (-2 to 18C)	45F (7.2C)
HAL1	High temperature alarm level #1 setpoint	70F to 120F (21 to 49C)	90F (32C)
HAL2	High temperature alarm level #2 setpoint	70F to 120F (21 to 49C)	95F (35C)
Locd	Controller is locked and no changes can be made. Consult building authority.	If locked, the display will show Locd if changes attempted	Unlocked
Inter-Stage Differential			
ISd2	From Stage 1 to Stage 2	2, 3, 4, 5 or 6F	4
ISd3	From Stage 2 to Stage 3	2 or 3F	2
ISd4	From Stage 3 to Stage 4	2 or 3F	2
On/Off Differential (Hysterisis)			
CSon	Turn "On" above SP for Stage 1 Cooling	+1 or 2F	2
CSoF	Turn "Off" below SP for Stage 1 Cooling	-1, 2, 3 or 4F	-2
	Stage 2, 3 and 4 Cooling automatically set same as Stage 1 decisions		
HSoo	All Heating Stages are equal -/+ on & off differential	-1/+1 or -2/+2	-2/+2
CoPr	1 or 2-stage compressor, if set to 1 the 2nd stage Cooling Alarm activates on Cooling Call 2, if set to 2 the 2nd stage Cooling Alarm activates on Cooling Call 3	1 or 2	1
ob5d	Differential between Local and On-Board Sensor	12 to 20, OFF	12

Bard®
SINCE 1914
Climate Control Solutions

MC Series

Solid State Dual Unit Lead/Lag Controller

	1st Stage	2nd Stage	3rd Stage	4th Stage	
Cooling	○	○	○	○	
Heating	○	○	○	○	

Digital Display

Lead Unit ○ Unit #1 ○ Unit #2

○ Dehumid. Operation

On / Off

Program

Advance / Change / Save

Comfort

Alarms

Alarm boards are optional and can be factory or field installed. See inside of controller for any alarm functions.

AB3000-B Alarm Board Functions

- Power Loss Sys. 1 ○
- Power Loss Sys. 2 ○
- Refrig. Alarm Sys. 1 ○
- Refrig. Alarm Sys. 2 ○
- Fire/Smoke Alarm ○
- Low Temp. Alarm ○
- High Temp. Alarm 1 ○
- High Temp. Alarm 2 ○
- Lead/Lag Controller Failure Alarm ○

AB3000-A Alarm Board Functions

Operating Instructions

1. To swap lead and lag units press "ADVANCE".
2. To enter the Program mode press the "Program" button and release it when "Pro9" appears. Use "DOWN" or "UP" arrows to scroll through menu.
3. A "Flashing" display means that the function or choice is "Set", and the display will alternate between the step function and setting.
4. To change the setting of any step press the "Change" button and the display will stop flashing, allowing change to the setting by using the "Down" or "Up" arrows. When desired setting is reached press the "Save" button, and proceed as desired.
5. When done programming press the "Program" button until display stops flashing and room temperature is shown. If no buttons are pushed within 30-seconds the controller will automatically revert back to "Run" mode.

Comfort Mode

Press "Comfort" button once to reset to 72F/22C Cooling and 68F/20C Heating for 1-hour. Display will flash during override period. Press 2nd-time to cancel during override if desired, or controller will automatically revert to selected SP after 1-hour.

Program Menu

NOTE: Push and hold Up or Down arrows for 1-second until display blanks to move between steps.

