



siteCOMMANDER

Kenwood FleetSync™ Option

Addendum to siteCOMMANDER User Manual

for Users of Kenwood FleetSync™ Radios

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PREFACE

This document describes the configuration and operation of the siteCOMMANDER module when used with Kenwood's FleetSync™ protocol and radio equipment. This document is a supplement to, and should be read in conjunction with the siteCOMMANDER User Manual, 050-015-0002 revision R05 or later.

Hardware and software described in this document is subject to on going development and improvement. Consequently, there may be minor discrepancies between the information in this document and the performance and design of the hardware and software.

The siteCOMMANDER is designed for flexibility of use and installation and is therefore highly configurable and should only be installed by an appropriately trained technician.

Screen capture graphics in this document were taken using the Windows XP Professional™ operating system. The graphics may not be exactly the same on other operating systems.

The user should ascertain that this product is suitable for the intended application. This document assumes that the reader is familiar with the Kenwood product, its operation and programming. TASC Systems Inc. accepts no responsibility, liability, for misuse of, or damage resulting from the misuse of the product described herein.

NOTE: FleetSync™ is a trademark of Kenwood Communication Corporation and is used under License Agreement.



Before connecting any equipment to any siteCOMMANDER product, it is advised to read the Installations & Adjustments section of this document in its entirety before proceeding. Application of voltages in excess of the built in protection could seriously damage siteCOMMANDER and the equipment it is being connected to.

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REVISION HISTORY

Revision	Date	Changes
050-015-0010 R01	November 13, 2003	Initial release
050-015-0010 R02	July 16, 2004	Reformatted / Updated
050-015-0010 R03	April 2009	Updated SCCU images. Updated pictures. Updated supported Kenwood radios. Add Kenwood Fleetsync™ Installation Guide.

1. INTRODUCTION TO ADDENDUM

The siteCOMMANDER monitoring and control product may be used with Kenwood's FleetSync™ protocol. FleetSync™ protocol provides a short data message delivery service for varied application solutions using the Kenwood 180-series radios equipped with Version 1.0 of the FleetSync™ protocol and siteCOMMANDER monitoring and control product.

Both products when combined provide a powerful site control and monitoring solution.

Some applications of the siteCOMMANDER are:

- ♦ Control and monitoring of electrical plant equipment from FleetSync™ equipped mobiles or portables
- ♦ Control and monitor radio repeater sites and ancillary equipment from FleetSync™ equipped mobiles and portables
- ♦ Provide equipment status reporting to field personnel
- ♦ Provide remote control of doors and ancillary equipment in security applications
- ♦ Horticulture glasshouse and cool room monitoring
- ♦ Oil and gas pipeline and pump monitoring
- ♦ Mining equipment monitoring

This document is a supplement to, and should be read in conjunction with the siteCOMMANDER User Manual, 050-015-0002.



Sections in this document that require special attention are highlighted by the use of the 'hand' symbol as shown to the left. These sections contain cautions or specific references that are critical to FleetSync™ operation.

2. PRODUCT DESCRIPTION

siteCOMMANDER support of Kenwood's FleetSync™ protocol makes use of both the two-digit status message and Short Data Messaging (SDM) formats of the FleetSync™ protocol.

Two-digit status messages transmitted from Kenwood mobiles or portables can be used to control outputs on the siteCOMMANDER, e.g. for turning pumps, lights, motors on or off. Additionally two-digit status messages may be used to enquire and report the current status of any input channel, voltage channel or temperature channel. Multiple sites can be controlled from a single or multiple portables or mobiles.

Responses from siteCOMMANDER are via the FleetSync™ SDM format and allow the siteCOMMANDER to inform the portable or mobile that a door is open, the power has failed, a voltage is above or below a threshold or that a temperature is outside the programmed limits. The siteCOMMANDER can also be configured to control outputs at the site.

As part of the FleetSync™ protocol, Kenwood portables and mobiles allow two-digit status messages to be 'tagged' with an alphanumeric message. When a tag is selected from the radios LCD display, and the PTT button is pressed, the two-digit status along with the unique address of the source and destination radios are transmitted to the FleetSync™ equipped radio located at the siteCOMMANDER. This message is decoded to turn off or turn on an output channel, or to obtain a report on the site status at the siteCOMMANDER. Kenwood 80 series radios can store up to 50 alpha tags in the mobiles non-volatile memory.

For example, the message "Turn Pump Off" can be 'tagged' to status message 10. The message "Turn Pump On" can be 'tagged' to status message 11. When the tag "Turn Pump Off" is selected in the radios LCD and the PTT button is pressed, status message 10 is sent to the siteCOMMANDER. On receipt, the siteCOMMANDER turns off the output associated with the pump. Similarly, if the tag "Turn Pump On" is selected on the radios' LCD and the PTT button is pressed, status message 11 is sent to the siteCOMMANDER and the output associated with the pump is turned on. Section 7, illustrates the two-digit status message to physical contact mapping.



Kenwood portables and mobiles may be used to control a single siteCOMMANDER module configuration using two-digit status messaging. This provides access to eight Digital Inputs, eight analog voltage inputs, eight outputs and a bus capable of supporting up to eight temperature sensors. Two-digit status messaging cannot be used to control an expanded siteCOMMANDER configuration, as there are insufficient message numbers available in the Kenwood FleetSync™ format. Expanded configurations must be setup by using a PC equipped with TASC Systems SCCU software.

siteCOMMANDER is configured using the siteCOMMANDER Configuration Utility or SCCU. SCCU requires a PC or notebook running Windows 98™ or newer to function. Local connections, for the purpose of configuration, are established using a COM Port on the PC and serial port 1 on the siteCOMMANDER module.

Providing a centralized Graphical User Interface or GUI into the network of remote siteCOMMANDER's is accomplished by using the siteVIEW Enterprise software package.

Using the Kenwood FleetSync™ 'broadcast' facility, siteCOMMANDER may also be programmed to alert all or a group of mobiles in a fleet that an alarm or event has occurred at a site.

siteCOMMANDER has a security feature that specifies which mobiles have the ability to control the eight siteCOMMANDER outputs.

The following Kenwood radios are compatible with the siteCOMMANDER firmware that supports FleetSync™ protocol use:

TK-x80 series and TK-x180 series.

RS232 adaptor required for Portable is KPG-36.

RS232 adaptor required for Mobiles is KCT-31.

3. APPLICATIONS

Each siteCOMMANDER operates in one of two basic modes. There are two slave and two master modes. Together the combination provides a solution for many applications where control and monitoring are required.

Gateway	Not used in conjunction with Kenwood FleetSync™ radio protocol
Master	Provides a centralized point for incoming events in a non-siteVIEW environment
Slave No Mapping	Provides local input to output mapping. Used in siteVIEW and non-siteVIEW environments
Slave Input Mapping	Provides local input to output mapping as well as Slave to Master input and output mapping. Used in non-siteVIEW environments and not used in conjunction with Kenwood Fleetsync™ radio protocol

3.1. Slave Mode

Slave mode is used whenever control and monitoring is to be done by either a FleetSync™ portable/mobile or siteVIEW Enterprise and not another siteCOMMANDER module. Some slave applications are shown in this section.

3.1.1. Single portable or mobile control

In this slave mode a portable (or mobile) controls and monitors a number of sites in a network. An overview of this application is shown below.

