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GENERAL SAFETY

Only qualified personnel should operate this equipment. There are no user serviceable components or parts in the hardware.

Do not operate this equipment without its cover.

Do not touch exposed connections and components when power is present

Observe all normal precautions to prevent static electricity or other electrical sources that may be present from harming the unit.

If you suspect there is damage to this product, have it inspected by qualified service personnel.

Do not operate in wet/damp conditions.

Do not operate in an explosive atmosphere.

Observe all applicable safety precautions.

GlobalReach User Manual

CONTENTS

Tustin, CA. 92780 USA
Sales@globalreach-da.com
714.730.6843

Intial Release 08/03
Revised 7/05, 11/05

Revised 03/06/06 (added ftp resources)

GlobalReach User Manual

I. INTRODUCTION

Thank you for purchasing the ***GlobalReach*** system. We believe you will be very pleased with the value, high level of capabilities and benefits it brings to your Machine-To-Machine (M2M) applications.

GlobalReach allows you to handle a wide variety of data acquisition, command and control tasks in a straight forward and cost effective manner.

You will be able to monitor the states of up to 16 inputs and send up to 8 output signals to your equipment or processes.

You will be able to periodically collect data and then send it as an email using a normal dial-up telephone line to a mailbox. This mailbox can be periodically monitored by the ***GlobalReach*** client function on your PC.

You will be able to send a control email to the remote hardware's mailbox where the hardware can read the mail and perform the requested commands.

And using the hardware's built-in FTP resources you will be able to send acquired data to your web page in the form of files. You will also be able to send html files to a server containing dynamic data. With the optional ***GChart*** web software you will easily be able to graphically display a variety of acquired data in both analog or digital form as visual graphs on your web page.

GlobalReach is secure, incorporating several important security features.

GlobalReach is reliable and is very easy to deploy and use.

The ***GlobalReach*** system has enormous inherent flexibility by allowing convenient user programmability through use of the ***EzScript*** command language. You will be able to throughly customize its perrsonality to exactly fit your particular M2M application.

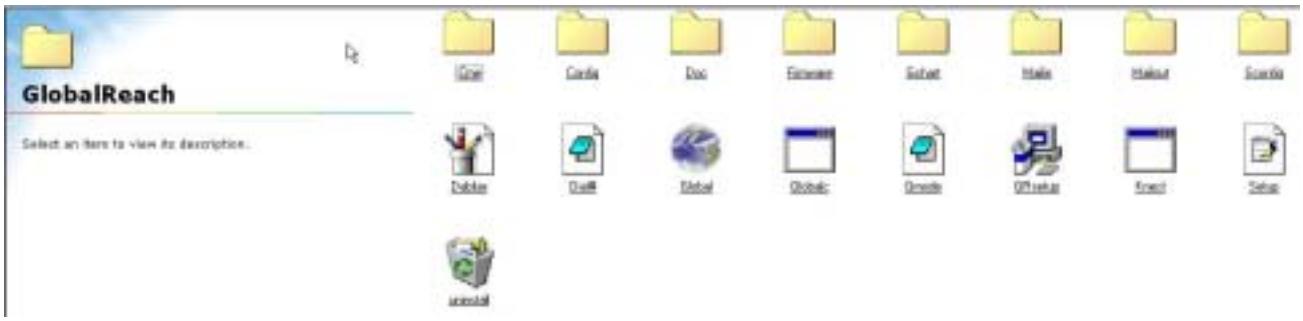
As a minimum, the ***GlobalReach*** system consists of the following items:

A. GlobalReach hardware(remote unit)
B. Setup cable
C. Modem cable
D. 5 Volt power supply
E. CD containing software and user documentation.

2. SOFTWARE INSTALLATION

The supplied CD has the file ***GRsetup.exe*****,** containing the system software and documentation.
GlobalReach software is compatible with **Win98, Win 2000 Pro** or **Win XP**.

Following software installation(if you allowed the default installation), a directory on your hard drive named ***GLOBALREACH*** will be created. This directory contains the following directories/files:



3. SETTING UP THE ISP

Our website has information about various **ISP**'s available to you. While Development Associates makes no recommendations about **ISPs,** information from our user community regarding this may be posted on our site. However, we can share with you that GlobalReach was developed in conjunction with the HighStream.net ISP service(qmail) and IPowerWeb web services(Pure-FTPd).
.

These are the basic **minimum** requirements for a suitable **ISP:**

1. V90, 56K Baud dial-up capability (V92 preferred)
2. POP3 and SMTP protocols supported(optimized for QMail)
3. Two Mailboxes are generally required unless your application only involves data collection
4. CHAP log-in protocol preferred, although PAP is also supported
5. Dynamically assigned IP addresses

You should order and have your **ISP** service installed and your mailbox(es) configured/tested prior to installing the remote unit.

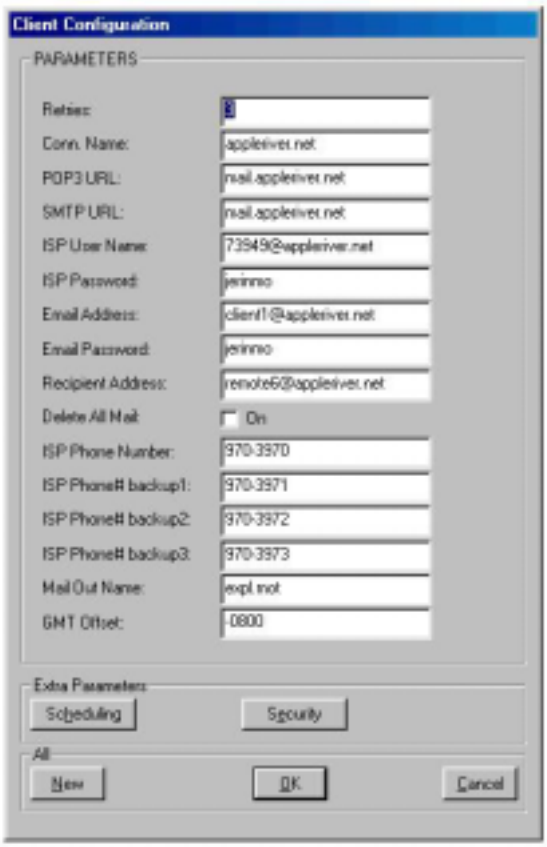
4. CONFIGURING GLOBALC

GLOBALC is the specialized mail client for ***GlobalReach*** and is designed to work with your PC's dial-up modem. To begin configuration of **GLOBALC**, click on the desktop's **GLOBALC** icon. This starts the Globalc program resulting in a small toolbar in the upper left hand region of your screen as follows:

The **File** choice allows viewing/editing of various resources including outgoing email messages, incoming messages, initialization files and control script files. It also allows for program termination.

As shown, the **MailClient** selection provides a popup menu with two choices.

The first, **Configure** is a user friendly way to configure the email client resource. When selected, the following menu is provided.



The entries provided are only for example and you will enter your own parameters.

The entries on this menu are:

1. Retries: 3
Enter the number of times to retry connecting to the **ISP**. Valid choices are 1 through 999. After the number of retry times have been reached the next user supplied phone number (this are later user supplied items) in the sequence is used. If there is no next number the retry number resets and the primary number is again used.

2. Conn. Name: appleriver.net
This is the same name that you have entered in the windows dial-up-networking resource. For more information, consult your window's documentation.

3. POP3 Url: mail.appleriver.net
Enter the **POP3** server's url. For more information, contact your internet service provider.

4. SMTP Url: mail.appleriver.net
Enter the **SMTP** server's url. For more information, contact your internet service provider.

5. ISP User Name: 73949@appleriver.net
Enter your user name for the **ISP**. For more information, contact your internet service provider.

6. ISP Password: jerinmo
Enter your isp password. This is the password that you use to log on to your **ISP.**
For more information, contact your internet service provider.

7. Email Address: client1@appleriver.net
Enter your email address. For more information, contact your internet service provider.

8. Email Password: jerinmo
Enter the **POP3** server password here. For more information, contact your internet service provider.

9. Recipient Address: remote6@appleriver.net
Enter the recipient's email address. For more information, contact your internet service provider.

10. Delete All Mail: ON
ON (box checked) will delete messages in the server's mailbox after they are retrieved. If the box is not checked messages are not deleted.

11. ISP Phone Number: 970-3970
Enter the phone number for your **ISP** here. Usually this is just a 7 digit number with no area code. Be sure to use a number that does not have a toll charge. For more information consult your local white pages and/or your internet service provider.

12. ISP Phone Number Backup1: 970-3971
Enter the 1st backup phone number for your ISP here. Usually this is just a 7 digit number with no area code. Be sure to use a number that does not have a toll charge. If you do not have a backup number leave this field blank. For more information consult your local white pages and/or your internet service provider.

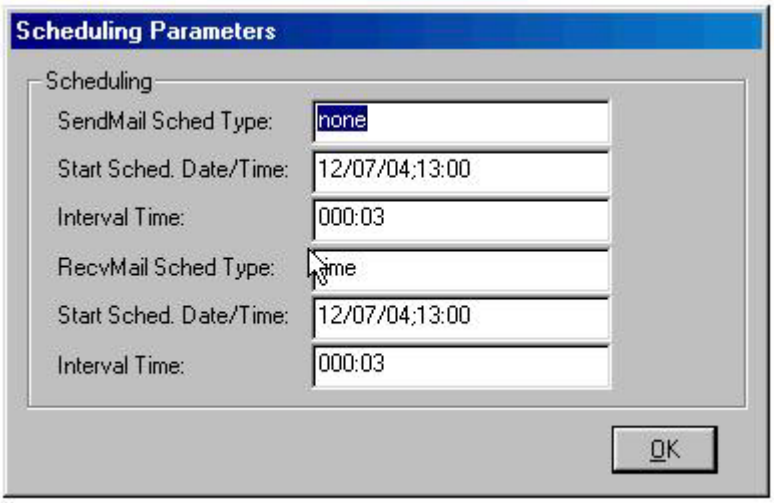
13. ISP Phone Number Backup2: 970-3972
Enter the 2nd backup phone number for your **ISP** here. Usually this is just a 7 digit number with no area code. Be sure to use a number that does not have a toll charge. If you do not have a backup number be sure this field is blank. For more information consult your local white pages and/or your internet service provider.

