AFI
American Fibertek

120 Belmont Drive
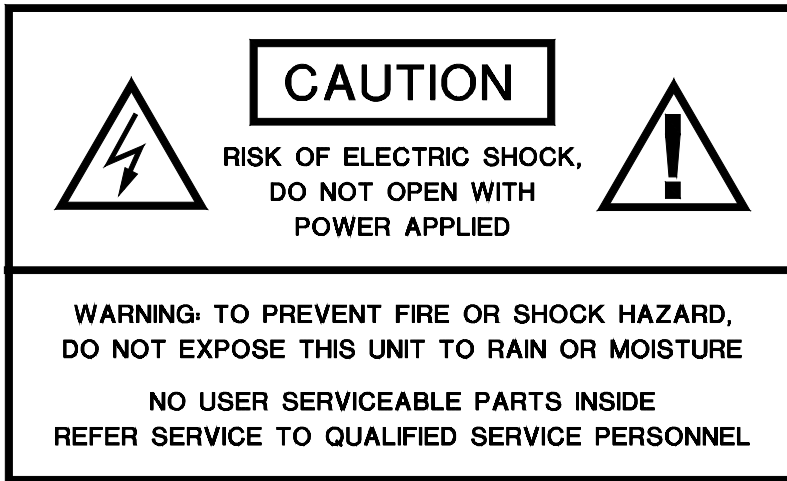**Somerset, NJ 08873-1204**

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Instruction Manual

RD-20D

AFINETY System
Status Monitoring

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│          ┌─────────────────┐            │
│          │    CAUTION      │            │
│   ⚡      └─────────────────┘     ⚠      │
│  /△\    RISK OF ELECTRIC SHOCK,  /!\    │
│          DO NOT OPEN WITH               │
│           POWER APPLIED                  │
│─────────────────────────────────────────│
│   WARNING: TO PREVENT FIRE OR SHOCK      │
│            HAZARD,                        │
│  DO NOT EXPOSE THIS UNIT TO RAIN OR      │
│           MOISTURE                        │
│                                          │
│    NO USER SERVICEABLE PARTS INSIDE      │
│  REFER SERVICE TO QUALIFIED SERVICE      │
│            PERSONNEL                      │
└─────────────────────────────────────────┘
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Table of Contents

INTRODUCTION

Thank you for purchasing the RD-20D AFINETY status monitoring system with your American Fibertek fiber optic communications system. Please take the time to fully read and understand the information in this manual in order to obtain the maximum performance from this product.

FUNCTIONAL DESCRIPTION

The RD-20D is a plug-in unit for the SR-20D subrack frame. It is used to gather status information from companion fiber optic application cards within the same SR-20D. This information is available to the user in text form through the admin Telnet or RS232 ports or as a graphical presentation viewed via a web browser and Ethernet connection.

No application specific software is required in order to use the system. The interface is a standard web browser available with all current personal computer operating systems or as add on software components. The web host service has been tested on a variety of web browsers including MS IE5 & 6, Mozilla, Netscape, Opera and Galleon. Various operating systems have also been tested with superior results. These include MS Windows 98, ME, NT4 SP6, 2000, XP, 2003 Server and Mandrake Linux 9.2 along with various versions of Unix.

The AFINETY System allows a American Fibertek SR-20D subrack to be monitored remotely, allowing a technician to see front panel LED status, signal and optical link presence, and internal voltage and temperature conditions. The system may be monitored from a PC connected to the RD-20D unit either by an Ethernet link or a RS232 serial cable.

