MULTI-LINE DIGITAL RECEIVER

SG SECURITY COMMUNICATIONS™

A Division of Sur-Gard Security Systems Ltd.

MLR2-DG

MULTI-LINE DIGITAL RECEIVER

UL and ULC Listed

INTRODUCTION AND OVERVIEW

MLR2-DG

MULTI-LINE DIGITAL RECEIVER

INTRODUCING THE MLR2-DG

The MLR2-DG is a Multi-Line, Multi-Format Digital Receiver designed to interpret a variety of communication formats for the ultimate in convenience and versatility. The MLR2-DG has been designed with features that make it more adaptable, easier to use, and upgradable as new technologies develop and as the demands on your central station increase.

CONVENIENT INSTALLATION

For installation convenience, the MLR2-DG is packaged in a standard 5¼"-height Card Cage for 19" rack mount. The basic unit consists of a Central Processor Module, the CPM2, and one Digital Receiver Line card module, the DRL2A.

MULTIPLE OUTPUTS

The CPM2 provides flexibility when it comes to generating outputs. The CPM2 features 3 Programmable Outputs, a parallel printer connection, and 2 RS232 ports for connection to a PC. The Station Operator can control the entire system through the built-in keypad on the CPM2.

MORE COMMUNICATION FORMATS

The MLR2-DG can interpret the following formats:

- SIA with Tone and Data Acknowledge. Level I - Level II - Level III
- Ademco Contact ID.
- Ademco express 4-1, 4-2.
- Acron 3-8 or 4-8 DTMF.
- Sur-Gard DTMF 4-1, 4-2, 4-3 and 4-3 with Checksum.
- Franklin/Ademco/Radionics 3-1, 4-1 and 4-2 at 10/14/20/40 baud and 40 baud with Checksum, and/or extended.
- Super Fast Ademco or High Speed DTMF 4-8-1.
- FBI Super Fast.
- Sescoa Super Speed.
- Modem II/Modem IIE/Modem IIIa^2
- BSFK
- ITI
- Silent Knight FSK 1/2
- WESTEC Format 6 (W4000/5000 Panels)
- Varitech

POWERFUL INFORMATION MANAGEMENT

All information received is displayed on a 32-character LCD screen, and can be sent through the CPM2 to a parallel printer and/or computer connected to a RS232 serial port.

The built-in real time clock/calendar “stamps” all information with the time and date. Adjustment of this clock and other programming changes to the receiver are protected by password codes.

In addition, various buffers and non-volatile memory units ensure that no information is lost or deleted should the AC power fail, or if the unit is taken off-line for maintenance.

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ADVANCED DESIGN

Each line on the DRL2A module is equipped with non-volatile memory which stores the last 256 alarms received, along with the 256 telephone numbers corresponding to each alarm (with the Caller ID option selected). Caller ID (Call Display) capability is built-in and the telephone numbers of reporting digital communicators can be displayed, printed out and stored in memory; the Caller ID memory can be printed out at any time. A hand-set output for each telephone line for two-way audio is standard. The CPM2 also has a memory buffer that keeps a log of the last 128 events which can be examined on the LCD Display or printed. In case of a printer or computer fault, or if the module must be taken off-line for maintenance, the CPM2 retains the last 128 events and automatically sends the stored events to the optional computer and/or printer when the module is put back on-line.

The MLR2-DG uses a powerful 16-bit microcontroller for the CPM2, and individual 8-bit microcontrollers for each Line Card. It is powered by a 16VAC 110 50/60 Hz external step-down transformer. The unit is equipped with 12V rechargeable stand-by battery connections and an automatic battery charger for back-up should the AC power fail. Low current consumption allows more than 24 hours of operation.

SUPERVISION FOR SUPERIOR RELIABILITY

The stand-by battery voltage and battery connections are supervised; there is also continuous supervision of the Line Cards to ensure that they are responding properly to the CPM2. Any trouble conditions are reported to the printer and computer.

The DRL2A Line Cards module also ensures that all information is properly received by the CPM2. In case of malfunction, the operator will be advised with the unit's built-in sounder, and the Line Cards will continue to function with their individual LCD displays and Acknowledge buttons. The operator can also examine the 256 event memory buffer on each Line Card directly.

The printer is supervised for power loss, off-line condition, paper out or other trouble conditions. The communication link to the computer via the RS232 COM1 port can be supervised by "heartbeat" test transmissions. Most central station automation software packages are supported:

- SIMS
- SIS
- MAS
- APROPOS
- ALARM COMMPRO
- MICROKEY
- GENESIS
- ABM
- ALARM SOFT
- MENTOR (UK)
- DICE
- SMS
- IT
- ASPI
- IBS

The CPM2 has 3 programmable outputs (switched negative), with one of the outputs being annunciated on the unit's faceplate with an LED. Other outputs are provided for the Acknowledge and Trouble LEDs. An IBM-compatible keyboard interface is provided on the back of the unit for use with future software versions.

