

Model 328x

Flight Systems

Standby / Utility Power Monitor

www.flightsystems.com

DESCRIPTION

The Model 328x will monitor standby and utility power and provide notifications via email and SMS text of power failure, exercise failure, failure to transfer, power restored, and exercise ok. Optionally 2 additional analog inputs and 4 digital inputs can be used to monitor other generator functions such as pressure, temperature, fuel, common alarm etc.. The Model 328x also includes 2 relay outputs that can be activated remotely for remote start, reset, engage or disengage electronic locks and much more.



FEATURES

- CDMA cellular radio for remote communications.
- Connections for generator, utility, and load side power (300 VAC max).
- 2 Analog inputs with high and low trip points.
- 4 switched to ground generic alarm inputs.
- 2 programmable relay outputs.
- On-board power supply and backup battery.
- LCD display with digital readout of inputs.
- Maintenance reminders for generator service.
- Send notifications by email or sms text
- USB port for programming and setup.
- Diagnostic indicators for communications.
- 2 year warranty on service and parts.
- Free technical support.

REQUIREMENTS

- Miscellaneous hardware for mounting.
- SMTP relay for email and SMS (accounts available through Flight Systems).
- M2M service plan (accounts available through Flight Systems).
- PC or laptop with available USB port for programming.

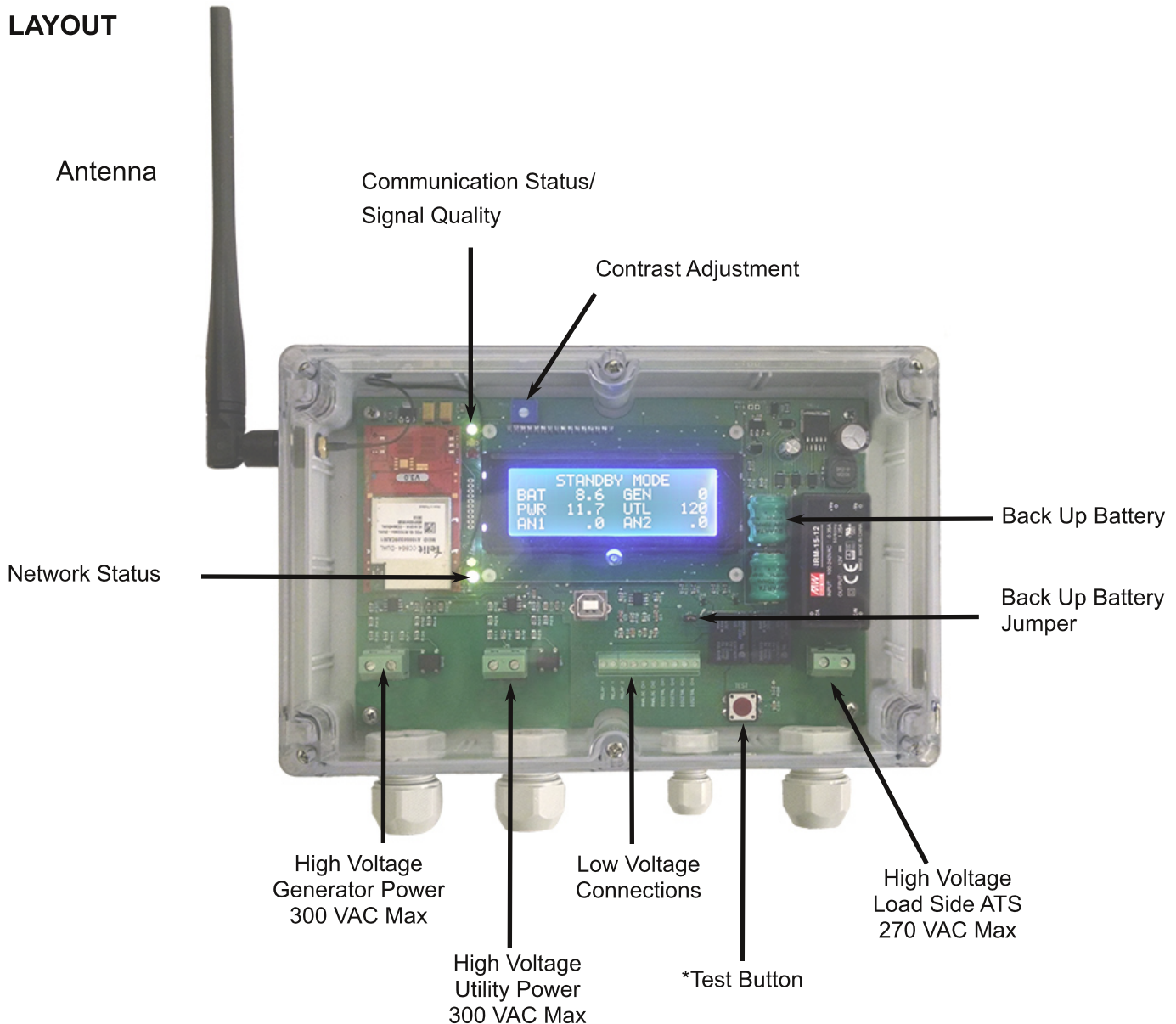
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LAYOUT



* Holding the TEST button will display several tasks. Press and hold the TEST button until the desired function is displayed. Release and momentarily press TEST to confirm your selection.

