MRP Series Manual

Modular Rack Power

WITH OR WITHOUT Ethernet

WITH or WITHOUT LCD/LED Display

WITH or WITHOUT Controllable Receptacles

BayTech Manual Publication

Revision March 2010

ABOUT THIS OWNER'S MANUAL

This document provides information required for installing and operating your Bay Tech equipment. It should allow the user to connect, power up, and access an applications menu where peripheral equipment can be controlled. We recommend reading this manual carefully, while placing special emphasis on correct cabling and configuration. If you have any problems with your installation, please contact a BayTech Applications Engineer at **228-563-7334**, or toll free from anywhere in the United States using **1-800-523-2702** or contact us at our Web Site, www.baytech.net.

BayTech manufactures many remote site management products, data switches, data collection multiplexers, remote power controllers, and peripheral print sharers. If you would like information on any of these products, please contact BayTech Customer Service at the above numbers or visit our web site.

Conventions used in this manual include:

CAUTION: This term is used to denote any condition that could possibly result in physical harm to personnel or damage to equipment.
ATTENTION: Ce terme est employé pour dénoter n'importe quelle condition qui pourrait probablement avoir comme conséquence le mal physique au personnel ou les dommages à l'équipement.

IMPORTANT: This term is used to denote conditions that could result in the loss of communications or to highlight the proper functioning of equipment.
IMPORTANT: Ce terme est employé pour dénoter les conditions qui pourraient avoir comme conséquence la perte de communications ou accentuer le fonctionnement approprié de l'équipement.

NOTE: This term is used to denote items of interest to the user.
NOTE: Ce terme est employé pour dénoter des articles d'intérêt à l'utilisateur.

<cr>: Carriage Return or ENTER
<cr>: Le Retour chariot ou ENTRE

The information in this document is subject to change without notice. The statements, configurations, technical data, and recommendations in this document are believed to be accurate and reliable, but are presented without express or implied warranty. Users must take full responsibility for their applications of any products specified in this document. The information in this document is proprietary to Bay Technical Associates, Inc.

In the interest of improving internal design, operational function, and/or reliability, Bay Technical Associates, Inc reserves the right to make changes to the products described in this document without notice.

Bay Technical Associates, Inc does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

BayTech units are in accordance with the general requirements of *Standard for Information Technology Equipment* (ETL listed, conforms to ANSI/UL STD 60950-1-2003 CERTIFIED CAN/CSA C22.2 NO. 60950-1-03,). *Equipment installations are to be in accordance with the Canadian Electrical Code, Part I, CSA C22.1-02; General Requirements – Canadian Electrical, Part II, CSA C22.2 No 0-M91; the National Electrical Code, NFPA 70-2005; and the National Electrical Safety Code, NFPA, IEEE C2-2002.*

Model number description: MRP10.01.4.12.2.10-XX
MRP10 = base unit MRP10 group includes (6ea) 7.5" Receptacle Modules; Dual Circuit Breaker (6ea)
01 = Controller Module; LCD Display, No Networking, Outlet Control
4 = Quantity; **12** = Receptacle Module; NEMA 5-20; Outlet Control
2 = Quantity; **10** = Receptacle Module; IEC C13; Outlet Control
XX = Power plug type

We welcome any comments you may have about our products, and we hope that you will continue to look to BayTech for your remote management needs.

Connection Description

BayTech's MRP Series unit provides a Serial EIA232 interface that controls user access and outlet controls to the power strip.

> **CAUTION:** All power should be removed from the BayTech unit prior to removing or installing cables and /or adapters.
> ATTENTION : Toute la puissance devrait être coupée à partir de l'unité de BayTech avant d'enlever ou d'installer des câbles et/ou des adapteurs.

EIA-232 SERIAL CONNECTION

The MRP has an RJ-45 port which uses an 8-pin crossed modular cable to connect to a local EIA-232 device such as a computer terminal or external modem. Most serial computers do not have RJ-45 connections; therefore an adapter is provided with this unit to convert from a DE-9 connector to an RJ-45 connector (Bay Tech Part No. 9FRJ45PC-4). An adapter to convert from a DB-25 connector to an RJ-45 connector is also available from Bay Tech, upon request (Bay Tech Part No. 25FRJ45PC-4). The 8-pin crossed modular cable is configured to operate with these adapters.

INSTALLATION

UNPACKING

Compare the unit and serial number of the equipment you received to the packing slip located on the outside of the box. Inspect equipment carefully for damage that may have occurred in shipment. If there is damage to the equipment or if materials are missing, contact BayTech technical support at **228-563-7334** or call toll free inside the United States at **800-523-2702**. At a minimum, you should receive the following:

1. The MRP unit.
2. Manual insert describing the location of the User's Guide on BayTech's website at www.baytech.net.
3. Power Cords that may be attached to the unit (if order requested detachable cords).
4. 1 ea. DE-9 (9 pin) PC com port adapter -- 9FRJ45PC (with Cisco Interface) or 9FRJ45PC-1.
5. 1 ea. RJ-45 Roll over cable -- RJ08X007.

> **NOTE:** Keep the shipping container and packing material in the event future shipment is required.

PREPARING THE INSTALLATION SITE

The installation area should be clean and free of extreme temperatures and humidity. Allow sufficient space behind the MRP unit for cabling and receptacle connections. Access to installation site should be

restricted to authorized personnel. Installation of these units should be limited to ITE and Telco server environments.

PRÉPARATION DE L'EMPLACEMENT D'INSTALLATION
Le secteur d'installation devrait être propre et exempt des températures et de l'humidité extrêmes. Permettez le suffisamment d'espace derrière l'unité de MRP pour des raccordements de câblage et de réceptacle. L'accès à l'emplacement d'installation devrait être limité au personnel autorisé. L'installation de ces unités devrait être limitée à ITE et à environnements de serveur de Telco.

POWER

- **208V 3øY VAC Model:** Internal 120/208 VAC 50/60 Hz (15, 20, 30 or 60 Amps Maximum Load).
- **400V 3øY VAC Model:** Internal 230/400 VAC 50/60 Hz (15, 20, or 30 Amps Maximum Load)
- **208V VAC Model:** Internal 120/208 VAC 50/60 Hz (15, 20, 30 or 60 Amps Maximum Load).
- **120V VAC Model:** Internal 120 VAC 50/60 Hz (15, 20, or 30 Amps Maximum Load).

CAUTION: This unit is intended for indoor use only. Do not install near water or expose this unit to moisture. To prevent heat buildup, do not coil the power cord when in use. Do not use extension cords. Do not attempt to make any internal changes to the power source. Do not attempt to modify any portion or component of an MRP Series Unit unless specifically directed to by BayTech personnel. BayTech must perform any internal operations.
ATTENTION: Cette unité est prévue pour l'usage d'intérieur seulement. N'installez pas près de l'eau ou n'exposez pas cette unité à l'humidité. Pour empêcher l'habillage de la chaleur, ne lovez pas le cordon de secteur en service. N'employez pas les cordes de prolongation. N'essayez pas de n'apporter aucune modification interne à la source d'énergie. N'essayez pas de ne modifier aucune partie ou composant d'une unité de série de MRP à moins qu'ait spécifiquement dirigé vers par le personnel de BayTech. BayTech doit effectuer toutes les opérations internes.

CAUTION: High-voltage surges and spikes can damage this equipment. To protect from such power surges and spikes, this unit must have a good earth ground or good power surge protection.
ATTENTION: Les montées subites et les transitoires à haute tension peuvent endommager cet équipement. Pour se protéger contre de telles montées subites et transitoires de puissance, cette unité doit avoir une bonne protection rectifiée ou bonne de la terre de puissance de montée subite.

CAUTION: Do not exceed the AC current rating for the selected model.
ATTENTION: Ne dépassez pas l'estimation courante à C.A. pour le modèle choisi.

CAUTION: In order to be absolutely removed from the power supply, the power cord must be unplugged from the power source.
ATTENTION: Afin d'être absolument enlevé de l'alimentation d'énergie, le cordon de secteur doit être débranché de la source d'énergie.

CAUTION: For PERMANENTLY CONNECTED EQUIPMENT, a readily accessible disconnect device (Circuit Breaker rated not to exceed the amperage rating of the unit) shall be incorporated in the fixed wiring between the power source and the Baytech unit. For PLUGGABLE EQUIPMENT, the socket-outlet shall be installed near the equipment and easily accessible. The outlets providing power to the unit shall be protected against over current, short circuit and earth fault by suitable rated protective devices.
ATTENTION: Pour l'ÉQUIPEMENT DE MANIÈRE PERMANENTE RELIÉ, un dispositif aisément accessible de débranchement (disjoncteur évalué pour ne pas dépasser l'estimation d'ampérage de l'unité) sera incorporé dans le câblage fixe entre la source d'énergie et l'unité de Baytech. Pour l'ÉQUIPEMENT QUE L'ON PEUT BRANCHER, la douille-sortie sera installée près de l'équipement et facilement accessible. Les sorties fournissant la puissance à l'unité seront protégées contre le courant, le court-circuit et le défaut de terre finis par les dispositifs protecteurs évalués appropriés.

Applying power illuminates a green LED on the front panel of the MRP. When the power switch is off, devices connected to the unit are not receiving power.
Mettre sous tension illumine une LED verte pour la puissance sur le panneau avant de la MRP. Quand le commutateur électrique est éteint, les dispositifs reliés à l'unité ne reçoivent pas la puissance.

CIRCUIT BREAKER

Depending on if the unit has circuit breakers, in the case of power overload, the circuit breaker automatically trips. Determine the cause of the tripped circuit breaker, correct the problem then reset the circuit breaker by depressing the circuit breaker switch. If an overload condition occurs, the MRP status menu is still accessible. If all circuits are closed, the circuit breaker status menu will indicate "On." If the circuit breaker is tripped, the circuit breaker status will indicate "Off." If no power cord is attached to the "IN" receptacle, the circuit breaker status will indicate "Off", indicating there is no power available to the "OUT" receptacle.

- **208V/48A Rated Model:** (60A Maximum Over current protection Device).
- **208V/40A Rated Model:** (50A Maximum Over current protection Device).
- **208V/24A Rated Model:** (30A Maximum Over current protection Device).
- **208V/16A Rated Model:** (20A Maximum Over current protection Device)
- **208V/12A Rated Model:** (15A Maximum Over current protection Device)
- **400V/16A Rated Model:** (20A Maximum Over current protection Device)
- **120V/24A Rated Model:** (30A Maximum Over current protection Device)

- **120V/16A Rated Model:**
  (20A Maximum Over current protection Device)

CABLING

RJ-45 Cable

MRP RJ-45 pin Signals

Pin	EIA 232 Signal	Signal Direction	Description
1	DTR	Out	+10V when activated by DCD. Toggles on logout for modem disconnect.
2	GND		Signal Ground
3	RTS	Out	+10 V when power is applied. Not used as a handshake line.
4	TX	Out	Transmit (Data Out)
5	RX	In	Receive (Data In)
6	N/C	In	No Connection.
7	GND		Signal Ground
8	DCD	In	DCD into the MRP.

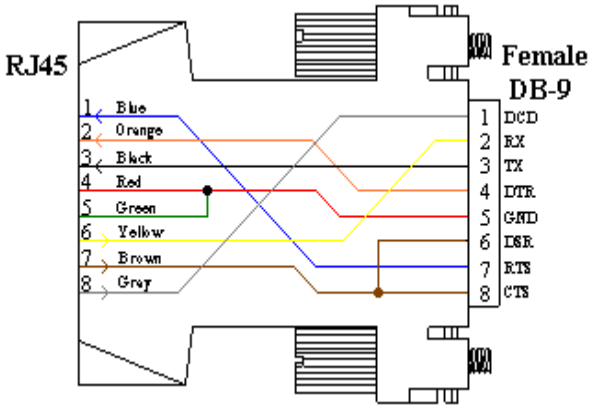
Adapter signals

Listed are the pin specifications for the BayTech cable and adapters and the terminal COM ports:

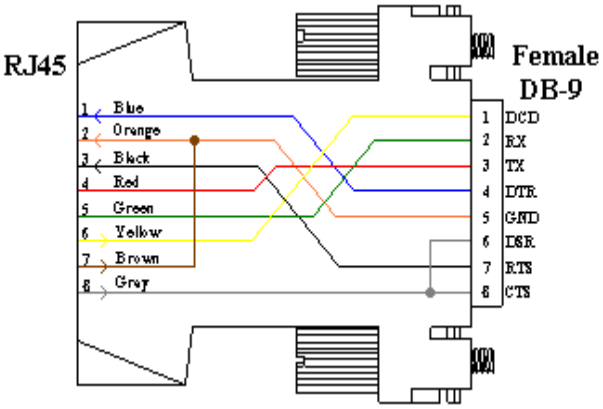
Signal	RS-232 Port (DS)	RS-232 Port (MRP)	COM Port DE-9 Pin	COM Port DB-25 Pin	Signal
DTR	1	1	4	20	DSR
GND	2	2		1	GND
RTS	3	3	7	5	CTS
TXD	4	4	3	2	RXD
RXD	5	5	2	3	TXD
DSR	6	N/C	6	6	DTR
GND	7	7	5	7	GND
CTS	8		8	4	RTS
DTR			4		DCD
DCD		8	1	8	DTR
RI	9			22	

Adapters

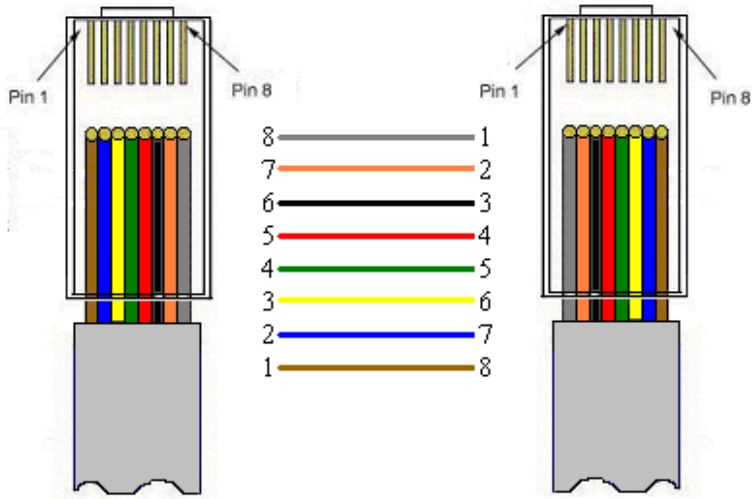
9FRJ45PC **(With Cisco Interface)**



9FRJ45PC-1 **(Without Cisco Interface)**



RJ08X007



Figures 1 and 2 provide visual representation of an RJ-45 receptacle and plug.