1	LSEn	Temperature at local (main) Sensor	
2	r1	Temperature at Remote 1 sensor location*	
3	r2	Temperature at Remote 2 sensor location*	
4	SP	Cooling setpoint temperature (65 to 90F or 18.3 to 32.2C - Default is 77F/25C)	
5	db	Deadband between cooling and heating setpoint (2 to 40F or 1.1 to 22.2C - Default is 17F/9.4C)	
6	cFAn	Continuous blower operation (None, Lead, Both - Default is None)	
7	dEG	Degree display (F or C - Default is F)	
8	ALT	Alternating Lead-Lag-Lead-Lag Sequence or Non-Alternating Lead-Lead-Lag-Lag Sequence (Yes or No - Default is Yes for Alternating)	
9	LLCO	Lead-Lag changeover time (Days) (1 to 30 days, or 0 for disabled - Default is 7)	
10	HP	Heat pump logic enabled - only for 1-stage heat pumps and forces Lead-Lag sequence and overrides a Non-Alt setting (Yes or No - Default is No)	
11	CbdS	Unit 1 and 2 blowers automatically both run if delta T>5F between any 2 connected sensors (Yes or No - Default is Yes)	
12	OFdE	3-minute lead unit & 4-minute lag unit off-delay enabled	(Yes or No - Default is No)
13	crun	Minimum of 3-minute compressor runtime enabled	(Yes or No - Default is No)
14	LoAL	Low temperature alarm setpoint	(28 to 65F or 21.1 to 48.8C - Default is 45F/7.2C)
15	HAL1	High temperature alarm Level 1 setpoint (70F to 120F or 21.1 to 48.8C - Default is 90F/32.2C)	
16	HAL2	High temperature alarm Level 2 setpoint	(70F to 120F or 21.1 to 49C - Default is 95F/35C)
17	Isd2	Inter-stage differential from Stage 1 to 2	(2, 3, 4, 5 or 6F - Default is 4)
18	Isd3	Inter-stage differential from Stage 2 to 3	(2 or 3F - Default is 2)
19	Isd4	Inter-stage differential from Stage 3 to Stage 4	(2 or 3F - Default is 2)
20	CSon	Turn "On" above SP for Stage 1 Cooling	(+1 or +2 - Default is +2)
21	CSoF	Turn "Off" below SP for Stage 1 Cooling Note: For CSon and CSoF Stage 2, 3 and 4 Cooling are automatically same as Stage 1	(-1, -2, -3, or -4F - Default is -2)
22	HSoo	All Heating stages are equal -/+ On & Off differential	(-1/+1 or -2/+2 - Default is -2/+2)
23	CoPr	1 or 2-stage compressor, if set to 1 the 2nd-Stage Cooling Alarm activates on Cooling Call 2 If set to 2 the 2nd-Stage Cooling Alarm activates on Cooling Call 3.	(1 or 2 - Default is 1)
24	Locd	Controller is Locked. Consult building authority for further instructions.	

* r1 and r2 will display temperature only if optional remote sensors are installed. If sensors are not installed these are omitted in the display sequence. If r1 and/or r2 sensor installed the MC controller will control to the "average" of the connected sensors. Consult installation instructions for additional details.

7961-731

Bard

MC4002 HVAC Monitor / Controller

User : Admin Power Status : ON

- Log In
- System Status
- Setpoints
- Notes
- Users
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- Notification Setup
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System Status

Cooling Stages
Heating Stages
Dehumidification Operation

Controller Output Description	System 1	System 2
Blower (G)	ON	ON
Cooling Stage 1 (Y1)	ON	ON
Cooling Stage 2 (Y2)	OFF	OFF
Heating (W)	OFF	OFF
Lead System	- - -	LEAD
Power Loss	CLEAR	CLEAR
Ref. Lockout Alarm	CLEAR	CLEAR
Economizer	OFF	OFF

Temperatures

Setpoint	Average	Local	Remote 1	Remote 2
68 deg. F	72 deg. F	72 deg. F	- - -	- - -

General Status

Dehumidification	Backup Generator	Alarm Board	Lock Status	Comfort Mode
NOT ACTIVE	NOT ACTIVE	CONNECTED	LOCKED	NOT ACTIVE

General Alarm Status

Fire / Smoke	Low Temp.	High Temp. 1	High Temp. 2	Controller Failure
CLEAR	CLEAR	CLEAR	CLEAR	CLEAR