1. Cycle display option.
2. System Test - Send the status of the monitor to the defined recipients.
3. Reset Maintenance Reminders - Reset the maintenance hours to current hours + user defined.
4. Reset Internet Connection - Close all open sockets and reset listening port if enabled.
5. Repeater Service - Primarily used for debugging.
6. Reset Device - Software restart of the monitor and radio.
7. Firmware Update - Start the USB / OTA firmware updater.

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INSTALLATION

When selecting a location to mount the radio consider the following

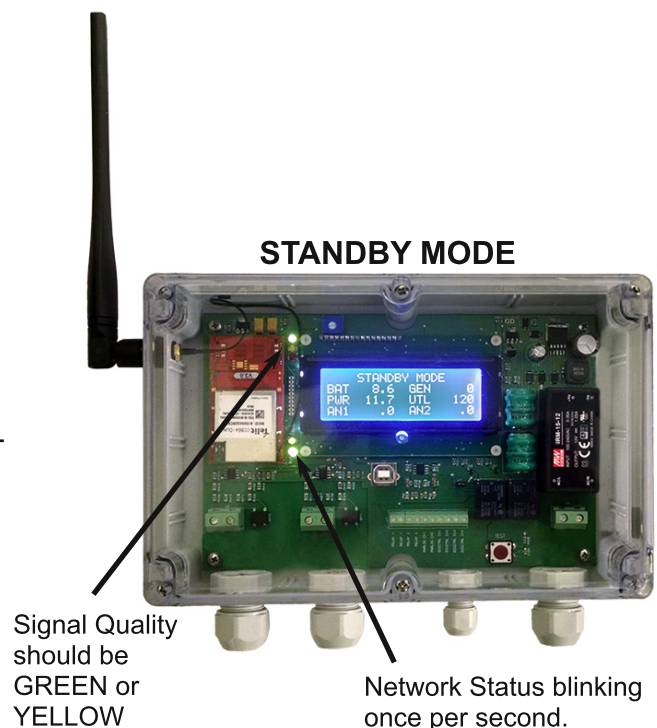
1. Avoid excessive heat and vibration.
2. To get the best possible signal, avoid areas that are surrounded by metal.
3. The device is weather resistant so mounting the radio outside is acceptable.
4. Connections for generator and utility power should be available (transfer switch).

Remove the cover from the Model 328x. Mount the monitor on a flat surface at or near the transfer switch and install screws at the 4 corners. Using a minimum of #18 AWG wire, make connections from the generator, utility, and load side of the transfer switch by feeding the wire through the cable gland and inserting the bare wire into the connector clamp. Tighten the clamp and cable gland to secure the wire. Consider installing a switch or fuse on the load side connection to make resetting the device easier.

TESTING THE MONITOR

If you signed up for an SMTP and M2M account through Flight Systems, everything has already been programmed and tested prior to shipping. Power on the radio and wait approximately 20 seconds for the radio to start and connect to a cellular tower. The Signal Quality indicator should display a solid GREEN or YELLOW and the Network Status should blink once per second. To confirm proper operation, press and hold the TEST button until SYSTEM TEST is displayed at the top of the screen. Press TEST again to confirm and send a test notification to the addresses you defined upon ordering. To make changes at a later date you can connect to the radio using the free software, see **CONNECTING TO THE MONITOR** for more information.

If you did not sign up for an SMTP or M2M account at the time of ordering, follow the instructions for activating and configuring the monitor.



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ACTIVATING THE RADIO

Power on the device. Wait approximately 20 seconds for the radio to fully start and connect to a cellular tower. Signal quality is display by the GREEN, YELLOW, and RED LEDs. It is recommended that the radio maintains a minimum of YELLOW.

GREEN - GOOD
YELLOW - FAIR
RED - POOR

A slow flashing RED, once per second, means that the radio has lost communications.



If this is the first time the monitor has been started, the radio will automatically run a provisioning sequence to activate the radio. After provisioning is successfully completed the monitor will resume standby mode.

CONNECTING TO THE MONITOR

With the monitor in standby mode, connect a USB type B cable from the USB port on the monitor to a PC or laptop. If you have not previously connected to the monitor you will be prompted to install the VCP driver. The driver can be installed manually by running the set up file included with the software or by allowing windows to automatically download the driver. Start the Power Monitor Setup program and select the correct COM port from the drop down menu under Direct Connection. Click CONNECT to establish a connection between the monitor and the computer. After a connection has been made the connection status should indicate "Found CDMA Monitor" and live reading will begin streaming to the computer. Click DOWNLOAD to retrieve the current settings in the monitor.

WIFI SETTINGS (Wifi version only)

Wifi settings are only enabled for the Model 328W. Enter the name of your wireless gateway, password and security settings. Click UPLOAD to save the settings to the monitor. The network status indicator should begin blinking twice per second to indicate that the monitor has successfully joined your wireless gateway.