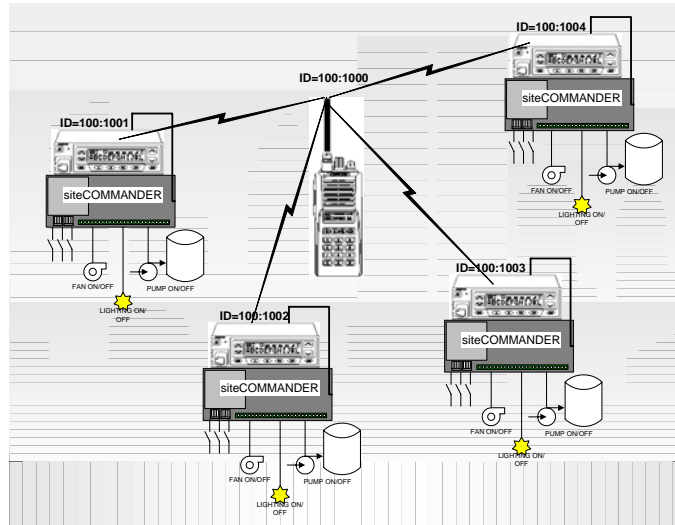


Figure 1 - Single Portable

In the above figure, control of any siteCOMMANDER is via portable(s) or mobile(s). No inter siteCOMMANDER communication occurs. The siteCOMMANDER's are programmed to operate in Slave mode. Two-digit status messages are used between the mobile and siteCOMMANDER to control outputs and enquire or report the status of siteCOMMANDER inputs. The siteCOMMANDER uses SDM messages to report its status back to the mobile(s).

Up to three radios may be specified to receive notification of siteCOMMANDER events. This allows several personnel to be advised in parallel when an event occurs. Each siteCOMMANDER can operate with or without security. It can be programmed to accept control from any or a selected number of mobiles.

3.1.2. Multiple mobile monitoring of multiple sites

This slave mode uses the broadcast facility of the FleetSync™ protocol. Once again, the siteCOMMANDER is programmed to operate in slave mode. By programming the siteCOMMANDER FleetSync™ properties (shown later) to allow broadcasting of status events, as many mobiles or portables as required can receive notification that an alarm or an event has taken place at any of the sites. An over-view of this application is shown below.

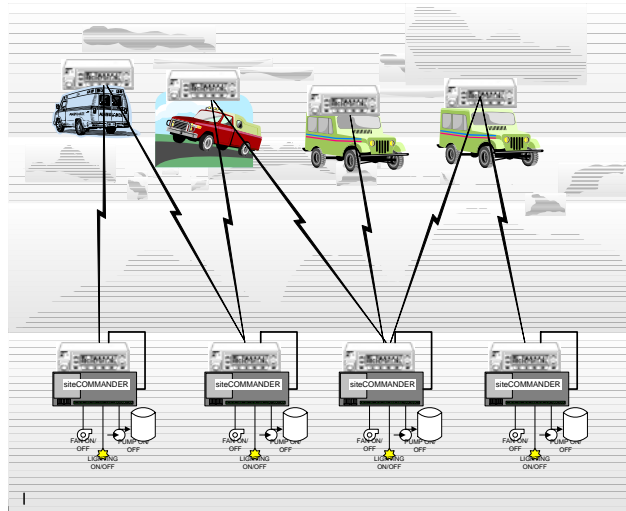


Figure 2 – Slave Mode Multiple Sites

In addition to broadcasting, nominated mobiles or portables may also receive notification of an event. Also, any mobile or portable may control a site.

In summary, when only a portable or mobile will control and monitor a siteCOMMANDER, the siteCOMMANDER should be configured as a slave.

3.2. Master Mode

Master mode is used whenever it is desired to use Kenwood FleetSync™ radios to transport siteCOMMANDER events between siteCOMMANDER sites. In this situation the recipient of event information is **another** siteCOMMANDER site. In addition, master mode also supports the sending of input event notification reports to personnel via portable or mobile radio. Some example master applications are shown in this section.

3.2.1. Master to Master System

In many applications a number of sites may be controlled from a central point. In an application where simple input/output control is required, switch closures at the central site may control individual outputs at nominated sites within the network. All siteCOMMANDERs are configured as master. In this mode, siteCOMMANDER inputs may be mapped to other siteCOMMANDERs within the network. An overview of this type of application is shown below.

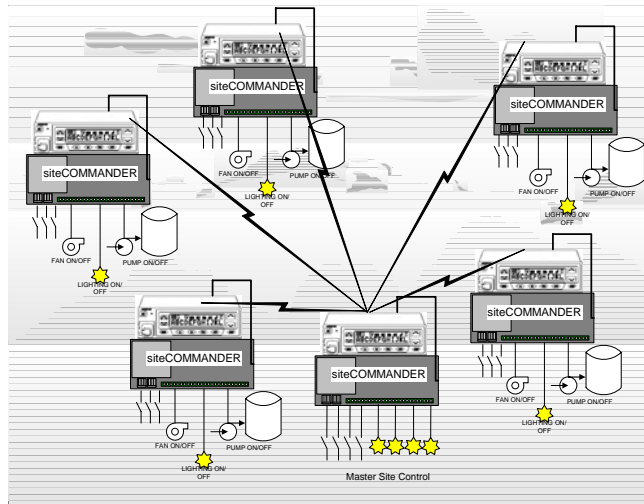


Figure 3 - Master Mode Multiple Sites

In another example, a low water level at one site may trigger an input event that sends a request to another site to start a pump automatically. The input channel may be a float switch or analog voltage input, which is proportional to the amount of water in the tank. The event (water low) is sent to another site as an output to start a pump. If enabled, the siteCOMMANDER can also send notification to site personnel equipped with mobiles or portables.

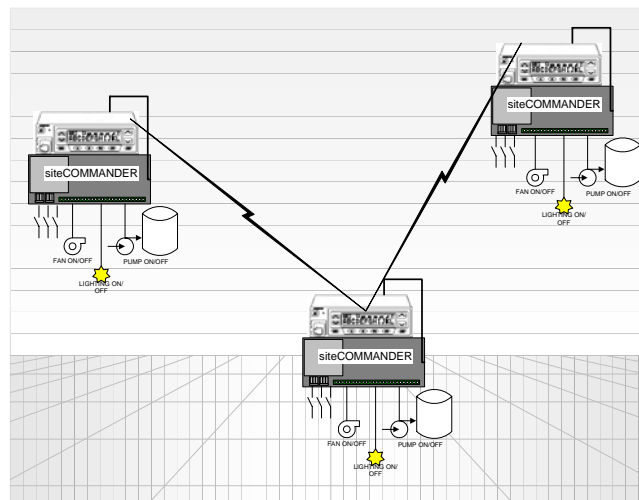


Figure 4 - Master Mode Multiple Sites

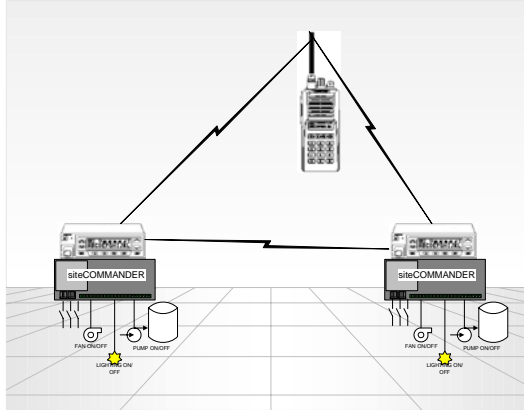


Figure 5 – Master Mode Parallel Event Notification

In the above graphic, two master siteCOMMANDER modules are used to transport event information between two sites using Kenwood FleetSync™ as a transport protocol. For example a low water level signal at one site may transmit a message to turn on a pump at the other site. In addition a message may be sent to other mobiles that this event has occurred.

4. CONFIGURING MOBILES AND PORTABLES

4.1. Read This First

This document is not intended to be used as a substitute for Kenwood's Mobile Radio programming instructions. It is the user's responsibility to ascertain that this product is suitable for the intended application. This document also assumes that the reader is already familiar with the Kenwood product, its operation and programming.

The reader should first become familiar with the contents of this document before attempting to program the siteCOMMANDER and the Kenwood Radio product.

If the reader is not familiar with Kenwood product, then the appropriate Kenwood documentation as supplied by the Kenwood Corporation should be referred to.