MC4002 HVAC Monitor / Controller

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Setpoints

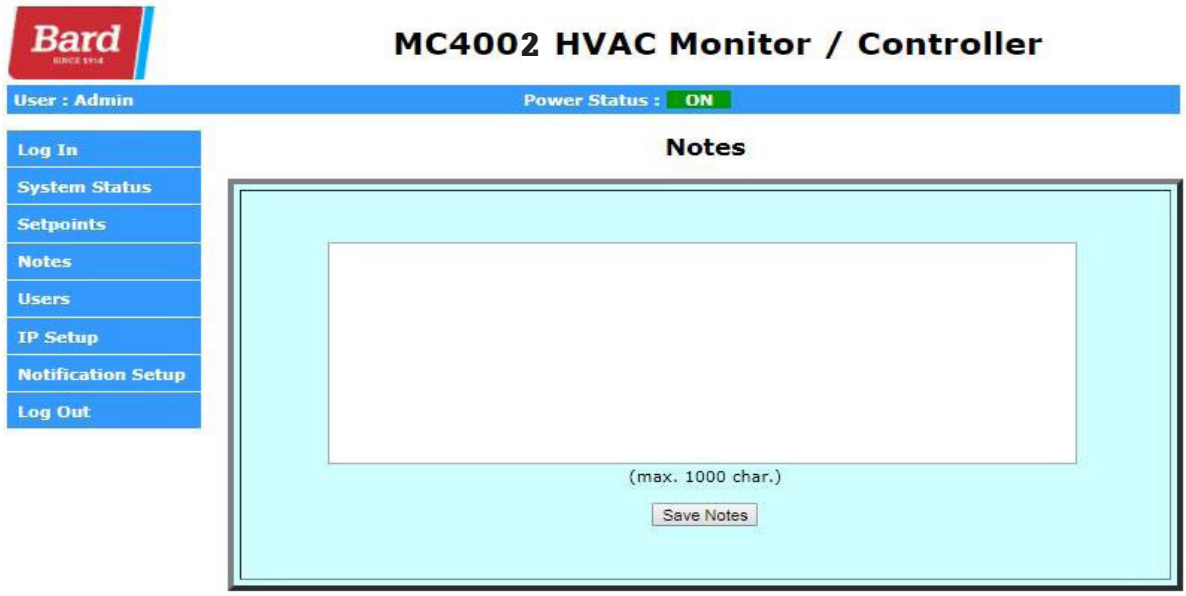
Cooling set point temperature	68
Deadband between heating and cooling setpoint	20
Continous blower operation	Lead
Degree Display F or C - Default is F	F
Alternating lead-lag sequence (No=Non-Alt.Mode)	YES
Lead-Lag changeover time (Days)	7
Unit 1 & 2 Blowers run if delta T>5F between any two sensors	YES
3 minute lead unit and 4 minute lag unit off delay	NO
Minimum of 3 minute compressor run time enabled (Yes or No –default is No)	NO
Inter stage differential between stage 1 to 2	4
Inter stage differential between stage 2 to 3	2
Inter stage differential between stage 3 to 4	2
Cooling turn-on level above setpoint for stage 1	2
Cooling turn-off level below setpoint for stage 1 (Stage 2, 3, and 4 cooling automatically set same as stage 1)	2
All Heating stages are equal +/- on & off differential	2
Heat Pump logic enabled	NO
One or Two Stage Compressors	1
Economizer Installed	YES