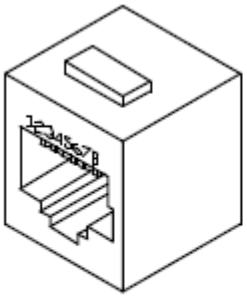


Fig. 1: RJ-45 Receptacle

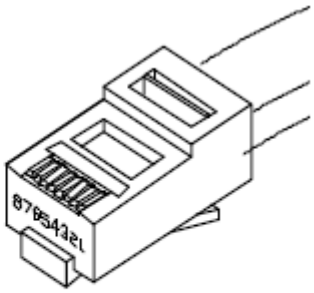


Fig. 2: RJ-45 Plug

Serial Setup

- Connect the *9FRJ45PC-1* adapter to the user's computer
- Connect the MRP EIA-232 port to the adapter via the *RJ08X007* rolled flat ribbon cable.
- Use terminal emulation software to access the unit, **9600 bps, 8 data bits, 1 stop bit and no parity, B/C switch set to 'B'**.

NOTE: Pressing 'Enter' without a menu option selected will move the menu to next higher level menu. At any time during the session you need to go to the Ethernet menu, press the **Attention Character = semi-colon (;)** 5 consecutive times.

NOTE: Password feature is case sensitive. (Default is user/password is **root/baytech**)

Operation Important:

When operating remotely, do not send the command to turn "off" a receptacle that has a host terminal or modem attached. Doing so will result in the host terminal or modem being powered down creating a "locked-out" condition. You will not be able to reestablish a connection until the receptacle has been turned "on" through the serial port.

IMPORTANT: If you send the command to "reboot" a receptacle with a host terminal or modem attached, active connection to that terminal or modem is lost and will have to be reestablished.

IMPORTANT: An assigned user is allowed one active session. The admin user is allowed four sessions running concurrently.

The green LED's correspond to the MRP receptacles. An illuminated LED signifies the corresponding outlet has power turned on, thus the attached equipment has power to it. No lit LED signifies no power to the receptacle.

Outlet Status Menu

The MRP Series are multi-user units, supporting one admin user and up to twenty-four outlet users. (Maybe more than 24 outlet users in future models) The admin user has access to all outlets, user and system configuration options, unit status, and unit reset capabilities. The outlet user's status menu displays only those outlets assigned to the user's outlet list, as set by the admin user.

NOTE: The MRP Series supports one admin user. The admin user may have four sessions running concurrently. Default user name is '**root**'. Default password is '**baytech**'. User names are case sensitive.

NOTE: Each session has an inactivity timeout of ten minutes, if there is no option to set the timeout. After ten minutes of no activity elapses, the session terminates.

***NOTE:** The MRP20 Series menu is used for demonstration through out this manual. There will be some differences in the menus dependent on the Modular series and the number of outlets on your unit.*

QUICK START: MRP Series

by **Bay Technical Associates**

For those Administrators who have requested the bare minimum for this type of equipment, follow these steps exactly. If this is a new unit shipped directly from Baytech, follow the steps. If this is a previously own unit, perform a factory reset to clear out any users and passwords still in the unit.

Outlet Control:

1. Connect the 9FRJ45PC-4 or 9FRJ45PC-1 adapter to your PC.
2. Connect the supplied rollover flat cable RJ08X007 to the adapter and to the EIA232 serial port on the Baytech MRP device.
3. Use terminal emulation software to access the unit, (i.e. Microsoft Hyper-terminal). Set the PC serial port configuration to the following: **9600 bps, 8 data bits, 1stop bit and no parity.** If your device has a **B/C** switch near the EIA232 port, set it to **'B'**.
4. If you get only a blinking cursor Press 'Enter'. If still only a blinking cursor, Type 5 semi-colons (;), there is a one second delay before the menu is displayed.
5. You should get the Outlet Status menu **(Figure 1)**. This is the outlet controller circuits. If you get the Network Menu **(Figure 7)**, select option 1, Outlet Control or Unit (MRP 20 (2, 1) . . . 1) to get to the Outlet Status menu.
6. At prompt type 'config' and press 'Enter'. You should see a menu similar to **(Figure 4)**.
7. Select number for the Manage Users option. You should see a menu similar to **(Figure 5)**.
8. **IMPORTANT NOTE:** the first user added will be the ADMIN user. Type 'A' and press 'Enter'. Type the name of the admin user. The name is case sensitive.
9. Select the user number. You should see the user in the menu similar to **(Figure 6)**.
10. Select 'Add Outlet(s)' to add a few outlets (i.e. 1, 2, 4) and press 'Enter' or select 'Add All Outlet'. A 'Y' signifies the outlet has been assigned to the user.
11. Press 'Enter' you should see a menu similar to **(Figure 5)** with the user name. Repeat steps 7 thru 10 to add other users.
12. Once you have added the users press 'Enter' until you get back to the Outlet Status menu, **(Figure 1)**. Type 'Exit'. With (Microsoft Hyper-terminal) pressing 'Enter' will reconnect to the unit outlet controller and it will ask for a use name. If this does not happen close the terminal emulator session and open it again.
13. Type the name of a user to log in. You should see a menu similar to **(Figure 1)**. The user will see only the outlets assigned to them.
14. At the prompt type 'password' and press 'Enter'. You should see prompts similar to **(Figure 3).**
15. Enter the password for the user. Repeat steps 12 thru 14 to add or change the password of the user.

At this point you have enough Outlet Control Configurations to operate this Baytech Device. Continue to the Ethernet Controller Configuration if your unit has an Ethernet port.

Ethernet Controller Configuration:

Before continuing your System Administrator needs to tell you to use DHCP or give you an IP Address, Subnet Address, and Gateway Address.

1. If this Baytech device has an Ethernet port, at the prompt of any menu type five Attention Characters (factory default is the semi-colon, {;}). The Attention Character will not echo on the screen. You should see a menu similar to **(Figure 7)**.
2. Select 'C' for the configuration menu. You should see a menu similar to **(Figure 8)**.
3. Select the number for 'Login Setup' option. You should see a menu similar to **(Figure 9)**.
4. Select the number for 'Manage Users' option. You should see a menu similar to **(Figure 12)**.
5. **NOTE: The 'root' user can not be deleted.**
6. Select 'A' to add user. Type the name and password at the prompts.

7. Press ‘Enter’ until get to the ‘Login Setup Menu’ **(Figure 9)**.
8. Select ‘Access Control’ to enable or disable the Tenet and Serial Login Prompt **(Figure 10)**.
9. Press ‘Enter’ until you get the Configuration menu **(Figure 8)**.
10. Select ‘Network Port Configuration’ option. You should see a menu similar to **(Figure 13)**.
11. If your System Administrator requires you to use DHCP, then select ‘DHCP Enable/Disable’ and type ‘Y’ to enable DHCP. If you wish to assign a static IP address to this unit, Disable the DHCP and go to step 15.
12. Press ‘Enter’ until you are asked to ‘Accept Changes’. Type ‘Y’ to accept changes or ‘N’ to decline changes.
13. After Accepting or Declining Changes you should get the Network Access Menu **(Figure 7)**.
14. Select ‘Unit reset’ to update the external connections. Once the reset is completed (1 minute) connect the Baytech device to your network using an Ethernet cable.
15. If you disabled the DHCP in step 11, you should see a menu similar to **(Figure 13)**.
16. Select the ‘IP Address’ option and type the assigned IP address and press ‘Enter’.
17. Select the ‘Subnet Mask’ option and type the assigned subnet mask address and press ‘Enter’.
18. Select the ‘Gateway Address’ option and type the assigned Gateway address and press ‘Enter’.
19. Press ‘Enter’ until you are asked to ‘Accept Changes’. Type ‘Y’ to accept changes.
20. Select ‘Unit reset’ to update the external connections. Once the reset is completed (1 minute) connect the Baytech device to your network using an Ethernet cable.

At this point you have enough basic configurations needed to operate this Baytech unit.

Status Screen: Once the serial connection is made using the terminal software, the screen will display the inherent state of the outlets, the Average Power, RMS voltage, Current and Maximum Detected Current both in Amps, circuit breaker, Internal temperature of the unit, and external temperature sensors if connected. The number of outlets displayed depends on the MRP model.

Figure 1

```
Total kW-h:    0
-------------------------------------------------------------------------------
|    Circuit     | True RMS  | Peak RMS  |  True RMS   |   Average  |  Volt-  |
|     Group      |  Current  |  Current  |   Voltage   |    Power   |  Amps   |
-------------------------------------------------------------------------------
|   Circuit C1   |  0.0 Amps |  0.0 Amps | 209.5 Volts |    0 Watts |    4 VA |
|   Circuit C2   |  0.0 Amps |  0.0 Amps | 209.5 Volts |    0 Watts |    4 VA |
|   Circuit C3   |  0.0 Amps |  0.0 Amps | 209.5 Volts |    1 Watts |    4 VA |
|   Circuit C4   |  0.0 Amps |  0.0 Amps | 207.3 Volts |    0 Watts |    4 VA |
|   Circuit C5   |  0.0 Amps |  0.0 Amps | 208.3 Volts |    1 Watts |    4 VA |
|   Circuit C6   |  0.0 Amps |  0.0 Amps | 209.6 Volts |    0 Watts |    4 VA |
-------------------------------------------------------------------------------

Int. Temp:  77.9 F
Switch 1: Open 2: Open

 1)...CKT 1 Outlet 1  : On            2)...CKT 1 Outlet 2  : On
 3)...CKT 1 Outlet 3  : On            4)...CKT 1 Outlet 4  : On
 5)...CKT 2 Outlet 1  : On            6)...CKT 2 Outlet 2  : On
 7)...CKT 2 Outlet 3  : On            8)...CKT 2 Outlet 4  : On
 9)...CKT 3 Outlet 1  : On           10)...CKT 3 Outlet 2  : On
11)...CKT 3 Outlet 3  : On           12)...CKT 3 Outlet 4  : On
13)...CKT 4 Outlet 1  : On           14)...CKT 4 Outlet 2  : On
15)...CKT 4 Outlet 3  : On           16)...CKT 4 Outlet 4  : On
17)...CKT 5 Outlet 1  : On           18)...CKT 5 Outlet 2  : On
19)...CKT 5 Outlet 3  : On           20)...CKT 5 Outlet 4  : On

Type Help for a list of commands

MRP-20>
```

Help Menu: Type *Help* followed by a <CR> to view the line commands for the Mr.'s.

Figure 2

```
MRP-20>help

On n <cr>     --Turn on an Outlet, n=0,1...36,all
Off n <cr>    --Turn off an Outlet, n=0,1...36,all
Reboot n <cr> --Reboot an Outlet, n=0,1...36,all
Status <cr>   --MRP-10 Status
Config <cr>   --Enter configuration mode
Lock n <cr>   --Locks Outlet(s) state, n=0,1...36,all
Unlock n <cr> --Unlock Outlet(s) state, n=0,1...36,all
Current <cr>  --Display True RMS Current
Voltage <cr>  --Display True RMS Voltage
Power <cr>    --Display Average Power
Clear <cr>    --Reset the maximum detected current
Temp <cr>     --Read current temperature
Logout <cr>   --Logoff
Logoff <cr>   --Logoff
Exit <cr>     --Logoff
Password <cr> --Changes the current user password
Whoami <cr>   --Displays the current user name
Unitid <cr>   --Displays the unit ID

Type Help for a list of commands

MRP-20>
```

Password setting: Once you have logged out and log back in as a user or as the administrator, you can then set the password to gain access. Type "Password"<cr>

Figure 3

```
MRP>password
Enter new Password:  *****
Re-Enter new Password: *****
Type Help for a list of
        commands
```

Power Controller Configuration Menu:

To select the configuration menu, type '**config**' at the prompt.

> **NOTE:** If the unit display with the following message, "**Configuration mode in use**" A user in the other port is in the "Configuration" menu.

Figure 4

```
MRP>config

Unit ID: MRP10
1)...Manage Users                       Add/Delete/Rename, assign outlets
2)...Change Outlet Name                 Select an outlet to change its name
3)...Enable/Disable Confirmation        Confirmation (Y/N)
4)...Enable/Disable Status Menu         Opening status of outlets
5)...Change Unit ID                     As written
6)...Change Alarm Threshold             As written
X)...Exit
```

Manage User

The User Menu allows the admin user to add and delete users, change passwords, and change the outlet list that displays a user's access to prescribed outlets. Select "Manage Users," from the configuration menu and the following menu appears if the unit has been reset or initial setup:

Figure 5

```
-------------------------------------------------------
|       User      |    Assigned Outlets                 |
|                 | 1| 2| 3| 4| 5| 6| 7| 8 9| 10| 11 | 12|
-------------------------------------------------------
-------------------------------------------------------
 A)...Add User
 D)...Delete User
 R)...Rename User
 G)...Change Outlet Group
Enter user number to assign Outlets, A, D, G or R.
Enter Request:
```

NOTE: User in position (1) will be the 'admin user' for the outlets. Older units will not display the 'delete' option until a user is added.

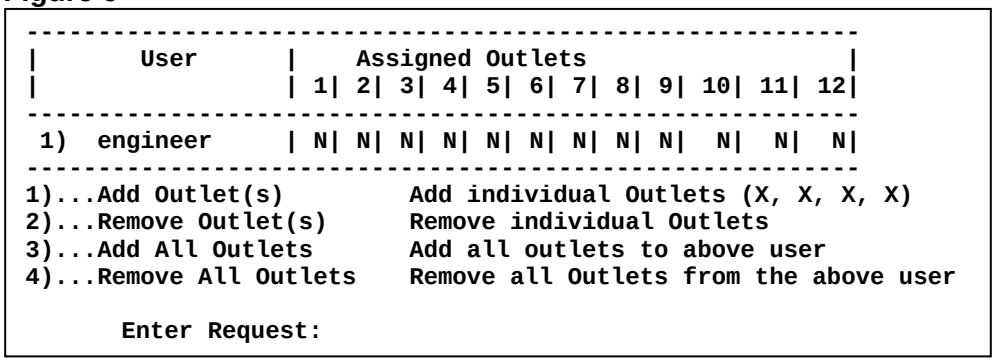
Add a User:

Select A), "Add user," from the User Management Menu. Enter the name of the user to be added, followed by <cr>. **NOTE:** User name is case sensitive.

Assigned Outlets

Select a user number from the User Management Menu, the MRP unit will display the Assign Outlet Menu:

Figure 6



NOTE: If an outlet user's list is changed while the user is logged in, their outlet list changes dynamically. If enabled, an updated outlet status report will be issued. **'Y'** means the outlet is assigned to the user. **'N'** means the outlet is NOT assigned to the user.

Change Outlet Name: Allows the administrator to change the name of the outlets.

Enable/Disable Confirmation: Enables/Disables the confirmation of choices. Example, "Turn off all outlets [Y/N]?"

Enable/Disable Status Menu: Enables/Disables the status screen. Example, the screen with the Amperage and Voltage readings is shown when you first log on to the unit.