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FEATURES

- Caller ID (Call Display) capability
- Non-Volatile RAM on each SG-DRL2A Line Card module for the programmable configuration and the 256-Event Memory Buffer.
- Large, easy to read, backlit 32-character Liquid Crystal Displays.
- Message display on LCD screens in plain, understandable language.
- EUROCARD circuit board packaging for less complexity, higher reliability, easy servicing and higher performance.
- All modules function individually and allow for maintenance or upgrading of programming.
- Line Cards available for DVACS-compatible multiplex operation (DVL2A) and remote receiver link up (SCADA).
- Inputs on DRL2A for tamper and ring simulation for testing.
- 14 lines maximum per receiver.
- 128-Event Memory Buffer on the CPM2.
- Real time clock.
- Multiprocessor with 16-bit microcontroller in the CPM2.
- 1 parallel printer port
- 2 serial RS232 ports
- 2-way Audio
- Downlook Still-Frame Video

PROGRAMMABLE SERIAL PORT CONFIGURATION

- Wait for Ack Time, Baud rate, Data bits and Parity.

PROGRAMMABLE SYSTEM FUNCTIONS

- Computer and Printer, Computer only, Computer with Printer as stand-by and Printer only.
- Fast transmission (Minimal Delay) of multiple alarms to computer and printer
- Continuous verification of the computer to the receiver link (Heartbeat option).
- 3 programmable outputs (Switched Negative) on CPM2, one indicated with the “Option” LED on the CPM2 front panel.
- Outputs on the CPM2 for Acknowledge, Trouble and Buzzer.
- AC loss detection and stand-by battery supervision.
- Low battery detection and automatic disconnection of discharged battery to prevent damage.
- Operator Acknowledge option.
- Telephone Line Supervision.

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COMMUNICATION FORMATS

- 3-1, 4-1, 4-2 formats with or without Checksum, and/or extended;10,14,20 or 40 baud.
- 4-1, 4-2, 4-3 and 4-3 with checksum, and/or extended in DTMF formats.
- Acron 3-8, 4-8 in DTMF formats.
- Ademco Contact ID in DTMF format.
- Ademco Super Fast 4-8-1 or High Speed DTMF format
- FBI Super Fast 4-3-1 DTMF format.
- Scantronic DTMF format.
- SIA formats: 110 and 300 baud, tonal and data acknowledge, with and without separators.
- 1000Hz, 1400Hz, 1600Hz, 2000Hz, 2100Hz, 2300Hz, Dual Tone, FSK and Modem II, handshakes. Up to 6 different handshakes can be selected with order selection.
- Ademco DTMF 4-1 and 4-2 Express with checksum, and/or extended formats.
- Radionics Modem II/Modem IIE format/Modem IIIa[2]
- ITI
- BFSK
- FSK 1/2

OPTIONAL FORMATS:

- 3-2, 4-1 extended, 4-2 extended, 4-2 plus with baud rates from 10 to 40.
- SESCOA Super Speed format
- Varitech FSK format.
- WESTEC Format 6 (W4000/5000 Panels)

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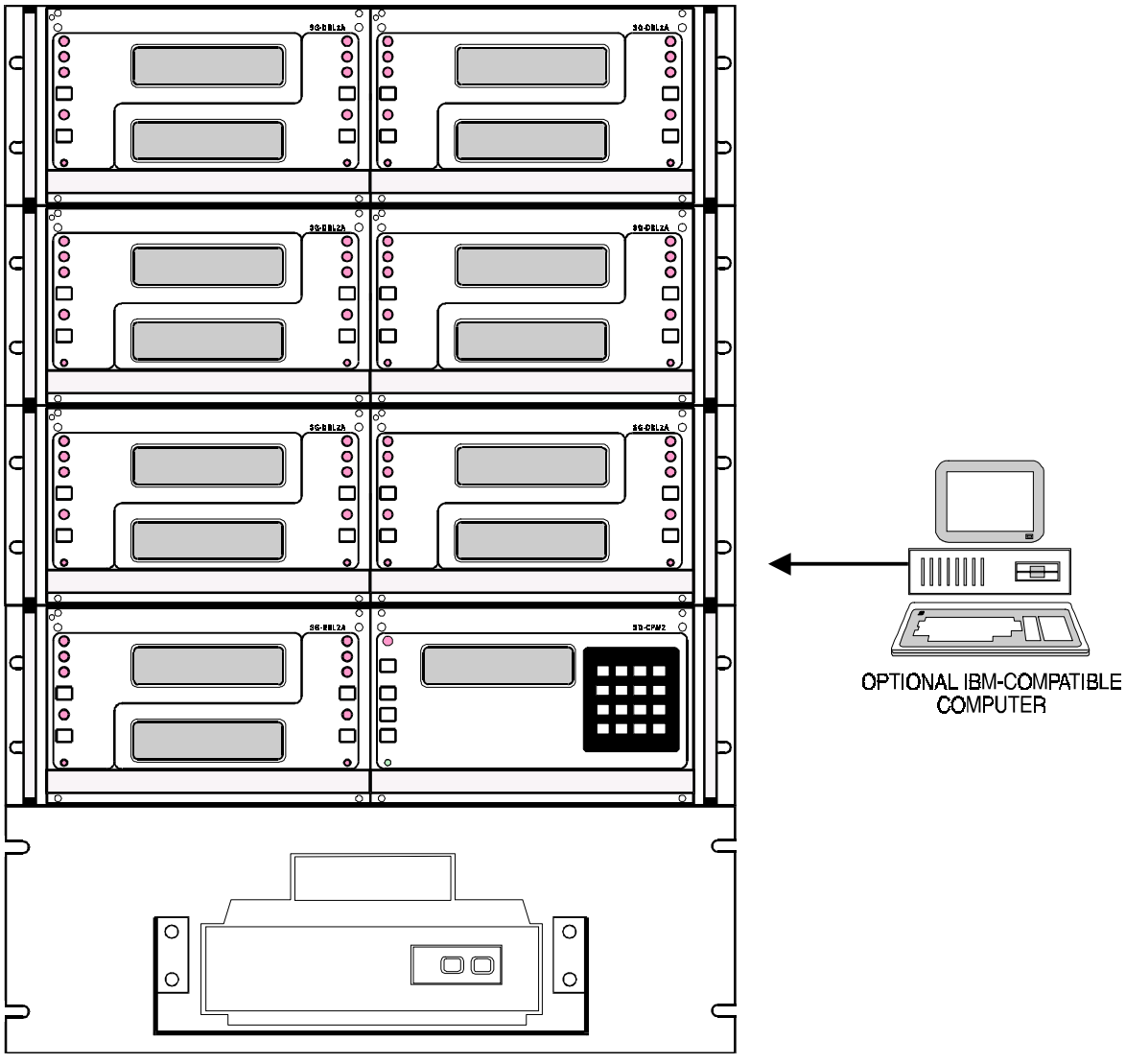
TYPICAL MLR2-DG MULTI-LINE RECEIVER INSTALLATION

