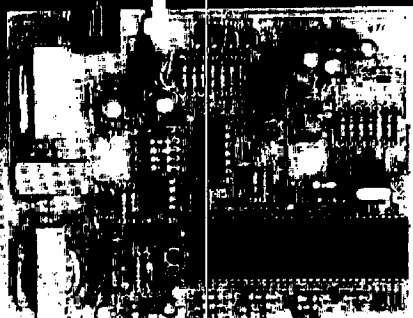


Communicator

1704

Linear

A NORTEK COMPANY



1704

- Reports Opening and Closing
- Upload/Download Programming
- Low Battery Reporting
- Keyed Voltage Output
- 4 Alarm Zones
- 8-12 VDC

Model 1704 is a reliable system component for sending telephone network reports of alarm conditions from an alarm control panel to a central station receiver. It is a 12-volt, four-zone, upload/download digital slave communicator that can be easily programmed, locally or remotely (by telephone), using Linear's Model P-9 programmer to send one of three different reporting formats compatible with most central station receivers. After programming, the 1704 will retain its memory, even with loss of DC power.

A wide range of features are programmable on the 1704. Three different central station telephone

numbers can be selected with any two assigned for each zone with either primary or secondary status. Pulse or Touch Tone dialing is available. Dialing ratios are selectable - US (60/40) or foreign (67/33).

The 1704 will make up to 15 call retries. It can also be set to "sleep" or cancel calling after exhausting all programmed attempts (time delays are from 1 to 255 minutes with from 0 to 14 sleep cycles). There is also an anti-jam, call retry delay in case the telephone is off-the-hook or was being called when the line was first seized.

A swinger eliminator feature can be programmed to prevent the reporting of an unwanted series of multiple alarms. Zone trigger polarity enables the 1704 to recognize either a positive or negative voltage on zone inputs as a fault condition. The duration of change in zone status that the communicator will report is also selectable, from 200ms to 31 minutes. A safeguard feature is programming access lock, which will prevent remote entry to the communicator's memory.

General Specifications

Dimensions: 4.5 x 4 x 1 in. (11.4 x 10.2 x 2.5 cm)

Power Supply Voltage: +7.6 to +14 VDC

Current Consumption: 13 mA typical (idle); 100 mA typical (active)

Input Signals: 4 general purpose loops: Low Battery; Test/Cancel (button and external input); Open/Close; Local program (button and external input)

Input Requirements: 0 to +15 VDC (polarity programmable) 200 millisecond minimum duration—programmable to 31 minutes (<1 V = low, >4 V = high)

Output Signals: Call-in-Progress LED Keyed voltage, current limited at 50 mA

Telephone Interface

Transmission Modulation: Pulse code (pcm) or fsk

Transmission frequencies: 1270, 1070 Hz (fsk); 1270, 1800, 2300 Hz (pcm)

Transmission Level (data): <-9 dbm

Transmission Duty Cycle: 50% (pcm)

Transmission Baud Rate: 3, 8, 20, 33 (pcm); 300 (fsk)

Dialing Method: Pulse or DTMF

Pulse Dialing Ratio: 60/40 or 67/33% (programmable)

Pulse Interdigit Time: 700—800 milliseconds

DTMF Level: <0 dbm

DTMF On Time: 75 milliseconds

Receiver Sensitivity: -40 dbm

On-line Impedance: 600 ohms

Off-line Resistance: >33 Kiloohms

On-line Resistance: 95 ohms

Off-line Resistance: >20 Megaohms

Return loss: >11 db from 500—2500 Hz; 3 db from 300—3500 Hz (measured against 600 ohms/2.16u)