Change Unit ID: Allows the user to change the name of the unit. The defaulted is something similar to MRP1. Allows the user to personalize or customize name or location, up to 31 alphanumeric characters.

Change Alarm Threshold: The Alarm Threshold is the value set that sounds the amperage alarm when it reaches or exceeds the amperage value indicated.

Universal Ethernet Controller Configuration:

Newer models of MRP units (with the environmental ports) show a different access menu that the MRP-NC models

Access Menu: The Access Menu screen, allows for Outlet Operations, Network Configuration, or Disconnection. To access the Network Configuration Screen, **type five Attention Characters**.

NOTE: For initial network access, the IP address, subnet mask, and gateway must be configured from the serial port. **Default setting is 0.0.0.0.**

Figure 7

```
Module: 1
Attention Character:  ;
MRP20            (2 ,1).........1
Status.........................S       Unit Status
Configure......................C       Unit Configuration menu
Unit Reset.....................RU      Terminates external connections, does not
                                       affect the outlets.
Logout.........................T

Enter Request :s
```

Figure 8

```
  Copyright(C) Bay Technical Associates 2008
  UMRP Ethernet Host Module
  Revision F 2.25.06      Module 1
  Hardware 1.00         Serial number  22222  colilo version 1.05.01

Status.........................1       Status of all network options
Serial Port Configuration.......2       Setup the Serial port EIA232
Serial Port Device Name.........3       Change the EIA232 port name
Attention Character.............4       Type 5 times to access Network Main menu.
Disconnect Timeguard............5       Data received within the delay period,
                                        is data, not attention character; thereby
                                        preventing unwanted port disconnection
Connect Port ID Echo............6       Echo port name or module# & port#
Login Setup.....................7       Login Menu Serial/Telnet/Radius/TACACS
                                        access control, manage users
Network Port Configuration......8       Network Port IP Address
Module Name.....................9       Change name of module
MRP Management.................10       Set up Voltage/Current/Sensor threshold
Firmware / Config Download.....11       Update Firmware, SSL, Configuration files
Exit........................X,CR
Enter Request :
```

Login Setup Menu

Figure 9

```
          Access Control..................1
          Manage Users....................2
          Radius Configuration............3
          TACACS Configuration............4
          Exit............................X,CR
```

Access Control

Enable or disable usernames and passwords for both network and serial port access.

Figure 10

```
Telnet Login Prompt Enable/Disable..1
Serial Login Prompt Enable/Disable..2
```

If either login has been enabled you will get a prompt similar to the following:

Figure 11

```
Universal RPC login:
Password:
```

The default user and password is "**root/baytech**", all lower case.

Manage Users

Add/delete users and change their passwords. Usernames and passwords are case sensitive and alphanumeric. **The root user can not be removed**.

Figure 12

```
User Management Menu
To change user password or port access, enter number of user.
To add/delete user, select appropriate menu choice.
SNMP V3 requires passwords that are between 8 and 31 characters long
Enter request, CR to exit menus.
  A)...Add user
  1)...root
```

Network Port Configuration

For network access, you must configure the IP addresses, Subnet Mask, and Gateway Address, or enable the DHCP. The Changes must be saved and the module reset for network changes to take effect.

Figure 13

```
Network setup :
Ethernet Address.............  00:C0:48:00:01:FD
IP Address.....................    70.150.140.89
Subnet Mask....................    255.255.255.224
Default Gateway................    70.150.140.65

Connection Inactivity Timeout (mins): Disabled
Carriage Return Translation: Enabled
Break Length (msecs):  350
DHCP is Disabled   Telnet is Enabled    SSH is Enabled
SSH host keys are set to factory default

IP Address.....................1
Subnet Mask....................2
Gateway Address................3
Inactivity Timeout.............4
Carriage Return Translation....5
Break Length...................6
DHCP Enable/Disable............7
Telnet Enable/Disable..........8
SSH Enable/Disable.............9
SSH Host Key Generation.......10
IP Filter Configuration.......11
SNMP Configuration............12
Web Server Configuration......13
Exit..........................X,CR

Enter Request :
```

Detail Operations and Configurations

Opening Menu Status

IMPORTANT: The Factory default serial communications parameters are **9600 bps, 8 data bits, 1 stop bit, and no parity; B/C switch set to 'B'.**

With a proper connection to the unit upon power-up or unit reset, the following initialization and Status menu will be displayed except the number of outlets will be dependent on the specific MRP unit:

```
MRP-20 Series
(C) 2008 BayTech
F1.03

Option(s) Installed:
True RMS Voltage
True RMS Current
Internal Temperature


Total kW-h:    0
-------------------------------------------------------------------------------
|    Circuit     | True RMS  | Peak RMS  |  True RMS   |   Average  |  Volt-  |
|     Group      |  Current  |  Current  |   Voltage   |    Power   |  Amps   |
-------------------------------------------------------------------------------
|   Circuit C1   |  0.0 Amps |  0.0 Amps | 209.8 Volts |    0 Watts |    4 VA |
|   Circuit C2   |  0.0 Amps |  0.0 Amps | 209.8 Volts |    0 Watts |    4 VA |
|   Circuit C3   |  0.0 Amps |  0.0 Amps | 209.5 Volts |    1 Watts |    4 VA |
|   Circuit C4   |  0.0 Amps |  0.0 Amps | 207.5 Volts |    0 Watts |    4 VA |
|   Circuit C5   |  0.0 Amps |  0.0 Amps | 208.5 Volts |    0 Watts |    4 VA |
|   Circuit C6   |  0.0 Amps |  0.0 Amps | 209.6 Volts |    0 Watts |    4 VA |
-------------------------------------------------------------------------------

Int. Temp:  77.0 F
Switch 1: Open 2: Open

 1)...CKT 1 Outlet 1  : On            2)...CKT 1 Outlet 2  : On
 3)...CKT 1 Outlet 3  : On            4)...CKT 1 Outlet 4  : On
 5)...CKT 2 Outlet 1  : On            6)...CKT 2 Outlet 2  : On
 7)...CKT 2 Outlet 3  : On            8)...CKT 2 Outlet 4  : On
 9)...CKT 3 Outlet 1  : On           10)...CKT 3 Outlet 2  : On
11)...CKT 3 Outlet 3  : On           12)...CKT 3 Outlet 4  : On
13)...CKT 4 Outlet 1  : On           14)...CKT 4 Outlet 2  : On
15)...CKT 4 Outlet 3  : On           16)...CKT 4 Outlet 4  : On
17)...CKT 5 Outlet 1  : On           18)...CKT 5 Outlet 2  : On
19)...CKT 5 Outlet 3  : On           20)...CKT 5 Outlet 4  : On

Type Help for a list of commands

MRP-20>
```

NOTE: The outlet user sees only the outlets assigned to them by the admin user.

Type 'HELP' at the MRP prompt will display a list of commands to change the state of the outlets, unit configuration, and internal sensor measurements.

HELP Options

```
MRP-20>help

On n <cr>     --Turn on an Outlet, n=0,1...36,all
Off n <cr>    --Turn off an Outlet, n=0,1...36,all
Reboot n <cr> --Reboot an Outlet, n=0,1...36,all
Status <cr>   --MRP-20 Status
Config <cr>   --Enter configuration mode
Lock n <cr>   --Locks Outlet(s) state, n=0,1...36,all
Unlock n <cr> --Unlock Outlet(s) state, n=0,1...36,all
Current <cr>  --Display True RMS Current
Voltage <cr>  --Display True RMS Voltage
Power <cr>    --Display Average Power
Clear <cr>    --Reset the maximum detected current
Temp <cr>     --Read current temperature
Logout <cr>   --Logoff
Logoff <cr>   --Logoff
Exit <cr>     --Logoff
Password <cr> --Changes the current user password
Whoami <cr>   --Displays the current user name
Unitid <cr>   --Displays the unit ID

Type Help for a list of commands

MRP-20>
```

Receptacle Controls

On, Off, Reboot, Lock, and **Unlock** are commands to control the individual outlets.
From the (MRP >) prompt, enter one of the following commands: ON n, OFF n, REBOOT n, where "n" is the outlet number you want to command.
Example: To turn "On" Outlet 3, type **ON 3** from the MRP prompt. If the confirmation option is turned on, the MRP will display the following:

```
Turn On Outlet 3 (Y/N)?
```

Type "Y" for yes or "N" for no. Likewise, typing **'ON ALL', 'ON 0', or 'ON'** at the MRP > prompt and responding "Y" for yes, turns 'On' **all** outlets. The **OFF n** command work similarly as the **ON n** command.

The **REBOOT n** command will reboot or reset equipment attached to corresponding receptacle(s). When the command to REBOOT (n) is sent from the MRP > prompt, the MRP powers '**Off**' the corresponding outlet(s) for approximately 10 seconds, then powers them '**On**' in sequence.
This command only works on outlets which were 'On' prior to receiving the reboot command.

The **LOCK n** command is an **admin user** only command. This command allows the admin user to lock an outlet in its current state. The user assigned to the outlet will not be able to change the outlet's state.

Example: To lock Outlet 1, type lock 1 at the MRP prompt.

```
MRP20>lock 1,
Lock Outlet 1 (Y/N)? y
```

Type "Y" for yes or "N" for no. The status of Outlet 1 will be changed to '**Locked**'. Likewise, typing **'LOCK ALL', 'LOCK 0', or 'LOCK'** at the MRP > prompt and responding "Y" for yes, **locks all** outlets. The **UNLOCK n** command works similarly as the **LOCK n** command.

Status

Status is the opening outlet screen which shows the status of the circuit level, i.e. circuit breaker, current, voltage, power; and individual outlets, on, off, locked

Configuration Menu

The Outlet Configuration Menu allows the 'admin' user to manage the Users, Outlet Name, Confirmation menu, Status menu, Unit ID, and Alarm threshold.

Display Current Electrical Characteristics:

Type '***current***' at the prompt to show the unit's True RMS Current and Peak RMS Current, and the MRP will display the following:

Circuit Group	True RMS Current	Peak RMS Current
Circuit C1	0.0 Amps	0.0 Amps
Circuit C2	0.0 Amps	0.0 Amps
Circuit C3	0.0 Amps	0.2 Amps
Circuit C4	0.7 Amps	1.1 Amps
Circuit C5	1.5 Amps	1.5 Amps
Circuit C6	0.9 Amps	1.0 Amps

Type '***clear***' at the prompt to reset the Peak RMS Current, the MRP will redisplay the status menu with the new maximum detected current.

Type '***voltage***' at the prompt to display the unit's True RMS Voltage, and the MRP will display the following:

Circuit Group	True RMS Voltage
Circuit C1	210.8 Volts
Circuit C2	211.0 Volts
Circuit C3	209.6 Volts
Circuit C4	210.5 Volts
Circuit C5	209.3 Volts
Circuit C6	209.4 Volts

Type '***power***' at the prompt to show the unit's Average Power and the MRP will display the following:

```
Total kW-h: 7255
----------------------------------------
|    Circuit     |  Average  |  Volt-  |
|     Group      |   Power   |  Amps   |
----------------------------------------
|   Circuit C1   |   0 Watts |    3 VA |
|   Circuit C2   |   2 Watts |    3 VA |
|   Circuit C3   |   0 Watts |    3 VA |
|   Circuit C4   |  44 Watts |  175 VA |
|   Circuit C5   |  99 Watts |  316 VA |
|   Circuit C6   |  71 Watts |  212 VA |
----------------------------------------
```

Type '***temp***' at the prompt to show the unit's current temperature, the MRP will display the following:

```
Int. Temp:  95.9 F  Ext. 1:  72.1 F : 31.5% RH  Ext. 2:  70.9 F
```

NOTE: MRP units with external sensor ports will be displayed as Ext 1 and/or Ext 2. Ext 1 is a temperature and humidity combo probe, (72.1 F : 31.5% RH).

Logging Out

Type ***Logout***, ***Logoff***, or ***Exit*** at the prompt to logoff from the unit.

Current User Password:

Type '***password***' at the prompt to change the current user's password and the MRP will display the following:

```
Enter new Password:

RE-Enter new Password:
```

If the current user already has a password the MRP will display the following:

```
Enter old Password:
Enter new Password:

RE-Enter new Password:
```

NOTE: If you do not have the user's current password, delete the user. Reinstall user. Select option to change password and the MRP will respond asking for a new password.

Identify Current User

Type '***whoami***' at the prompt to determine the current user, the MRP displays the following:

```
Current User: root
```

To change the user logout of the unit and log back in using the new user name.

Unit Identification

Type '***unitid***' at the prompt to determine the Unit ID, the MRP displays the following:

```
Unit ID: MRP20 Cab2
```

To change the unit ID, go the Outlet Configuration menu and select 'Change Unit ID' option. The maximum field length is 32 or 16 for older units.

MRP Configuration Menu

To select the configuration menu, type '**config**' at the prompt.

```
MRP 20>config

Unit ID: MRP20

1)...Manage Users                       Add/Delete/Rename, assign outlets
2)...Change Outlet Name                 As written
3)...Enable/Disable Confirmation        Confirmation (Y/N)
4)...Enable/Disable Status Menu         Display status of outlets
5)...Change Unit ID                     As written
6)...Change Alarm Threshold             As written
7)...Change Display Orientation         As written
X)...Exit
```

User Management

The User Menu allows the admin user to add and delete users, change passwords, and change the outlet list that displays a user's access to prescribed outlets. Select "Manage Users," from the configuration menu and the following menu appears if the unit has been reset or initial setup:

```
-----------------------------------------------
|       User      |      Assigned Outlets     |
|                 | C1,1 | C1,2 | C1,3 | C1,4 |
-----------------------------------------------
-----------------------------------------------
 A)...Add User
 D)...Delete User
 R)...Rename User
 C)...Change Circuit Group
Enter user number to assign Outlets, A, D, C or R.
Enter Request:
```

NOTE: The outlets displayed are in assigned groups. In this example the there are three groups of 10-receptacles. Select option 'C' to get to the other outlet groups.

If optional outlet users have been added, the following User Menu will show the users.

NOTE: the first assigned user will be the 'admin user' for the outlets.

NOTE: Older units will not display the 'delete' option until a user is added.

```
---------------------------------------------
|       User      |      Assigned Outlets     |
|                 | C1,1 | C1,2 | C1,3 | C1,4 |
---------------------------------------------
1)...John         |  Y   |  Y   |  Y   |  Y   |
---------------------------------------------
 A)...Add User
 D)...Delete User
 R)...Rename User
C)...Change Circuit Group
Enter user number to assign Outlets, A, D, C or R.
Enter Request:
```

Add a User:

If the "Add user" option is **NOT** present than the maximum number of users have been assigned. You may get a message saying '*No more users can be added'*.

Select A), "Add user," from the User Management Menu. The MRP Unit will display the following:

```
Enter user name:
```

Enter the name of the user to be added, followed by <cr>. The MRP will display the User Menu with the added user.

NOTE: User name is case sensitive.