14. ISP Phone Number Backup3: 970-3973
Enter the 3rd backup phone number for your **ISP** here. Usually this is just a 7 digit number with no area code. Be sure to use a number that does not have a toll charge. If you do not have a backup number be sure this field is blank. For more information consult your local white pages and/or your internet service provider.

15. Mail Out Name: expl.mot
Enter the name of the outgoing email file. This file must exist in the subdirectory mailout.

16. GMT Offset: -0800
Enter the offset from GMT (UCT) and your time zone. For example, Eastern Standard Time is +0400. Pacific Standard Time is +0700. In effect, this adjusts your local time to GMT. +0700 means to add 7 hours. This parameter must be entered as a 5 character token. Many users will not need this function and may leave this entry blank.

The **Extra Parameters** field contains two button items: **Scheduling** and **Security.**
The Scheduling screen is:



1. SendMail Schedule Type: none
Possible entries here are confined to **none** or **time**. A **none** entry means that email messages will never be sent. This allows for a monitor only mode of operation. A **time** entry means that email messages will be sent according to the schedule defined by later entries in this screen.

2. Start Sched. Date/Time: 12/07/04;13:00
This entry defines the date/time that the scheduling process will be initiated. This is based on the local computer's time clock. Please note that if any other entry besides **time** is entered in the SendMail Schedule Type this field has no meaning. Data entry format is: mm/dd/yy;hh:mm

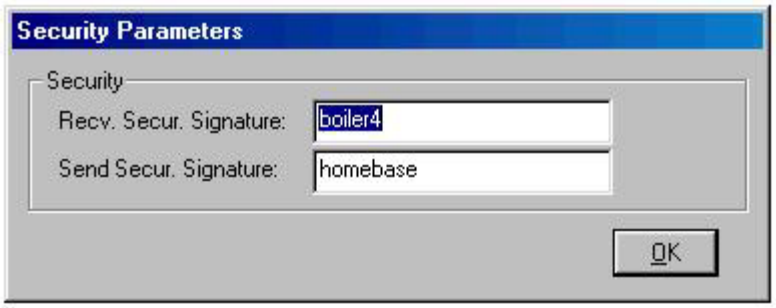
3. Interval Time: 000:03
This entry defines the number of hours and minutes, once the scheduling process has been initiated, between transmitted messages. The timebase used is that of the local computer. Data entry format is: hhh:mm
Please note that if any other entry besides **time** is entered in the SendMail Schedule Type, this field has no meaning.

4. RecvMail Schedule Type: time
Possible entries here are confined to **none** or **time**. A **none** entry means that email messages will never be received. This allows for a broadcast only mode of operation. A **time** entry means that email messages will be received according to the schedule defined by later entries in this screen.

5. Start Sched. Date/Time: 12/07/04;13:00
This entry defines the number of days from the current day that the scheduling process will be initiated. This is based on the local computer's timeclock. Please note that if any other entry besides **time** is entered in the RecvMail Schedule Type this field has no meaning. Data entry format is: mm/dd/yy;hh:mm

6. Interval Time: 000:03
This entry defines the number of hours and minutes, once the scheduling process has been initiated, between attempts to receive messages. The timebase used is that of the local computer. Please note that if any other entry besides **time** is entered in the RecvMail Schedule Type, this field has no meaning. Data entry format is: hhh:mm

The Security screen is:



1. Recv. Secur. Signature: boiler4

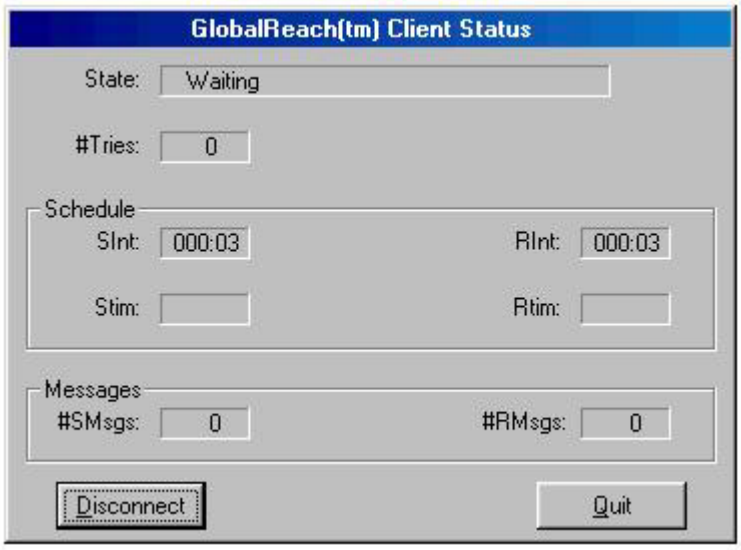
If this field is left blank received messages will not be screened for a security signature. Otherwise, a user defined string must be present in the **From:** field of the incoming email message from the GlobalReach hardware. This means that the GlobalReach hardware configuration must match that of the GlobalReach client software. In this case, if no security signature is found, the message will be discarded. The user string may be any non-control character alpha numerics.

2. Send Secur. Signature: homebase

If this field is left blank messages received by the remote unit hardware will not be screened for a security signature. Otherwise, a user defined string must be present in the **To:** field of the outgoing email message. This means that the GlobalReach hardware configuration must match that of the GlobalReach client software. In this case, if no security signature is found, the message will be discarded by the GlobalReach hardware. The user string may be any non-control character alpha numeric string.

5. GLOBALC CLIENT OPERATION

Once the **MailClient** has been configured, a connect session may be initiated by selecting **Connect** from the **MailClient** popup menu. This displays the following screen:



The screen's ***State*** field shows the current status of the program. It also displays various status messages describing various email reception/transmission details.

The ***#Tries:*** field displays the number of attempts made to complete a session. The maximum number of tries reached is controlled by your configuration settings.

The ***SInt:*** field is the interval between send email cycles and ***Rint:*** is the interval between receive cycles.

The ***STim:*** and ***RTim:*** fields show the current interval time and when these times equal the SInt and RInt time settings the appropriate phases begin.

The ***#SMsgs:*** and ***#RMsgs:*** fields tally the number of valid messages sent and received.

The received emails will be found in the subdirectory ***Mailin*** and the outgoing email must be located in the subdirectory ***Mailout***. Additionally, the outgoing email file's name must agree with the configuration setup.

For uniqueness, mail in files are automatically named: (yyyy)(mm)(dd)(hh)(mm)(ss).min

Pressing the **Disconnect** button causes the current session to terminate and begin again.

Pressing the **Quit** button causes the end of Client session.

6. COMMON GLOBALC STATUS AND ERROR MESSAGES

Authorization *..Authorization phase in progress*

Authorization Ack*...Authorization acknowledged*

Bad Call Format*...error in starting knect.exe has occurred*

Can't Close Socket*...Connection has not closed in response to a Close command*

Can't Start Winsock*..Sockets dll must be winsock32.dll.*

Closing Socket*...Network connection is terminating*

Communication Error*...Network error has occurred*

Complete!*...Phase completion message*

Connecting*...System is attempting to connect with the ISP*

Connected*...System has connected with the ISP*

Connnection Error.*..A network error has occurred*

Connnection Failed.*..System has failed to connect to the ISP*

CreateErr.*..The file could not be created*

Data Cmd Error*...The server did not respond appropriately to the SMTP DATA command*

DelErr.*...POP3 delete message command has failed*

DelMsg Error*...POP3 delete message command has failed*

Dialing: nn...n*...Modem is dialing out*

Disconnect.*..System is disconnecting from the communications line*

DNS Lookup Failed*...Network Domain Name Service request failed*

Error Creating Directory!*...Operating system error*

File Error*...CMD file could not be opened*

File Open Error*...File could not be opened*

File Write Error*..File could not be written to*

File Close Error*...File could not be closed*

File Creation Error*...File could not be created*

File Extension Error*...File extension is incorrect*

Hangup*...Current internet session is being terminated*

Host Disconnect*...Server is disconnecting*

Host TimedOut*...Packet not received from the host in the allotted time*

Idle*...System is awaiting the next operational phase*

IllegMsg*...POP3 E-Mail received that did not contain the required security information;Invalid messages are deleted*

Invalid Socket*...Failed to establish connection to the internet*

IPCP*...Internet Protocol Control Protocol*

Knect.Exe Missing?*...The file knect.exe is not present*

Logon.*..Logon process started*

LoopBk.*..Modem is in Loop Back mode*

MailFrom Error.*..Server did not respond appropriately to the MailFrom command*

MailOut Open Error*..Unable to open the MailOut file.*

MsgEnd Error*...Server did not appropriately respond to the end of message signature*

Modem Already Busy.*..Line is busy*

No Answer*...Dialed number did not answer*

No Carrier.*..No modem carrier was received*

No Dialtone*...No Dialtone detected during dial phase*

No EzScript in Hardware!...*EZScript has not been installed*

No opened file*...Close file attempt without a file being previously opened*

No Subdir path.*..Either the mailin or mailout directory id missing or corrupted and can not be created; probable operating system error*

NoHostResponse.*..Communications path to the server is blocked.*

NoMailOutFile*...The mailout file could not be found; make sure the file exists*

No primary isp phone #*...Configuration entry for the primary isp phone number is non-existant or incorrect*

OK*...General valid response*

Open SerialPort Error*..Serial port failed to open*

.