The AFINETY system consists of a SR-20D subrack, in which a RD-20D rack card is installed. Rack cards which have the status monitor option installed will be automatically recognized by the status monitor system when installed in the subrack. Rack cards without the status monitor option installed will function when in stalled in a SR-20D subrack, but will not be recognized or monitored by the status monitor system. If multiple subracks are to be monitored, each will require its own RD-20D card.
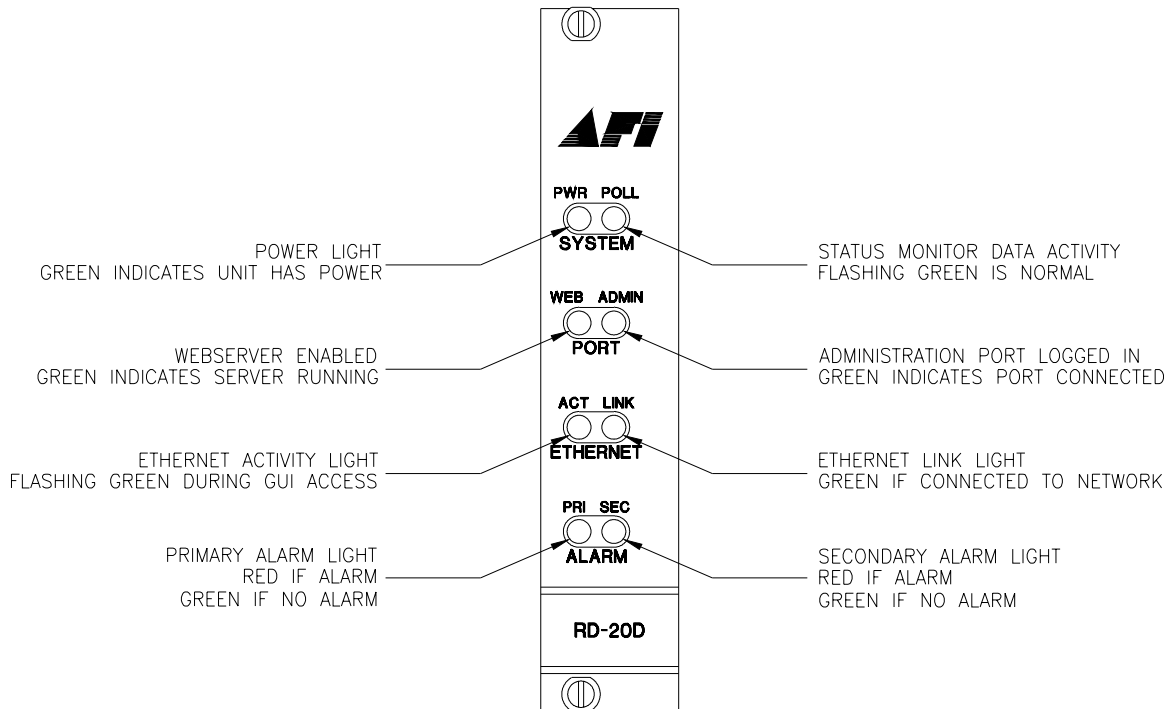
The RD-20D status monitor will continuously check all monitored components in the subrack for faults or alarm conditions, and will signal alarm conditions by closing a relay contact, showing an alert on the screen of the monitoring PC, and optionally by sending an email to a user-supplied address detailing the nature of the alarm condition.