5. CONFIGURING SITECOMMANDER

5.1. Connecting to Kenwood Radios

To use the Kenwood FleetSync™ protocol with the siteCOMMANDER, you will need a Kenwood mobile or portable equipped with the appropriate Kenwood RS-232 adapter. If the radio is one of the TK-780/880 or TK-7180/8180 series mobiles you will need to fit it with the KCT-31 RS-232 adapter. If you are using one of the portable radios such as the TK-280/380 or TK-2180/3180 series you need to fit the KPG-36 RS-232 adapter to the radio and supply a DB25 to DB9 adapter of suitable format. Both RS-232 adapters are available from Kenwood or a Kenwood appointed dealer. TASC Systems does not supply RS-232 adapter kits.

Connect the adapter cable from the Radio RS-232 adaptor (female DB9 type connector) to serial port 2 on the siteCOMMANDER as shown below. You will note that the siteCOMMANDER Serial 2 port has a male DB9 connector that matches the Kenwood connector.



Figure 6 – siteCOMMANDER Fleetsync™ Ready

If you have not already done so, follow the instructions in the siteCOMMANDER User Manual on installing and starting the SCCU utility. Reference Document 050-015-0046.

5.2. Setting Up siteCOMMANDER for FleetSync™

The following section highlights the various settings within the siteCOMMANDER which must be configured for proper FleetSync™ operation.

5.3. Module Mode

The type of application will determine the module mode of each siteCOMMANDER in the environment. Please refer to section 3 regarding the different module modes and their function

Using SCCU connect and read the siteCOMMANDER module configuration. Navigate to the System Configuration form in the SCCU Utility. Set the module mode to either slave-nomapping or master. A sample System Configuration window is shown below.

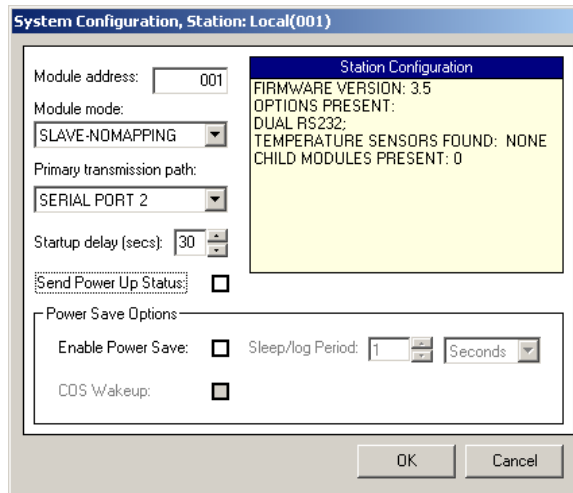


Figure 7 - System Configuration



Since 'Module Mode' influences the FleetSync™ operation, Module Mode **MUST** be set first before any other parameters are configured. **ALWAYS** Configure the 'module mode' first. Do **NOT** select slave-input mapping or gateway as these modes cannot be used in FleetSync™ operation.



If setting the slave mode, set the siteCOMMANDER Module Address to one (1) or higher. Ensure that each unit has a unique Module Address. Click OK. If setting master mode the Module Address will default to zero (0).

5.4. Primary Transmission Path

When operating with a Kenwood FleetSync™ radio the connection to the siteCOMMANDER will always be Serial Port 2. Set the Primary Transmission Path to serial port 2 (as shown above).

5.4.1. Setting up serial port 2 to operate with the Kenwood Radio

Navigate to the Ports/Serial 2 dialog. In the window dialog for serial port 2, select the protocol option as FLEETSYNC™. Ensure you do not set Serial Port 1 to FleetSync™ Protocol.

Ensure the baud rate is set to 9600. The Retry Count is set to one by default.

The retry count value here is the number of times a command will be sent to the radio that is connected to serial port 2 when there is:

No response from the radio itself within the Retry Time or the radio returns busy or NACK

The Timeout value should be set to 15,000ms. (15 seconds). However, this value is determined by a number of factors including the Radio's FleetSync™ transmit baud rate (1200/2400baud) and the amount of traffic on the channel.



Note: Setting the Timeout value too low may result in missed event transmissions to those mobiles specified in the destination list.

A sample serial port 2 Configuration dialog is shown below.

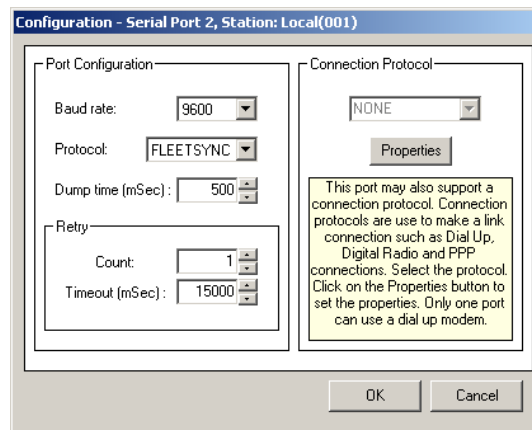


Figure 8 - Serial Port 2 Properties

5.5. Setting the FleetSync™ Properties

To configure siteCOMMANDER to work with FleetSync™ click on the Properties button in the Connection Protocol Panel on the right of the Port Configuration dialog. This opens the Kenwood FleetSync™ Properties window as shown below. The Kenwood FleetSync™ Properties are displayed in tabular form.

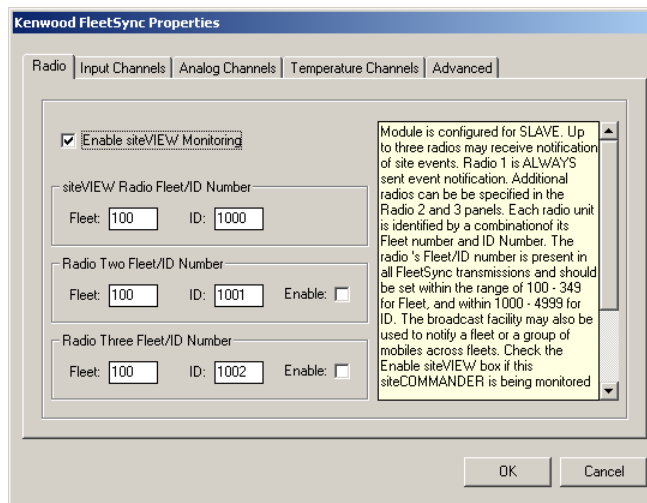


Figure 9 - FleetSync™ Properties

5.5.1. Enabling siteVIEW Enterprise Monitoring

SiteVIEW Enterprise is a Graphical User Interface (GUI) which provides a PC-based monitoring solution for remote siteCOMMANDERs. siteVIEW is also provided by TASC Systems Inc.

If this site will be monitored and controlled by siteVIEW enable this check box. When checked the Radio One Fleet/ID Number changes to siteVIEW Radio Fleet/ID Number. This Fleet/ID Number represents the radio attached to the siteVIEW Monitoring PC and is the also the primary destination for any events.



Note: When a siteCOMMANDER is set for master mode, the “Enable siteVIEW Monitoring” option is not available.

5.5.2. Setting the destination radio

The destination Radio panel has two separate meanings depending on the mode of the siteCOMMANDER. In slave mode, up to three destination radios may receive event messages when an alarm or other event occurs at the siteCOMMANDER. A fleet and ID number for Radio One (the primary radio) must always be entered. This is the first radio that will receive notification of alarm and or event transmissions from the siteCOMMANDER.



In slave mode a primary radio may also have a “broadcast address”. Any event messages sent by means of a broadcast address aren’t acknowledged. For more information regarding broadcast addresses please refer to the section 5.5.3 of this manual and to the Kenwood FleetSync™ documentation.

When the communication with Radio One is complete, the siteCOMMANDER will repeat the message to the remaining two Radio’s if they’re enabled. This facility allows other radios, such as a supervisor radio to receive notification that an event has occurred. To enable the additional two radios, simply enter the Fleet and ID numbers and check the enable buttons for each radio.