SMTP SERVER SETTINGS

To receive notifications by email and sms text you must be able to communicate with an SMTP server to relay messages. The default settings are set for Flight Systems SMTP accounts. If you would like to use your own server you must set these settings correctly.

1. SMTP Port - Port number on which the server is listening.
2. SMTP Address - Address of the server your account is on.
3. Sender Name - Must be a valid email address on the account.
4. Server User Name - Your user name to log on to the server.
5. Server Password - Your user password for the account.

NOTIFICATION SETTINGS

You can assign up to 2 email addresses and 1 sms text number. The sms option is the same as an email address but limited to 160 characters. Cellular numbers should be entered in the format of an email address (cell number@carrier.com). Contact your service provider if you are unsure of the correct format.

1. Email Subject - Enter a subject to be received in the subject line of each notification.
2. Email Address 1 - Enter a valid email address and check "Enable Email Address 1".
3. Email Address 2 - Enter a valid email address and check "Enable Email Address 2".
4. SMS Address - Enter a valid cell number in email format and check "Enable SMS Alert".

REMOTE MONITORING

To send plain text over the internet to a backend server or remote monitor check "Send Notifications to Remote Server". Notifications will be sent UDP protocol as plain text to the address defined. Set the following settings under Remote Monitor.

1. Server Address - Web address or IP address of the remote server.
2. Port - Port number that the server is listening on
3. Server User Name - The user name on the account.
4. Server Password - The password for the user name.

INTERNET SETTINGS

By default these options are pre-set, tested parameters. If these settings are altered incorrectly they may cause some features to stop functioning. If you are unsure of how to set these options correctly, contact Flight Systems technical support for assistance.

1. DNS Server Settings - DNS1, DNS2 are set to.opendns.com in IP format (xxx.xxx.xxx.xxx)
The modem uses these addresses to resolve URLs for the SMTP server, NTP server, and backend monitor. You may prefer to change these settings for a DNS server on your network.
2. NTP Server Settings - NTP1, NTP2 are addresses that the modem uses for time stamping events. The time server should return the time and date in epoch format. Typically the factory defaults should work fine but you may prefer to use a time server on your network for syncing purposes. The time zone should be adjusted from the drop down menu.
3. Remote Access Port - The remote access port is the port number the modem will listen on for incoming connections. **(Wifi version only)** For this to function correctly from outside your network, port forwarding must be set up on both the transmitting and receiving routers. Port forwarding is only required for remote access from the internet to the power monitor. This feature can be completely disabled by unchecking the Allow Incoming Connections.
4. Remote Access PIN - The unlock PIN is set to 1000 by default. If you alter this PIN and forget your PIN number you will have to have it reset by Flight Systems. The remote access PIN is required to make a network connection of any type to the monitor.

ALARMS

Select the notifications you would like to receive from the alarm menu. Note that some alarms require setting a threshold or delay.

1. Power Failure - Enable Power Failure to receive a notification of a power outage. The Power Fail Delay will set the time in minutes before the power failure alarm will be triggered.
2. Power Restored - Select Power Restored to receive a notification that power has been restored to the load side of the transfer switch. The power restored notification will only be enabled after a power failure alarm.
3. Exercise Fail - Exercise failure will be activated after the exercise fail delay (in hours) has expired and the monitor has not seen power from the generator for the minimum exercise time (in minutes).
4. Exercise Passed - Exercise passed will notify you if the generator has successfully exercised for the minimum amount of exercise time before the exercise fail delay expires. If the generator has successfully met these requirements, the exercise fail delay will automatically be reset for the next cycle.
5. Maintenance Reminders - Enabling reminders will notify you if the generator has met the generator run hours or months before service is due. To disable hour or months, set its value to 0.
6. Alarm Bypass Delay - The time in seconds before all alarms, analog or digital, are enabled when the Engine Running option is selected.
7. Analog Inputs - To enable analog inputs, select Always or Running from the drop down menu. Set a high or low trip point at which you will receive a notification. Setting a trip point to 0 will disable it. The status of each input can be viewed under system services.
8. Digital Inputs - To enable digital inputs, select Always or Running from the drop down menu. The status of each input can be viewed while data is streaming.

SYSTEM SERVICES

This section will provide you with readouts of generator voltage, utility voltage, power supply, backup battery voltage and analog inputs as well as control of relay outputs, run hours, and software restarts.

SYSTEM SETTINGS

The system settings should be set for a unique ID, minimum voltage thresholds for generator and utility power, and time zone. There is also an option to use relay output 1 for remote start.

1. Location ID - The location ID is attached to all notifications.
 2. Minimum Generator Voltage - The minimum voltage at the generator input that is considered valid.
 3. Minimum Utility Voltage - The minimum voltage at the utility input that is considered valid.
 4. Remote Start - Enabling remote start on relay 1 will close the contacts in the event of a power failure.
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TECHNICAL SUPPORT

In order for us to better assist you, you should have the following information before calling technical support.

1. The model number of the monitor.
2. Manufacturer and model number of your wireless router/gateway (Wifi version only).
3. The IP address of the monitor if connected.
4. Your external IP address and remote access port number (Wifi version only).