Operation Aborted*...Operation was aborted*

Out of Memory*...Operating system error*

Password Error.*..Password not accepted*

Password Expired...*Password has expired*

Password Incorrect.*..Password entry is incorrect or missing*

Phase1 Failed...*Hardware flash memory operation has failed*

POP3.*..POP3 service protocol*

RBlk#(n)*...The nth block of a POP3 message is being processed*

RdMsg*...POP3 read message is being received*

Read Failed...*Failure to read a file*

Receive Schedule.*..Configuration entry for the receive schedule type is non-existant/incorrect*

Retrieval Failed*...Hardware EZScript could not be retrieved*

Retry Entry*...Configuration entry for the number of retries is wrong*

RecptAddr*...Configuration recipient address incorrect*

Recieve Interval Hour.*..Configuration Schedule Receive Interval Hour is incorrect*

Recieve Interval Minute.*..Configuration Schedule Receive Interval Minute is incorrect*

Recieve Start Day.*..Configuration Schedule Receive Start Day is incorrect*

Recieve Start Hour.*..Configuration Schedule Receive Start Hour is incorrect*

Recieve Start Minute.*..Configuration Schedule Receive Start Minute is incorrect*

Recieve Start Month.*..Configuration Schedule Receive Start Month is incorrect*

Recv Start Year.*..Configuration Schedule Receive Start Year is incorrect*

RETR Error*...POP3 RETR command failed*

RSET Error*...POP3 RSET command failed*

SBlk#(n)*...The nth block of an email is being sent*

Send Failed*...Attempt to send data to the hardware has failed*

Send Start Day*...Incorrect configuration Schedule Send Start Day*

Send Start Hour*... Incorrect configuration Schedule Send Start Hour*

Send Start Minute*...Iincorrect configuration Schedule Send Start Minute*

Send Start Month*...Iincorrect configuration Schedule Send Start Month*

Send Start Year*... Incorrect configuration Schedule Send Start Year*

Send Interval Minute*...Iincorrect configuration Schedule Send Interval Minute*

Send Interval Hour*...Incorrect configuration Schedule Send Interval Hour*

ServerResponse Error*...Server did not appropriately respond*

SMTP*...SMTP service protocol*

SMTP Error*...SMTP error has occurred*

SndMsg*...An emial message is about to be sent*

Socket Error*...An attempt to read the socket connection has failed*

STAT Error*...POP3 STAT command caused an error*

TimeOut*...PPP packet not received within the allowed time window*

Transmit Schedule*...Configuration entry for the transmission schedule type is non-existant or incorrect*

Unclassified Error*...Unknown error*

Unknown dial Error*..Unknown error*

Unreachable*...Server signified that the communication destination is not available*

UnsupportedAuth*...Required login is not chap/ pap protocol*

User ID Error*...Incorrect user ID*

UserName Incorrect*...Configuration ISP user name missing or in error*

ValidMsg*...Valid GlobalReach email received*

****-VerifyError-****...*RS232 communication error*

Target Stack Error!*...RS232 commuication stack problem*

7. OTHER STATUS/ERROR MESSAGES

Account Expired!

Account Disabled!

Already Disconnecting!

Async Request Pending

Auth Internal

Bad Callback Number

Bad Phone Number!

Bad String

Bad Usage In Ini File

Biplex Port Not Available

Buffer Too Small

Can't Access TCPCFGDLL!

Can't Find Dialup Instance!

Can't Get Lana

Can't Load Dialup Instance!

Can't Load String

Can't Open Dialup Instance!

Can't Project Client

Can't Set Port Info

Can't Use Logon Credentials!

Can't Write Phonebook

Command Too Long!

Connection Instance Corrupted!

DCB Not Found

Defaultoff Macro Not Found

Device Doesn't Exist

Device Name Not Found

Device Name Too Long

Device Not Ready!

Device Type Doesn't Exist

Disconnection!

Empty Ini File

Error Changing Password

Error From Device

Error In Command

Error Reading Defaultoff

Error Reading Device Name

Error Reading Device Type

Error Reading Maxcarrierbps

Error Reading Maxconnectbps

Error Reading Section Name

Error Reading Usage

Error Writing Device Name

Error Writing Device Type

Error Writing Defaultoff

Error Writing Initbps

Error Writing Maxcarrierbps

Error Writing Maxconnectbps

Error Writing Usage

Excessive Line Errors!

File Could Not Be Opened

Hardware Failure!

IP Configuration Error!

IPXCP Dialout Already Active

IPXCP Net Number Conflict

Interactive Mode

Invalid Authorization State!

Invalid Buffer

Invalid Callback Number

Invalid Compression Specified!

InvalidEvent!

Invalid Port Handle

Invalid PPP Packet!

Key Not Found

Line Busy!

Macro Not Defined

Macro Not Found

Memory Allocation!

Message Macro Not Found

Modem Already In Use

Name Exists On Net

Netbios Error

No Answer!

No Active ISDN Lines

Not Binary Macro

No Carrier!

No Command Found

No Connection!

No Dialin Permission

No Dialtone!

No Endpoints

No IP Addresses!

No IP RAS_Adapter

No IPXP Dialout Configured

No IPXCP Dialin Configured

No ISDN Channels Available

No Local Encryption

No MAC For Port

No More Buffers!

No PPP Protocols Configured!

No PPP Response!

No Remote Encryption

No Response!

Non Convergent PPP!

Unrecognized Response!

Verify Failed!

X25 Diagnostic Error

OverRun!

Pending

PPP LCP Rejected!

PPP LCP Terminated!

PPP Loopback!

PPP NCP Terminated

PPP No Address Assigned!

PPP Remote Terminated!

PPP Required Address rejected!

Phone Number Too Long!

Projection Not Complete

Protocol Not Configured!

Port Disconnected!

Port Not Available

Port Not Connected

Port Not Found!

Port Not Open!

Port Or Device Error

Port Not Configured!

Password Expired!

Partial Response Looping

PPP Timeout!

Rasman Can't Initialize

Reading Ini File

Remote Disconnection

Remote requires encryption

Receive Buffer Full!

Request Timeout

Restricted Logon Hours!

Route Not Allocated!

Route Not Available!

Script Syntax Error

Server General Net Failure

Server Not Responding

Server Out Of Resources

SLIP Requires IP!

SMM Timeout

SMM Unitialized

State Machines Already Started

State Machines Not Started

TAPI Configuration Error

Unknown Device Type

Unknown Error!

Unknown Response Key!

Unexpected Response!

Unsupported BPS!

User Disconnection!

Warning..Msg Alias Not Added

Wrong Info Specified

Wrong Device Attached

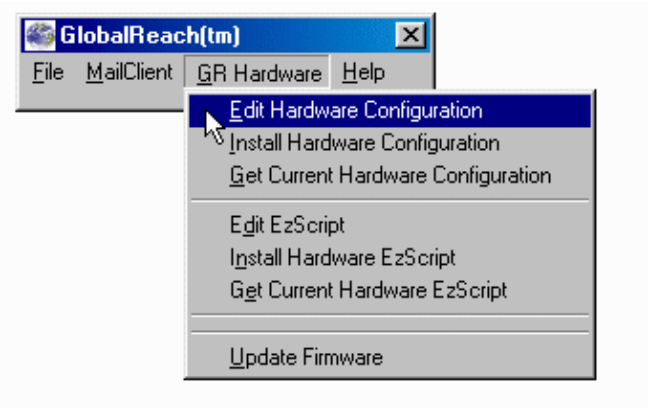
Wrong Module

Wrong Key Specified

Voice Answer!

8. REMOTE HARDWARE PREPARATION

With **Globalc** running on your PC, select the **GR Hardware** toolbar choice which shows this popup menu:



Selecting the **Edit Hardware Configuration** allows you to specify the 'personality' of the remote hardware. The next page shows the Configuration screen. Following is a description of the various fields.

1. Baud: 115200
Enter the modem baud rate in bps here. Default baud rate is 115200. Other standard baud rate choices may be used if required.

2. Init String: ATZ
Enter the modem's initialization string here. **ATZ** is default.

3. Dial Init: ATDT
Enter the modem's dialing start string here.

4. Hang Up String: ATH0
Enter the modem's hang up string here.

5. Retries: 3
Enter the number of times to retry to connect to the **ISP**. Valid choices are 1 through 999. After the number of retry times have been reached, the next user supplied phone number in the sequence is used. If there is no next number the retry number resets and the primary number is used.

6. POP3 Url: mail.appleriver.net
Enter the **POP3** server's url. For more information, contact your internet service provider.

7. SMTP Url: mail.appleriver.net
Enter the **SMTP** server's url. For more information, contact your internet service provider.

8. FTP Url: ftp.ureach.com
Enter the FTP server's url. For more information, contact your web server provider.

9. ISP User Name: 739000@appleriver.net
Enter the user name for your **ISP**. For more information, contact your internet service provider.

10. ISP Password: remoteuser
Enter your isp password. This is the password that you normally would use to log on to the isp. For more information, contact your internet service provider.