Illustrated below is a typical 14-line installation of the MLR2-DG receiver

The system shown here is equipped with:

- 1 MLR2-DG Receiver, which includes 1 CPM2 Central Processing Module and 1 DRL2A Digital Receiver Line for lines 1 and 2.
- 6 additional DRL2A, 2-lines per Digital Receiver Line module for line 3 to 14.
- 3 MLRX Expansion Card Cages for DRL2A modules.
- 1 parallel printer; Star printer DP8340P, Panasonic KXP1150 or Tandy DMP206

An optional IBM-compatible computer may be connected to the system through the RS232 Serial Port provided on the MLR2-DG.



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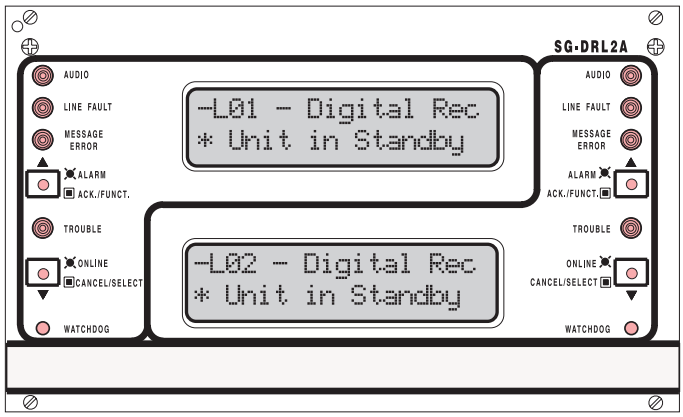
SWITCHES AND LIGHTS ON THE SG-DRL2A

Each module of SG-DRL2A has 2 line cards. The LEDs and push button switches on the left side and the upper LCD are for Line Card 1. The LEDs and push button switches on the right side and the lower LCD are for Line Card 2.



Liquid Crystal Display: Shows incoming data, programming information, and so on. The LCD is backlit to improve visibility in low light.

AUDIO: This LED is illuminated when the receiver is in Audio Mode. It indicates that listen-in or two-way audio is in use. It automatically shuts off at the end of the timed period or when the [CANCEL] button is pressed.

LINE FAULT: Illuminates if the Phone Line is disconnected and turns off automatically when the line is restored.

MESSAGE ERROR: Illuminates when faulty data is received (round pair not matching, incorrect parity, etc.). Press the [ACK] button in Manual Mode to clear the error.

ACK/FUNCTION Button: When in emergency Manual Mode, press this button to acknowledge an alarm. In the normal mode, this button provides access to the Line Card menu.

ALARM: The Alarm LED is located inside the [ACK] button. It will flash if an Alarm is received and it turns off when the alarm is successfully sent to the CPM2, or acknowledged by the operator.

TROUBLE: Illuminates when the Line Card is shut down by operator command or when the CPM2 is in failure or absent. The LED is shut off when the trouble condition is restored.

CANCEL/SELECT Button: When the Line Card is on line, press this button to stop the communication and return to off line mode. In the Stand-By Mode, pressing [CANCEL] has no effect. When in Menu Display Mode, this button is used to select the menu choice. Once a menu is selected, pressing the [CANCEL] button scrolls down to the next feature.

ON LINE: Illuminates when the Line Card is on line. The LED is off when the unit is in the Stand-By Mode.