Delete a User:

Select D), "Delete user," from the User Management Menu. The MRP Unit will display the following:

```
Enter number for user to delete:
```

Type the number of the user to be deleted, followed by <cr>. The MRP will display the User Menu minus the deleted user.

NOTE: If an outlet user is deleted and is logged in at the time, the outlet user will be disconnected. If you delete the user in the first position, the MRP will display the following:

```
You are deleting the current admin user.  The next user will become the admin user,
do you want to continue. (Y/N)?
```

WARNING: If the unit has not had a power cycle or unit reset command performed recently, before you delete the user in the first position, perform a unit reset command from the main menu. This action will prevent the unit from having **NO Admin** user assigned even though the first position user was deleted and there is a second user assigned. If the **NO Admin** condition occurs, ***reset the unit to factory defaults***.

Rename a User:

Select R), "Rename user", from the User Management Menu, the MRP unit will display the following:

```
Enter user number to rename:
```

Type the number of the user to be renamed, followed by <cr>. The MRP unit will display the following:

```
Enter user name:
```

The MRP Series redisplays the User Menu with the renamed user.

Change Circuit Grouping:

Select C). “Change Circuit Group”, from the User Management Menu, the MRP displays the next outlet group. In this example there are three outlet groups. Selecting

```
-----------------------------------------------
|       User      |      Assigned Outlets     |
|                 | C2,1 | C2,2 | C2,3 | C2,4 |
-----------------------------------------------
-----------------------------------------------
 A)...Add User
 D)...Delete User
 R)...Rename User
 C)...Change Circuit Group
Enter user number to assign Outlets, A, D, C or R.
Enter Request:
```

Assigned Outlets

The Assigned Outlet Menu displays the outlets a user can access.
Select a user number from the User Management Menu, the MRP unit will display the Assign Outlet Menu:

```
-----------------------------------------------
|       User      |      Assigned Outlets     |
|                 | C2,1 | C2,2 | C2,3 | C2,4 |
-----------------------------------------------
 1)...John        |   Y  |   Y  |   Y  |   Y  |
-----------------------------------------------
1)...Add Outlet(s)               Add individual Outlets followed by a comma
2)...Remove Outlet(s)            Remove individual Outlets
3)...Add All Outlets             Add all outlets to above user
4)...Remove All Outlets          Remove all Outlets from the above user

Enter Request:
```

NOTE: If an outlet user’s list is changed while the user is logged in, their outlet list changes dynamically. If enabled, an updated outlet status report will be issued. **‘Y’** means the outlet is assigned to the user. **‘N’** means the outlet is NOT assigned to the user.

Select 1) Add Outlet(s) to assign outlets to a user. The MRP will display the following:

```
Enter Outlet number(s):
```

Type the number of the outlet to be assign. For example, if you want engineer to have access to Outlet 2, enter the number 2, followed by <cr>. If you want engineer to have access to Outlets 2, 5, and 8 enter the numbers 2, 5, and 8 separated by commas: 2, 5, 8, followed by <cr>.
The MRP Unit redisplays the Assigned Outlet Menu of the user with a ‘**Y**’ for the assigned outlets.

Select 2) Remove Outlet(s) to remove an outlet from a user. The MRP will display the following:

```
Enter Outlet number(s):
```

Type the number of the outlet to be removed from the user’s access. For example, if you want to remove Outlet 2 from the engineer’s access, enter the number 2, followed by <cr>. If you want to

remove Outlets 2, 5, and 8 enter the numbers 2, 5 and 8 separated by commas: 2, 5, 8, followed by <cr>. The MRP Unit redisplays the Assigned Outlet Menu of the user with an '**N**' for the outlets NOT assigned.

Select 3) Add All Outlets, to user access. The MRP will display the user access with **'Y'** for all outlets

Select 4) Remove All Outlets from user access. The MRP will display the user access with **'N'** for all outlets

Change Outlet Name

Select "Change Outlet Name" from the main menu to change the status of receptacles. The following status menu appears:

```
 1)...Outlet  1          2)...Outlet  2
 3)...Outlet  3          4)...Outlet  4
 5)...Outlet  5          6)...Outlet  6
 7)...Outlet  7          8)...Outlet  8
 9)...Outlet  9         10)...Outlet 10
11)...Outlet 11         12)...Outlet 12
13)...Outlet 13         14)...Outlet 14
15)...Outlet 15         16)...Outlet 16
17)...W2K_1             18)...W2K_2
19)...W2K3_1            20)...W2K3_2
21)...Outlet 21         22)...Outlet 22
23)...Outlet 23         24)...Outlet 24
Enter Request:
```

Type the number of the outlet to be changed. For example to change the name of Outlet 4, type the number 4 at the "Enter Request" prompt, followed by <cr>. The MRP will display the following:

```
Current Outlet: Outlet  4
Modify (Y/N)? y
```

Type 'N' to keep the same name, or type 'Y' to change the name. The MRP will display:

```
Enter :
```

Type a new receptacle name (maximum 16 characters), followed by <cr>. For example, change the name of Outlet 4 to Router 1 by typing Router 1 at the "Enter Request" prompt, followed by <cr>. The MRP redisplays the outlet menu with the new name to Outlet 4.

Enable/Disable Confirmation

Select "Enable/Disable Confirmation." from the main menu. The MRP unit will display the following:

```
Disable Confirmation  (Y/N)? n
```

Default setting is Enabled.

Type 'Y' to disable the confirmation option, or type 'N' to enable. If the confirmation feature is enabled and a command is sent to TURN ON, TURN OFF, OR REBOOT a receptacle, the MRP will ask to confirm the command. For example, the command "ON 3" is sent, and the MRP will display the following:

```
Turn On Outlet 3? (Y/N)
```

If this feature is disabled, the MRP will perform the command and redisplay the previous menu.

Enable/Disable Status Menu

Select “Enable/Disable Status Menu.” from the configuration menu, to enable the Status menu. The MRP will display the option to change the current status:

```
Disable Status Menu  (Y/N)? n
```

Default setting is Enabled.

If this feature is disabled, only the MRP> prompt appears, else the following status menu appears.

```
Unit ID: MRP 20
Total kW-h: 7256
-------------------------------------------------------------------------------
|    Circuit     | True RMS  | Peak RMS  |  True RMS   |   Average  |  Volt-  |
|     Group      |  Current  |  Current  |   Voltage   |    Power   |  Amps   |
-------------------------------------------------------------------------------
|   Circuit C1   |  0.0 Amps |  0.0 Amps | 208.6 Volts |    0 Watts |    3 VA |
|   Circuit C2   |  0.0 Amps |  0.5 Amps | 207.5 Volts |    0 Watts |    3 VA |
|   Circuit C3   |  0.1 Amps |  0.5 Amps | 207.9 Volts |    0 Watts |   28 VA |
|   Circuit C4   |  0.6 Amps |  1.4 Amps | 208.0 Volts |   65 Watts |  143 VA |
|   Circuit C5   |  1.4 Amps |  1.6 Amps | 206.8 Volts |   72 Watts |  306 VA |
|   Circuit C6   |  0.9 Amps |  1.0 Amps | 208.2 Volts |   74 Watts |  204 VA |
-------------------------------------------------------------------------------
Int. Temp: 100.4 F
Switch 1: Open 2: Open

 1)...CKT 1 Outlet 1  : On            2)...CKT 1 Outlet 2  : On
 3)...CKT 1 Outlet 3  : On            4)...CKT 1 Outlet 4  : On
 5)...CKT 2 Outlet 1  : On            6)...CKT 2 Outlet 2  : On
 7)...CKT 2 Outlet 3  : On            8)...CKT 2 Outlet 4  : On
 9)...CKT 3 Outlet 1  : On           10)...CKT 3 Outlet 2  : On
11)...CKT 3 Outlet 3  : On           12)...CKT 3 Outlet 4  : On
13)...CKT 4 Outlet 1  : On           14)...CKT 4 Outlet 2  : On
15)...CKT 4 Outlet 3  : On           16)...CKT 4 Outlet 4  : On
17)...CKT 5 Outlet 1  : On           18)...CKT 5 Outlet 2  : On
19)...CKT 5 Outlet 3  : On           20)...CKT 5 Outlet 4  : On
21)...CKT 6 Outlet 1  : On           22)...CKT 6 Outlet 2  : On
23)...CKT 6 Outlet 3  : On           24)...CKT 6 Outlet 4  : On

Type Help for a list of commands
MRP-10>
```

Change Unit ID

Select “Change Unit ID” from the configuration menu. The MRP will display the following:

```
Unit ID: MRP20
Modify (Y/N)? y
Enter New Unit ID: Cab7_Rack1
```

The default ID is the unit’s number, in this case **MRP 20**

Change Alarm Threshold

The Current Alarm Threshold allows the user to set the current level for the internal alarm to sound. This setting is only available on units with current monitoring circuitry.

Select “Change Alarm Threshold.” from the configuration menu, The MRP will display the following:

```
Circuit 1 buzzer alarm value :  12.0 Amps
Modify (Y/N)? y
Enter: 12
```

Type 'N' to keep the current value or type 'Y' to change the value and enter the new value, followed by <cr> and the MRP will display next outlet group.

```
Circuit 2 buzzer alarm value :  12.0 Amps
Modify (Y/N)? y
Enter: 12

Circuit 3 buzzer alarm value :  12.0 Amps
Modify (Y/N)? y
Circuit 4 buzzer alarm value :  12.0 Amps
Modify (Y/N)? y
Circuit 5 buzzer alarm value :  12.0 Amps
Modify (Y/N)? y
Circuit 6 buzzer alarm value :  12.0 Amps
Modify (Y/N)? y
```

Default setting is approximately 80% of unit's maximum current.

Change Display Orientation

The Change Display Orientation allows the user to rotate the data on the LCD display upside down. They unit will display one of the following:

```
a. Flip Display  (Y/N)? (This says the LCD is in the normal position)
   or
b. Normal Display  (Y/N)? (This says the LCD is already flipped)
```

NETWORK ACCESS CONFIGURATION

NOTE: For initial network access, the IP address, subnet mask, and gateway must be configured from the serial port. **Default setting is 0.0.0.0.**

NOTE: The menu options may be in a different order or grouping, but the information provided is correct for the specific option.

NOTE: Once the network parameters, IP Address, Subnet Mask, and Gateway Address have been changed a unit reset is require.

NOTE: If the following menu does not appear when you log into the MRP unit through the serial or Ethernet port, type the semi-colon 5 times (**;;;;;**), or the assigned attention character.

```
    Module: 1
    Attention Character:  ;
    MRP20           (2,1).........1
    Status.........................S   Unit Status
    Configure......................C   Unit Configuration menu
    Unit Reset.....................RU  Terminates external connections, does not
                                       affect the outlets.
    Logout.........................T

  Enter Request :s
```

Outlet Control or " Unit Name (2, 1)"

Selecting this option terminates the Network Access and the unit will display the OUTLET STATUS MENU. Refer to Opening Menu Status at beginning of manual.

Status Menu

```
      URPC Status Menu.
      Enter selection, CR to exit.

      Overall System Status.............1     Available memory, System up time
      Network Status....................2     IP address, MAC, packets
      Logged Users......................3     Active users, admin terminates users
      Memory Usage......................4     Memory statuses
      Current Routing Cache.............5     Current routing caches
      Route Setup.......................6     Routing table
      Processes.........................7     Processes in memory
      UnitInfo Database.................8     Data collection

      Enter Request :
```

Overall System Status

System Status provides information about the local memory, how many TCP sockets are in use, and the time the unit has been operating since the last unit reset or power up.

```
System Status:
  Available local memory:  7598080
  TCP sockets in use:        0
  System up time (dd:hh:mm:ss): 0:00:50:10
Press ENTER to continue
```

Network Status

Network Status contains the MAC address, IP address, Mask, TX/RX packets and their status.

```
eth0     Link encap:Ethernet  HWaddr 00:C0:48:00:01:FD
         inet addr:192.168.2.136  Bcast:192.168.2.255  Mask:255.255.255.0
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:100
         Base address:0x840

lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         UP LOOPBACK RUNNING  MTU:16436  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:0

 Press ENTER to continue
```

Logged Users

```
C=configuration user   *=current process
Active Users:
  #  USER      FROM            INTERNAL CONN STATUS PID
  1  root      localhost                     Normal  23
C 2  root      70.150.140.69                 Normal  490
* 3  root      70.150.140.66                 Normal  492

  Strike T, CR to terminate a connection/process, CR to continue :
```

This option shows the name of the user account, the type of interface (serial or network) and the status of the active sessions.

Terminate a session by typing "**T**" at the prompt. The MRP will display the following:

```
Enter number of connection to terminate, CR :
```

Memory Usage

```
        total:    used:    free:  shared: buffers:  cached:
Mem:  11735040  4136960  7598080        0   380928   458752
Swap:        0        0        0
  Press ENTER to continue
```

Current Routing Cache

IP Data currently held in cache or none upon power cycle.

```
Kernel IP routing cache
Source          Destination    Gateway         Flags Metric Ref    Use Iface
66.186.36.195   70.150.140.86  70.150.140.86   l     0      0        1 lo
70.150.140.86   66.186.36.195  70.150.140.65         0      0        0 eth0
70.150.140.69   70.150.140.86  70.150.140.86   il    0      0      154 lo
207.206.133.250 70.150.140.86  70.150.140.86   l     0      0       76 lo
        Press ENTER to continue
```

Route Setup

Every TCP/IP client machine, regardless of operating system, needs to make decisions about where to send a packet after it has been addressed. The route table is the network map that tells your Baytech product how to deliver the packet to its network addressee.

- Destination, is a list of routes. “0” represents any number.
- Gateway is the network gateway for the route. The connection point to your company network.
- Genmask defines how closely an address must match the network destination, octet by octet, to use the route.
- Iface, interface used to reach the network gateway, in this case Baytech network card.

```
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
192.168.2.0     *               255.255.255.0   U     0      0        0 eth0
127.0.0.0       *               255.0.0.0       U     0      0        0 lo
default         192.168.2.1     0.0.0.0         UG    0      0        0 eth0
Press ENTER to continue
```

Processes

Processes are a list of commands used by the firmware to operate.

```
  PID PORT STAT SIZE SHARED %CPU COMMAND
    1      S    133K     0K  0.2 init
    2      S      0K     0K  0.0 keventd
    6      S      0K     0K  0.0 kupdated
   11      R     43K     0K 99.3 baytechd
   12      S     13K     0K  0.1 mdmautologind
   13   S0 S     13K     0K  0.1 /bin/autologind
   14      S     14K     0K  0.0 /bin/inetd
   17      S    133K     0K  0.1 rpccmdd
   18      S     13K     0K  0.0 snmppolld
   19      S   1833K     0K  0.0 snmpd
   25   S0 R     71K     0K  1.0 ds62

    Strike T, CR to terminate a connection/process, CR to continue :
```

Type ‘T’, and the unit displays:

```
Enter PID process to terminate, CR:
```

Enter a PID number and press ‘Enter’ to terminate the process.