INSTALLATION
THE INSTALLATION OF THIS UNIT SHOULD BE MADE BY A QUALIFIED SERVICE PERSON AND SHOULD CONFORM TO THE NATIONAL ELECTRICAL CODE, ANSI/NFPA 70 AND LOCAL CODES.
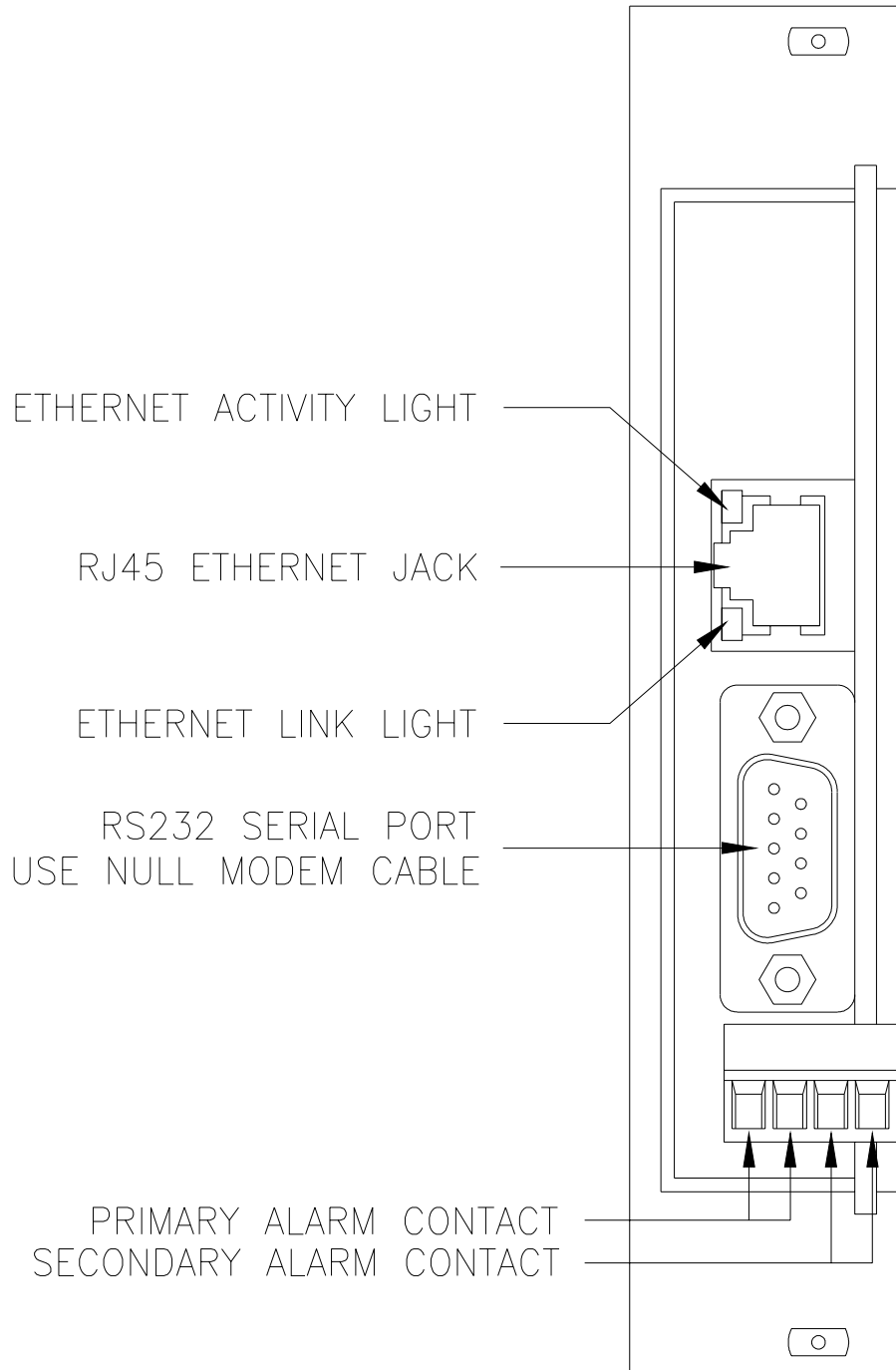
The RD-20D occupies one slot of the SR-20D frame to be monitored. The unit may be mounted into any slot. It is suggested that the unit be mounted adjacent to the PSR power supply in the right hand slot number 1.

Align the unit with the gray card guides of the slot and slide it completely in until it stops and the front panel meets the frame top and bottom rails. Use a small flat blade screwdriver to push and twist the ¼ turn fasteners into place.