11. FTP User Name: ftpuser
Enter your user name for ftp access. For more information, contact your web server provider.

12. FTP Password: itsme
Enter your user password for ftp access. For more information, contact your web server provider.

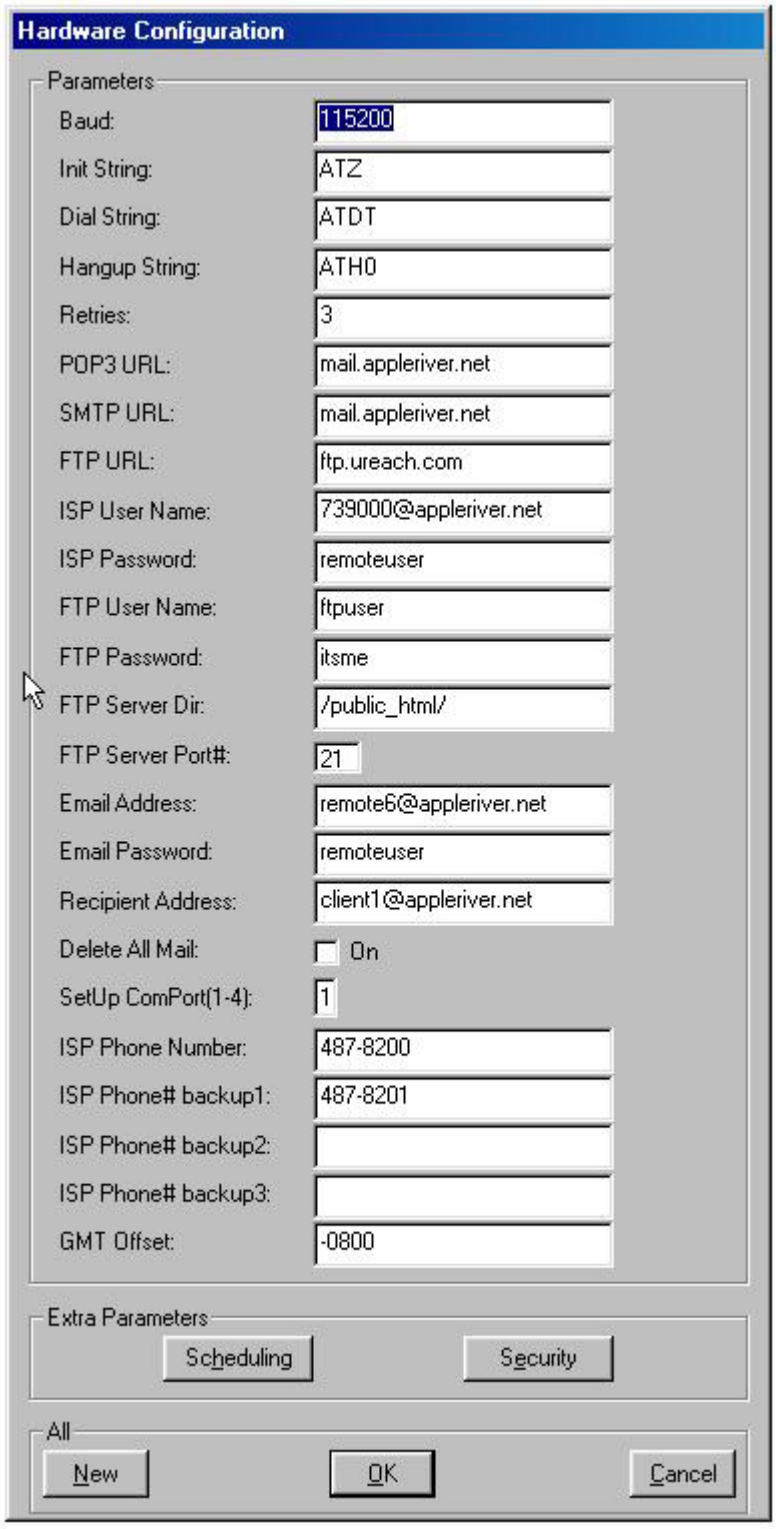
13. FTP Server Dir: /public_html/
Enter the server path to your desired destination. For more information, contact your web server provider.

14. FTP Server Port#: 21
This entry is almost always Port 21. For more information, contact your web server provider.

15. Email Address: remote6@appleriver.net
Enter your email address. For more information, contact your internet service provider.

16. Email Password: remoteuser
Enter the **POP3** server password here. For more information, contact your internet service provider.

17. Recipient Address: client1@appleriver.net
Enter the recipient's email address. For more information, contact your internet service provider.



18. Delete All Mail: ON

ON (box checked) will delete messages in the server's mailbox after they are retrieved. If the box is not checked, messages are not deleted.

19. SetUpCommPort(1-4): 1

Enter the com number of your PC's serial port here. See your computer's documentation for further information.

20. ISP Phone Number: 487-8200

Enter the phone number for your **ISP** here. Usually this is just a 7 digit number with no area code. Be sure to use a number that does not have a toll charge. For more information consult your local white pages and/or your internet service provider.

21. ISP Phone Number Backup1:487-8201

Enter the 1st backup phone number for your ISP here. Usually this is just a 7 digit number with no area code. Be sure to use a number that does not have a toll charge. If you do not have a backup number leave this field blank. For more information consult your local white pages and/or your internet service provider.

22. ISP Phone Number Backup2:

Enter the 2nd backup phone number for your **ISP** here. Usually this is just a 7 digit number with no area code. Be sure to use a number that does not have a toll charge. If you do not have a backup number be sure this field is blank. For more information consult your local white pages and/or your internet service provider.

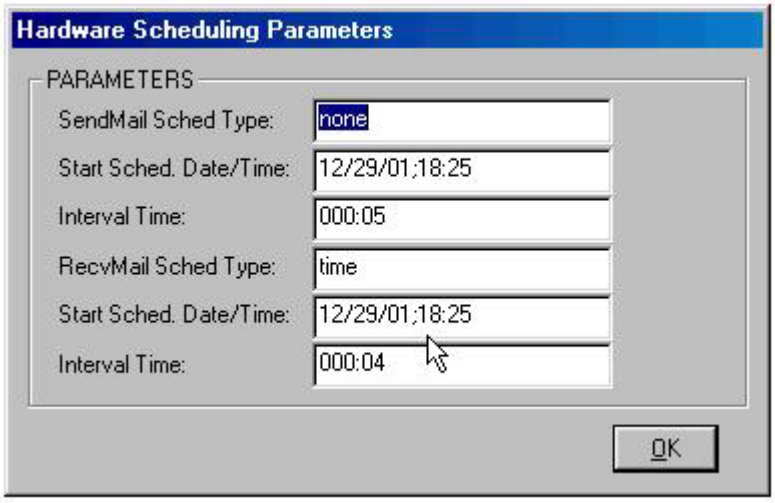
23. ISP Phone Number Backup3:

Enter the 3rd backup phone number for your **ISP** here. Usually this is just a 7 digit number with no area code. Be sure to use a number that does not have a toll charge. If you do not have a backup number be sure this field is blank. For more information consult your local white pages and/or your internet service provider.

24. GMT Offset: -0800

Enter the offset from GMT (UCT) and your time zone. For example, Eastern Standard Time is +0400. Pacific Standard Time is +0700. In effect, this adjusts your local time to GMT. +0700 means to add 7 hours. This parameter must be entered as a 5 character token. Many users will not need this function.The **Extra Parameters** field contains two button items: **Scheduling and Security.**

The Scheduling screen is:



1. SendMail Schedule Type: none

Possible entries here are confined to "**none**" or "**time**". A "**none**" entry means that email messages will never be sent. This allows for a monitor only mode of operation. A "**time**" entry means that email messages will be sent according to the schedule defined by later entries in this screen.

2. Start Sched. Date/Time: 12/29/01;18:25

This entry defines the date/time that the scheduling process will be initiated. This is based on the local computer's time clock. Please note that if any other entry besides "**time**" is entered in the SendMail Schedule Type this field has no meaning. The data entry format is: mm/dd/yy;hh:mm

3. Interval Time: 000:05

This entry defines the number of hours and minutes, once the scheduling process has been initiated, between transmitted messages. The timebase used is that of the local computer. Please note that if any other entry besides "**time**" is entered in the SendMail Schedule Type, this field has no meaning. Data entry format is: hhh:mm

4. RecvMail Schedule Type: time
Possible entries here are confined to **none** or **time**. A **none** entry means that email messages will never be received. This allows for a broadcast only mode of operation. A **time** entry means that email messages will be received according to the schedule defined by later entries in this screen.

5. Start Sched. Date/Time: 12/29/01;18:25
This entry defines the number of days from the current day that the scheduling process will be initiated. This is based on the local computer's timeclock. Please note that if any other entry besides **time** is entered in the RecvMail Schedule Type this field has no meaning. Data entry format is: mm/dd/yy;hh:mm

6. Interval Time: 000:04
This entry defines the number of hours and minutes, once the scheduling process has been initiated, between attempts to receive messages. The timebase used is that of the local computer. Please note that if any other entry besides **time** is entered in the RecvMail Schedule Type, this field has no meaning. Data entry format is: hhh:mm

The Security screen is:

1. Recv. Secur. Signature: homebase
If this field is left blank received messages will not be screened for a security signature. Otherwise, a user defined string must be present in the **From:** field of the incoming email message from the GlobalReach hardware. This means that the GlobalReach hardware configuration must match that of the GlobalReach client software. In this case, if no security signature is found, the message will be discarded. The user string may be any non-control character alpha numerics.

2. Send Secur. Signature: boiler4
If this field is left blank messages received by the remote unit hardware will not be screened for a security signature. Otherwise, a user defined string must be present in the **To:** field of the outgoing email message. This means that the GlobalReach hardware configuration must match that of the GlobalReach client software. In this case, if no security signature is found, the message will be discarded by the GlobalReach hardware. The user string may be any non-control character alpha numeric string.

There are two major steps required to deploy the remote unit:

1. Configuration
2. EzScript Installation

Configuration refers to the process required to give information to the remote unit as to where to send and receive email, scheduling/security information, etc.

User Script(**EzScript**) Installation is required in the remote unit to control how it acquires data and interacts with the configuration scheduling to send/receive E-mail. Please see the manual section that deals with **EzScript** for details.

Both configuration information and **EzScript** are stored in the remote unit's non-volatile memory.

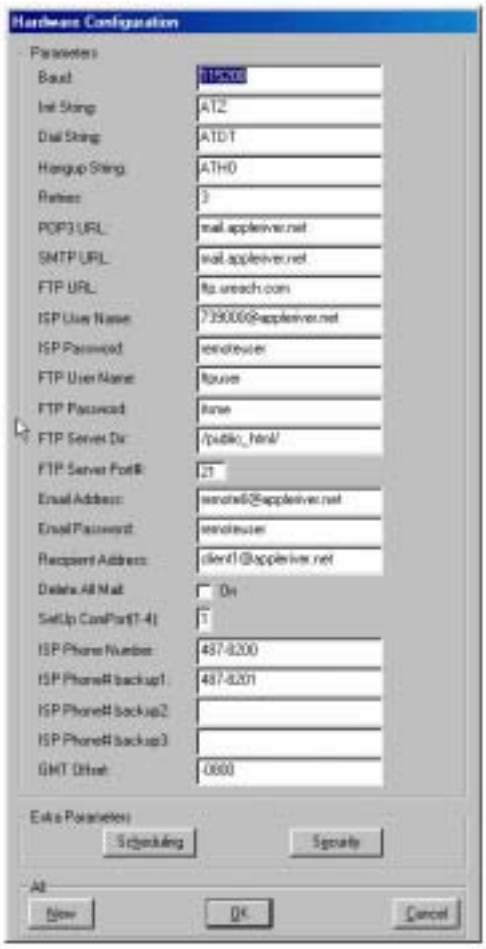
****CAUTION****

Both the telephone line and programming (e.g. Setup) port use the same connector type. Do not confuse these ports or serious damage to the unit may result(which voids the warranty). See the photograph of the unit's rear.