In the situation that no reply is received from Radio 1 and the Retry Count is exhausted then the siteCOMMANDER will begin communication with the next enabled Radio.



Note: Each of the three Radio Address boxes may use a different Fleet.

5.5.3. Broadcast

An event or alarm(s) may be sent to a whole group of mobiles in the fleet by using the FleetSync™ ‘broadcast’ facility. If the event is to be sent to all fleets, enter 000 in the Fleet panel for the radio. If all radios with a fleet are to receive the event then enter 0000 in the ID panel for Radio 1. In the example below all radios in fleet 100 will receive parallel notification of an event.

Radio One Fleet/ID Number	
Fleet: <input type="text" value="100"/>	ID: <input type="text" value="0000"/>

Figure 10 - Setting a Broadcast ID

In the example below any mobiles with the ID of 1003 in all fleets will receive parallel notification of an event.

Radio One Fleet/ID Number	
Fleet: <input type="text" value="000"/>	ID: <input type="text" value="1003"/>

Figure 11 - Setting a Broadcast Fleet

No acknowledge is received or required in the broadcast modes. Note that if there are other addresses programmed and enabled in the Radio 2 and Radio 3 fields, then these radios will also receive any event messages.

5.5.4. Setting The SDM Caption For Digital Inputs

This is where the caption for each Contact Input is entered. Click on the Digital Inputs caption 'tab'

	Off State Message	On State Message
Ch 1:	Door is Open	Door is Closed
Ch 2:	Interlock is Up	Interlock is Down
Ch 3:	Air Flow Started	Air Flow Stopped
Ch 4:	Breaker is Open	Breaker is Closed
Ch 5:	Gate is Open	Gate is Closed
Ch 6:	Vent is Up	Vent is Down
Ch 7:	Fan is ON	Fan is OFF
Ch 8:		

Each input channel may have a caption or message for both the ON event and the OFF event

OK Cancel

Figure 12 - Setting Contact Input Captions

The Digital Inputs caption dialog allows an equipment caption or descriptor to be entered for the ON and the OFF event for each enabled Contact Input that will be used. Captions are used to form the message that will be sent to the mobile or portable when the Contact Input state changes (this is what will show on the mobiles LCD display). In the example dialog below, a number of captions have been associated with input channels for the OFF and ON event.

When the Contact Input changes state, the message caption programmed for the channel is sent by the siteCOMMANDER to the Radio addresses programmed. For example, if the Contact Input 4 state in the above example changes to ON, then the message:

“Breaker is Closed” will be sent.

If subsequently the state changes back to off, then the message stating:

“Breaker is Open” will be sent

Up to 20 characters may be entered for a Contact Input caption. If no caption is entered the siteCOMMANDER will revert to its default captions.

5.5.5. Setting The SDM Caption For Analog Inputs

This is where a caption is entered for each of the Analog Input

Click on the Analog Input caption 'tab'. An example Analog Input caption dialog is shown below.

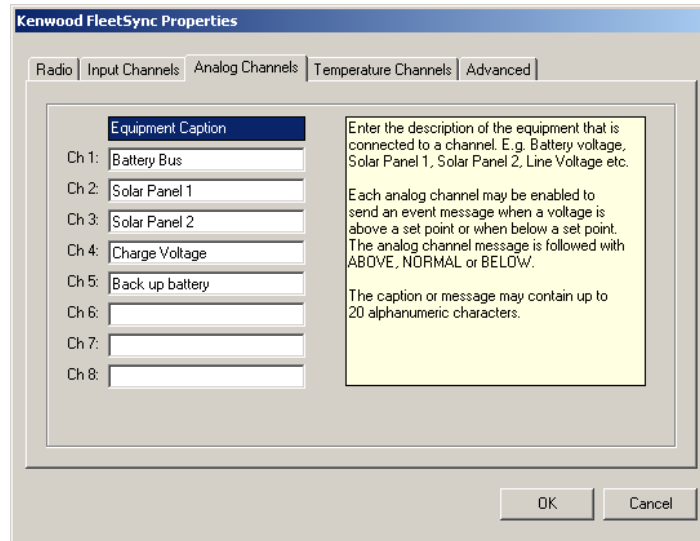


Figure 13 - Setting an Analog Input Caption

The siteCOMMANDER has eight Analog Inputs. Each Analog Input can be programmed for a specific voltage or current range. Each Analog Input has a low set point and a high set point. Each Analog Input can be programmed to generate three SDM messages - below low, normal and above high.

When an Analog Input exceeds a set point, the siteCOMMANDER will send a message using the SDM caption that was entered. The receiving radio will display the caption as well as its current state in the LCD Display.

For example, in the dialog shown above (Figure 13), Analog Input 1 is monitoring the station battery. The low set point has been set to 12.1 volts in the siteCOMMANDER Analog Input configuration. Once the voltage goes below 12.1 volts, the siteCOMMANDER will use the caption "Battery Bus" and append the condition and the current voltage to the tag and transmit it.

The LCD Display would show this: "Battery Bus Above High: 11.9V"



Note that the voltage shown is the actual voltage read at the time the message is prepared and after the 'hold time' has expired.

If the high set point has been set to 15.5 volts in the siteCOMMANDER Analog Input configuration and the voltage rises above this value, then the siteCOMMANDER will use the caption “Battery Bus” and append the condition and the current voltage to the tag and transmit it.

The LCD Display would show this: “Battery Bus Above High: 15.6V”

When the Analog Input voltage returns to its in-range condition it will send a normal event message.

The LCD Display would show this: “Battery Bus Normal: 12.5V”

5.5.6. Setting The SDM Caption For Temperature Inputs

Click on the Temperature Inputs caption ‘tab’ to enter captions for the Temperature Inputs. The Temperature Inputs caption form is shown below.

The screenshot shows the 'Kenwood FleetSync Properties' dialog box with the 'Temperature Channels' tab selected. The 'Equipment Caption' section lists eight channels (Ch 1 to Ch 8) with their respective captions. Ch 1 is 'RF Power Amp A', Ch 2 is 'Cool room 221', Ch 3 is 'Cool room 220', Ch 4 is 'Cool room 54B', and Ch 5 is 'Bearing 100A'. Ch 6, Ch 7, and Ch 8 are empty. A yellow text box on the right provides instructions: 'Enter the description of the equipment that is connected to a channel. E.g. Manifold temp, PA Temp East, Bearing 22C, Oil Temp, etc.' and 'Each temperature channel may be enabled to send an event message when a voltage is above a set point or when below a set point. The temperature channel message is followed with ABOVE, NORMAL or BELOW.' Below this, it states 'The caption or message may contain up to 20 alphanumeric characters.' At the bottom right are 'OK' and 'Cancel' buttons.

Channel	Equipment Caption
Ch 1:	RF Power Amp A
Ch 2:	Cool room 221
Ch 3:	Cool room 220
Ch 4:	Cool room 54B
Ch 5:	Bearing 100A
Ch 6:	
Ch 7:	
Ch 8:	

Figure 14 - Setting a Temperature Input Caption

Use this panel to describe the equipment that this Temperature Input is monitoring, i.e. "Cool room 221", "RF Power Amp A" etc.

Up to 20 characters may be entered for a Temperature Input caption.

Like an Analog Input, a Temperature Input can generate three conditions, below low set point, normal and above high set point.

When a Temperature Input exceeds a set point, the siteCOMMANDER will send a message using the configured caption in the SDM format. The message will be followed with the state and the current temperature.

For example, if the temperature for Temperature Input 4, in our example above, has risen above the high set point of 8.5 degrees Celsius, then the above high message will be sent.

The LCD Display would show this: "Cool room 54B high: 9.0 C"

When the Temperature Input returns to its in-range condition it will send a normal event message.