Breakdown Voltage (T/R to all): >1500 volts

Dial Tone Detect: Yes, 300—1000 Hz

Ring Detect: Yes, 15—69 Hz, 35 VRMS minimum

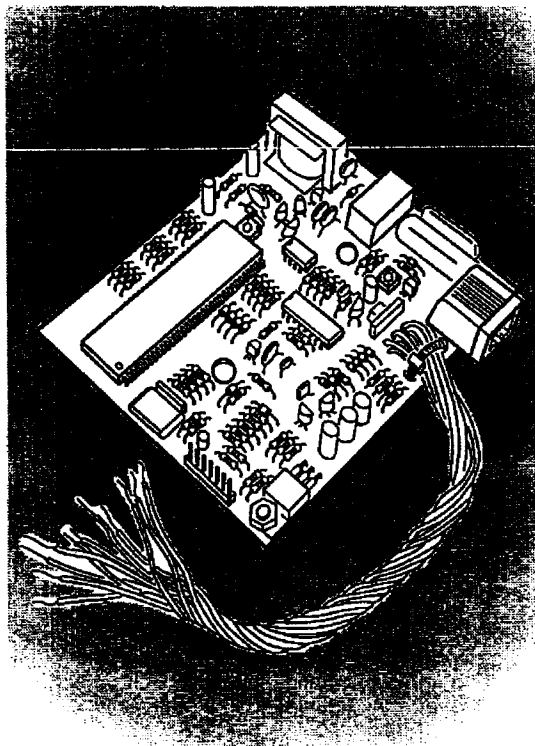
Programming: P-9 Programmer (V1.6 or later)

Memory: EEPROM

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MODEL 1704

4-ZONE UPLOAD-DOWNLOAD DIGITAL SLAVE COMMUNICATOR

*Installation, Programming, and
Operating Instructions*

Linear

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DESCRIPTION

The Model 1704 is a 12-volt, 4-zone, upload/download digital slave communicator designed to provide a reporting link between an alarm control panel and a digital central station receiver via the telephone network.

The 1704 features upload/download programming capability using Linear's Model P-9 programmer. Uploading involves reading the communicator program from its microprocessor's memory into the P-9 programmer. Downloading is the reverse of this process. Programming can be performed locally (in the shop or on the job site) or remotely (over the telephone network).

The communicator can be programmed to send one of three different reporting formats that are compatible with most popular central station receivers. After programming, the 1704 will retain its memory even without DC power.

HARDWARE FEATURES

See Figure 1 for the component locations of the 1704 communicator.

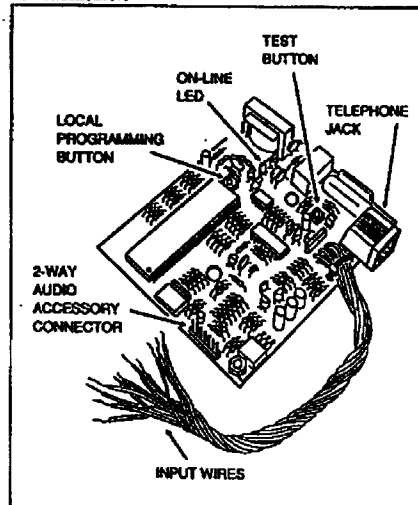


Figure 1. 1704 Communicator Component Locations

On-Line LED and Keyed Voltage Output

The On-line LED will light and the Keyed Voltage output will activate any time the communicator is making or attempting to make a call. The LED will remain lit and the output will remain on during any sleep cycles (if sleep cycles are programmed).

The Keyed Voltage output may be connected to an LED (50 mA maximum through a 1K Ω current limiting resistor) to provide remote visual indication of communicator activation.

A Keyed Voltage controlled LED can also provide a visual "ring-back" indication, verifying that the central station has received the communicator's report (usually used with open and close accounts).

Test Button

The communicator can be programmed so a test code will be sent to the central station each time the on-board Test button is pushed or the external Test/Cancel input is triggered.

If the test code is sent after another zone is tripped, the central station will interpret the code received as "cancel".

Telephone Jack

The telephone jack is used to connect the 1704 to the P-9 programmer for local programming or to the switched telephone network for normal operation.

Local Programming

The Local Programming is used whenever communications are established between a P-9 programmer and a 1704 directly, via a double-ended modular cord. Local programming can also be activated with an external input.

Input Wires

The eleven color coded input wires are used to connect the 1704 to the control panel. The functions of the wires are:

RED	..+8 to 14 VDC Power
BLACK	..Negative (-) Common
BROWN	..Zone 1
WHITERED	..Zone 2
ORANGE	..Zone 3
YELLOW	..Zone 4
GREEN	..Test/Cancel
BLUE	..Open/Close
WHITE	..Low Battery
VIOLET	..Local Program
WHITE/YELLOW	..Keyed Voltage

See the section "Wiring" for hook-up details.