Start configuration/Script installation by connecting the setup cable from your PC's RS-232C serial port to the remote unit's programming port(see rear unit photo).

Connect the 5 Volt Power supply to the remote unit's power connector. Plug the 5 Volt power supply into a local standard 110VAC, 60Hz outlet.

With Globalc running choose GR Hardware on the toolbar. This opens up a popup menu that contains, among other choices, **Install Hardware Configuration.** Chose it and select the file **Sconfig.ini.** This will open the hardware configuration menu:



Rear view of the remote unit

Rear View Detail

If you are satisfied with the entries press **Ok**. This causes the following message to appear:

Press the reset button on the rear of the hardware unit. When the front panel of the hardware begins to blink select **OK**.

A small window will appear with the title **Set GlobalReach Hardware Clock.** The window momentarily fills with the message: **GlobalReach Date/Time Set Successfully.** If for some reason the clock cannot be set, the message: **GlobalReach Date/Time Set Failed!** is displayed.

Following this, another small window titled: **Hardware...Phase2(Wait)** appears. This window has a progress bar and a box showing the elapsed seconds. It normally requires about 40-50 seconds to send the configuration data to the hardware. Assuming this process is successful, the following message box is then displayed:

Pressing **Ok** completes the process.

You can verify that the new configuration data is now in the hardware by invoking the **Get Current Hardware Configuration** choice in the popup menu. Operation of this process is very similar to that of the previously described **installing the configuration**.

Another series of choices in the popup menu relate to **EzScript**, the GlobalReach command language. As delivered, the hardware has the file **Noscript.cmd** installed. This file contains the minimum required script which is simply the word **noscript**.

Selecting the **Install Hardware EzScript choice** opens up the directory holding the .cmd files. You select a file and then you are presented with the prompt requesting you to reset the hardware. When this is done the time setting process occurs followed by a Phase1 window. This process can take up to a minute or more to complete and is dependent upon the size of the **EzScript** file. Then a Phase2 process occurs that involves operation of the hardware flash memory. This process normally requires 40-50 seconds.

Selecting the **Get Current Hardware EzScript** from the popup menu is very similar to the **Get Current Hardware Configuration** process**.**

*****Caution*****

*Do not select the **Update Firmware** choice without instructions from the factory. This choice is used only to update the hardware firmware and using it without the proper firmware file will result in loss of firmware in the hardware rendering the hardware useless.*

Please note that the install procedures described here are sensitive processes and signal flow interuption and a host of other abnormal events can cause the process to fail and thus render the hardware useless. Be sure to follow the instructions given here exactly.

9. REMOTE UNIT DEPLOYMENT/OPERATION

When you have completed setup and configuration of the remote unit it can now be deployed.

To do this, remove power to the remote unit and unplug the setup cable. The unit contains a backup power source for its internal time clock. Experience has shown that the power source can maintain the time clock for up to 12 hours or more.

However, due to component parameter variations, the backup time may be significantly less.

To deploy the unit, connect the modem cable to the telephone line and apply power.The unit's front panel display will display the power-on LED and the startup LED should blink for a few seconds and then the unit should enter the ***Idle*** state

From this point, the front panel status is dependent upon your **EzScript**, configuration details and the communications link.

For a full listing of all the status LED states please refer to **section 12**.

10. EzScript

Application flexibility and customization of GlobalReach is achieved through use of **EzScript** which consists of a compact set of keywords that direct the remote unit's behavior. The user prepares the script using notepad or any other equivalent ascii text processor. **EzScript** syntax is exceptionally simple and easy to write.

There are approximately 86 keywords that make up the **EzScript** vocabulary.

Generally, a line contains only one script statement which consists of a series of tokens(e.g. words or numbers) each separated by one or more spaces.

EzScript is case insensitive.

The minimum script required is the following statement:

noscript

Failure to provide at least the minimum script will result in unpredicable behavior.

Your script can contain comment lines that are signified by using a backslash character at the beginning of each comment line.

There are two reserved words that may not appear in your script; **GlobalStart** and **GlobalEnd**.

The size of a processed script file may be up to approximately 62k Bytes. In actual practice, files will typically be on the order of a few hundred to 2k Bytes.

The script interpreter provides a minimal amount of error handling. Errors are handled in one of two ways. If possible, the unit prepares and sends an error email indicating the error and, if applicable, the line number of the script error.

Various error messages are shown in the error section of this manual. If it is not possible for the unit to send a message, the front panel LED array pattern classifies the error. The status display section of this manual shows the possible LED patterns that can exist.

In the case of resident script errors following the error email transmission the hardware resets and attempts to run the script again. If the script is received in an email after the error email is transmitted the hardware aborts script execution and resumes normal operation.

The file **Expl.cme** found in the subdirectory **CME** illustrates vocabulary usage. An example of every word in the **EzScript** vocabluary is included(except FTP resource words). Also the subdirectory **DOC** contains the following files that show the email messages resulting from execution of this script:
:
20050613133205.min resultant email due to execution of **Expl.cme**
20050613130444.min resultant log email
20050613133209.min resultant receipt email

During system operation, when script execution reaches the end of the script it automatically continues execution at the beginning of the script. An exception to this is in the case of script received in an email message. In this case, execution terminates when the script is exhausted.

The following section constitutes the **EzScript** keyword definitions and is arranged in ascii sort sequence.

11. EzScript Keywords

(presented in ascii sort sequence)

*****

Integer multiply operator.
Example: ***VAR1 * VAR2***
The value contained in variable **VAR1** is multiplied by the value contained in **VAR2** and the result is placed in variable **VARR**.

+

Integer add operator
Example: ***VAR1 + VAR2***
The value contained in variable **VAR1** and the value contained in **VAR1** are added and the result is placed in variable **VARR**.

-

Integer subtract operator
Example: ***VAR1 - VAR2***
The value contained in variable **VAR2** is subtracted from the value contained in **VAR1** and the result is placed in variable **VARR**.

/

Integer division operator
Example: ***VAR1 / VAR2***
The value contained in variable **VAR1** is divided by the value contained in **VAR2** and the result is placed in variable **VARR**.

<

Integer comparison
Example: ***VAR1 < VAR2***
The result of this comparison is put in the variable **VARR**. If **VAR1** is less than **VAR2** the result is 1; otherwise it is 0.

<=

Integer comparison
Example: ***VAR1 <= VAR2***
The result of this comparison is put in the variable **VARR**. If **VAR1** is less than or equal to **VAR2** the result is 1; otherwise it is 0.

=

Integer comparison
Example: ***VAR1 = VAR2***
The result of this comparison is put in the variable **VARR**. If **VAR1** is equal to **VAR2** the result is 1; otherwise it is 0.

>

Integer comparison
Example: ***VAR1 > VAR2***
The result of this comparison is put in the variable **VARR**. If **VAR1** is greater than **VAR2** the result is 1; otherwise it is 0.

>=
Integer comparison
Example: ***VAR1 >= VAR2***
The result of this comparison is put in the variable **VARR**. If **VAR1** is greater than or equal to **VAR2** the result is 1; otherwise it is 0.

---

again
Infinite loop terminator
Example:
BEGIN
(Script command sequence)
AGAIN
This structure will repeatedly execute the Script command sequence.

---

and
logical AND operator
Example: ***VAR1 AND VAR2***
The value contained in variable **VAR1** is logically anded with the value contained in **VAR2** and the result is placed in variable **VARR**.

---

analog

FTP command. This is a header declaration that the data sent via ftp should be intrepreted as an anlog value by the server's Gchart resources.

---

b1, b2, b3,...b16

FTP command. These are header declarations used with the ***digital*** declaration in the header area. This signifys which bits are going to be acquired. These elements are attached to an alphanumeric label that will be displayed in the ***server's Gchart*** graph. The maximum width of the label is at least 8 characters. The form of usage is:
b1 label1
b2 label2
etc.

---

b1=, b2=, b3=,...b16=

FTP command. These commands used in the data section, output the indicated bit of the result variable ***VARR.*** These bits determine chart points in the server's ***Gchart*** presentation. The usage form is:
b1=
b2=
etc.

---

begin
Start of a loop structure
Example:
\infinite loop...
BEGIN
(Script command sequence)
AGAIN
\or message size limit loop...
BEGIN
(Script command sequence)
TIL_BUF_FULL
\or condition limit loop...
BEGIN
(Script command sequence)
UNTIL_COUNT
The value contained in variable **VAR1** is divided by the value contained in **VAR2** and the result is placed in variable **VARR**.

---

bkslash
Symbolic name for the "\" character (5c hex)
Example: ***WRITE BKSLASH***
adds the "\" character to the email message space.

---

colon
Symbolic name for the ":" character (3a hex)
Example: ***WRITE COLON***
adds the ":" character to the email message space.

---

comma
Symbolic name for the "," character (2c hex)
Example: ***WRITE COMMA***
adds the "," character to the email message space.

---

com
logical complement operator
Example: ***COM VAR1***
The value contained in variable var1 is bit by bit complemented and the result is placed in the variable **VARR.**
The contents of **VAR1** remain unchanged.

---

count
general system word (16 bit) variable
Example:
\place a value in count...
6 TO COUNT
or
\increment count...
NEXTCOUNT

---

data1, data2

FTP commands. These are header declarations used with the ***analog*** declaration in the header area. This signifys data quanitites that are going to be acquired. These elements are attached to an alphanumeric label that will be displayed for the data quantities in the server's ***Gchart*** graph. The maximum length of the label is at least 8 characters. The form of usage is:
data1 label1
data2 label2

---

data1=, data2=

FTP commands. These commands used in the data section, output the indicated vlues of the result variable VARR. These values determine chart points in the server's Gchart presentation and signify data quanitites that are going to be acquired. These elements are attached to an alphanumeric label that will be displayed in the server's ***Gchart*** graph. The magnitude of the data is determined by the ***range*** header command.
The form of usage is:
data1=
data2=
etc.