The LCD Display would show this: "Cool room 54B Normal: 8.0 C"



Note that the temperature shown is the actual temperature read at the time the message is prepared and after the 'hold time' has expired.

5.6. Advanced Settings

Click the Advanced tab to access the Advanced settings.

5.6.1. Setting Mobile Access Security

The siteCOMMANDER default allows any mobile Fleet and ID to control outputs. The siteCOMMANDER can be configured to limit this ability to a select group of mobiles. To do this, click on the Extended Properties 'tab' in the Kenwood FleetSync™ Properties dialog.

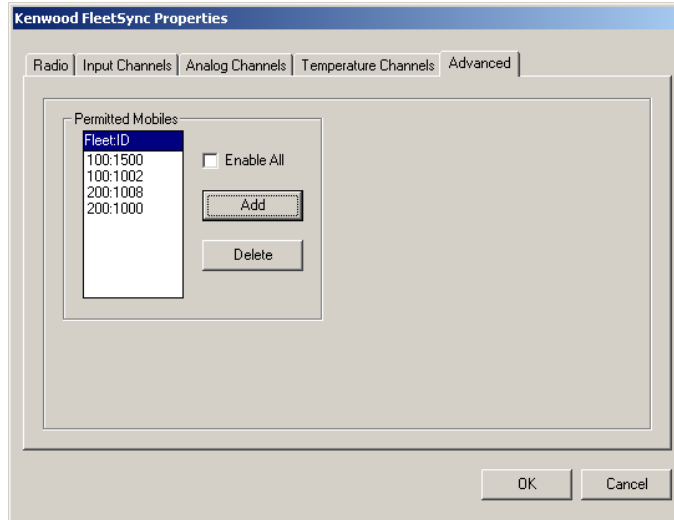


Figure 15 - Output Control Security

In the above example, four mobiles are permitted to control Outputs. These are mobiles with a fleet number of 100 and ID's of 1002 and 1500. A mobile (1000) from fleet 200 is also permitted to make configuration changes. The "Enable All" check box must be unchecked.

5.6.2. Adding A Mobile To the Permitted Mobiles List

To add a mobile to the list, click the "Add" button. The Add mobile dialog appears as shown below.

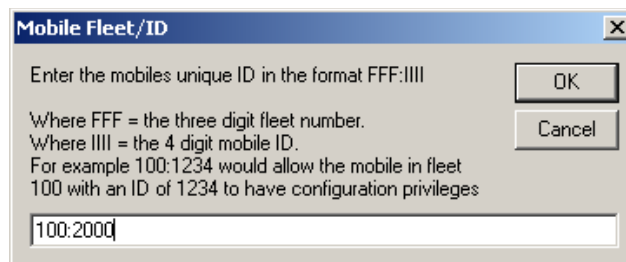


Figure 16 - Adding a Mobile to the Permitted List

Enter the fleet number and ID of the mobile in the form FFF:IIII, where FFF equals the three digit fleet number and the IIII equals the 4-digit ID number. Click OK when done.

5.6.3. Deleting A Mobile From the Permitted Mobiles List

To remove a mobile from the list, *left click once* on the mobile and click the Delete button.

5.6.4. Editing A Mobile Entry In the Permitted Mobiles List

To edit an existing mobile number, *double* click on the mobile list entry. The edit mobile dialog appears. Make the changes and click OK.

To allow all mobiles to control outputs, check the Enable All box.

When the module is operating and a mobile other than in the ones on the permitted mobiles list access's the siteCOMMANDER using one of the status numbers reserved for configuration changes, the radio will be denied access and will receive the "Access Denied" message on the Radios' LCD Display.

5.7. Setting siteCOMMANDER Contact Input Conditions

This section gives an overview of setting up a Contact Input to generate alarm reports. A more thorough explanation is shown in the siteCOMMANDER User Manual.

Navigate to the Digital Inputs dialog. This is where a Contact Input is setup. An Inputs' State and hold time is to be setup and the input must be 'enabled' before it will generate events. For further information on setting up Contact Input conditions, refer to the siteCOMMANDER User and Installation manual.

When a siteCOMMANDER is operating in slave mode under the FleetSync™ protocol, remote output mapping is not available. All events using the Contact Input captions are sent to the radios specified in the FleetSync™ properties form.

However, if the siteCOMMANDER is setup as a master in a network with another master siteCOMMANDER, then any of either siteCOMMANDERS' inputs could affect the condition of the other siteCOMMANDERS' outputs.

An example dialog of slave mode is shown below.

Contact Input Configuration, Station: Local(001)

☒ Enable input events

Contact Input:

Input State:

Input Mode:

Hold (secs):

Local Output

Channel:

Output delay:

Local Set/Reset Function:

Output Mapping	
STATION	OUTPUT
000	00
000	00
000	00
000	00

Module Mode: SLAVE
NOMAPPING. Destination station and output mapping is not available in this mode. SLAVE NOMAPPING mode is used when the recipient of SLAVE messages is a master station and siteVIEW monitoring software.

Logger options

☒ Accumulate time ☐ Log ON/OFF times

OK Cancel

Figure 17 - Configuring Inputs

5.8. Setting Analog Input Conditions

Navigate to the Analog Inputs dialog. This is where the conditions for an Analog Input are setup. An Analog Inputs' state and hold time, if required, may be configured and the input must be 'enabled' before it will generate events. For further information on setting up Analog Input conditions, refer to the siteCOMMANDER User Manual.

When a siteCOMMANDER is operating in slave mode under the FleetSync™ protocol, remote output mapping is not available. All events using the Contact Input captions are sent to the radios specified in the FleetSync™ properties form.

However, if the siteCOMMANDER is setup as a master in a network with another master siteCOMMANDER, then any of either siteCOMMANDERS' inputs could affect the condition of the other siteCOMMANDERS' outputs.

5.9. Setting Temperature Input Conditions

Measurement of temperatures requires one or more temperature sensors to be connected to the temperature sensor bus. Navigate to the Temperature Inputs dialog. This is where the conditions for a Temperature Input are setup. For further information on setting up Temperature Input conditions, refer to the siteCOMMANDER User and Installation manual.

When a siteCOMMANDER is operating in slave mode under the FleetSync™ protocol, remote output mapping is not available. All events using the Contact Input captions are sent to the radios specified in the FleetSync™ properties form.

However, if the siteCOMMANDER is setup as a master in a network with another master siteCOMMANDER, then any of either siteCOMMANDERS' inputs could affect the condition of the other siteCOMMANDERS' outputs.

5.10. Writing The Configuration To siteCOMMANDER

When the entire configuration is completed it must be written to the siteCOMMANDER to take effect.

The configuration can also be saved to file via the File Save option in the menu bar. The configuration can be retrieved from file and uploaded into the siteCOMMANDER at a later date if necessary.

5.10.1. Effecting changes on a working system

Whenever a new configuration is written to siteCOMMANDER, the input scanning functions are stopped while new configuration information is written to non-volatile memory. Furthermore, any assigned local outputs that are ON are set to the OFF position. This is done to prevent any possibility of erroneous operation. When the write completes, the siteCOMMANDER restarts all input scanning functions – much the same as if power was first applied to the site. Depending on the new configuration this may result in existing input conditions (if enabled) being re-transmitted to mobiles once more.

5.11. Setting Up A Master Mode Configuration

FleetSync™ equipped radios can form a 'transport mechanism' to carry event data between sites and also notify personnel via portables or mobiles that an event has taken place. For example, a low water level at one site may trigger an input event that sends a request to another site to start a pump automatically. The Contact Input may be a float switch or analog voltage input which is proportional to the amount of water in the tank. Each 'input' is mapped to another stations output to turn on the pump.

When operating the siteCOMMANDER in Master mode, the Kenwood FleetSync™ Properties dialog will show different information. When the Properties dialog is accessed and the system configuration is set to Master mode, the Radio 1 panel now shows as Master/Base Radio Fleet/ID.