> **IMPORTANT:** If a process is terminated, the functionality of the unit maybe interrupted. To reestablish the unit’s functionality, power the unit off than on.

Unit Info Database

```
unitInfo->portUser 0
unitInfo->cfgUser 0
unitInfo->connState 0
unitInfo->connPid 0
unitInfo->buildUserTableFlag 0
unitInfo->kill_poller 0
unitInfo->background_polling=0
bcTable->connAttempt=0
hit ENTER to continue
```

Configuration Menu:

NOTE: If the unit display with the following message, "**Configuration mode in use**" A user in the other port is in the "Configuration" menu

```
  Copyright(C) Bay Technical Associates 2008
  URPC Ethernet Host Module
  Revision F 2.25.06      Module 1
  Hardware 1.00         Serial number  22222    colilo version 1.05.01

Status.........................1       Status of all network options
Serial Port Configuration.......2       Setup the Serial port EIA232
Serial Port Device Name.........3       Change the EIA232 port name
Attention Character.............4       Type 5 times to access Network Main menu.
Disconnect Timeguard............5       Data received within the delay period,
                                        is data, not attention character; thereby
                                        preventing unwanted port disconnection
Connect Port ID Echo............6       Echo port name or module# & port#
Login Setup.....................7       Login Menu Serial/Telnet/Radius/TACACS
                                        access control, manage users
Network Port Configuration......8       Network Port IP Address
Module Name.....................9       Change name of module
RPC Management.................10       Set up Voltage/Current/Sensor threshold
Firmware/Config Download.......11       Update Firmware, SSl, Configuration files
Exit........................X,CR
Enter Request :
```

Configuration Status:

Status used to view the current configuration of network setup, login setup, SNMP and Web configuration and RADIUS server information.

```
  Installed Modules :01
  Attention Character is ......... ;
  Disconnect Time Guard is........ Disabled
  Port ID Echo is................. Disabled
  Module Name is.................. Universal RPC
  Network Connectivity & Login Configuration:
  Ethernet Address.............  00:C0:48:35:DD:40
  IP Address...................... 192.168.2.214
  Subnet Mask..................... 255.255.255.0
  Default Gateway................. 192.168.2.1
  Inactivity Timeout (mins)....... Disabled
  Break Length (msecs)............ 350
  Telnet.......................... Enabled
  SSH............................. Enabled
  DHCP............................ Disabled
  Telnet login prompt is.......... Enabled
  Serial login prompt is.......... Disabled
  RPC Cascade Mode is............. Disabled

SNMP & Web Configuration:
  SNMP Agent is................... Enabled
  SNMPv3 only is.................. Disabled
  SNMP Trap Host 1 Address........ 192.168.2.130
  SNMP Trap Host 2 Address........ 0.0.0.0
  SNMP Trap Host 3 Address........ 0.0.0.0
  SNMP Trap Host 4 Address........ 0.0.0.0
  SNMP Read-Only Community........ public
  SNMP Read-Write Community....... private

  Web Server is................... Enabled
  Web Login is.................... Disabled
  Web Secure Connection is........ Disabled
  Web Activity Timeout is......... Disabled

  Radius Setup:
  Radius Logins are..............  Disabled
  Radius Primary Server Address...  0.0.0.0
  Radius Backup Server Address....  0.0.0.0
  Radius Secret...................  HardlyASecret
  Radius Login Timeout............  5
  URPC Usernames as Backup is....   Disabled

  TACACS Setup:
  TACACS Logins are..............  Disabled
  TACACS Server Address..........  0.0.0.0
  TACACS Server Address..........  0.0.0.0
  TACACS Secret..................  HardlyASecret
  TACACS encryption is...........  Enabled
  URPC Usernames as Backup is....   Disabled
  TACACS Server Port is..........  49
  TACACS DS62 privilege level is..  Disabled
  TACACS DS62 privilege level.....  15
```

Serial Port Configuration

Handshaking, Baud Rate, Word Size, Stop Bits, and Parity are configured through either the serial or Ethernet ports using the menus. RTS and DTR Line Drivers can only be configured through the phone line via a modem. The **default settings** are **9600bps, 8 data bits, no parity, one stop bit, RTS and DTR High**.

> **IMPORTANT:** Communications with the terminal computer connected to the port will be lost until the serial port configuration of the terminal computer matches the MRP serial port.

```
+----+------+----------------+------+------+------+------+---------+----+----+
|Port|Device|    Device      | Baud | Word | Stop |Parity|Handshake|LineDrive|
|    | Type |     Name       | Rate | Size | Bits |      |         |DTR |RTS |
+----+------+----------------+------+------+------+------+---------+----+----+
|  1 | RS232| EIA-RS232      | 9600 |  8   |  1   | None | None    | HI | HI |
+----+------+----------------+------+------+------+------+---------+----+----+

  Handshaking.....................1
  Baud Rate.......................2
  Word Size.......................3
  Stop Bits.......................4
  Parity..........................5
  RTS Line Driver Inactive State...6
  DTR Line Driver Inactive State...7

  Enter Request :1
```

Handshaking

For a simple communication between modems three connected lines are needed: TX, Rx, and Ground. For the data to be transmitted, both sides have to be clocking the data at the same baud rate. While this method is sufficient for most applications, it is limited in being able to respond to problems such as the receiver getting overloaded. This is where serial handshaking can help.

Select 1), for the Handshaking menu, **Default is None**, the MRP display with the following:

```
Select handshaking:
  1 For None
  2 For Software Handshaking
  3 For Hardware Handshaking
 Enter Request :
```

Type the number of the handshaking option and press <cr>.

Software Handshaking: This style uses actual data bytes as control characters. The lines necessary are TX, Rx, and ground since the control characters are sent over the transmission line like regular data. The two control characters, XON and XOFF are characters sent by the receiver of the data to halt the transmitter during communication.

NOTE: A drawback to this method is also the most important fact to keep in mind. In ASCII transmissions these character values are non-character values; however, data being transmitted via binary, it is very likely that these values could be transmitted as data and the transmission would fail.

Hardware Handshaking: This style uses actual hardware lines. Like the TX and Rx lines, the RTS/CTS and DTR/DSR lines work together. When a receiver is ready for data, it will assert the RTS (Request to Send) line. This is then read by the sender at the CTS (Clear to Send) input, indicating it is clear to send the data. DTR (Data Terminal Ready) and DSR (Data Set Ready) allow the serial port and the modem to communicate their status. When the modem is ready for data to be sent, it will assert the DTR line indicating that a connection has been made across the phone line. This is read in through the DSR line and the modem can begin to send data. The general rule of thumb is that the DTR/DSR lines are used to indicate that the system is ready for communication where the RTS/CTS lines are used for individual packets of data.

Baud Rate

Select 2), Baud Rate is the rate the modem transfers Data bites per second, **Default is 9600,** the MRP displays the following:

```
Select baud rate:
 1 For   300
 2 For   600
 3 For  1200
 4 For  2400
 5 For  4800
 6 For  9600
 7 For 19200
 8 For 38400
 9 For 57.6K
 A For 115.2K
 Enter Request :
```

Type the number to select the Baud Rate and press <cr>.

Word Size

The word size is the measurement of the actual data bits in a transmission. Which setting you choose depends on what information you are transferring. For example, standard ASCII has values from 0 to 127 (7 bits). Extended ASCII uses 0 to 255 (8 bits). If the data being transferred is simple text (standard ASCII), sending 7 bits of data per packet is sufficient for communication. A packet refers to a single byte transfer, including start/stop bits, data bits, and parity.

Select 3), to get the Word Size, **Default is 8** the MRP displays the following:

```
Select word size:
  1 For    5
  2 For    6
  3 For    7
  4 For    8
Enter Request :
```

Type the number to select the Word Size and press <cr>.

Stop Bits

The Stop Bits are used to signal the end of communication for a single packet. Since the data is clocked across the lines and each device has its own clock, it is possible for the two devices to become slightly out of sync. Therefore, the stop bits not only indicate the end of transmission but also give the computers some room for error in the clock speeds. The more bits that are used for stop bits, the greater the lenience in synchronizing the different clocks, but the slower the data transmission rate.

Select 4), to get the Stop Bits, **Default is 1** the MRP displays the following:

```
Select stop bits:
  1 For    1
  2 For    1.5
  3 For    2
  Enter Request :
```

Type the number to select the Stop Bits option and press <cr>.

Parity

Parity is a simple form of error checking used in serial communication. For even and odd parity, the serial port will set the parity bit (the last bit after the data bits) to a value to ensure that the transmission has an even or odd number of logic high bits. For example, if the data was 011, then for even parity, the parity bit would be 0 to keep the number of logic high bits even. If the parity was odd, then the parity bit would be 1, resulting in 3 logic high bits. This allows the receiving device to know the state of a bit so as to enable the device to determine if noise is corrupting the data or if the transmitting and receiving devices' clocks are out of sync.
With no parity selected, it's assumed that there are other forms of checking that will detect any errors in transmission. No parity also usually means that the parity bit can be used for data, speeding up transmission. In modem-to-modem communication, the type of parity is coordinated by the sending and receiving modems before the transmission takes place.

Select 5) to get the Parity, **Default is None** the MRP displays the following:

```
Select parity:
  1 For  None
  2 For  Even
  3 For   Odd
  Enter Request :
```

Type the number to select the Parity option and press <cr>.

RTS/DTR Line Driver Inactivity State

RTS (Request to Send)/ DTR (Data Terminal Ready) is normally used in conjunction with an external modem. With no modem the RTS and DTS **default state is High.**

Select 6), to get the RTS driver state, the MRP displays the following:

```
RTS Line Driver Inactive State is: High
High ? (Y/N, CR for no change):
```

Select 7), to get the RTS driver state, the MRP displays the following:

```
DTR Line Driver Inactive State is: High
High ? (Y/N, CR for no change):
```

Type 'Y' for YES or 'N' for NO and press <cr>.

Serial Port Device Name

Select the port to be renamed, followed by a <cr>. Type the new port name.

```
Current device name: EIA-RS232
Enter device name for serial port ((1 - 16 char., CR to end) :
```

Attention Character

Pressing the Attention Character 5 consecutive times will access the network main menu. **The Default is a semi-colon (;)**. Select this option to change the attention character. The MRP displays the following:

```
Attention Character is..... ;
Enter Attention Character :
```

Disconnect Timeguard

This feature ensures reliable binary data transmission by providing a one-second "Timeguard" after the MRP-Series receives the attention character. If more data is received within the delay period, the MRP treats the character as data, not an attention character; thereby preventing unwanted port disconnection. **The Default setting is Disabled.**

```
Disconnect Time Guard is..... Disabled
Enable ? (Y/N), CR for no change) :
```

Connect Port ID Echo

When a user logs into the MRP unit the port is identified in the following example:

```
        BAYTECH

For further information check:
http://www.baytech.net/

MRP10                          <= Device name Port echo.
  or
02,1                           <= Module and Port Number echo.
```

Select option 1, followed by a <cr>, type 'Y', followed by a <cr> to disable the echo. **The Default setting is Disabled**.
Select option 2 to echo the module and port number.
Select option 3 to echo the device name.

```
        Port ID Echo is..................Disabled

        Disable Port ID Echo.............1
        Use Module, Port Number..........2
        Use Device Name..................3
        Exit.............................X,CR
        Enter Request :
```

Login Setup Menu

This menu allows the admin user to enable or disable the Access Control, Manage Users, Direct Port Connection, Radius, and TACACS configuration. Depending on the firmware installed the Login Setup menu may be slightly different than what is shown below.

```
    Access Control..................1
    Manage Users....................2
    Radius Configuration............3
    TACACS Configuration............4
    Exit............................X,CR
```

Access Control

This security feature allows the admin to enable or disable usernames and passwords for both network and serial port access.

```
    Telnet Login Prompt Enable/Disable..1
    Serial Login Prompt Enable/Disable..2
```

```
Login prompt for telnet is.....Disabled
  Enable ? (Y/N), CR for no change) :

Login prompt for serial is.....Disabled
  Enable ? (Y/N), CR for no change) :
```

If either login has been enabled you will get a prompt similar to the following:

```
Universal RPC login: root
Password:
```

The default user and password is "**root/baytech**", all lower case.

Manage Users

This menu allows the administrator to add/delete users and change their passwords for multiple users. Usernames and passwords are case sensitive and alphanumeric. The root user can not be removed. Select Manage User and the MRP displays the following:

NOTE: The port access mentioned in the User Management Menu below is not used in the MRP series.

```
  User Management Menu
  To change user password or port access, enter number of user.
  To add/delete user, select appropriate menu choice.
  SNMP V3 requires passwords that are between 8 and 31 characters long
  Enter request, CR to exit menus.
    A)...Add user
    1)...root
```

Type 'a' and press <cr> to add a user and their password, the MRP displays the following:

```
Enter username (<= 31 characters)>user1
Enter new password (<= 31 characters)>******
Confirm by re-entering new password>******
Password change successful.
```

NOTE: If you forget your password, the administrator has to delete the user then add them back in.

IMPORTANT: You can change the admin password. If you forget, resetting the unit back to factory default is the only way to get the admin password back.

```
  User Management Menu
  To change user password or port access, enter number of user.
  To add/delete user, select appropriate menu choice.
  SNMP V3 requires passwords that are between 8 and 31 characters long
  Enter request, CR to exit menus.
    A)...Add user
    D)...Delete user
    1)...user1
    2)...root
  Enter Request :2
```

Select a user number, the MRP displays the following menu:

```
Change Password.............1
Exit........................X

Enter Request :1
```

Select the Change Password option to change the user password, the MRP displays the following:

```
User name: root
Enter old password (CR if none)>*******
```

If the user does not have a password the MRP will respond for a new password and a confirmation to re-enter the new password:

```
Enter new password (<= 31 characters)>*******
 Confirm by re-entering new password>*******
 Password change successful.
```

Radius Configuration

Radius is used to authenticate logins for the serial and the network ports if passwords and user names are enabled on the MRP. If the Radius server rejects either the username or password or does not respond, the MRP will display “Invalid Password”.

```
Radius Enable.....................1
Radius Server Address.............2
Radius Backup Server Address.....3
Radius Secret.....................4
Enable URPC usernames as backup..5
Radius Login Timeout.............6
Exit............................X,CR
```

Select 1), Radius Enable to turn on and off radius authentication. If enabled, the primary radius server address must be specified.

```
Radius login is.....................Disabled
 Enable ? (Y/N), CR for no change) :
```

Select 2), Radius Server Address is used to specify the radius server IP addresses.

```
Radius Server IP Address is: 0.0.0.0
Enter radius server address in dotted decimal form :
```

Select 3), Radius Backup Server Address is used to specify the backup server IP addresses.

```
Radius Backup IP Address is: 0.0.0.0
Enter radius server address in dotted decimal form :
```

Select 4), Radius Secret is used to set the shared radius secret. A secret can be up to 16 characters and must be exactly the same as the secret stored on the server.

```
Radius secret is: HardlyASecret
Enter radius secret (16 chars max).
:
```

Select 5), In case all specified radius servers are unavailable, enabling DS62 usernames as backup login allows an unsecured access until` the RADIUS server becomes available.

```
URPC usernames as backup login is Disabled
Enable ? (Y/N), CR for no change) :
```

Select 6), Radius login timeout is the amount of time the MRP will wait for a response from the radius server after sending the login message to the radius server. A timeout on a radius response is treated, per RFC specifications, as a rejection from the radius server.

```
Radius response timeout is       5 seconds
Enter timeout, in seconds ( >=5 and <=30 ) :
```

TACACS Configuration

TACACS can be used to authenticate logins for the serial port, the network port, modem or all three. When a telnet / SSH session (or rs232 session) is started the Host module will prompt for the username. After entering the username the Host will prompt for the password. After the password is entered the Host will communicate with the TACACS server. If the server verifies the username and password, the Host will display the menus. If the server rejects the username and password or does not respond the Host will display the reason why the login failed.