---

date

function that generates the current date as a string
Example: ***WRITE DATE***
This adds the current date to the email message space in the form of dd/mm/yy.

---

days

time delay function
Example: ***2 DAYS***
The function provides for a system time delay function. The maximum delay is 65535 days.

---

digital

FTP command. This is a header declaration that the data sent via ftp should be intrepreted as a a digital bit value by the server's Gchart resources.

---

else

conditional branch logic
Example:
VAR1 TO IFVAL
IFVAL
IF
WRITE "IF PATH"
ELSE
WRITE "ELSE PATH"
THEN
This structure may be nested 5 levels deep.

---

endhead

FTP command. This declaration signifies the end of the header field.

---

ftp

FTP command. This command causes the formated script header and data to be transmitted to the server.

---

hours

time delay function
Example: ***2 HOURS***
The function provides for a system time delay function. The maximum delay is 65535 hours.

---

if
conditional branch logic
Example:
VAR1 TO IFVAL
IF
WRITE "IF PATH"
ELSE
WRITE "ELSE PATH"
THEN
or
VAR1 TO IFVAL
IF
WRITE "IF PATH"
THEN
If tests the value of the system variable **IFVAL1**. If **IFVAL** is non-zero script execution flow follows the **IF** path. Otherwise, execution flow is to the **ELSE** or **THEN** path. This structure may be nested 5 levels deep.

---

ifval
system variable used by conditional branch test logic.
Example:
VAR1 TO IFVAL
IF
WRITE "IF PATH"
ELSE
WRITE "ELSE PATH"
THEN
IF tests the value of the system variable **IFVAL**.

---

in0
8-bit input function for bi-directional i/o port
Example: ***IN0***
Before using this function the i/o port must be in its input mode which is set through use of the **mkin** function. Invoking the **in0** function places the input value of all 8-bits in the 8-bit variable **VAL0.**
The described action specifically applies to model GR-1P.

---

in1
8-bit input function for input port
Example: ***IN1***
Invoking this function places the input value of all 8-bits in the 8-bit variable **VAL1**. The described action specifically applies to model GR-1P.

---

initsendmail
Initialization procedure
Example: ***INITSENDMAIL***
This procedure initializes pointers/variables and other items related to the email message buffer. Generally, It should always be invoked prior to executing EZScript senarios.

---

max
Comparison
Example:
MAX VAR1 VAR2
or
MAX 6 7
This procedure returns the maximum value of the two arguments in the variable **VARR**.

---

maxval
FTP command. header declaration used to provide proper vertical axis scaling in the server's Gchart resource. This is used in analog declared headers.It represents the full scale value of the label amount. For example, if label1 equals gallons and the largest (full scale) value of gallons is 1000 then the value of ***maxval*** would be 1000.

---

min
Comparison
Example:
MIN VAR1 VAR2
or
MIN 6 7
This procedure returns the minimum value of the two arguments in the variable **VARR**.

---

minutes
time delay function
Example: ***2 MINUTES***
The function provides for a system time delay function. The maximum delay is 65535 minutes.

---

mkin
i/o port bi-directional command
Example: ***MKIN***
Invoking this word sets the bi-dirctional i/o port to input mode. This must be invoked prior to using input commands for this port.

---

mkout
i/o port bi-directional command
Example: ***MKOUT***
Invoking this word sets the bi-dirctional i/o port to output mode. This must be invoked prior to using output commands for this port.

---

nextcount
increment count variable procedure
Example: ***NEXTCOUNT***
Used to set the value of the variable **count** to its current value plus one. Typically used within loop constructs as a loop index.

---

nextline
E-Mail message formatting
Example: ***NEXTLINE***
Used to place a carriage return/linefeed in the message buffer. This command has a short form of **NL.**

---

nl
E-Mail message formatting
Example: ***NL***
Used to place a carriage return/linefeed in the message buffer. This command has a long form of **NEXTLINE.**

---

nop
no operation procedure
Example: ***NOP***
This procedure is not normally used and is provided for factory debugging purposes.

---

noscript
script control procedure
Example: ***NOSCRIPT***
This is the minimum script required in an application. This is usually used in a situation where the controlling script is obtained from incoming emails rather than resident script.

---

not
integer logic not operator
Example: ***NOT VAR1***
The value contained in variable **VAR1** is logically not'ed and the result is placed in variable **VARR**. The original value in **VAR1** is unchanged. In the example shown, if **VAR1** > 0 then **NOT VAR1** results in **VAR1**= 0; if **VAR1** = 0 then **NOT VAR1** = 1.

---

or
Integer logical or operator
Example: ***VAR1 OR VAR2***
The value contained in variable **VAR1** is or'ed with the value contained in **VAR2** and the result is placed in variable **VARR**. The original values of **VAR1** and **VAR2** are unchanged.

---

out0
8-bit output function for bi-directional port
Example: ***OUT0***
Invoking this function ouputs the byte in variable **VAL0** to the bi-directional port. The user must ensure that a previous **MKOUT** statement was made or results of this operation will be unpredictable. This action specifically applies to model GR-1P.

---

quote
Symbolic name for the "" character(22 hex)
Example: ***WRITE QUOTE***
Adds the "" character to the email message space.

---

range
FTP command. header declaration that signifies the number of bits used in an acquired data value.
This is used in analog declared headers. Permisable values of ***range*** are from 1 to 16. It is the responsibilty of the user to provide the proper number of bits to the data values.

---

receipt
verification procedure
Example: ***RECEIPT***
The procedure is usually used after execution of a received email containing control script.
The format of the message verification is:
Receipt: Mail Accepted & Executed at: dd/mm/yy;hh:mm.

---

seconds
time delay function
Example: ***2 SECONDS***
The function provides for a system time delay function. The maximum delay is 65535 seconds.

---

semi
Symbolic name for the ";" character (2c hex)
Example: ***WRITE SEMI***
adds the ";" character to the email message space.

---

sendlog
maintenance procedure
Example: ***SENDLOG***
This procedure can be used to send an email containing the log session showing packet flow during the previous session. The user will not generally use this procedure.

---

sendmail
Transmission procedure
Example: ***SENDMAIL***
This procedure is used to send the results of data collected by the remote unit.

---

setdate/time
time clock procedure
Example: ***SETDATE/TIME "04/05/03;03:04"***
This procedure is seldom used and allows setting of the remote unit's timeclock.

---

sl
Integer shift operator
Example: ***SL VAR1 2***
The value contained in variable **VAR1** is shifted to the left by 2 bits and the result is placed in variable **VARR**.

---

slash
Symbolic name for the "/" character (2c hex)
Example: ***WRITE SLASH***
adds the "/" character to the email message space.

---

spaces
Symbolic name for space (20 hex) characters
Example: ***11 SPACES***
adds the 11 space characters to the email message area.

---

sr
Integer shift operator
Example: ***SR VAR1 2***
The value contained in variable **VAR1** is shifted to the right by 2 bits and the result is placed in variable **VARR.**.

---

then
conditional logic conclusion statement
Example:
...
1 TO VAR8
1 TO VAR7
VAR8 TO IFVAL
IF
VAR7 TO IFVAL
IF
OUT1
ELSE
OUT0
THEN
ELSE
OUT0
THEN
Used to conclude **IF/ELSE** conditional statements.

---

til_buf_full
conditional loop terminator
Example:
BEGIN
(Script commands)
TIL_BUF_FULL
If the email buffer is full script execution continues beyond the **TIL-BUF-FULL** statement.

---

time
timeclock value string procedure
Example: ***WRITE TIME***
Writes the timeclock's time to the email buffer

---

to
storage operator
Example:
VAR1 TO VAR2
variable to variable. The value contained in variable **VAR1** is placed in **VAR2**
or
10 TO VAR2
integer to variable. The integer is placed in **VAR2**.

---

udisp_off
User display procedure
Example: ***UDISP_OFF***
Turns the user display LED off.

---

udisp_on
User display procedure
Example: ***UDISP_ON***
Turns the user display LED on.

---

until_count
conditional loop terminator
Example:
0 TO COUNT
10 TO VARM
BEGIN
(Script commands)
NEXTCOUNT
UNTIL_COUNT
This script sequence places 10 in the reference variable **VARM** and ultimately **COUNT** is equal to 10. At that point, script execution exits the loop structure.

---

val0
Integer system variable
Example: ***10 TO VAL0***
The integer 10 is placed in the variable **VAL0**. This is a 8-bit variable. Note that this variable's value is tied to the bi-directional port value. See **OUT0** and **IN0** for more information.

---

val1
Integer system variable
Example: ***10 TO VAL1***
The integer 10 is placed in the variable **VAL1**. This is a 8-bit variable.Note that this variable's value is tied to the input port value. See **IN1** for more information.

---

var1
Integer system variable
Example: ***10 TO VAR1***
The integer 10 is placed in the variable **VAR1**. This is a 16-bit variable.

---

var2
Integer system variable
Example: ***10 TO VAR2***
The integer 10 is placed in the variable **VAR2**. This is a 16-bit variable.

---

var3
Integer system variable
Example: ***10 TO VAR3***
The integer 10 is placed in the variable **VAR3**. This is a 16-bit variable.

---

var4
Integer system variable
Example: ***10 TO VAR4***
The integer 10 is placed in the variable **VAR4**. This is a 16-bit variable.

---

var5
Integer system variable
Example: ***10 TO VAR5***
The integer 10 is placed in the variable **VAR5**. This is a 16-bit variable.

---

var6
Integer system variable
Example: ***10 TO VAR6***
The integer 10 is placed in the variable **VAR6**. This is a 16-bit variable.

---

var7
Integer system variable
Example: ***10 TO VAR7***
The integer 10 is placed in the variable **VAR7**. This is a 16-bit variable.

---

var8
Integer system variable
Example: ***10 TO VAR8***
The integer 10 is placed in the variable **VAR8**. This is a 16-bit variable.

---

varm
Integer system variable
Example: ***10 TO VARM***
The integer 10 is placed in the variable **VARM**. This is a 16-bit variable. This contents of this variable is used as a reference for the **UNTIL_COUNT** conditional loop construct.