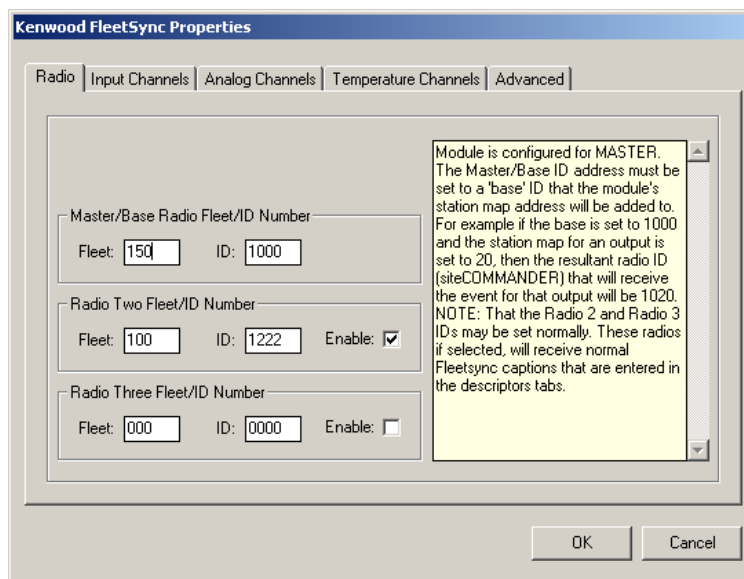


Figure 18 - FleetSync™ Master Mode Configuration

All radios connected to siteCOMMANDERs must be programmed with the same Fleet number as set in the Master/Base Radio Fleet field. In the example dialog above, the fleet is set to 150 for radios connected to siteCOMMANDERs. The ID number entered in the ID field forms the 'base' ID for all radios connected to all siteCOMMANDERs and for ease of use should be an even number. In the above example the 'base radio ID' is set to 1000.

No radio in the fleet should have this address as this address is used to form the actual radio address as discussed below.

When an event occurs, the siteCOMMANDER adds the station address from the mapping field in the inputs configuration window (Figure 19) to the base address to form the ID.

Contact Input Configuration, Station: Local(000)

Enable input events: ☒

Contact Input:

Input State:

Input Mode:

Hold (secs):

Local Output

Channel:

Output delay:

Local Set/Reset Function:

Output Mapping	
STATION	OUTPUT
040	01
000	00
000	00
000	00

Module Mode: MASTER, Enter up to four destination station address's (1-255) and sub module outputs that this module will send a change of status to. Leave the unused maps as 0.

Logger options

☒ Accumulate time ☐ Log ON/OFF times

OK Cancel

Figure 19 - Configuring Site Mapping

In the example above, the station map is set to 040 (under STATION in the window). When combined to the Master/Base Radio ID field (shown in the previous dialog as 1000) the destination radio ID address of 1040 is formed.

Note in the above example the output is specified as '01'. When an alarm condition occurs on input 1 of this siteCOMMANDER, it will send an event message to turn ON output 1 on the siteCOMMANDER connected to the radio with an address of Fleet: 150 ID: 1040. More than one input may be mapped to a common output at the other siteCOMMANDER.

If no output mapping is specified and secondary radios are enabled then this creates a 'silent notification'. In an application it may be desired to not activate a remote station output and to simply notify mobile(s) that an event has taken place. When no destination output mapping is configured for a specific input then no siteCOMMANDER to siteCOMMANDER data transmission occurs for that given input. However, if secondary radios are enabled then these will receive notification that the event has taken place.

5.11.1. Notifying Additional Mobiles

Master mode also supports auto notification of events to secondary mobiles. Secondary mobiles are those entered in the Radio 2 and Radio 3 fields in the FleetSync™ properties form. When operating in Master mode, secondary mobile notification occurs after the siteCOMMANDER has transferred the input event to the destination siteCOMMANDER and that siteCOMMANDER has acknowledged receipt of the event.

When notifying secondary mobiles, the applicable alphanumeric caption for the event that was entered via the FleetSync™ Properties window, is used to form an SDM to the target secondary mobile(s). When multiple events occur, each enabled mobile is addressed in turn before the next event is sent to the mobiles.

6. RADIO OPERATION WITH SITECOMMANDER

6.1. Controlling Outputs From a Mobile

The siteCOMMANDER interprets incoming two-digit status messages with numbers between 10 and 25 as status to control its outputs.

For example receipt of status 10 will turn output 1 off. Receipt of status 11 will turn output 1 on. Below is an example of the alphanumeric tags that can be programmed in a mobile.

Status #	Mobile 'tag'
10	"FAN OFF"
11	"FAN ON"
12	"LIGHT OFF"
13	"LIGHT ON"

The user simply selects the desired tag and hits PTT. The siteCOMMANDER receives the status message and reacts accordingly. A table at the end of this document shows the relationship between status numbers and their function.

6.1.1. Using the local outputs to control events

The siteCOMMANDERs ability to locally turn on and off an output without operator intervention may be put to good effect when setting up a site. For instance, when a temperature input exceeds a set point, a local output may be programmed to come on. For example, this could switch on a cooling fan to reduce the excessive temperature. At the same time this event occurs, the radios listed in the destination radio setup will also be notified of the event. When the temperature falls to below the set point and the hold timer has expired the output will be turned off. This event will also be sent to those mobiles programmed as destination radios.

Analog inputs can be configured in the same way. A pump for instance may be turned on when a level is low. A local output switches the pump on when the level is low. At the same time this event occurs the radios listed in the destination radio setup will be notified of the event.

All local outputs may also have a hold timer associated with the output function. For further information on hold timers, refer to the siteCOMMANDER User Manual.

6.2. Reading the State of Outputs From a Mobile

The siteCOMMANDER interprets incoming two-digit status message numbers between 26 and 33 as commands to report the state of an output. Depending on the configuration this may or may not necessarily be the physical level of the output. For further information on output configurations, refer to the siteCOMMANDER User Manual.

Receipt of status 26 by the siteCOMMANDER, will report the current state of output 1 while the receipt of status 33 will report the state of output 8. To illustrate this, consider:

Status #	Mobile 'tag'
10	"FAN OFF"
11	"FAN ON"
26	"REPORT FAN"

For Example, when a siteCOMMANDER receives and decodes a status 26, it generates a return message providing the current state of output 1. If the current state of output 1 is OFF, then the siteCOMMANDER sends a status 10 back to the mobile. The mobile receives this and displays the tag associated with status 10, in this case "Fan Off". If the current state was ON, then the siteCOMMANDER would transmit a status 11 and therefore the mobile would display "Fan On"

6.3. Reading Contact Input States From a Mobile

The siteCOMMANDER interprets incoming two-digit status message numbers between 34 and 41 as commands to report the current state of a Contact Input. The reported state is the current logical state of the Contact Input. The Contact Input state is reported to the mobile irrespective of the enabled state set in the Contact Input configuration.

Receipt of status 34 by the siteCOMMANDER, will report the current state of Contact Input 1 while the receipt of status 41 will report the state of Contact Input 8. To illustrate this, consider:

Status #	Mobile 'tag'
34	"REPORT DOOR"
35	"REPORT INTERLOCK"
36	"REPORT AIR"

For Example, when a siteCOMMANDER receives and decodes a status 34, it generates a return message providing the current state of input 1. If the current input 1 state is OFF, then the siteCOMMANDER sends a SDM back to the mobile indicating the off condition.

6.4. Reading Analog Inputs From a Mobile

The siteCOMMANDER interprets incoming two-digit status message numbers between 42 and 49 as commands to report the current voltage of an Analog Input.

Receipt of status 42 by the siteCOMMANDER, will report the current voltage on Analog Input 1 while the receipt of status 49 will report the voltage on Analog Input 8.