Setting Up TACACS

To enable TACACS for logins do the following:

- Enable TACACS from the TACACS configuration menu.
- Enter the IP address of the TACACS server
- Enter the IP address of the backup TACACS server if any.
- Enable local logins as a backup to the TACACS server if needed.
- Secret word must match the secret word in the TACACS server configuration.
- Enable usernames and passwords for the network and serial port via the logins setup access control menu.

Select TACACS Configuration from the Login Setup Menu and the DS displays the following:

```
TACACS Enable.....................1  Enable/Disable TACACS
TACACS Server Address............2  TACACS server IP address 0.0.0.0
TACACS Backup Server Address.....3  Backup TACACS server IP address
TACACS Secret....................4  TACACS secret key (16 char max)
Enable URPC usernames as backup..5  As written
TACACS Encryption Enable.........6  Enable/Disable encryption
TACACS Server Port...............7  Assign secure TCP port, Default = 49
URPC Privilege Level Enable......8  Enable/Disable TACACS privilege
URPC Privilege Level ............9  Set Privilege level 1-15
Exit.............................X, CR
```

Select “TACACS Enable” to turn on or off the TACACS authentication on and off. If enabled, the primary TACACS server address must be specified.

```
TACACS login is..................Disabled
Enable ? (Y/N), CR for no change) :
```

Select “TACACS Server Address” to assign a specific TACACS server IP addresses.

```
TACACS Server IP Address is: 0.0.0.0
Enter TACACS server address in dotted decimal form :
```

Select “TACACS Backup Server Address” to assign a specific Backup Server IP addresses.

```
TACACS Backup IP Address is: 0.0.0.0
Enter TACACS server address in dotted decimal form :
```

Select "TACACS Secret" to assign a secret word shared between the TACACS server and this unit. A secret can be up to 16 characters and must be exactly the same as the secret stored on the server.

```
TACACS secret is: HardlyASecret
Enter TACACS secret (16 chars max).
:
```

Select "Enable URPC Usernames as Backup" to allow an unsecured access in case all specified radius servers are unavailable.

```
URPC usernames as backup login is Disabled
Enable ? (Y/N), CR for no change) :
```

Select "TACACS Encryption Enable" to turn TACACS+ encryption off or on. Sending unencrypted TACACS packets is useful for troubleshooting but should not be used under normal operations.

```
TACACS encryption is.............Enabled
Enable ? (Y/N), CR for no change) :
```

Select "TACACS Server Port to assign a more secure port, **default is TCP 49**.

```
TACACS server port is: 49
Enter port number (>= 1024, D for default 49): 12
```

If you type a port number less than 1024 the Host Module responds with the following until a valid entry is typed:

```
TACACS server port is: 49
Enter port number (>= 1024, D for default 49): 1234
```

TACACS User Privilege Feature

Important: The TACACS admin user must perform the following before the TACACS Privilege level to operate: Open the tacacs.conf file and add the following entry for each user: (service = exec {priv-lvl = n}). Where "n" is a number from 1 to 15, inclusive. 15 is root privilege level, 1 is lowest level user. "priv-lvl" must be spelled exactly as shown, including case. Restart the daemon after making changes.

Select the 'URPC Privilege Level Enable' to enable this option. **Default is Disabled**. The unit displays the following:

```
TACACS Privilege Level is.........Disabled

  Enable ? (Y/N), CR for no change) :
```

The admin user selects 'URPC Privilege Level' to assign the DS62 a privilege level. 1 is the minimum user privilege and 15 is the root/admin privilege level. **Default is 15.**

```
DS62 Privilege Level is: 15
Enter Privilege Level for root access:
```

Example of operation: Privilege Level enabled, set to "10". In tacacs.conf file on daemon, user1 is configured for exec priv-lvl = 9, user2 is configured for exec priv-lvl = 10, and user3 is configured for exec priv-lvl = 11. In this scenario, user1 will get only user-level access to the DS62, user2 & user3 will get root access.

Network Port Configuration

This menu is used to change the network configuration options such as the IP Address, Subnet Mask, Gateway, DHCP, and Telnet; all of which are necessary during initial startup. The *Connection Inactivity Timeout* allows you to enable/disable whether the firmware will end your session or "times out." The default is 1 hour, but when disabled there is no set time out. Disabling the *Carriage Return Translation* allows you to bypass all unnecessary carriage returns, and it will send you straight to the next "end of line." The *DHCP, Telnet, SSH,* options is to enable or disable these functions. SSH host key Generator allows the user to generate a host key which is used in the SSH encryption process. *IP Filter* allows or blocks specific IP Addresses, *SNMP* provides a message format for communication between a computer and your devices, and *Web Server* Configuration allows web access and sets up options for each.

```
Network setup :
  Ethernet Address..............  00:C0:48:00:01:FD
  IP Address.....................    70.150.140.89
  Subnet Mask....................    255.255.255.224
  Default Gateway................    70.150.140.65

  Connection Inactivity Timeout (mins): Disabled
  Carriage Return Translation: Enabled
  Break Length (msecs):  350
  DHCP is Disabled   Telnet is Enabled    SSH is Enabled
  SSH host keys are set to factory default

  IP Address.....................1
  Subnet Mask....................2
  Gateway Address................3
  Inactivity Timeout.............4
  Carriage Return Translation....5
  Break Length...................6
  DHCP Enable/Disable............7
  Telnet Enable/Disable..........8
  SSH Enable/Disable.............9
  SSH Host Key Generation.......10
  IP Filter Configuration.......11
  SNMP Configuration............12
  Web Server Configuration......13
  Exit.........................X,CR
  Enter Request :
```

NOTE: For network access, you must configure the IP addresses, Subnet Mask, and Gateway Address. The module must be reset for network changes to take effect.

IP Address

The IP address is the network address assigned by your network manager for your network. The IP Address consists of four bytes, each byte ranging from 0 to 255. This parameter must be programmed before the MRP is accessible via the network.

Select 1) to enter the IP Address. Failure to enter the address in the decimal form causes the MRP to display the following until it is entered correctly. **Default Module IP Address is 0.0.0.0.**

```
Enter IP address in dotted decimal form :
```

NOTE: There should be no active connections while configuring the MRP module. The unit should be reset upon completion of configuration.

Subnet Mask

The Subnet Mask is a bit mask that identifies the network portion of the IP address, allowing the MRP to determine whether to send a packet directly to the client or to a gateway. The Subnet Mask consists of four bytes, each byte ranging from 0 to 255. **This parameter must be programmed before the DS-Series can be accessed through the network**.

Select 2) to enter the Subnet Mask followed by <cr>. Failure to enter the address in the decimal form causes the MRP to display the following until it is entered correctly. **Default Subnet Mask is 0.0.0.0.**

```
Enter Subnet Mask in dotted decimal form :
```

Gateway Address

The Gateway is the address of a router to connect to other parts of a network. The Gateway address consists of four bytes, each byte ranging from 0 to 255. If your network uses gateways, this parameter must be programmed before the MRP can be accessed through the network.

Select 3) to enter the Gateway address. Failure to enter the address in the decimal form causes the MRP to display the following until it is entered correctly. **Default Gateway address is 0.0.0.0.**

```
Enter Gateway address in dotted decimal form :
```

Inactivity Timeout

This option enables the MRP to disconnect after the programmed amount of time, if there is no activity. **Default is 0 (DISABLED)**. The enabling input can be from 1 to 120 minutes.

```
Connection Inactivity Timeout is  0 minutes
Enter timeout, in minutes (<=120, 0 to disable) :
```

Carriage Return Translation

This option determines what the telnet processor will do with the line-feeds and nulls after a carriage return is sent. **Enable** tells the MRP Telnet processor to strip line feeds or nulls **Translation** after the carriage returns. **Disable** allows the characters to pass through. **Default is "DISABLED"**.

```
Carriage Return Translation is.... Enabled
Enable ? (Y/N), CR for no change) :
```

Break Length

Users may configure the MRP for a break length of 1 - 1000 milliseconds. In a Telnet session with the MRP through the serial port of a DS74, send a Telnet break command (0xF3) to the MRP, the serial port will send a break signal of the programmed duration. **Default is 350 milliseconds**.

```
Break Length is (msec)..... 350
Enter break length, in milliseconds (<=10000, 0 to disable) :
```

DHCP/Telnet/SSH

Dynamic Host Configuration Protocol (DHCP) is a communications protocol that lets network administrators manage centrally and automate the assignment of Internet Protocol (IP) addresses in an organization's network. **Default setting is DISABLED.**

```
DHCP is.....Disabled
Enable ? (Y/N), CR for no change) :
```

Telnet is a user command and an underlying TCP/IP protocol for accessing remote devices. On the Web, HTTP and FTP protocols allow you to request specific files from remote computers, but not to actually be logged on as a user of that computer. **Default setting is ENABLED.**

IMPORTANT: Changing this setting will logout all SSH and Telnet sessions

```
Telnet is.....Enabled
Enable ? (Y/N), CR for no change) :
```

Secure Shell (SSH), sometimes known as Secure Socket Shell, is a Unix-based command interface and protocol for securely getting access to a remote computer. It is widely used by network administrators to control Web and other kinds of servers remotely. **Default setting is ENABLED**.

IMPORTANT: changing this setting will logout all SSH and Telnet sessions

```
SSH is.....Enabled
Enable ? (Y/N), CR for no change) :
```

SSH Host Key Generation

Selecting this option allows the user to generate a unique SSH host key for the MRP unit. This key is part of the SSH encryption process. Each MRP leaving Baytech is shipped with same default SSH host key. It is important that the user generate a new SSH host key if SSH communications will be used.

NOTE: It can take the MRP up to 10 minutes to generate a new host key.

```
Generating SSH host keys can take up to 10 minutes
Generate ? (Y/N)
```

IP Filter Configuration

The IP Filter Management Menu allows the admin user to pass or block certain IP Addresses.

If you have no rules defined the MRP may display only options (**A, E, C**).

```
  Filter Management Menu
  Enter request or CR,X to exit menu.

    A)...Add Rule
    E)...Enable IP Filtering
    D)...Delete Rule
    V)...View Rules
    F)...Flush Rules
    C)...Set Default Target

  Enter Request :a
```

Select A) to add a rule. Type an IP address, select whether to drop or accept the address. The MRP will display the following:

```
Add a Rule
  Please enter a single ip address filter
  or an ip address block in ip/<blockmask> notation.

    : 70.150.140.95

  Select a target option for this filter:

    DROP the packet.................1
    ACCEPT the packet...............2
    Exit............................X,CR

  Enter Request :1
```

Selecting either DROP or ACCEPT the packets and the MRP will assign filter the next rule number:

```
Filter added as Rule 1.
```

Selecting E), Enable IP Filtering will enable or disable the filtering function. The MRP displays:

```
IP Filtering is ENABLED.   Enable? (Y/N): y
```

Select V), View Rules allows the user to see any IP filtering. Note: At least one rule must be defined for this option to be available. The MRP displays:

```
Rule Num   Ip Address           Target
1          70.150.140.95        DROP
2          70.150.140.96        ACCEPT

Strike ENTER to continue
```

Select C), Set Default Target for ALL IP Addresses to accept or drop all. The MRP displays:

```
The default target is............ACCEPT
DROP ? (Y/N), CR for no change) :y
```

Select F), Flush Rules to delete all rules. The MRP displays:

```
Are you sure you want to delete all filters? (Y/N)

Enter Request :y

All filers have been deleted.
```

Select D), Delete Rule to delete a specific rule. The MRP displays:

```
Delete Filter Menu
Enter rule number to delete rule, 'M' to view
more rules, or 'X' to exit menu.

Rule Num   Ip Address          Target
1          70.150.140.95       DROP
2          70.150.140.96       ACCEPT
3          70.150.140.99       ACCEPT

Enter Request :2

Filter Rule 2 deleted.
```

SNMP Configuration

Selecting the SNMP Configuration and the MRP respond:

```
  SNMP Trap Host 1 Address.........1
  SNMP Trap Host 2 Address.........2
  SNMP Trap Host 3 Address.........3
  SNMP Trap Host 4 Address.........4
  SNMP Read-Only Community.........5
  SNMP Read-Write Community.........6
  SNMP Enable.....................7
  SNMP v3 Only Enable.............8
  SNMP Authentication Traps Enable..9
  Exit............................X,CR
```

Depending on the firmware, SNMP Configuration allows the admin to control whether or not a user has Read/Write access or Read access only. It also allows the admin to control which IP addresses are allowed to receive a host trap, and simply whether to enable or disable the entire SNMP function.

IMPORTANT: You will need some knowledge of SNMP protocols in order to get the Baytech device to work with your SNMP program. Information provided is for the SNMP Agent only. Baytech Support will assist with the Agent part only. For SNMP Manger assistance refer to the vender manual or contact the vender of the SNMP software you are using.

NOTE: There are a number of shareware MIB Browsers that can be downloaded from the internet to make changes and receive traps for a quick verification test.

NOTE: To use the SNMP functions you need to download the MIB from Baytech's web site, www.baytech.net. Look under Tech Support, Docs and Downloads.

IMPORTANT: Changes do not take effect until they are saved when you leave the configuration menu. The MRP will display:

```
Accept changes ? (Y/N) :
```

A SNMP Trap Host is a trap management station that receives and processes traps. Traps are system alerts that the Baytech device generates when certain events occur. By default, no trap manager is defined, and no traps are issued. Up to four SNMP Trap Hosts maybe assigned to receive traps. Select a SNMP Trap Host, the MRP will display the following, **Default address is (0.0.0.0) for all Hosts.**

```
SNMP Trap Host 1 IP Address:  220.225.36.212
Enter new Trap Host IP Address:

SNMP Trap Host 2 IP Address:  70.154.96.10
Enter new Trap Host IP Address:

SNMP Trap Host 3 IP Address:  192.168.1.102
Enter new Trap Host IP Address:

SNMP Trap Host 4 IP Address:  192.168.2.136
Enter new Trap Host IP Address:
```

Community String:
SNMP community strings authenticate access to MIB objects and function as embedded passwords. In order for your SNMP script/software to access the Baytech SNMP, the community string definitions on your SNMP script/software must match the Baytech SNMP string definitions.