---

varr
Integer system variable
Example: ***10 TO VARR***
The integer 10 is placed in the variable **VARR**. This is a 16-bit variable. This variable is used as the result variable for most of the logical and arithmetic script operations.

---

vers
system version string procedure
Example: ***WRITE VERS***
writes the system version information to the message buffer. This information is in the form of: GlobalReach..Vx.x..mm/dd/yy

---

vleg

FTP command. Header declaration used with the ***analog*** declaration in the header area. This signifies the vertical axis unit labeling in the server's ***Gchart*** graph. These elements are attached to an alphanumeric label that will be displayed for the data quantities in the server's ***Gchart*** graph. Usage form is:
vleg label1
or
vleg lable2

---

webfile

FTP command inserted at the beginning of a script file when you wish to prepare EzScript containing HTML statements that will result in a web page being sent to the server.

Example: ***webfile "myfile.htm"***

See the file ***webex.cme*** in the cme directory for an example of generating a web page.

---

weeks

time delay function
Example: ***2 weeks***
The function provides for a system time delay function. The maximum delay is 65535 weeks.

---

write

write ascii string to message buffer
Example:
WRITE "hello"
or
WRITE VAL0
In the first example, the string "hello" is written to the message buffer. In the second example, the decimal contents of the variable VAL0 is written to the message buffer.

Quotes embedded within a string must be represented as follows:
If you desire the string **"hello, "how are you" anyway?"**
The EzScript is written as:
"hello, %22how are you%22 anyway?"
where 22 is the hex ascii value of the quote (") symbol.
You would also use this technique for the symbol '%' where 25 is the hex ascill value for the symbol.
You may use this procedure to handle any desired ascii character. However, this is not usually required.

---

writeb

write hexbyte value to message buffer
Example: ***WRITE VAL0***
The contents of the byte-variable VAL0 is written to the message buffer in hexbyte form.

---

writew

write hexword value to message buffer
Example: ***WRITE VARR***
The contents of the word-variable **VARR** is written to the message buffer in hexword form.

---

xor

Integer logical xor operator
Example: ***VAR1 XOR VAR2***
The value contained in variable **VAR1** is xor'ed with the value contained in **VAR2** and the result is placed in variable **VARR**. Original contents of **VAR1** and **VAR2** are unchanged.

---

12. EzScript COMMANDS(Grouped by functionality)

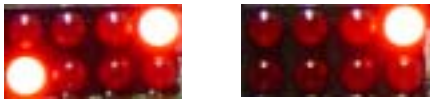
\(write message)
write
writeb
writew
nextline
spaces
\(data movement)
to
\(logical)
com
not
or
and
xor
\(integer math)
+-
*/
\(time)
setdate/time
seconds
minutes
hours
days
weeks
date
time
\(conditional)
begin
nextcount
again
until_count
til_buf_full
if
else
then
\(shift)
sr
sl
\(comparison)
=><
=>
<=
(mail commands)
initsendmail
sendmail
receipt
sendlog

\(system)
vers
\(system variables...16 bits)
count
varm
varr
ifval
\(ftp commands)
analog
b1, b2,...b16
b1=, b2=...b16
data1 (label)
data2 (label)
data1=
data2=
digital
endhead
ftp
maxval
range
\(gen. purpose system variables...16 bits)
var1
var2
var3
var4
var5
var6
var7
var8
\(8 bit vars...tied to i/o)
val0
val1
webfile
\(system I/O)
mkin
mkout
out0
in0
in1
\(user display)
udisp_on
udisp_off
\(named ascii characters)
quote
semi
comma
colon
slash
bkslash
\(special script commands)
noscript
nop

12. HARDWARE STATUS DISPLAY

The remote unit's front panel has an 8 LED display field. These LEDs are used to display the operating state and appropriate error status of the unit. The LED on the upper right is used as a pilot light and is illuminated whenever power is applied to the unit. The remaining 7 LEDs are capable of representing 127 states. About 26 of these states represent the universe of possible status events. In some cases the status shown is a blinking status. In that case, both illuminated and non-illuminated status is shown. The status displays shown here apply only during the operational phases and not during configuration modes.

BOOT...Pressing the reset button on the unit's rear panel causes this state for about 10 seconds.



IDLE...Waiting for an event before progressing to another state.

LOGIN...Connected with the ISP and attempting to log in.

DIAL...Dialing

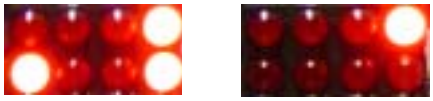
PPP...Operating in PPP mode

ILEGAL...Received an illegal email and will ignore it.

UNREACH...The network destination for some reason cannot be accessed. Terminates the current attempt and restart the the process.

LCP...Unit operating in LCP mode.

RDMSG...Unit reading an incoming email.



SMTP...Operating in smtp mode

TIMEOUT...A packet was not received in the allotted time period.

CONNECTING...Attempting to connect to the ISP.

POP3...Operating in POP3 mode

DELETE MSG...Deleting the email.

DISCONNECT..Disconnecting from the ISP.

COMPLETE...Session is complete.

VALID...A valid message has been received.

SEND MSG... An outgoing message packet is being sent

TERMINAL ACK...A terminal acknowledge signal has been received from the ISP.

USER ON...The **EzScript** word USER_ON has been executed.

FTP. Packet format error

FTP. Server failure

FTP. UDP packet not implemented

FTP. Server refused UDP packet

FTP. Unknown UDP packet received

FTP. Restart marker reply

FTP. Service ready in (n) minutes

FTP. Data Connection already open

FTP. Service ready

FTP. Command OK

FTP. System help reply

FTP. Directory status

FTP. File Status

FTP. Help message

FTP. Name system type

FTP. Service closing control connection

FTP. Data connection open, no transfer in progress

FTP. Closing data connection. File access success

FTP. Entering passive mode

FTP. User logged in, proceed

FTP. Requested file action OK

FTP. Pathname created

FTP. File status OK, about to open data connection

FTP. Service not available, closing control connection

FTP. Syntax error

FTP. File not found, no access

FTP. No action; insufficient storage space

ERRORS

OTHER ICMP...A stray ICMP packet has been received

ECHO CONGESTION...ISP has sent an echo request packet flood; The session will terminate and be restarted

NET CONGESTION...ISP has send an excessive number of extraneous packets (usually from port 135); Session will terminate and be restarted.

CHECKSUM ERROR...A packet was received that had a checksum error.

SCRIPT ERROR...There is an **EzScript** error.

PASS ERR...Password error.

CONFIGURATION...Configuration is not correct.

FATAL ERROR...An unknown fatal error has occured.

13. EzScript ERROR MESSAGES

Closing Quote...The text string statement has no closing quote

Date/Time String...The argument for **SETDATE/TIME** is incorrect

Day Value...The months value submitted to the **SETDATE/TIME** procedure is incorrect

Days Argument...A zero or otherwise invalid script argument was detected

Divide By Zero...Script attempted to perform a division by zero

Excessive If-Else-Then Nesting...**EzScript** has a maximum nesting capacity of 5 levels

Hour Value...The months value submitted to the **SETDATE/TIME** procedure is incorrect

Hours Argument...A zero or otherwise invalid script argument was detected

Minute Value...The months value submitted to the **SETDATE/TIME** procedure is incorrect

Minutes Argument...A zero or otherwise invalid script argument was detected

Negative Result...A script subtraction has caused a negative result

Script Doesn't Exist...There is no **EzScript** installed in the unit

Script Error...There is a script error (with indicated line number)

Seconds Argument...A zero or otherwise invalid script argument was detected

Shift Arguments...Arguments associated with either the **SL** or **SR** procedure is incorrect

Unbalanced If-Else-Then Statements...There is an unequal number of **IF/THEN** statements.

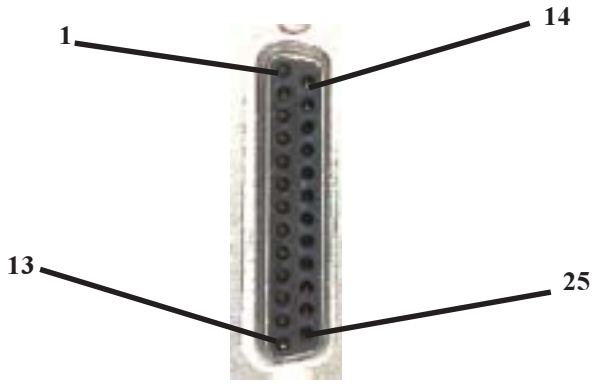
Unbalanced Begin..(Until/Again) Statements...There is an unequal number of **Begin/Until/Again** statements

Weeks Argument...A zero or otherwise invalid script argument was detected

Year Value...The months value submitted to the **SETDATE/TIME** procedure is incorrect

14. EIGHT-BIT BI-DIRECTIONAL/EIGHT-BIT INPUT INTERFACE CONSIDERATIONS

The input/output pins are available on the DB-25 female connector on the rear of the unit. The pins on the connector are arranged as shown:



Ground is available on pin 25.

The bi-directional port uses pins 2-9 with the lsb on pin 2 and the msb on pin 9.

The eight inputs bits are on the following pins:

p1 ... lsb (4.7k Ohm pullup)
p14.. (4.7k Ohm pullup)
p16.. (4.7k Ohm pullup)
p17.. (4.7k Ohm pullup)
p13.. (open collector)
p12.. (open collector)
p10.. (open collector)
p11...msb (open collector)

While interface considerations depend on your specific application, generally, if the bi-directional port is used as an input port you should provide 4.7k Ohm pullups to 5VDC.

If the bi-directional port is used as an output you should ensure that an equivalent current limiting resistance of at least 4.7k Ohms is used on each of the eight bits.

Likewise, the open collector inputs should have 4.7k Ohm pullups. If you do not plan on using the input you do not have to do anything.

If you do not have a compatible 5VDC available for pullup bias, an optional 5VDC adaptor cable(DA-A5V) is available for this purpose.