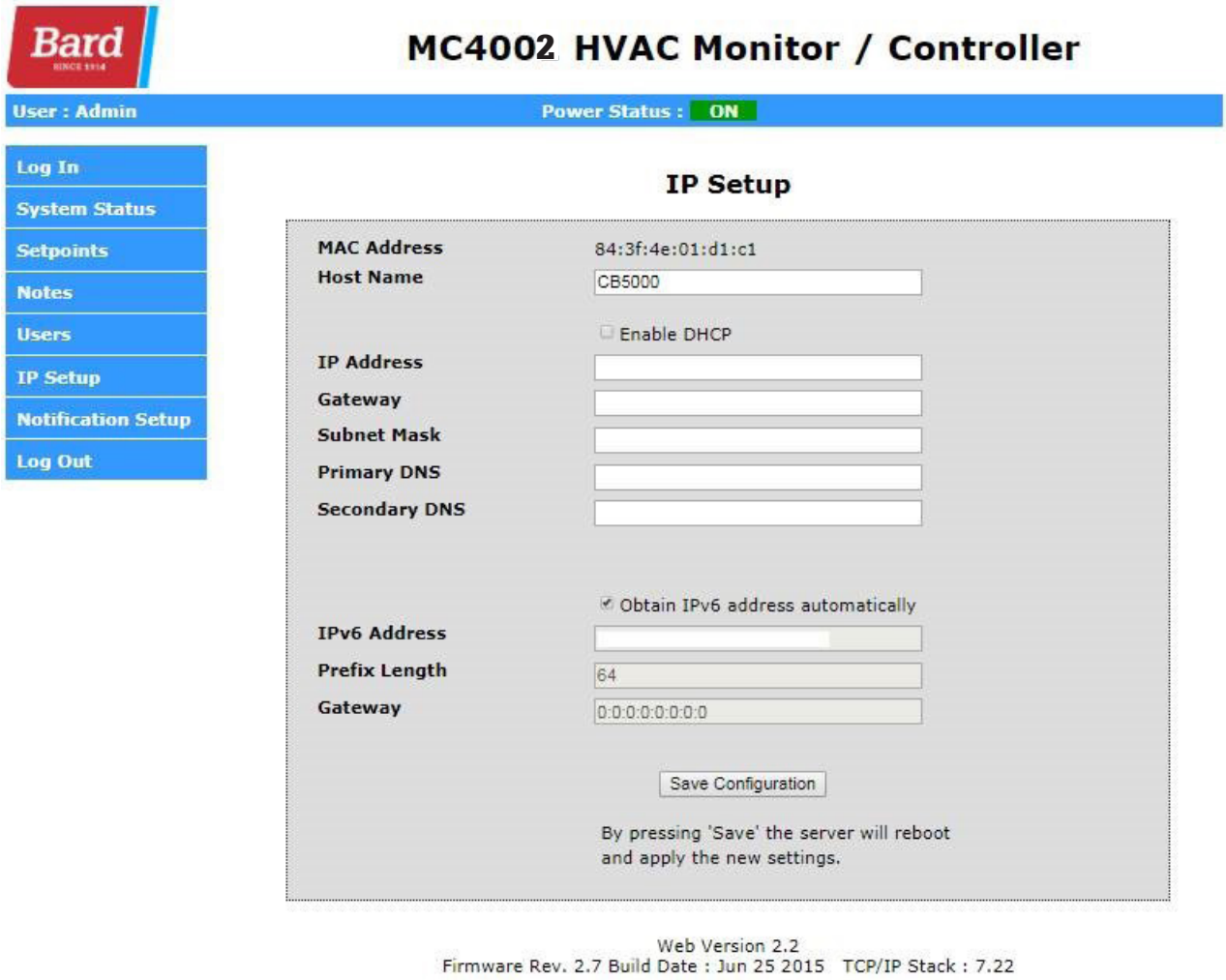
Alarm Board Set Points

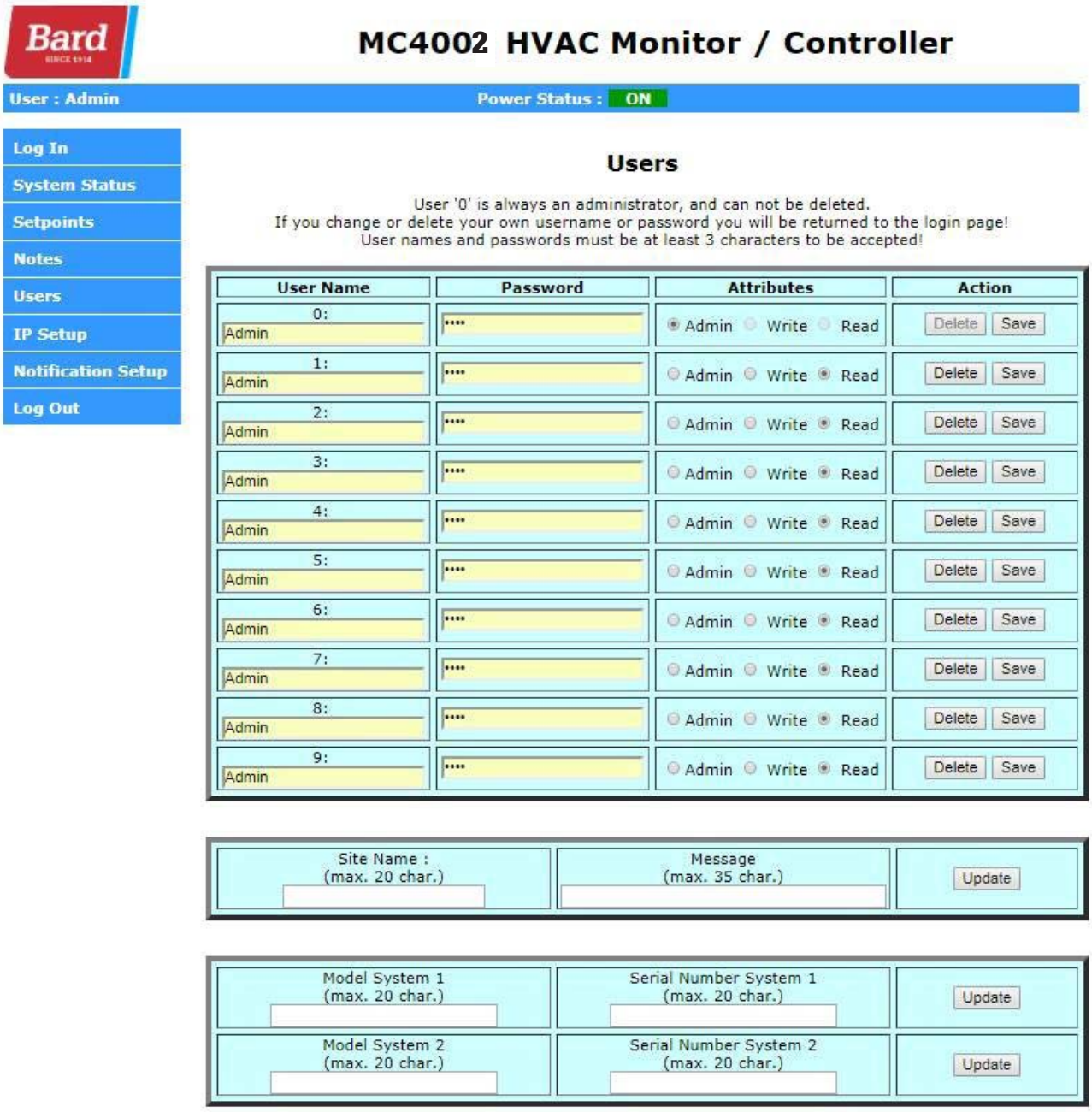
Low temperature alarm set point	45
High temperature alarm level 1 Setpoint	90
High temperature alarm level 2 Setpoint	95