'**Read**'—Gives read access to authorized management stations to all objects in the MIB except the community strings, but does not allow write access.
'**Write**'—Gives read and write access to authorized management stations to all objects in the MIB, but does not allow access to the community strings

Select 'SNMP Read Only Community' option to enter a Read Community string, the MRP displays the current setting, **Default is public**.

```
SNMP Read Community name: public
Enter Read Community Name:
```

Select 'SNMP Read-Write Community' option to enter a Write Community string, the MRP displays the current setting, **Default is private**.

```
SNMP Write Community name: private
Enter Write Community Name:
```

Select the 'SNMP Enable' option to enable the SNMP function, the MRP displays, **Default is Enabled, SNMP-V1**.

```
SNMP is ENABLED.  Enable? (Y/N):
```

If you have SNMPv3 software, only the newer firmware will have this option. Selecting this option the MRP displays, **Default is Disabled.**

```
SNMPv3 only is DISABLED.  Enable? (Y/N):
```

Select this option to enable a SNMP trap to be sent if an authentication attempt failed, the MRP displays, **Default is Disabled.**

```
SNMP Authentication traps are DISABLED.  Enable? (Y/N):
```

Web Server Configuration

Selecting the Web Server Configuration option and the MRP will display the following menu:

```
Web Enable.....................1
Web Login Enable...............2
Web Secure Login Enable........3
Web Login Activity Timeout.....4
Exit...........................X
```

NOTE: For this feature to operate the network port must have an IP Address assigned.

Depending on the firmware in your MRP unit, the newest firmware will have the Web Server Configuration menu. To get to the unit web page, type the unit IP address, i.e. http://70.150.140.95.

NOTE: The web page is a quick test to see if SNMP protocol is working in the unit, if SNMP has been enabled.

IMPORTANCE: Currently, all users who access the MRP through the web page have administrator privilege.

Select 1), Web Enable to enable or disable the web page feature, the MRP displays, **Default is Enabled:**

```
Web is ENABLED.  Enable? (Y/N):
```

Select 2), Web Login Enable to enable or disable the login window to the web page, the MRP displays, **Default is Enabled:**

```
Web Login is DISABLED.  Enable? (Y/N):
```

Select 3), Web Secure Login Enable to enable or disable a secure web connection to the web page, the MRP display, **Default is Disabled:**

```
Web secure SSL connection is DISABLED.  Enable? (Y/N):
```

Select 4), Web Login Inactivity Timeout to set the Inactivity timeout to the web page, the MRP displays, **Default is zero minutes:**

```
Web Connection Inactivity Timeout is  0 minutes
Enter timeout, in minutes (<=120, 0 to disable) :
```

Enable Firmware Upgrade

This option must be enabled to upgrade the firmware via FTP. The MRP unit will display the following, **Default is Disabled**:

```
Enabling this will allow the firmware to be updated via ftp

Enable Firmware Upgrade ? (Y/N)
```

IMPORTANT: Do not type 'Y' unless you have received the instructions and firmware from Baytech's Technical Support. If you typed 'Y' and see the following below, turn power off than back on to the unit to close the firmware upgrade.

```
Waiting to receive compressed image file
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
------------------------------------------
```

At this point follow the instruction to FTP the firmware into the unit.

Enable SSL Cert Upload

Selecting this option will allow the admin to upload an SSL Certificate to the MRP unit via ftp. The filename of the certificate must be (ssl.pem). An SSL certificate is used by the unit to create secure web connections. The MRP unit is shipped with a default SSL certificate. This certificate should be replaced with one that better suits the user's environment. The file format is checked after download to insure that the certificate is valid.
Select this option to Enable SSL Cert Upload, the Host Module will display the following:

```
Enabling this will allow the SSL Certificate to be updated via ftp
Enable SSL Certificate Upload? (Y/N)
```

IMPORTANT: If you type 'Y', the MRP will display the following. To stop this function power-cycle the unit to close the SSL Certification Upload.

```
Waiting to receive ssl.pem SSL certificate file
--------------
```

At this point FTP the ssl.pem file into the module.

Enable Configuration File Upload

This option allows the admin to upload a configuration file from your computer to the MRP.

Select Enable Configuration File and the MRP displays the following:

```
Enabling this will allow the system configuration to be updated via ftp
THE UNIT WILL RESET AFTER CONFIGURATION IS COMPLETE
Enable Configuration File Upload? (Y/N)
```

IMPORTANT: If you type 'Y', the MRP displays the following below. To stop this function power-cycle the unit to close the Configuration File Upload.

```
Waiting to receive configuration file
--------------------------------------------------------------------------------
------------------------------------------------------------
```

At this point FTP the file into the unit. A successful file upload and the MRP will display:

```
configuration file valid

updating ds62 configuration
***
ds62 host configuration complete
polling rpcs
Found RPC at mod 2 port 1
rpc polling complete
configuring rpcs
```

Unsuccessful file upload and the MRP will display:

```
***error in config upload file or transfer operation***
```

NOTE: This part of the program is derived from the DS62 module program, thus the DS62 reference.

Restore Configuration Defaults

This option allows the admin to restore the MRP configuration to factory defaults.

NOTE: The network **default** IP Address, Subnet, and Gateway is **0.0.0.0**

Select Restore Configuration Defaults and the MRP displays the following:

```
ENABLING THIS WILL ERASE ALL CONFIGURATION BACK TO FACTORY DEFAULTS
AND RESET THE UNIT
Set Configuration to Factory Defaults? (Y/N)
```

A YES response and the MRP will display:

```
SETTING DEFAULT CONFIGURATION
set default password file
USING DEFAULT SSL CERTIFICATE

System reset in progress...

This board is a Universal RPC Controller
.........Uncompressing...done.
```

Get Current Configuration File

This option allows the admin to get a copy of the current MRP configuration file from the unit and FTP's it to your computer. The configuration file to be uploaded is named "confupload". The file maybe opened with any text file editor.

NOTE: Save a copy of the "confupload" file under a different name, just in case a mistake is made that prevents the unit from operating properly. If the unit appears to not respond, power-cycle the unit and type semi-colon five times. If it appears the unit is still not responding, follow the reset procedures to reset the module.

Select Get Current Configuration File and the MRP displays:

```
Enabling this will allow the system configuration file to be
retrieved via ftp
Enable Configuration File Retrieval? (Y/N)
```

A YES response and the MRP will display the following:

```
/var/confupload file created and ready for ftp retrieval

Waiting to send configuration file
----------------------------------------------------------------
----------------------------------------
```

At this point FTP the file to your computer. Successful file retrieval and the MRP displays:

```
get of configuration file complete
```

Unsuccessful file retrieval and the MRP displays:

```
***error in config upload file or transfer operation***
```

Display Configuration Error Log

Select this option to list any errors in uploading or downloading the configuration file.

Select Display Configuration Error Log and the MRP displays either:

```
      no errors
      Press CR to continue
or
      1. No communication with rpc at mod 3 port 1 (rpc:5)
      Press CR to continue
```

Module Name

This option allows the admin user to change the unit name.

```
Module Name is:  MRP
Enter Module Name (32 chars max):
```

SNMP Configuration

Refer to the configuration menu under the Network Port Configuration.

MRP Management

Use this option to set the temperature, voltage, and current alarm threshold for the MRP as shown.

```
Host-controlled RPC Feature Configuration
 Temperature Alarm Threshold........1
 Under Voltage Alarm Threshold......2
 Over Voltage Alarm Threshold.......3
 Low Current Alarm Threshold........4
 Environmental Sensors..............5
 Outlet Groups......................6
 Temperature Units (degrees C/F) ...7
 RPC Cascade Mode...................8
```

Internal Alarm Threshold

Select any alarm threshold option and the MRP will display the following:

Temperature Alarm Threshold:

Sel	M/P	Identifier	Tmp Lvl
1	2/1	MRP20	500

Under Voltage Alarm Threshold:

Sel	M/P	Identifier	Lo V Lvl
1	2/1	MRP20	900

Over Voltage Alarm Threshold:

Sel	M/P	Identifier	Hi V Lvl
1	2/1	MRP20	1300

Low Current Alarm Threshold

Sel	M/P	Identifier	Low Curr
1	2/1	MRP20	0

Enter the Selection number and the unit will display one of the following dependent on the alarm:

Enter threshold value in tenths of unit measurement (degrees,%,etc.):

Enter voltage threshold value in tenths of a volt:

Enter low current threshold value in tenths of an amp:

NOTE: M/P = Module number and Port number; Identifier = this unit's model number; Tmp Lvl = temperature level, Lo V Lvl = low voltage level, Hi V Lvl = High voltage level, low Curr = Low Current. The unit's firmware determines whether the degrees are Celsius or Fahrenheit. Currently there is no option to change the degrees.

External Alarm Threshold

Selecting the Environmental Sensors with no probes attached the MRP will display the following:

None of the installed devices support this option (no temperature probes installed).

Strike ENTER to continue

Selecting the Environmental Sensor with a probe attached the MRP will display the following:

```
Environmental Sensor Configuration Menu
Sel  M/P    Identifier
1    2/1    MRPC20
2    All Sensors
Enter Request :1
```

Select 1), the MRP displays:

```
Sel   Type         Name              Hi/En   Lo/En   St/En
 1  Contact        External Sensor1  N/A     N/A     Ds
 2  Temperature    External Sensor2  0/Ds    0/Ds    N/A
Enter Request :2
```

Selecting probe 2 displays a recognized temperature probe:

```
RPC/RPS External Environmental Sensor Configuration Menu
 Sensor Number: 2   Name: External Sensor2  Type: Temperature

  1...High Threshold (tenths of meas. unit): 0
  2...High Threshold Trap Enable: Disabled
  3...Low Threshold (tenths of meas. unit): 0
  4...Low Threshold Trap Enable: Disabled

 Enter Request :1
```

Option 1 and 3 sets the temperature levels to the tenth of a degree. Option 2 and 4 enable the SNMP traps to be sent if the corresponding threshold had been exceeded.

```
Sel   Type         Name              Hi/En    Lo/En    St/En
 1  Contact        External Sensor1  N/A      N/A      En
 2  Temperature    External Sensor2  999/En   320/En   N/A
```

Select 2), 'All Sensors' option allows the administrator to set parameters for the different probe types. This feature is useful for standardization and the probe type is not known due to its final location is not known. The MRP displays:

```
For configuration of all sensors of selected type in system with a
single user-supplied value.

1...Contact
2...Temperature
3...Humidity
4...Air Flow
Enter Request :1
```

NOTE: The type 'Contact' signifies the unit does not recognize or detect a probe, but still be able to send SNMP Traps.

Select the specific option to set the High and Low alarm ranges and their corresponding SNMP traps.

```
RPC/RPS External Environmental Sensor Configuration Menu
 Sensor Number: All Name: all RPCs/RPSs     Type: Temperature/Humidity/Air Flow

  1...High Threshold (tenths of meas. unit): NP
  2...High Threshold Trap Enable: NP
  3...Low Threshold (tenths of meas. unit): NP
  4...Low Threshold Trap Enable: NP
 Enter Request :

 Enter threshold value in tenths of unit measurement (degrees,%%,etc.):
```

Outlet Groups

This is a future option not currently used. This option sets up the outlets into groups.

```
   Outlet Group Configuration:
   List Outlet Groups..............1
   Add Group.......................2
   Delete Group....................3
   Rename Group....................4
   Modify Outlets in a Group.......5
   Delete All Outlet Groups........6
Enter Request :1
```

Select 1), List Outlet Groups to list any outlet groups, the MRP display:

```
  # Group Name              Outlets
  1 Router GP-A             2.1.1,2.1.2,2.1.3,2.1.4
  2 Server Row              2.1.5,2.1.6,2.1.7,2.1.8
  3 Radius                  2.1.9,2.1.10,2.1.11,2.1.12
  4 Server backup           2.1.13,2.1.14,2.1.15,2.1.16
```

Select 2), Add Group to add a specific outlet group, the MRP display:

```
List up to four outlets in the following form mod.port.outlet,mod.port.outlet
2.1.1,2.1.2,2.1.3,2.1.4
```

The MRP displays the following and asks for a name for the new Group:

```
Outlet group is currently defineded as:
 #  Group Name              Outlets
  1                         2.1.1,2.1.2,2.1.3,2.1.4
Enter name for outlet group (max 23 characters): Router GP-A
```

Select 3), Delete Group to delete a specific outlet group, the MRP displays the following:

```
Enter group number to be deleted: 3
Group deleted
```

Select 4), Rename Group to rename an outlet group’s name, the MRP displays the selected group:

```
Enter number of group to be renamed: 3

Outlet group is currently defined as:
 #  Group Name               Outlets
  3                         2.1.9,2.1.10,2.1.11,2.1.12
Enter name for outlet group (max 23 characters): Radius
```

Select 5), Modify Outlets in the Group and the MRP displays:

```
Enter number of group to be modified: 4

Outlet group is currently defined as:
 #  Group Name               Outlets
  4 Server backup            2.1.13,2.1.14,2.1.15,2.1.16
List up to four outlets in the following form mod.port.outlet,mod.port.outlet
```

Example of an outlet change by retyping the group with the new outlets:

```
2.1.13,2.1.14,2.1.17,2.1.18
```

Select 6), Delete All Outlet Groups and the MRP displays:

```
Delete ALL outlet groups? (Y/N): y
```

Note: There will be no confirmation the groups have been deleted. Select option 1 from the Outlet Group Configuration to verify all outlet groups were deleted.

```
#  Group Name               Outlets
  Strike ENTER to continue
```

Temperature units (degrees C/F)

This option allows the user to change the temperature scale that is displayed in the Web page and in SNMP. The unit display either of the following:

```
Current temperature reported in degrees Celcius.
 Change to report in degrees Farenheit  (Y/N):

Current temperature reported in degrees Farenheit.
 Change to report in degrees Celcius  (Y/N):
```

RPC Cascade

This feature allows a power strip with an Ethernet to connect its own serial port to the serial port of a unit without an Ethernet port. This Master/Slave combination allows the user to control two power strips through outlet grouping, i.e. two power supply servers connected to different sources enable user to turn off power to both power supplies simultaneously.
Select this option and the unit displays the following Cascade Mode Menu:

```
Cascade Mode Menu

    Cascade mode: Disabled
    Outlet Status Display: Enabled
    Command Confirmation: Enabled

    Cascade Mode Enable.............1
    Cascade Mode Status Display.....2
    Command Confirmation............3
```

Select ‘Cascade Mode Enable’ and type ‘Y’ and press ‘Enter’ to enable the Cascade feature.

```
RPC Cascade Mode is.............. Disabled

    Enabling this feature will allow access and management of a BayTech Remote
    Power Device through the console (EIA-232) port via telnet/ssh/SNMP/http.
    In RPC Cascade Mode, normal console port terminal service will operate only
    when the network cable is disconnected.

    When Cascade Mode is changed, URPC module will *RESET* upon acceptance of
    configuration changes, at which time, cascade device should be connected
    to or disconnected from the EIA-232 port as appropriate.
```

Select ‘Cascade Mode Status Display’ to enable the unit to display a screen showing both the Master and Slave outlet status, also gives instructions how to change the outlet states.

```
RPC Outlet Status Display is..... Enabled

  Enable ? (Y/N), CR for no change) :
```

Select ‘Command Confirmation’ to enable a confirmation ‘Y’ or ‘N’ before executing the command

```
Command Confirmation is.......... Enabled

  Enable ? (Y/N), CR for no change) :
```

Press ‘Enter’ until the unit asks you to ‘Accept changes’, type ‘Y’ to accept changes. The unit will reset, after approximate 30 seconds log back into the unit. You should see the Master and Slave outlets.