15. GChart SOFTWARE (Optional)

Gchart software enables the **GlobalReach** system to present acquired data in graphical form from a web server via use of a standard web browser(e.e. Internet Explorer, FireFox, etc.).

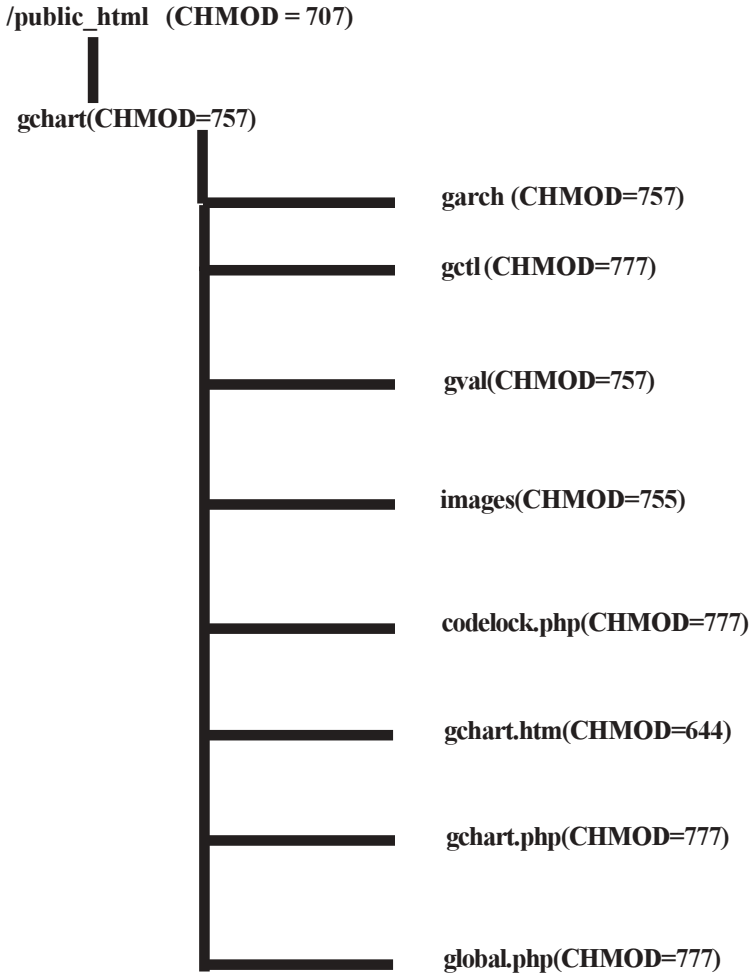
Gchart software is capable of presenting either 1 or 2 analog values or from 1 to 16 digital states.

The required **EzScript** to accomplish this is very simple to write, usually consisting of just a few lines. Two sample files illustrating this, ***fanalog*** and ***fdigital***, can be found in the CME directory.

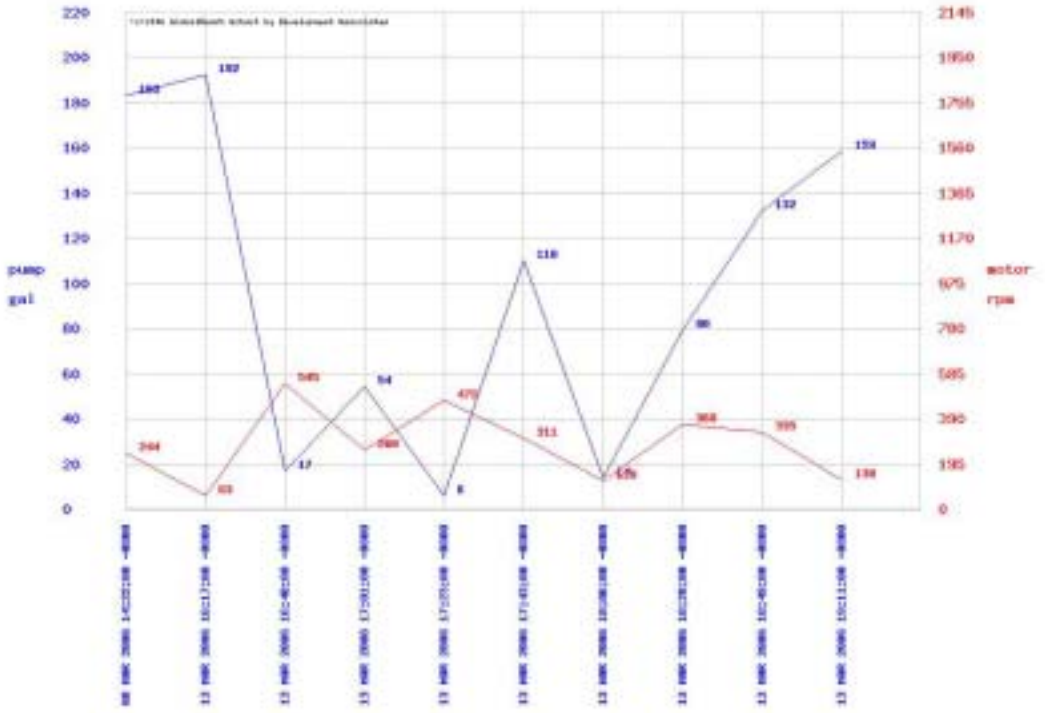
Gchart resources are found in the gchart directory. To install the software, you will need web space on a web server and an FTP client. Our website(globalreach-da.com) has links to various sites that offer free, shareware and commercial FTP clients.

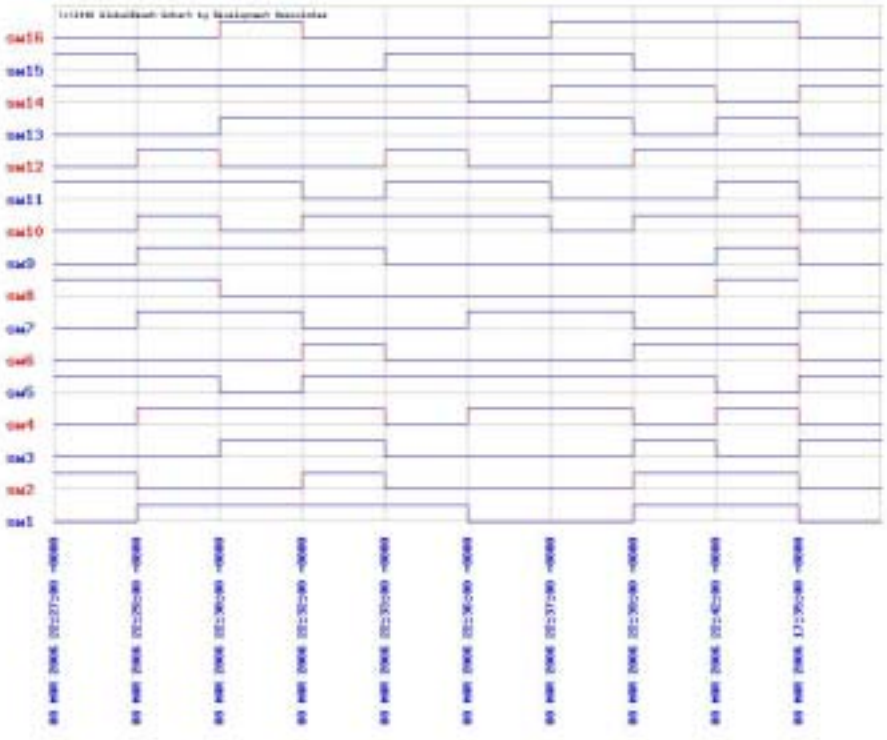
Using the FTP client, move the gchart directory to the root directory of the web server. Commonly, this will be ***/public_html.***

After installation, you will have to CHMOD the server's directories and files according to the following figure. CHMOD refers to the permission access attributes of the directories and files. This is done via the FTP client.



The two graphs shown here are representative of the types of graphs you will be able to generate with your data .





The **EzScript** dialog required consists of a data declaration header and the data acquistion section.

The header specifies the chart type, that is, whether the chart will be presented in bit or analog form. It also requires appropriate statements that assign descriptive legends to the data, specifies the full scale value of the data and the maximum number of bits in the data result.

The data field involves actual acquistion of the data, required value manipulation and then the presentation statements.

Using the supplied sample files together with the keyword glossary definitions should allow you to quickly write your application specific **EzScript** in a short time.

Sometimes, transitioning from one data presentation format to another can cause display problems. Because of that, it may be best to delete the server files ***oldd.val*** or ***olda.val***(as appropriate) located in the ***gctl*** directory. Alternately, the problem will be cleared after the hardware has delivered 10 values to the server.

Historical data that is collected on the web server can be found in the ***garch*** directory. If you don't plan to save these files(***analog.ark*** and ***digital.ark***) locally then it is best to periodically delete them.

The ***Gchart*** resource is activated by pointing your browser to ***gchart.html***.

The process has a redisplay function that refreshes every 10 seconds(default setting). In some cases, you may wish to change this setting to better fit your display needs. To do this, edit ***gchart.html***. Specifically, this is the line on the page that is of concern:

<meta http-equiv="refresh" content="10">

The '**10**' setting refers to ten seconds and this is the value you will change to meet your requirements.

If you have difficulties in displaying the chart, you may have errors in your script that is located in the hardware. If you point your browser to ***gchart.php*** it may be possible to see error messages generated by the server. This mode bypasses the refresh function but otherwise works the same.

19. APPLICATIONS

GlobalReach has an almost limitless amount of remote monitoring/control/reporting applications.

Some of the more popular applications include:

1. Zone monitoring

2. Valve control

3. Level monitoring/control

4. Lock/unlock control

5. Smart sign display control

5. Meter reading

7. Load data logging

8. Temperature

9. Humidity

10. Pressure

11. Solar radiation

12. Tide flow and ebb

13. Wind speed

14. Remote monitoring of liquid levels, including petroleum products, water, etc.

15. Silo and container level monitoring of agricultural, gaseous and liquid materials

16. Geographically dispersed locations such as vending machines, collection centers, etc

17. Asset tracking, including fleets

18. Maintenance notification of machinery and processes

19. Vending machine monitoring/control