POWER LIGHT
GREEN INDICATES UNIT HAS POWER

STATUS MONITOR DATA ACTIVITY
FLASHING GREEN IS NORMAL

WEBSERVER ENABLED
GREEN INDICATES SERVER RUNNING

ADMINISTRATION PORT LOGGED IN
GREEN INDICATES PORT CONNECTED

ETHERNET ACTIVITY LIGHT
FLASHING GREEN DURING GUI ACCESS

ETHERNET LINK LIGHT
GREEN IF CONNECTED TO NETWORK

PRIMARY ALARM LIGHT
RED IF ALARM
GREEN IF NO ALARM

SECONDARY ALARM LIGHT
RED IF ALARM
GREEN IF NO ALARM

RD-20D Front Panel LED Indicators

All status monitoring information is passed along the AFINET in the back plane of the SR-20D. There are no additional connections required between units in the frame. The rear of the RD-20D provides access to the I/O ports that include and RS232 DCE port for configuration via a communications program such as Hyper-terminal, and a 10baseT Ethernet port for administration via Telnet and connecting the webserver to the LAN or directly to an administrative computer with an additional network card (not provided). A 4 pin Phoenix block type connector is provided for connection to normally open relay contacts which signal detection of primary and secondary alarm conditions.

ETHERNET ACTIVITY LIGHT

RJ45 ETHERNET JACK

ETHERNET LINK LIGHT

RS232 SERIAL PORT
USE NULL MODEM CABLE

PRIMARY ALARM CONTACT
SECONDARY ALARM CONTACT

RD-20D Rear Electrical Connections

ADMIN CONNECTION SETUP

The status monitoring system may be configured via Telnet on the Ethernet port or via Windows Hyper Terminal on the RS232 port. Other RS232 communications programs may also be used. The menu systems are the same for both of these text type connections. The minimum configuration required is the IP Address and Subnet Mask. See your network administrator for this information if you are not familiar with this configuration requirement. The menu system is described in detail below.

RS232 Admin Port

Connect a computer or laptop to the RS232 port using a null-modem cable. Open your communication program and hit <Enter>. The default logon appears asking first for the Username (default "admin") and then password (default "afinety").

Ethernet Port

The Ethernet port is configured as an MDI configuration for directly connecting to a network switch or hub with a standard Ethernet cable. To directly connect to a computer network card or laptop port, a crossover cable will be required.

In installations that require a stand-alone admin console without connecting the RD-20D to a local area network, it is recommended to install a network card in the admin computer solely for this purpose. A crossover cable is then used to directly connect to the RD-20D. The network parameters for the network card in the admin computer are then set to:

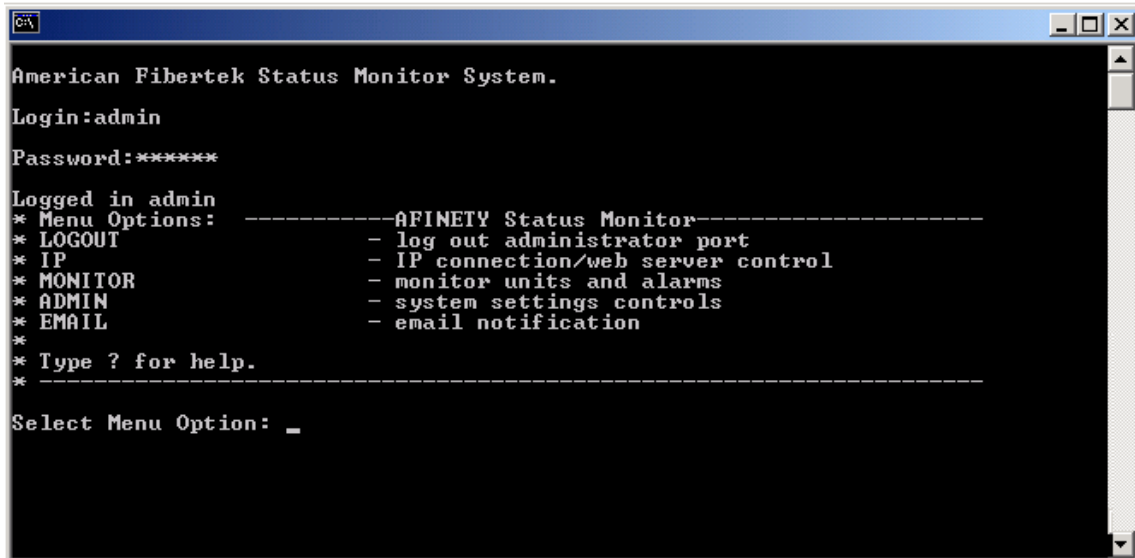IP Address: 192.168.100.2
Subnet mask: 255.255.255.0