WATCHDOG: Flashes every 4 seconds to indicate Line Card operation is being monitored.

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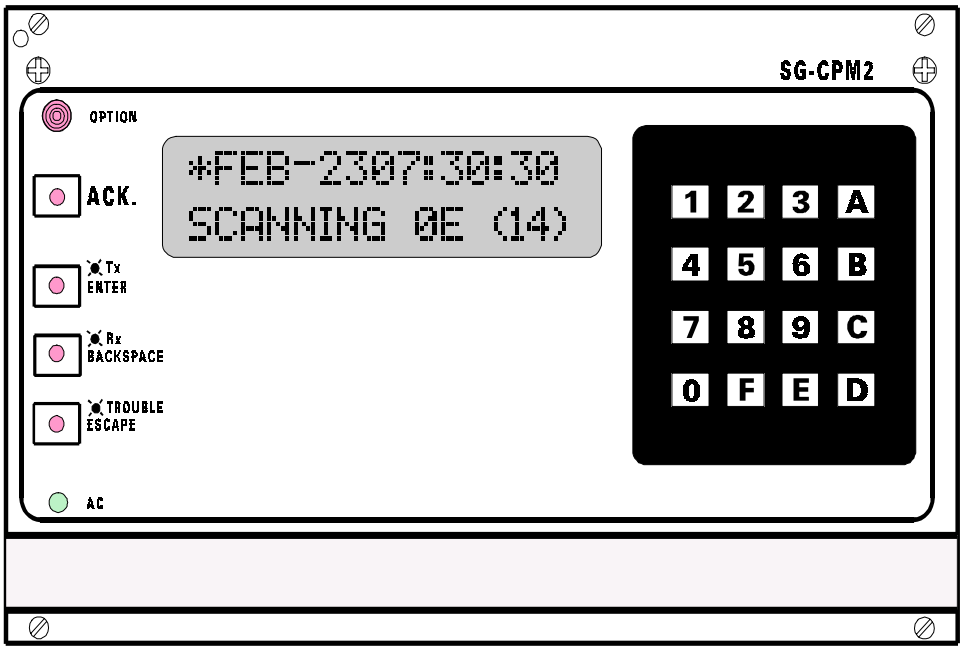
SWITCHES AND LIGHTS ON THE SG-CPM2



Liquid Crystal Display:	32-character LCD, backlit for improved visibility in low light level.
OPTION Light:	Flashes to annunciate the status of the “Option” programmable output.
ACK Button:	Used to Acknowledge an alarm event. Pressing [ACK] button will turn off the ACK LED when it is on, (no computer connected), and will also silence the buzzer. It is also used in the Configuration Mode to select menu items.
ACK Light:	Flashes when a message is received from the Line Card with the computer disabled or disconnected.
ENTER Button:	Executes a command or scrolls the display to the next message.
TX Light:	Monitors the transmission signal to the computer connected to COM#1.
BACKSPACE Button:	Used during programming to erase an error or move the cursor to the left. Also used to scroll the display to the previous message.
RX Light:	Monitors the signal received from the computer connected to COM#1.
ESCAPE Button:	Used to save changes and exit a mode, also used for other functions as indicated on the LCD.
AC Light:	Indicates that AC power is present.