The voltage is read and reported irrespective if the Analog Input is enabled or has an associated high or low set point. To illustrate this, consider:

Status #	Mobile 'tag'
42	"REPORT BATTERY"
43	"REPORT SOLAR 1"
44	"REPORT SOLAR 2"

For Example, when a siteCOMMANDER receives and decodes a status 42, it generates a return message providing the current state of Analog Input 1. If the current Analog Input 1 state is 12.9 volts, then the siteCOMMANDER sends the back the pre-configured caption associated with Analog Input 1 and appends its current value, this is then displayed on the radios' LCD Display.

6.5. Reading Temperature Inputs From a Mobile

Temperature inputs are implemented as optional plug in sensors.

The siteCOMMANDER interprets incoming two-digit status message numbers between 50 and 57 as commands to report the current temperature on a Temperature Input. Receipt of status 50 by the siteCOMMANDER, will report the current temperature on Temperature Input 1 while the receipt of status 57 will report the temperature on Temperature Input 8.

The temperature is read and reported irrespective if the Temperature Input is enabled or has an associated high or low set point. If there is no sensor present, the siteCOMMANDER will report that there is no sensor present. To illustrate this, consider:

Status #	Mobile 'tag'
50	"REPORT PWR AMP"
51	"REPORT 221"

For Example, when a siteCOMMANDER receives and decodes a status 50, it generates a return message providing the current state of Temperature Input 1. If the current Temperature Input 1 state is 70.5°C volts, then the siteCOMMANDER sends the back the pre-configured caption associated with Temperature Input 1 and appends its current value. This is then displayed on the radios' LCD Display.

6.6. Default Captions

If a particular Input does not have a descriptor/caption (the user did not program one in the FleetSync™ configuration form), then the input/output type is displayed instead. For example Input # is used for Digital Inputs, Analog # for the Analog Inputs and Temp # is used for Temperature Inputs. The input number and its state, voltage or temperature follows the default caption.

6.7. Receiving Multiple Events on a Mobile

When multiple 'input' events are detected by the siteCOMMANDER, these may be transmitted to a portable or mobile in rapid succession. The Kenwood mobile LCD always displays the last event and it may not be apparent that other events have occurred. Always check the mobiles 'stack' display for previous event messages.

Be aware that multiple events may cause radio channel congestion. This is especially true when operating in master mode. master modes primary function is to transmit events such as switch closure, voltage and temperature high and low events to other siteCOMMANDER's in the network. Sending mobile event notification messages also adds the radio channel traffic. When multiple events occur it may take several tens of seconds for all messages to be output. The siteCOMMANDER can buffer up to 150 siteCOMMANDER events and also 150 secondary mobile events.

7. STATUS MESSAGE MAPPING

Status numbers 10 through 66 transmitted from mobiles to the siteCOMMANDER form the basic functions. The siteCOMMANDER responds to these status messages with responses using the Short Data Message (SDM) format or by activating or disabling outputs.

7.1. Status Message Mapping

The following tables illustrate the relationship between a FleetSync™ two-digit status message number and the siteCOMMANDER function.

Note that these are two-digit status messages transmitted by the mobile.

7.1.1. Write output status'

Status #	siteCOMMANDER Output	Function
10	Output 1	OFF
11	Output 1	ON
12	Output 2	OFF
13	Output 2	ON
14	Output 3	OFF
15	Output 3	ON
16	Output 4	OFF
17	Output 4	ON
18	Output 5	OFF
19	Output 5	ON
20	Output 6	OFF
21	Output 6	ON
22	Output 7	OFF
23	Output 7	ON
24	Output 8	OFF
25	Output 8	ON



Note that the above table is for the direction: Mobile to siteCOMMANDER, i.e. when the siteCOMMANDER receives a 2-digit status in the group of 10 to 25 it is mapped to turn ON or to turn OFF an output. The FleetSync™ protocol provides receipt of command.

7.1.2. Read output status's

Status #	siteCOMMANDER Function
26	Read logical state of output 1
27	Read logical state of output 2
28	Read logical state of output 3
29	Read logical state of output 4
30	Read logical state of output 5
31	Read logical state of output 6
32	Read logical state of output 7
33	Read logical state of output 8



Note that the above table is for the direction: Mobile to siteCOMMANDER, i.e. when the siteCOMMANDER receives a 2-digit status in the group of 26 to 33 it responds using the SDM format with the current logical state of the desired output.

7.1.3. Read Contact Input state status'

Status #	SiteCOMMANDER Function
34	Read logical state of Contact Input 1
35	Read logical state of Contact Input 2
36	Read logical state of Contact Input 3
37	Read logical state of Contact Input 4
38	Read logical state of Contact Input 5
39	Read logical state of Contact Input 6
40	Read logical state of Contact Input 7
41	Read logical state of Contact Input 8



Note: The above table is used when sending commands from a mobile to a siteCOMMANDER. The siteCOMMANDER will respond with the appropriate SDM

7.1.4. Read analog voltage channel status

Status #	SiteCOMMANDER Function
42	Read Analog Input 1
43	Read Analog Input 2
44	Read Analog Input 3
45	Read Analog Input 4
46	Read Analog Input 5
47	Read Analog Input 6
48	Read Analog Input 7
49	Read Analog Input 8



Note: The above table is used when sending commands from a mobile to a siteCOMMANDER. The siteCOMMANDER will respond with the appropriate SDM

7.1.5. Read temperature channel status's

Status #	SiteCOMMANDER Function
50	Read Temperature Input 1
51	Read Temperature Input 2
52	Read Temperature Input 3
53	Read Temperature Input 4
54	Read Temperature Input 5
55	Read Temperature Input 6
56	Read Temperature Input 7
57	Read Temperature Input 8



Note: The above table is used when sending commands from a mobile to a siteCOMMANDER. The siteCOMMANDER will respond with the appropriate SDM

7.1.6. Extended status messages

The following status numbers are reserved in all modes.

Status Message #	siteCOMMANDER Function
66	Read site alarm state
67	Send alarm acknowledge (reserved for later use)
68	Silence all alarms (reserved for later use)
69	Reserved
70	Request NMEA GPS report
71	Request NMEA vehicle data only
72	Request both NMEA GPS and NMEA vehicle data report
73	Request all NMEA Contact Input data
74	Request all NMEA Analog Input data
75	Request all NMEA Temperature Input data
76	Reserved
77	Reserved
78	Reserved
79	Reserved

Status commands 80 and above, are reserved for special operations by Kenwood Communications.

8. CHANGING SITECOMMANDER PARAMETERS REMOTELY

Changing siteCOMMANDER parameters remotely, such as analog and temperature thresholds is not possible using a Kenwood portable or mobile radio. A portable or mobile radio has insufficient resource to carry out these functions.

From siteCOMMANDER Firmware release V3.1 and SCCU software release V1.3.1 specific support has been added to support the use of a PC connected to a base Kenwood Radio to remotely configure siteCOMMANDER sites connected to Kenwood FleetSync™ radios. The graphic below shows a PC connected to a controlling radio via serial port.

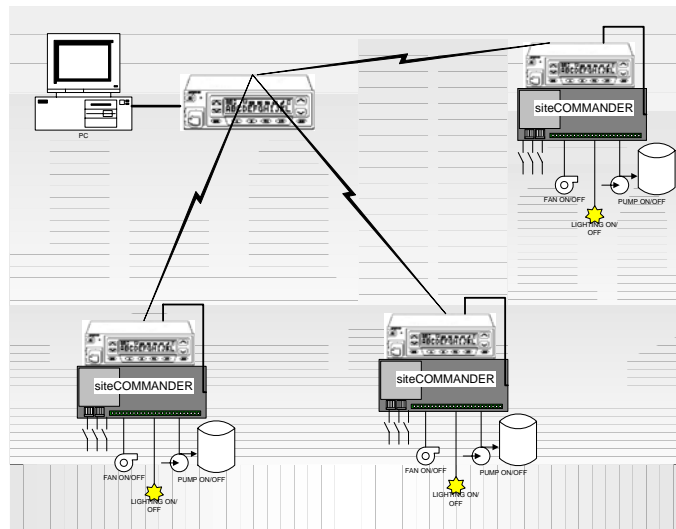


Figure 20 - Remotely Configuring a siteCOMMANDER

A significant amount of configuration information is stored in the siteCOMMANDER module. Reading an average configuration file may take over a minute.