Reboot the computer after installation if your operating system requires. The IP address of the RD-20D and the Ethernet adapter need to be configured as to not interfere with any network adapter already installed in the admin computer. See your network administrator for more details. The IP address recommended above has been selected to increase the probability of interoperability with most networks that may be connected to other network cards in the administrator computer.

Telnet

For a first time connection via the Ethernet port it is recommended to directly connect a computer or laptop to the port via a CAT5 crossover cable. This will allow IP configuration to be performed before connecting to your LAN, avoiding possible IP address conflicts. Using Telnet, "OPEN 192.168.100.10". The default logon appears asking first for the Username (default "admin") and then password (default "afinety").

MENU SYSTEM

Top level menu commands may be executed by using the first two letters of the command i.e. LO for LOGOUT or MO for MONITOR. Lower level commands require the full command name to execute. Some commands require an entry (argument) to follow the command on the same line.


```
American Fibertek Status Monitor System.

Login:admin

Password:******

Logged in admin
* Menu Options:    -----------AFINETY Status Monitor--------------------
* LOGOUT                       - log out administrator port
* IP                           - IP connection/web server control
* MONITOR                      - monitor units and alarms
* ADMIN                        - system settings controls
* EMAIL                        - email notification
*
* Type ? for help.
* -----------------------------------------------------------------------

Select Menu Option: _
```

MENU SYSTEMS OPTIONS

LOGOUT (LO) This command will log off the current user. To log back on the connection will need to be re-established and the username and password will need to be entered.

IP (IP) The IP command menu gives access to setting the IP protocol setting required for Ethernet communications. If you do not know the IP settings required to communicate on your LAN, see your system administrator for details.

MONITOR (MO) The MONITOR command menu allows access via textual displays of the status of all monitored parameters of the system. All status may be displayed or the status of individual units may be displayed. Alarm conditions and limits may also be set in this menu.

ADMIN (AD) Administrative settings are available in the ADMIN section. Here the Username and Password may be configured along with the global settings of Site and Rack Identification strings.

EMAIL (EM) Alarm instance reports can be sent to a single email address through this setup. A domain name for the RD-20D is required along with a target email address. The service may be started or stopped and notification timing parameters may be set.

SETUP

The setup procedures are separated into two classes for clarity. IP & ADMIN menus are for settings connection parameters for access via web or telnet/RS232. The MONITOR menu is for viewing text displays of status information and setting user alarm levels and priorities.

IP CONFIG Menu

IP n.n.n.n – Enter the command IP followed by the IP address to assign to this Ethernet port in dotted quad format. (Default 192.168.100.10)

NETMASK n.n.n.n - Enter the command NETMASK followed by the Subnet mask specification in dotted quad format. (Default 255.255.255.0)

GATEWAY n.n.n.n - Enter the command GATEWAY followed by the IP address of the local area network Internet Gateway in dotted quad format. (Default 0.0.0.0)

NAMESERVER n.n.n.n - Enter the command NAMESERVER followed by the IP address of the DNS server in dotted quad format. (Default 0.0.0.0) (Optional)

IPLOG – Lists the last 10 unique IP addresses accessing the webserver, most recent first.

START – Starts the webserver.

STOP – Stops the webserver

SECURE – Sets the webserver to Secure Web Server Mode requiring a Username and Password to gain access via the web interface.

UNSECURE - Sets the webserver to Un-secure Web Server Mode NOT requiring a Username and Password to gain access via the web interface.

WEBUSER - Sets the webserver Username to be used in Secure Web Server Mode

WEBPASS - Sets the webserver Password to be used in Secure Web Server Mode

ADMIN Menu

Username - Sets the administrative port Username to be used via the Telnet or RS232 port.