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COMMUNICATION FORMATS

Name	Handshake	Data	Baud	Format	Extended	Kiss Off
ADEMCO SLOW	1400Hz	1900Hz	10	3-1, 3-2(option), 4-1, 4-2, 4-2	No No	1400Hz 1400Hz
ADEMCO SLOW	1400Hz	1900Hz	10	3-1 4-1, 4-2, 3-2, 4-2 Plus	Yes Yes No	1400Hz 1400Hz 1400Hz
S.K FAST	1400Hz	1900Hz	14	3-1, 3-2(option), 4-1, 4-2, 4-2 Plus	No No	1400Hz 1400Hz
S.K FAST	1400Hz	1900Hz	14	3-1 4-1, 4-2,	Yes Yes	1400Hz 1400Hz
FRANKLIN, SESCOA	2300Hz	1800Hz	20	3-1, 3-2(option) 4-1, & 4-2	No No	2300Hz 2300Hz
FRANKLIN, SESCOA	2300Hz	1800Hz	20	3-1 4-1, 4-2, 3-2, 4-2 Plus	Yes Yes No	2300Hz 2300Hz 2300Hz
RADIONICS	2300Hz	1800Hz	40	3-1 & 4-2	No	2300Hz
RADIONICS	2300Hz	1800Hz	40	3-1 4-2 (Option)	Yes Yes	2300Hz 2300Hz
RADIONICS	2300Hz	1800Hz	40	3-1 + checksum 4-2 + checksum,4-2Plus	No No	2300Hz 2300Hz
RADIONICS	2300Hz	1800Hz	40	3-1 + checksum 4-2 + checksum	Yes Yes	2300Hz 2300Hz
SESCOA S.SPD (Option)	2300Hz	1800Hz	40	4-3 + checksum	No	2300Hz
SESCOA S.SPD (Option)	2300Hz	1800Hz	40	4-3 + checksum	ID O/C	2300Hz
SIA1, SIA2, SIA8, SIA20 Level 1, 2 Compatibility, 3 (Partial)	FSK MARK	FSK MARK/ SPACE	110/300	FSK	No	Tonal / Data ack
CONTACT ID	Dual Tone 1400Hz	DTMF	DTMF	4-2-1-3-2-3	No	1400Hz
SUR-GARD	2300Hz	DTMF	DTMF	4-1, 4-2, & 4-3	No	2300Hz
SUR-GARD	Dual Tone 1400Hz	DTMF	DTMF	4-1, 4-2, & 4-3	No	1400Hz
SUR-GARD	2300Hz	DTMF	DTMF	4-3 + checksum	No	2300Hz
SUR-GARD	Dual Tone 1400Hz	DTMF	DTMF	4-3 + checksum	No	1400Hz
S.F. ADEMCO	Dual Tone	DTMF	DTMF	4-8-1	No	1400Hz
SCANTRONIC	Dual Tone	DTMF	DTMF	4-8-1, 4-16-1, 6-8-1, & 6-16-1	No No	1400Hz 1400Hz
ACRON S.F.	2300Hz	DTMF	DTMF	3-8 & 4-8	No	2300Hz
ADEMCO EXPRESS	Dual Tone	DTMF	DTMF	4-1 (Option) and 4-2	No	1400Hz
FBI Super Fast	2300Hz	DTMF	DTMF	4-3-1	No	2300Hz
Modem II/Modem IIE	FSK	FSK	110/300	FSK	No	FSK
Modem IIIa²	FSK	FSK	300	FSK	No	FSK
Varitech	2300	FSK	110	4-1, 4-2	No	2300Hz
ITI	FSK	FSK	110/300	FSK	No	FSK
BFSK	2300/1400Hz	FSK	42	FSK	No	2300/1400Hz
FSK 1/2	2300/1400Hz	FSK	110	FSK	No	2300/1400Hz
WESTEC	WESTEC	DTMF	DTMF	WESTEC	No	WESTEC

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DOWNLOOK STILL-FRAME VIDEO TRANSMISSION

What is Downlook?

Downlook is a video transmission system for use over dial-up telephone lines. Downlook can be implemented in most situations where a video image needs to be transmitted over any distance.

Why Downlook?

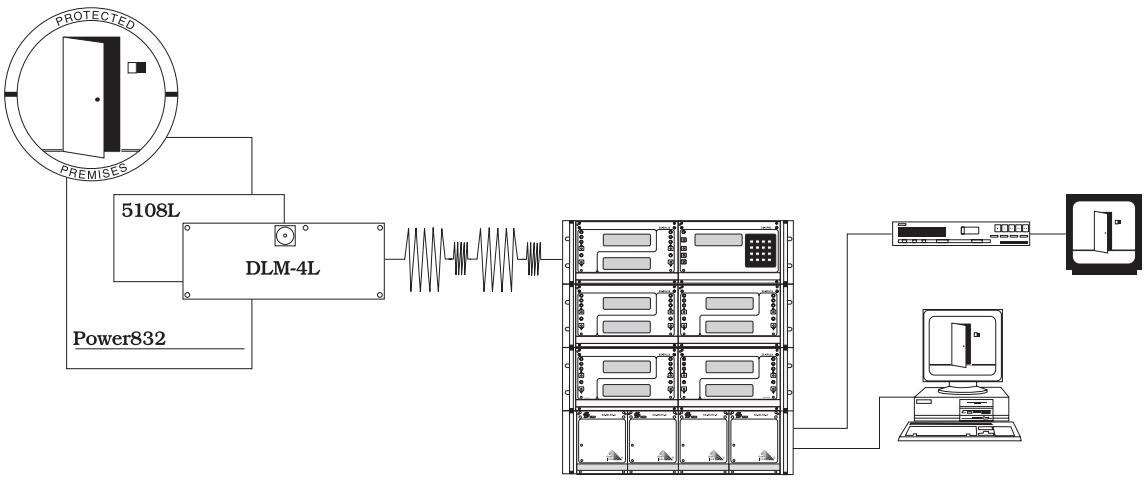
Downlook can provide the central station with additional premises information over and above the standard alarm signal. Downlook allows the station operator to “see” the alarm condition and react accordingly, preventing false alarms.

When using Downlook, the perimeter detection system triggers the camera and any action taking place is recorded and stored in memory. The MLR2-DG receives the alarm immediately followed by the image of the section that caused the alarm. The operator can SEE whether the alarm was triggered by an intruder or not. This results in better and quicker follow-up by the operator, who is instantly able to decide whether or not to send a guard out or to report directly to the police. In this way excessive follow-up cost can be minimized.

- MLR2-DG can switch to audio communication AFTER the images are all sent to the monitor.
- Unique protocol to VERIFY which camera has been triggered on site, the line quality and if audio will be effective.
- The time and date of the alarm can be sent on the monitor with each picture from the MLR2-DG.