2-Way Audio Accessory Connector

The 7-pin header connector mounted on the 1704 circuit board is for connection to Linear's 2-way Audio Module (available late 1990). This module will allow the central station to listen and talk to the subscriber's premises after the communicator has completed any alarm reports for communicators programmed as audio accounts.

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PROGRAMMABLE FEATURES

Masterfile Header

The masterfile header allows the user to place information in the communicator's memory to identify location, customer I.D. number, or other appropriate data. It does not affect the operation of the communicator. Any combination of alpha-numeric (printing) characters up to a maximum of 16 can be used.

Multiple Telephone Numbers for Each Zone

Three different central station telephone numbers can be programmed into the communicator. Of those three, a primary and secondary telephone number can be chosen for each zone.

The *primary* is the first number which will be called for any event; the *secondary* will be called as either a back-up (only if the primary can not be reached), or as an addition to the primary number.

The *secondary telephone mode* determines the manner in which the secondary telephone number is treated:

- ☒ When reporting to both numbers, the primary and secondary numbers are called alternately, and the event reported to both.
- ☒ When reporting to either number, the primary number is called for the specified number of tries, and if not completed, the secondary number is attempted.

The 1704 can also be programmed to cause an event to be reported to only one number by programming the primary and secondary numbers the same.

Central Station Formats

Three central station formats are available for each of the three central station telephone numbers:

SESCOA STANDARD (3 by 1, Dual Round Compared)

Handshake and Kissoff . . . 2300 Hz
Transmission Frequency . . . 1800 Hz
Message Speed 20 pps

SESCOA SUPER SPEED (4 by 3, Single Round with Check Sum)

Handshake and Kissoff . . . 2300 Hz
Transmission Frequency . . . 1800 Hz
Message Speed 40 pps

RADIONICS HEX (3 by 1, Single Round with Check Sum)

Handshake and Kissoff . . . 2300 Hz
Transmission Frequency . . . 1800 Hz
Message Speed 40 pps

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Tone Dialing

The communicator can dial using either the pulse (rotary) or DTMF (Touch Tone®) dialing method. This applies to all three telephone numbers.

Foreign Dialing Ratios

When pulse dialing, the communicator can be programmed to use either the break/make ratio of 60/40 used in the United States, or the 67/33 ratio used in some foreign countries.

Call Retries

The number of times the communicator will dial the central station in an attempt to transmit a message is programmable.

If transmission is not successful within the specified number of tries, the communicator will repeat the calling sequence at a later time if sleep cycles (see below) are programmed, otherwise the event will be discarded. From 1 to 15 call retries can be programmed.

NOTE: The number of attempts is applied to all events and all telephone numbers.

NOTE: Touch Tone® is a registered trademark of AT&T.

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Selectable Alarm Codes

Neither the SESCOA Standard nor SESCOA Super Speed format uses a pre-defined code to identify a zone alarm condition. The event code to be used when sending these reports must be programmed.

The range of numbers allowed depends upon the central station format(s) selected:

SESCOA Super Speed always transmits a two-digit alarm code from 0 to 99; if the programmed code is less than 10, the most significant (tens) digit is always transmitted as a 0.

SESCOA Standard always transmits a single-digit alarm code from 0 to 9; if the programmed code is greater than 10, only the least significant (units) digit is transmitted.

Radionics Hex always ignores the programmed code and instead transmits the zone number as a single-digit alarm code from 1 to 4.

Selectable Restoral Code

The SESCOA Standard format does not use a pre-defined code to identify a zone restoral. The event code to be used when sending these reports must be programmed and can range from 0 to 9.

SESCOA Super Speed and Radionics Hex send the zone alarm code appended with a restoral message.

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Sleep Cycles

After exhausting all programmed attempts to complete a call to a central station, the 1704 communicator can be programmed to either "sleep" or to cancel further attempts. If sleep cycles are programmed, the communicator will wait the specified length of time, then "wake-up" and begin the calling sequence, including retries, again. Time delays from 1 to 255 minutes and 0 to 14 sleep cycles can be programmed.

NOTE: The number of sleep cycles is applied to all events and all telephone numbers.

Anti-jam

If the communicator fails to successfully complete a call to a central station, it can make additional attempts if programmed to do so. Before the second attempt, the communicator first enters an anti-jam delay in case the first failure was due to the telephone being either off-hook or being called (ringing) when the line was first seized. By maintaining line seizure during this interval, the communicator tries to ensure that the line will be on-hook long enough to result in a dial tone on the next attempt.