Password - Sets the administrative port Password to be used via the Telnet or RS232 port

Site ID – Text string posted on the Web Interface identifying the site of the installation.

Rack ID - Text string posted on the Web Interface identifying the specific rack at the site of the installation.

TIMEZONE n - Sets the time zone, as an offset in hours from GMT.

MONITOR Menu

UNITS - List all Model Numbers of units in the rack by slot #

UNIT n - Lists the monitored parameters and values for the unit in slot "n"

UNITNAME n – Set the name of the card for identification purposes. On the web browser interface, this appears under the Card ID.

ALARMS – Presents number list of all rules currently programmed to test for alarm conditions

DELALARM n – deletes the specified alarm rule

ADDALARM n – adds a new rule to the list of alarm rules. See the section on alarms for alarm rule formatting

RESET – erases all alarm rules and replaces them with the default alarm conditions. This takes about a minute, during which time the unit will not be able to do anything else.

TEMPMODE n – used to specify if temperatures are displayed in Celsius or Fahrenheit notation.

TIMEOUT n – sets the time after which a unit removed from the rack will be removed from the GUI display.

EMAIL Menu

CONFIG – Shows the current configuration.

DOMAIN n – Enters the source domain name to be used when sending email notifications.

EMAIL n – Email address to send notifications.

RETRY n – Sets the number of retries that the units attempts to send emails Default value = 10.

DELAY n – Sets the delay time in seconds between email attempts. Default value = 900 seconds.

START – Starts the email notification system.

STOP – Stops the email notification system.

USING THE WEB BROWSER INTERFACE

Page Loading – At the admin computer, open a web browser and type the IP address of the RD-20D in the URL dialog box. A graphical display is loaded showing the SR-20D and the cards loaded into each slot. LED status is displayed and updated every few seconds.

Unit Selection – Click on any unit to load a table of monitored parameters below in the graphic.

Parameter Listing – All monitored parameters are listed in categorized tables. These will vary depending upon the unit installed and the available information. All units monitor temperature and power up time. Also displayed are the model number and serial number of the card. Site ID and Rack ID are programmed via the admin interface and displayed at the top of the table.

Alarm Indication – The word "ALARM" will appear in red at the bottom of a card that has a parameter outside of the programmed limits. The RD-20D offers two contact closure outputs for remoting the alarm signals. Each alarm can be identified as a primary or secondary alarm. There is a corresponding contact for each alarm level, available on the rear interface of the RD-20D plug-in card.

Local / Remote units Monitoring – On units which include a monitored remote module, the monitored parameters from the remote unit will be shown in a separate table below the local unit parameters. If the RD-20D is unable to connect to the remote module – due to the optical cable being disconnected, power loss to the remote unit, or other malfunction – the parameters for the remote unit will be shown as unknown.

USING THE SERIAL PORT GUI INTERFACE

Application software is provided which can be used to access the monitor GUI through a RS232 connection instead of an Ethernet connection. This software presents a graphical interface similar to that displayed by the web browser GUI.

To use the serial port GUI application, connect an unused serial port on a Windows PC to the management port on the RD-20D with a null-modem cable. This connection is the same as that used to access the management interface of the RD-20D, although the GUI application and the management port interface cannot be accessed simultaneously. In order to use the serial port GUI, the management port must be logged out and the terminal software used to access the management port must be closed. The Telnet management port can be used while the serial port GUI is in use, but this is not recommended, as system response time will be severely effected.

The serial port GUI displays all of the data shown by the web browser GUI, in a nearly identical layout. The graphical representation of the subrack will be updated to match the actual status of the monitored subrack, and detailed information on any unit in the rack can be selected by clicking on that unit's graphic. The serial port application does have additional menu choices used to select the serial port connection.