Video Downlook Verification

Downlook is an integrated system that will provide the monitoring station with both near-instant alarm information and visual images in sharp detail. In addition to the initial verification of the alarm, the video image can be stored and retrieved as evidence at a later date. Unlike many video compression and transmission systems on the market, Downlook works with any existing CCD or CCTV video system, both transmitting and receiving devices are connected through the same switched public telephone network that the control panel uses.



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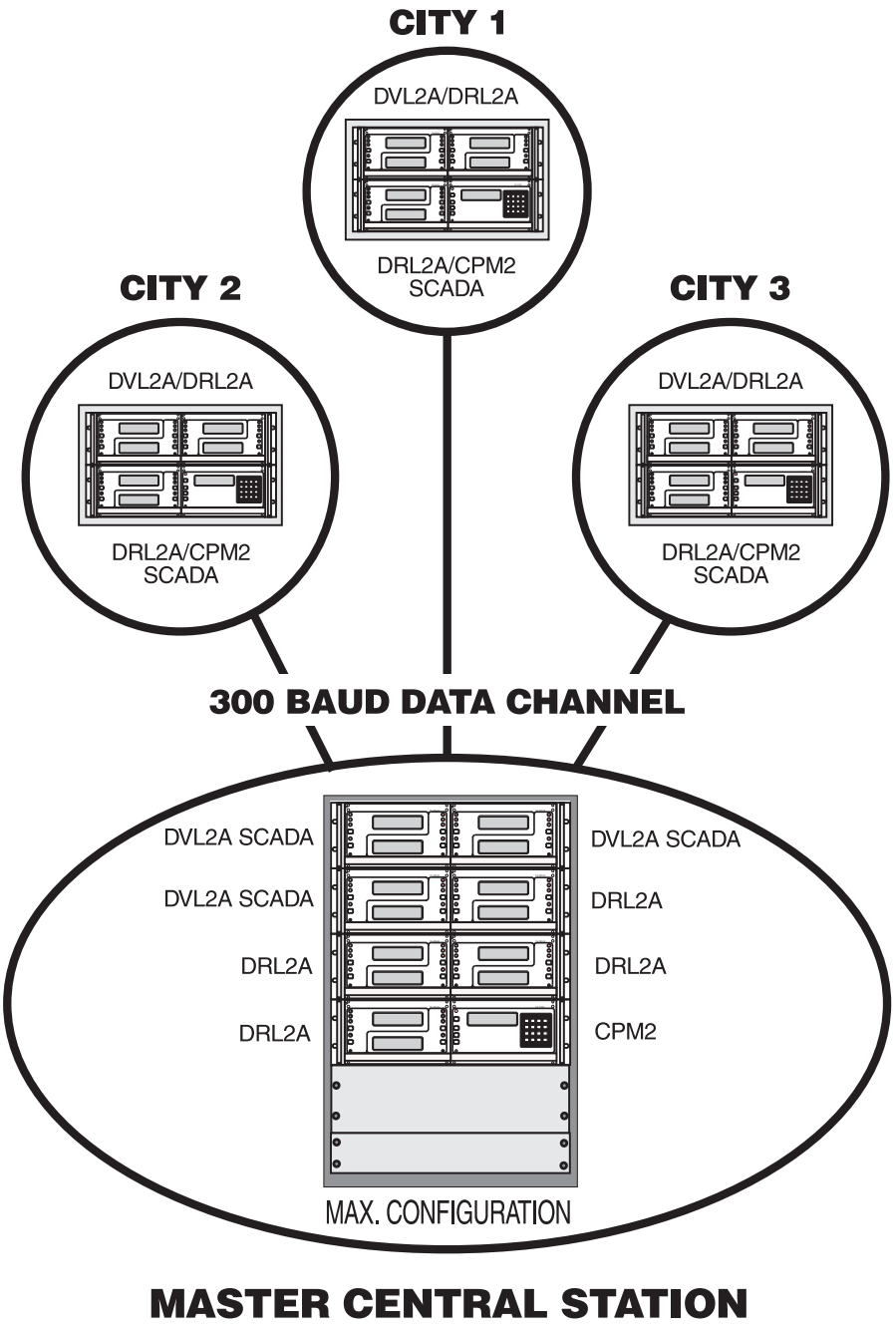
SUR-GARD NETWORK (SCADA)

A complete package to allow one or more receivers in distant cities to communicate their alarm information to a master receiver and to be remotely controlled by the master receiver.

"SCADA" stands for Supervisory Control And Data Acquisition. It is used to transport the alarm data from a local (satellite) central station to the master (mother) central station reliably by using linked Modems over leased phone lines. This system must be used with a point to point 300 baud Schedule 3A data line.



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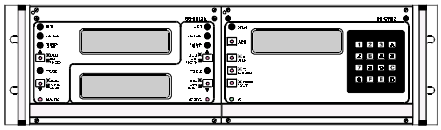
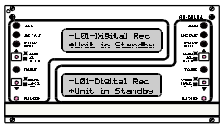
ORDERING INFORMATION



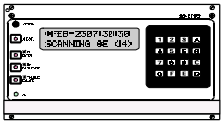
MLR2-DG (UL-listed)

- Multi-Line Digital Receiver (2 digital lines).
- Includes Card Cage, DRL2A module with two 6-pin modular cables, CPM2 module.
- MLRX Expansion Card Cages are required for expansion beyond 2 telephone lines.