The anti-jam time is specified in seconds from 15 to 255; a typical value for the United States is 45 seconds; the requirement is different in some foreign countries.

Open and Close Reporting

If open and close reports are enabled, a closing report will be sent to the central station when the control panel is armed and an opening report will be sent when the control panel is disarmed.

Open and close reports are triggered with an external input which can be programmed to trigger on either a positive or negative signal.

Activation of the input, when open and close reports are enabled, will cause an "OPENING" or "CLOSING" message at the central station when the SESCOA Super Speed or Radionics Hex formats are used.

The SESCOA Standard format does not use a pre-defined code to identify open and close. The event code to be used when sending these reports must be programmed and can range from 0 to 9.

Test Messages

If test messages are enabled a test message is sent when the TEST button is pressed or the test input is triggered. If a SESCOA central station receiver is used, each message will be received as a "TEST" when SESCOA Super Speed is used. If a Radionics central station is used, each message will be received as a "CANCEL". Therefore, the central station operator must interpret the messages received from a communicator on a given connect.

The SESCOA Standard and Radionics Hex formats do not use a pre-defined code to identify a test. The event code to be used when sending these reports must be programmed and can range from 0 to 9.

Low Battery Reporting

Activation of the input (+4 to +14 VDC only), when low battery reports are enabled, will cause a "LOW BATTERY" message at the central station when the SESCOA Super Speed or Radionics Hex formats are used.

The SESCOA Standard format does not use a pre-defined code to identify a low battery. The event code to be used when sending these reports must be programmed and can range from 0 to 9.

NOTE: The 1704 does not have its own low battery sensing circuit. The control panel or connected device must provide the low battery trigger voltage.

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Swinger Eliminator

The 1704 communicator will normally report all alarm events (changes from restored to alarm condition) on the zone input, no matter how many alarms occur. An unwanted series of multiple alarms (usually caused by a bad sensor) is called a "swinger."

If this mode of operation is undesirable, the 1704 can be programmed to stop reporting these alarms after a specified number of reports have been transmitted within the 24 hour period between check-in reports. The swinger count can be set from 1 to 8 for each zone.

To alert the central station that the zone has equalled the allowed number of events, a "TROUBLE" message is appended to the last alarm message transmitted in either the SESCOA Super Speed or Radionics Hex (which is NOT expanded) format. For messages transmitted in the SESCOA Standard format, two successive alarm messages are sent.

The swinger count is normally reset once every 24 hours at the 24-hour check-in time. To reset the swinger count at any other time using the P-9, refer to the P-9 RSC command.

To adjust the 24-hour check-in time (thereby adjusting the swinger count reset time), refer to the P-9 SDL command

24-Hour Check-in

The communicator can be programmed to send check-in code to the central station every 24 hours. If enabled, this report will be sent each day at the time that power was applied to the communicator.

This 24-hour report time can be adjusted using the P-SDL command, which sets the length of time (from when the command is issued) until the communicator sends a 24-hour check-in. After the initial report is sent, additional reports will be sent one each day, at approximately the same time, until power to the communicator is removed, or another SDL command is received.

When 24-hour reports are enabled, a "24 HOUR REPORT" message is printed at the central station when the SESCOA Super Speed or Radionics Hex formats are used.

The SESCOA Standard format does not use a pre-defined code to identify a 24-hour report. The event code to be used when sending these reports must be programmed and can range from 0 to 9.

Variable Zone Response Time

The communicator will detect and report a change in zone status which is a minimum of 200 milliseconds in duration. This minimum duration can be increased, in increments of 15 seconds, to a maximum of 31 minutes and 45 seconds. If the zone status does not remain constant for the period selected, no report will be generated.

Zone Trigger Polarity

The communicator can be programmed to recognize either a positive (+4 to +14 VDC) or negative (+1 to 0 VDC) voltage on the zone inputs as being a fault (alarm) condition.

Programming Access Lock

If remote access of the communicator memory is enabled, it may be optionally "locked". If the communicator is locked, access will be granted only if the P-9 user provides the correct 4-character access code when communications are first established. If the communicator is not locked, any P-9 programmer will have the ability to call and establish a communications link with the communicator.

Refer to the P-9 User Instructions and Reference Guide for detailed programming information regarding communicator locking and other programmable features.

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