Under the application's File menu are three menu items. The first leads to a submenu which can be used to select which serial port the application should attempt to connect to the RD-20D with, or which shows which port the application is using if it is already connected. When the user selects one of the serial ports under the connection submenu, the application will attempt to connect to the RD-20D on the selected port. The second menu item commands the application software to disconnect from the RD-20D and release the selected port if connected. The third option under the File menu causes the application to disconnect from the port if connected, and then will close the application.

If the application software is closed while still connected to the RD-20D, it will automatically attempt to reconnect to the previously connected port when next opened.

If the serial port GUI application software is unable to access the selected serial port, is unable to connect to the RD-20D on that port, or loses contact with a RD-20D, it will display an error box and return to a disconnected state. To reconnect the user will have to correct the cause of the loss of communication, and then select a port to reconnect on under the connection submenu.

In addition to the status information from the RD-20D, the GUI will indicate if it is connected or disconnected, and the port it is connected on if connected. When disconnected, the GUI application will continue to display the status information received just before disconnecting.

ALARM LIMITS

The RD-20D is pre-programmed with a set of basic alarm rules which will signal an alarm in the event of any problems with the AFI hardware or the systems connected to it. Alarms in the system are classified as Primary or Secondary alarms, with a LED indicator and relay output for each alarm classification.

The signaling of a Primary alarm indicates that some part of the system is currently not functioning and needs attending to. A Primary alarm will be indicated if any the subrack power supply or any unit's internal power supplies are not producing the correct voltage, or if any internal component is not operating properly, or if any video or optical link is lost.

A Secondary alarm indicates a condition that is not yet causing loss of system functionality, but still may require a technician's attention. A secondary alarm will be indicated if the temperature inside the unit is below -40C or above 70C.

The customer can change the alarm rules through the management port if required. This can be done to change individual out-of-range thresholds, change individual alarm conditions from Primary to Secondary or Secondary to Primary, disable specific alarm conditions, or add new alarm conditions for specific units as needed.

ALARM CONNECTIONS

The RD-20D has two relay contact outputs which close in the event of an alarm condition, one Primary alarm and one for Secondary alarm. The relay contacts will close within a few seconds of an alarm being detected and will remain closed until the alarm condition is resolved.

ALARM EMAIL NOTIFICATION

The RD-20D can be configured to send an Email to a user-specified address when an alarm occurs. Any change in alarm conditions – the triggering of any individual primary or secondary alarm, the restoration of a previously triggered alarm, or the removal of any of the monitored units from the system – will be logged with the time of occurrence by the RD-20D. After a short period of time (to allow multiple alarms to be sent in the same log) the unit will send an email to the address previously specified by the user, and then clear the log. The unit will then wait a user-specified time before sending any more emails, with any alarms occurring in that time saved in the log.

LIFETIME WARRANTY INFORMATION

American Fibertek, Inc warrants that at the time of delivery the products delivered will be free of defects in materials and workmanship. Defective products will be repaired or replaced at the exclusive option of American Fibertek. A Return Material Authorization (RMA) number is required to send the products back in case of return. All returns must be shipped prepaid. This warranty is void if the products have been tampered with. This warranty shall be construed in accordance with New Jersey law and the courts of New Jersey shall have exclusive jurisdiction over this contract. **EXCEPT FOR THE FOREGOING WARRANTY, THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, EXPRESSED OR IMPLIED, WHICH EXTENDS BEYOND THE WARRANTY SET FORTH IN THIS AGREEMENT.** In any event, American Fibertek will not be responsible or liable for contingent, consequential, or incidental damages. No agreement or understanding, expressed or implied, except as set forth in this warranty, will be binding upon American Fibertek unless in writing, signed by a duly authorized officer of American Fibertek.

SERVICE INFORMATION

There are no user serviceable parts inside the unit.
In the event that service is required to this unit, please direct all inquiries to:

American Fibertek, Inc.   Phone: (877) 234-7200
120 Belmont Drive   Phone: (732) 302-0660
Somerset, NJ 08873   FAX (732) 302-0667
                    E-mail: techinfo@americanfibertek.com