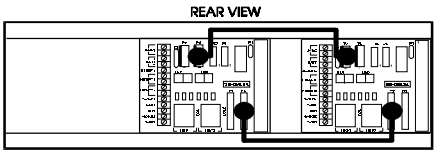
DRL2A (UL-listed)

- Digital Receiver Line card module (2 digital line).
- Includes DRL2A module with two 6-pins modular cables.
- MLRX Expansion Card Cage must be added.



CPM2 (UL-listed)

- Central Processing Module.
- Includes CPM2 module.



MLRX (UL-listed)

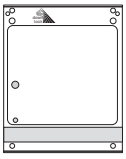
- Expansion Card Cage for 2 DRL2A modules.
- Includes 2DML2A, power and communication bus cables for connection between Card Cages.

MLRXBP (UL-listed)

- Blank Front Plate.
- Includes screws for mounting on expansion Card Cage.

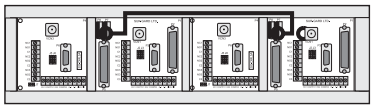
MLR2-SP

- MLR2 Spare Parts Package. Includes:
  - 1 CPM2 Central Processor Module
  - 1 DRL2A 2-Line Digital Module
  - 1 CH6UF2 Power Ribbon Cable
  - 1 CH6UF3 Data Bus Ribbon Cable
  - 1 MCBL6 Telephone Connector Cable
  - 1 DML2A Backplane Circuit Board
  - 1 SER10 Serial Computer Cable
  - 1 DML4 backplane board



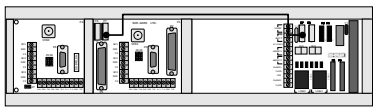
MLRV-A

- Downlook Video Module
- Includes 1 Downlook module



MLRXV

- Expansion Card Cage for Downlook.
- Includes, 2 DML5-A, power and communication bus cables for connection between Card Cages.



MLR2XV

- Includes1 DML2A, 1 DML5-A, power and communication bus cables for connection between Card Cages.

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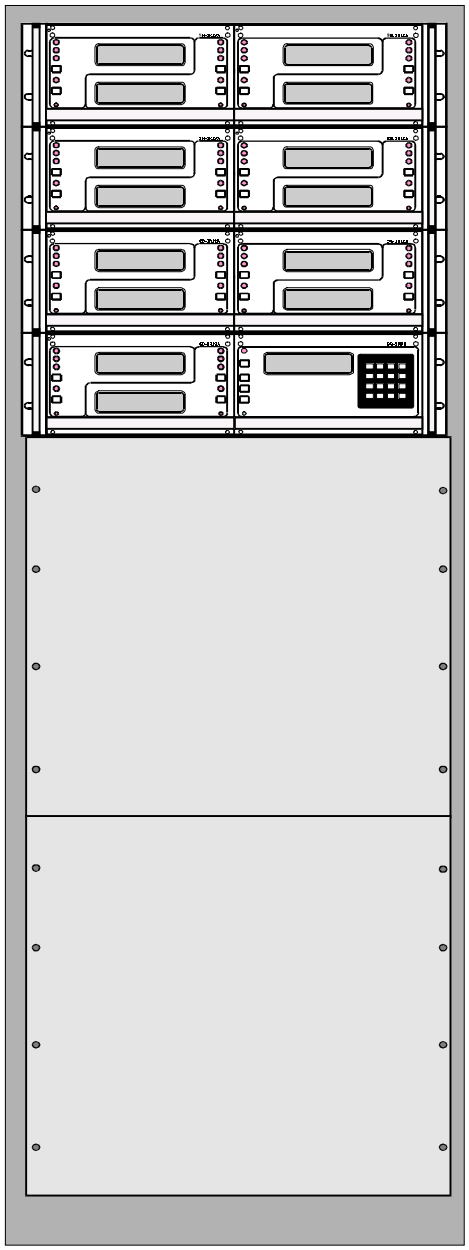
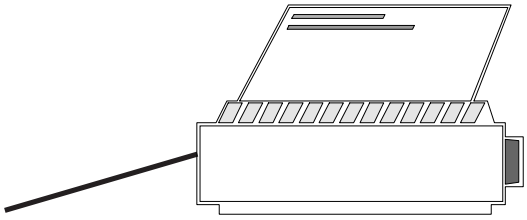
MLR2-CL: ***UL-listed rack for up to 14 telephone lines. For UL applications.***



Vertical Rack: **MLR2-CL**
(61¼" tall for 14 telephone lines)

Included: Rack, Door with lock and ventilation, Blank plates 21" (2), Blank Plates 5¼" (3), Screws, Washers, Clipnuts, Frost 16V 75VA transformer, AC Utility box, AC Cable clamps (2), 8' Battery cables, 18 gauge 3-conductor AC cable.