Type the attention character 5-times at any prompt will you get to the updated network menu. It should display two new options: **Outlet Group Control** and **Slave unit**

```
Module: 1
Attention Character:  ;
Outlet Group Control.....O   {Displays master and slave outlets}
MMP-10          (2 ,1).....1   {Displays only the Master outlets}
MMP20 Slave unit (2 ,2).....2   {Displays only the slave outlets}
Status.....................S   {Master Only}
Configure..................C   {Master Only}
Unit Reset.................RU  {Master Only}
Logout.....................T   {Master Only}
Enter Request :
```

Cascade outlet status:

```
Outlet Operations Menu.
Status: 0 - Off | 1 - On | 3 - Locked On | 4 - Locked Off
CMDs: ON,OFF,REBOOT, followed by outlet menu numbers separated by commas.
Maximum of 10 outlet numbers allowed in command.
  CMD followed by carriage return performs command on ALL outlets

Master Unit Outlets

 1) 1 CKT 1 Outlet 1     2) 1 CKT 1 Outlet 2     3) 1 CKT 1 Outlet 3
 4) 1 CKT 1 Outlet 4     5) 1 CKT 2 Outlet 1     6) 1 CKT 2 Outlet 2
 7) 1 CKT 2 Outlet 3     8) 1 CKT 2 Outlet 4     9) 1 CKT 3 Outlet 1
10) 1 CKT 3 Outlet 2    11) 1 CKT 3 Outlet 3    12) 1 CKT 3 Outlet 4
13) 1 CKT 4 Outlet 1    14) 1 CKT 4 Outlet 2    15) 1 CKT 4 Outlet 3
16) 1 CKT 4 Outlet 4    17) 1 CKT 5 Outlet 1    18) 1 CKT 5 Outlet 2
19) 1 CKT 5 Outlet 3    20) 1 CKT 5 Outlet 4    21) 1 CKT 6 Outlet 1
22) 1 CKT 6 Outlet 2    23) 1 CKT 6 Outlet 3    24) 1 CKT 6 Outlet 4


Slave Unit Outlets

25) 0 Outlet  1         26) 0 Outlet  2         27) 0 Outlet  3
28) 0 Outlet  4         29) 0 Outlet  5         30) 0 Outlet  6
31) 0 Outlet  7         32) 0 Outlet  8         33) 0 Outlet  9
34) 0 Outlet 10         35) 0 Outlet 11         36) 0 Outlet 12
37) 0 Outlet 13         38) 0 Outlet 14         39) 0 Outlet 15
40) 0 Outlet 16         41) 0 Outlet 17         42) 0 Outlet 18
```

Web Server Configuration

Refer to the Web Server Configuration menu under the Network Port Configuration.

Radius Configuration

Refer to the Radius Configuration menu under the Login Setup menu above.

Unit Reset

Select RU), to reset the unit to the current configurations, the MRP will display:

```
Reset Unit? (Y/N)
```

A Unit Reset takes approximately 10 seconds for the unit to reset. It will not affect the state the energized outlets. It will not reset the unit to “Factory Default”, but it will terminate the external communications.

Logout

Select T), will close the session to the unit, but may not close the terminal emulator session.

TACACS user Scenarios

This is a helpful explanation for using TACACS server with a Baytech unit.
Four parameters are used to determine if user is able to log in:

- TACACS enabled/disabled
- Good/Bad TACACS connection
- “Enable DS62 usernames as backup” enabled/disabled
- Username/password on TACACS and MMP Ethernet are same/different

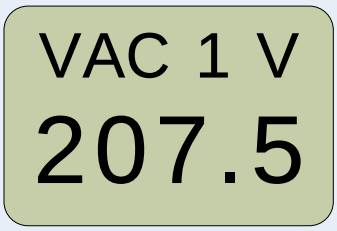
Assumption: the same username and password is listed in both the TACATCS+ and the MMP Ethernet module.

- **Case 1:** TACACS+ is enabled, TACACS contact is good, “Enable DS62 usernames as backup” enabled, user Log in **OK.** Log in is validated by the TACACS server.
- **Case 2:** TACACS+ enabled, TACACS contact good, “Enable DS62 usernames as backup” disabled, user Log in **OK.** Log in is validated by the TACACS server.
- **Case 3**: TACACS+ enabled, TACACS contact lost, “Enable DS62 usernames as backup” enabled, user, Log in **OK**. Log in validated by the MMP Ethernet.
- **Case 4:** TACACS+ enabled, TACACS contact lost, “Enable DS62 usernames as backup” disabled, user Log in **FAIL**. Neither TACACS+ nor the MMP Ethernet can validate the user.
- **Case 5:** TACACS+ disabled, “Enable DS62 usernames as backup” enabled, user Log in **OK.** MMP Ethernet validates the user.
- **Case 6:** TACACS+ disabled, “Enable DS62 usernames as backup” disabled, user Log in **FAIL.** Neither TACACS+ nor the MMP Ethernet can validate the user.

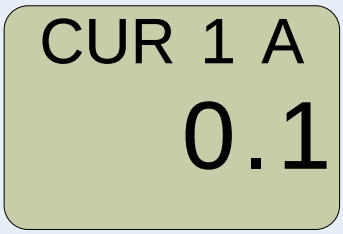
Assumption: username and password in TACACS+ and MMP Ethernet are different

- **Case 1:** TACACS+ enabled, TACACS contact good, “Enable DS62 usernames as backup” disabled, TACACS username Log in **OK.** Log in is validated by the TACACS server.
- **Case 2:** TACACS+ enabled, TACACS contact lost, “Enable DS62 usernames as backup” disabled, TACACS username Log in **FAIL**. TACACS+ not validate the user.
- **Case 3:** TACACS+ enabled, TACACS contact good, “Enable DS62 usernames as backup” disabled, MMP ETHERNET username Log in **FAIL.** TACACS+ not validate the user.
- **Case 4:** TACACS+ enabled, TACACS contact lost, “Enable DS62 usernames as backup” disabled, MMP ETHERNET username Log in **FAIL.** TACACS+ not validate the user.
- **Case 5:** TACACS+ disabled, MMP ETHERNET username Log in **OK.** MMP Ethernet validates the user.

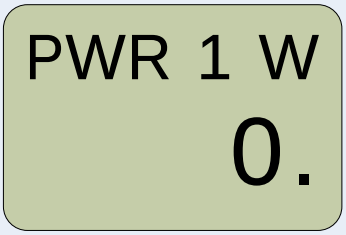
LCD data descriptions:



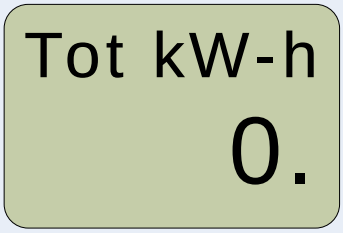
VAC 1 V = Voltage AC for circuit #1 in Volts, Units with multiple circuit breaker will display VAC 2V, VAC 3V, VAC 4V, VAC 5V, VAC 6



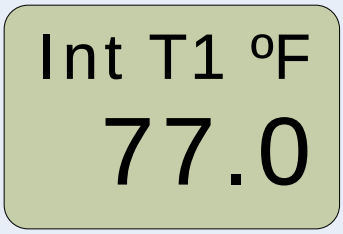
CUR 1 A = Current for circuit #1 in Amps, Units with multiple circuit breaker will display CUR 2A, CUR 3A, CUR 4A, CUR 5A, CUR 6A



PWR 1 W = Power for circuit #1 in Watts, Units with multiple circuit breaker will display PWR 2W, PWR 3W, PWR 4W, PWR 5W, PWR 6W



Tot kW-h = Total kiloWatts per hour for the whole unit



Int T1 ºF = Internal Temperature in Fahrenheit Degree, If external probes connected to unit Ext T1 ºF, Ext T2 ºF will be displayed . ºC = Celsius Degree; #% RH = Relative Humidity

Troubleshooting:

Functional Solutions:

1. **No menu serial port:**
    a. MRP power is on and cable connected to EIA232 serial port.
    b. Verify the cable and adapter has the correct pin out, RJ08X007 and 9FRJ45PC-1.
    c. The B/C switch is set for 'B'
    d. Type 5(;), the Attention Character will not echo to the screen, if it does than it may have been changed to a character other than the semi-colon.
2. **Password not Work:**
    a. Password is case sensitive, check for Caps Lock.
    b. Have the admin user delete the user and add back
        i. Refer to MRP Configuration/User Management 'Delete a User' and 'Add a User' section.
        ii. Refer to Network Access Configuration/Login Setup/Manage Users
3. **No Access to Configuration Menu:**
    a. Only the admin user will see the configuration option
    b. Only one user at a time can have access. Have the other user back out of the configuration
4. **No Outlets displayed for User:**
    a. Outlets have to be assigned to the user, refer to 'MRP Configuration User Management Assigned Outlets' section.

BayTech Product Warranty

Bay Technical Associates (BayTech) warrants that its products will be free from defects in materials and workmanship under normal use for a period of two years from date of purchase (or from date of shipment from BayTech if proof of purchase is not provided).

During this warranty period, BayTech shall, at its discretion, either repair or exchange any defective product at no charge for labor and materials, or refund the amount paid for the product, less shipping and handling charges. Any replacement and/or repaired products are warranted for the remainder of the original warranty.

The customer is responsible for properly packaging the product and for shipping costs for returns. The customer is liable for loss or damage to the product during shipping, as well as any other fees or charges associated with transporting the product back to BayTech. BayTech will pay return costs for delivery within the Continental United States.

All repair and return shipments must be approved by BayTech and must be accompanied by an RA (return authorization) number. Please refer to our Repair and Return Policy below.

For the initial 30 days from the original date of shipment, any unopened product may be returned to BayTech, accompanied by an RA number. Full purchase price will be refunded, provided that the product is in excellent condition. A product may not be returned after 30 days from the original date of shipment unless approved by BayTech management.

Replacements for defective products may be cross-shipped to the customer at no cost if requested within 30 days of date of purchase. At BayTech's discretion, this period may be extended to 90 days. For additional information or more specific warranty issues, contact BayTech's Technical Support Department at **(800) 523-2702** or **(228) 563-7334**.

Exceptions

This warranty does not cover misuse or minor imperfections that fall within design specifications or that do not materially alter functionality. BayTech does not warrant and is not responsible for damages incurred in shipping and handling or caused by disasters (such as fire, flood, wind, earthquake, lightning, power surges or water).

The warranty will be voided regarding products that have been neglected, altered, abused, misused, or used for purposes other than those for which it was designed.

Under no circumstances shall BayTech be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include (but are not limited to) loss of profits, loss of the product or associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property.

BayTech Extended Warranty

Extended warranties and overnight replacements are available for purchase, but only at the time of product purchase. The extended warranty cost will not exceed 7% per year of the product list price unless otherwise stated in the customer contract or approved by BayTech management. Contact BayTech for further details on this.

Technical Support

BayTech offers Tech Support for the lifetime of the product. A staff of Applications Engineers is on duty to assist with installation, set up or operation issues. Support is available from **8:00 a.m. to 5 p.m**. (CST or CDT), Monday through Friday at the phone numbers or website provided below.

Please have the following information available to help the Applications Engineers answer questions efficiently:

1. BayTech model type
2. Unit serial number
3. Firmware version (if accessible)
4. A list of devices connected to the BayTech unit
5. A general description of the application being used and the intended outcome
6. Information about cables and adapters being used (type, length, place of purchase)
7. The name of the software emulation program being used
8. Printout of the configuration status (if possible)

Bay Technical Associates, Inc.
5239 A Avenue
Long Beach Industrial Park
Long Beach, MS 39560
Telephone: 800-523-2702 or 228.563.7334
FAX: 228.563.7335
Email: support@baytech.net
Website: www.baytech.net

Repair and Return Policy

(Return policy refers to BayTech products purchased and returned for credit or repair.)
A Return Authorization (RA) number must be obtained in all cases before returning the BayTech product. Have the serial number and reason for the return or description of the problem handy. Customers in the Continental U.S. can call 1-800-523-2702 or international customers can call 228.563.7334 to obtain an RA number.

If a product is being returned for credit (based on BayTech approval), the credit will not include shipping and handling charges. Determination of credit amount will be made after BayTech receives the product.

Returns on BayTech products older than 3 months are subject to a 15% re-stocking fee of the list price of the product and will be evaluated on a case-by-case basis. BayTech does not allow returns on products out of warranty or for any type of custom product.

Before dismantling equipment or returning the unit for any reason, always contact BayTech. Attempting to repair a product without BayTech authorization may result in voiding the warranty.

Follow the instructions below for repackaging and shipping. NOTE: ***Power should be disconnected from the power source before servicing or dismantling.***

Return Authorization Process:

1. Contact BayTech to get a Return Authorization (RA) Number. **IMPORTANT:** *BayTech will not accept any returns without an RA number.*
2. Package the unit carefully in its original packaging or similar packaging. The warranty does not cover damage sustained during shipment. Enclose a letter with name, address, RA number, daytime phone number and description of the problem.
3. Mark the RA number clearly on the outside of the package.

NOTE: If the RA number is not on the outside of the box, the package will be returned back to the sender or will sit in Receiving until the customer calls in regarding status of RA.

4. Ship the unit by insured, prepaid carrier to the following address:

   Bay Technical Associates
   5239 A Avenue
   Long Beach Industrial Park
   Long Beach, MS 39560
   RA #: 140-xxxxx

5. Surround your unit with a minimum of two inches of insulation.
6. Be sure to seal the box securely with strapping or packing tape. We do not recommend masking tape or cellophane tape.