8.1. Local Port Protocol

To configure SCCU to operate the PC local serial port with the Kenwood base radio, access the menu item Preferences/Local Connection. Set the Local port protocol to KENWOOD FLEETSYNC™ as shown below.

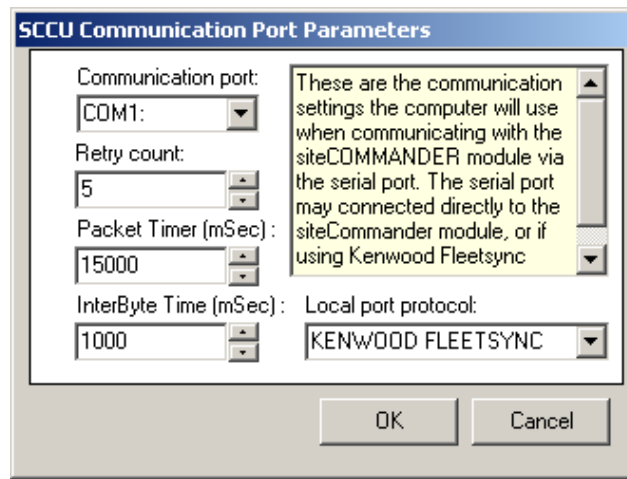


Figure 21 - Selecting FleetSync™ Protocol

Now when the Read/Write tools are clicked, a prompt to enter the FleetSync™ radio address will be presented. Enter the address of the radio attached to the siteCOMMANDER under configuration.

Enter the Fleet and the radio ID, for example 100:2333. Click OK.

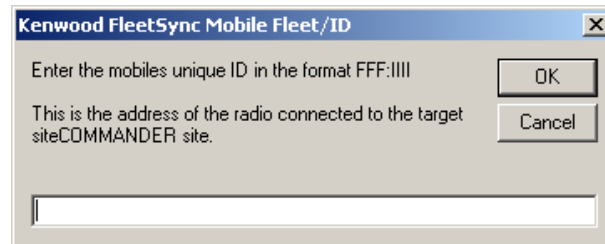


Figure 22 - Remote Radio Address

This provides the operator with the ability to remotely configure the siteCOMMANDER via the Kenwood FleetSync™ protocol.

9. APPENDIX 1 – KENWOOD FLEETSYNC™ INSTALLATION GUIDE



KENWOOD FLEETSYNC™ 180 Series Radio to TASC siteCOMMANDER & PC running siteVIEW Enterprise

Overview


This installation guide provides the necessary information to interface a Kenwood 180 Series mobile radio to both a TASC siteCOMMANDER Alarm Monitoring Unit as well as a PC running the TASC siteVIEW Enterprise software. The interface allows a transfer of data using the Kenwood Fleetsync™ protocol to a computer loaded with siteVIEW Enterprise Alarm Monitoring Software.

The interface requires a custom serial cable, radio modifications, and software changes using the Kenwood KPG-89D Programming Software.

Custom Serial Cable

Parts Required:

1. Qty 1 - DB-9 Female connector to flying lead. (Length varies depending on location of siteCOMMANDER or PC running siteVIEW Enterprise to Kenwood 180 Series radio)
2. Qty 1 – DB-25 Male connector

<u>Function</u>	<u>DB-9 (F)</u>	<u>DB-25 (M)</u>
TxD – Transmit Data	3	2
RxD – Receive Data	2	3
SG – Signal Ground	5	7
RTS – Request to Send	7	
CTS – Clear to Send	8	

Note: The RTS and CTS pins need to be soldered together, this can be done in the DB-25 housing to hide the connection, cover the joint with a piece of heat shrink.

Radio Modifications

1. Remove the plastic cover on the 180 Series radio to expose a protective rubber cover.
2. Pull the rubber cover back and using a Phillips screw driver; remove the 4 screws.

.../2

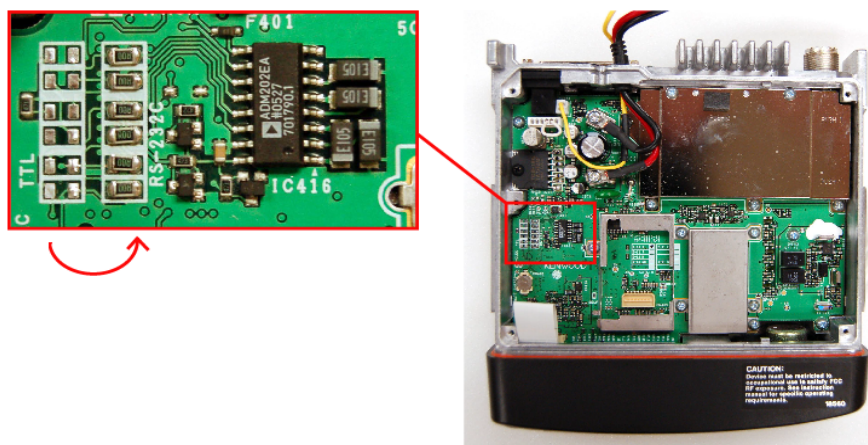


Figure 1

3. As shown in Figure 1, move the 6 zero ohm resistors from the TTL pads to the RS-232C pads.
4. Replace the aluminum and rubber cover, as well, snap the plastic case back on the radio.
5. Modifications are complete.

Radio Programming

1. Using the Kenwood KPG-89D programming software from the menu (see Figure 2), click on "Edit" / "Fleetsync" / "General 2". Make sure that the *J Command Serial Output* is not checked.

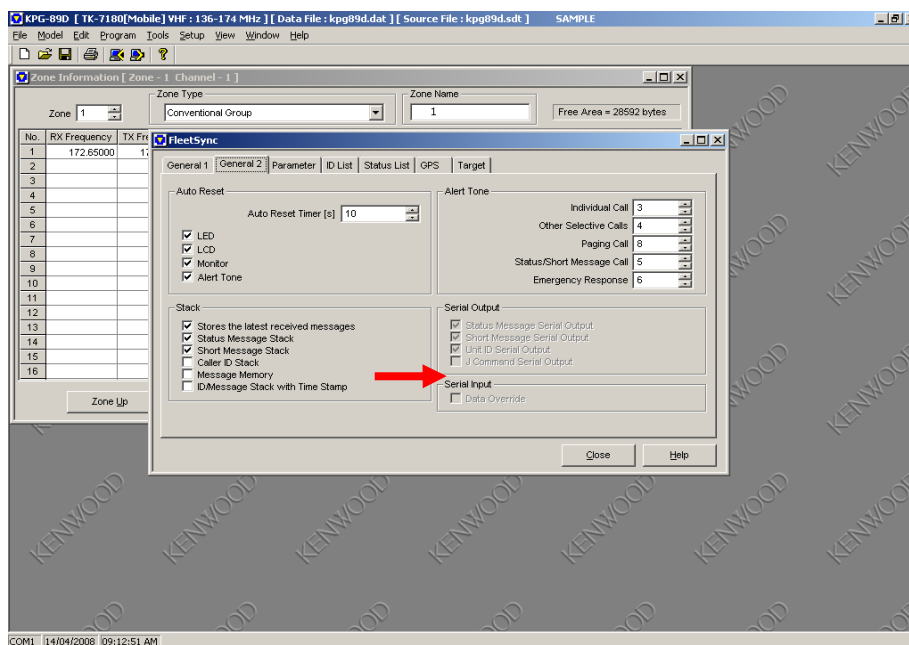


Figure 2