Recommended UL listed printer:

Panasonic KX-P1150	Part # CPU1150
Tandy DMP-206	Part # PUDMP206
Star DP8340	Part # DCDP8340

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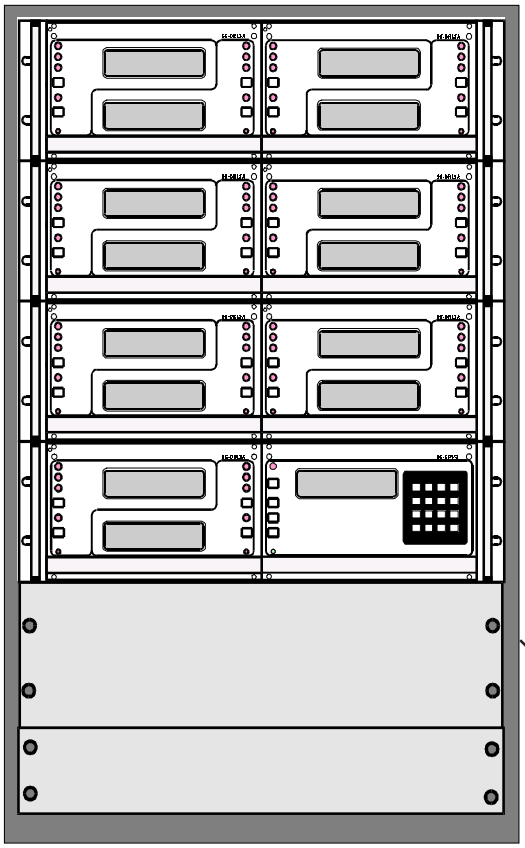
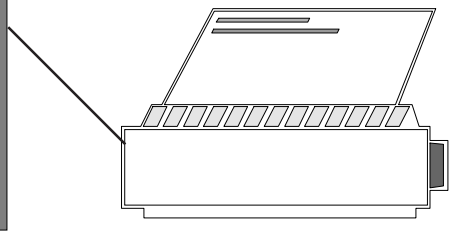
MLR2-CM: ***UL-listed rack for up to 14 telephone lines. For UL applications.***



Desk-Mount Unit: MLR2-CM
(28" tall for 14 telephone lines)

Included: Rack, Louvred door back plate, Blank plate 1¾", Back plate 7", Blank plate 5¼" (4), Screws, Washers, Clipnuts, Frost 16V 75VA transformer, AC Utility box, AC Cable clamps for ⅜" cable, 8' Battery cables, 18 gauge 3-conductor AC cable.



Recommended UL listed printer:

Panasonic KX-P1150	Part # CPU1150
Tandy DMP-206	Part # PUDMP206
Star DP8340	Part # DCDP8340

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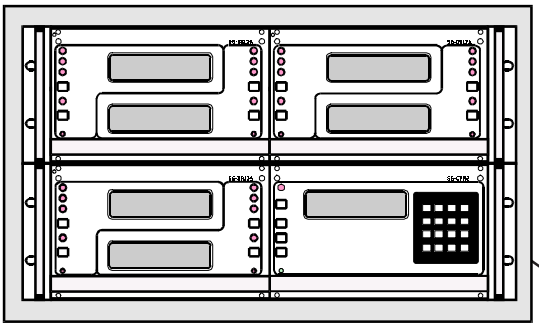
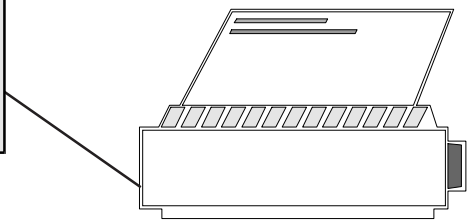
MLR2-CS: ***UL-Listed rack for up to 6 telephone lines. For UL applications.***



Desk-Mount Unit: MLR2-CS
(11¾" tall for 6 telephone lines)

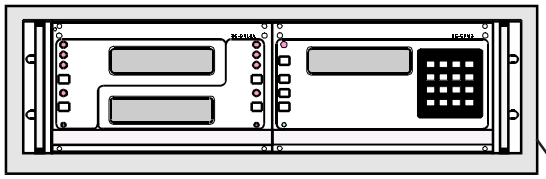
Included: Desktop case, Back plate, Blank Plate 5¼", Screws, Washers, Clipnuts.



Recommended UL listed printer:

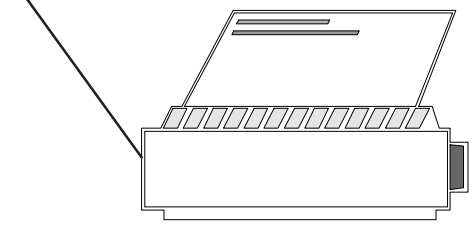
Panasonic KX-P1150	Part # CPU1150
Tandy DMP-206	Part # PUDMP206
Star DP8340	Part # DCDP8340

MLR2-CXS: ***Rack for up to 2 telephone lines.***



Desk-Mount Unit: MLR2-CXS
(6¼" tall for 2 telephone lines)

Included: Desktop case, Back plate, Screws, Washers, Clipnuts.



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Tandy DMP-206	Part # PUDMP206
Star DP8340	Part # DCDP8340

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