System Overrides

System 1 Cooling Override On		NOT ACTIVE
System 1 Heating Override On		NOT ACTIVE
System 2 Cooling Override On		NOT ACTIVE
System 2 Heating Override On		NOT ACTIVE
Turn Power On to the System	Power On	System ON
Lock / Unlock Controller	Unlock	System LOCKED
Change Lead to Lag Unit	Unit 1 Lead	Lead Unit is 2
Comfort Mode	Activate	NOT ACTIVE
Restore System Defaults	Restore Now	


Bard
MC4002 HVAC Monitor / Controller
User : Admin
Power Status : ON
Log In
System Status
Setpoints
Notes
Users
IP Setup
Notification Setup
Log Out
Notes
(max. 1000 char.)
Save Notes


Bard
MC4002 HVAC Monitor / Controller
User : Admin
Power Status : ON
Log In
System Status
Setpoints
Notes
Users
IP Setup
Notification Setup
Log Out
IP Setup
MAC Address
84:3f:4e:01:d1:c1
Host Name
CB5000
Enable DHCP
IP Address
Gateway
Subnet Mask
Primary DNS
Secondary DNS
Obtain IPv6 address automatically
IPv6 Address
Prefix Length
64
Gateway
0:0:0:0:0:0:0:0
Save Configuration
By pressing 'Save' the server will reboot
and apply the new settings.
Web Version 2.2
Firmware Rev. 2.7 Build Date : Jun 25 2015 TCP/IP Stack : 7.22


Bard
MC4002 HVAC Monitor / Controller
User : Admin
Power Status : ON
Log In
System Status
Setpoints
Notes
Users
IP Setup
Notification Setup
Log Out
Users
User '0' is always an administrator, and can not be deleted.
If you change or delete your own username or password you will be returned to the login page!
User names and passwords must be at least 3 characters to be accepted!
User Name
Password
Attributes
Action
0: Admin
1: Admin
2: Admin
3: Admin
4: Admin
5: Admin
6: Admin
7: Admin
8: Admin
9: Admin
Admin Write Read
Delete Save
Site Name : (max. 20 char.)
Message (max. 35 char.)
Update
Model System 1 (max. 20 char.)
Serial Number System 1 (max. 20 char.)
Model System 2 (max. 20 char.)
Serial Number System 2 (max. 20 char.)