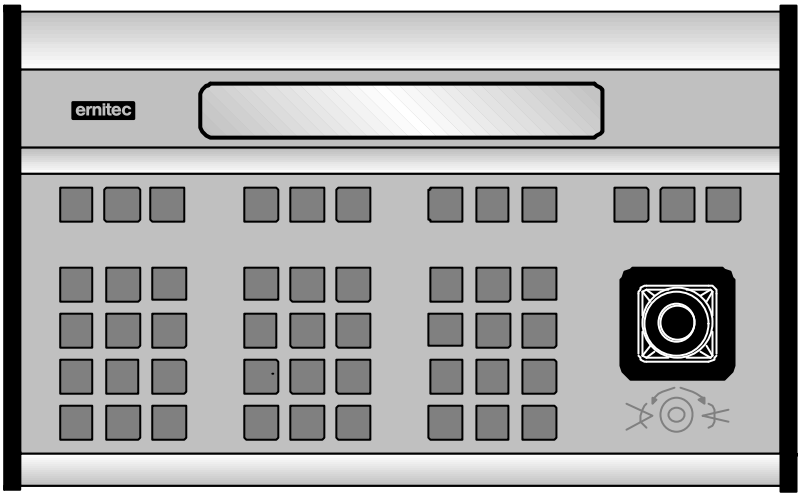
1504M
E-Mux & PTZ control

CE



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2821-00062

Validity

These Instructions covers the following keyboard:

- Keyboard type 1504M, software version 1.1 Release 990831, or later.

Compatibility

The 1504M keyboard is compatible with the following equipment:

- All versions of the E-Mux Multiplexer.
- Series BDR-510 telemetry receiver, software V.1.0 Release 05.11.96, or later.
- Series BDR-550 telemetry receiver, software V.2.0 Release 16.10.96, or later.
- BDR-575 telemetry receiver, software version 1.0 Release 13.03.97, or later.
- Integrated Camera Unit (ICU), software version 1.0.
- SATURN Dome camera, version PR1 19990810, or later.

Approvals

The 1504M keyboard is CE certified and approved with respect to EN 50081-1 and EN 50130-4 (EMC) and EN 60950 (LVD).

Introduction

The keyboard 1504M can be used for operating one E-Mux Multiplexer, as well as for direct operation of up to 32 telemetry receivers Series BDR-510, Series BDR-550, BDR-575, ICU and/or SATURN Dome camera.

Keyboard connections

The keyboard connections are shown on *figure 1*.

#	Description
1-10	Power supply connector for the supplied mains adapter or for external voltage 9-18 VAC/VDC 2,7 VA
1-11	Not used.
1-12	Not used.
1-13	RS-485/RS-232 connector used for connection of E-Mux (RS232), and Telemetry Receivers (RS485).
1-14	Switch for RS-485 line termination.

Please note

When reference is made to a figure, the drawing(s) can be found in the back of these Installation Instructions.

Installation

When the installation is completed make sure to set up the keyboard in accordance with the installation and the intended use; refer to the *Set-up* section.

The 1504M is for indoor use only.

Power connection

Connect the power supply unit to the keyboard PSU connector 1-10 (refer to *figure 1*) and to the mains socket.

RS-485 connection to Telemetry Receivers and BED-108

Connect the RS-485 cable to socket 1-13 (refer to *figure 1*):

1504M		BDR-55x	BDR-510/4	BDR-511/2/3	BDR-575		ICU		BED-108	SATURN	
Pin	**Desc.**	**Terminal**	**Terminal**	**Terminal**	**Pin**	**Desc.**	**Pin**	**Desc.**	**Terminal**	**Pin**	**Desc.**
6	Pos.	PCM IN-	CTRL IN+	CTRL IN+	2	RS485+	1	COM+	ERNA IN+	RX+	RS485+
7	Neg.	PCM IN+	CTRL IN-	CTRL IN-	1	RS485-	2	COM-	ERNA IN-	RX-	RS485-
1, 4, 5	GND	Do NOT connect!									

Details on interconnecting various types of telemetry receivers and termination of the RS-485 line can be found on *figure 2*.

Telemetry Receivers Series BDR-51X and BDR-55X and the BED-108 Control Signal Distributor Unit will terminate the RS-485 properly by themselves when installed in the correct daisy chain configuration and do not require additional line termination. The ICU, SATURN and the BDR-575 are bus-connected and consequently the line must be terminated, on the ICU with an external resistor, on the BDR-575 by enabling the RS-485 LK1 jumper on the interface board, and on the SATURN by setting a link across J9.
For more details, please refer to the documentation for the specific Telemetry Receiver.

Different types of telemetry receivers can also be mixed on the common control line.

Remember, that each telemetry receiver must have an unique address, refer to the relevant telemetry receiver manual.

Maximum cable length is 1200 metres. However, telemetry receivers Series BDR-51X and BDR-55X as well as the BED-108 features an active control signal repeater allowing further 3000 meters (BDR-51X further 1200 meters) distance to the next unit.

RS-232-C connection to E-Mux Multiplexer

Connect the RS-232-C cable to socket 1-13 (refer to *figure 1*).

1504M		E-Mux Multiplexer	
Pin	**Description**	**Pin**	**Description**
3	Transmit	2	Receive
2	Receive	3	Transmit
1, 4 or 5	Ground (To cable screen also)	5	Ground (To cable screen also)

Maximum cable length is 15 meters.

Only *one* E-Mux can be connected to the 1504M.

Keyboard 1504M Set-up

In order to start programming press the **ESC** and **MENU** keys at the same time and enter the password (4 digits). The default password is 0000 (four times 'zero').

In order to exit programming press the **ESC** key, and the keyboard will automatically be re-booted in order to activate the new setting(s).

A lot of setup features are available in the 1504M, whereof most are reserved for future use. Only the ones valid for Telemetry Receiver/E-Mux control are described in the following.

Default settings

The main default settings are factory programmed as follows:

- Keyboard type: Direct Telemetry Receiver/E-Mux control (CamCtrl)
- Communication: RS485 (PTZ) and RS232 (E-Mux)
- Baud rate: 2400 (PTZ) and 2400 (E-Mux).
- Password: 0000

Change keyboard type

- Press the key **F4** to select **CamCtrl**.

Change communication media

- Press the key **F6** to select **RS485** for PTZ control (RS232 is automatically selected for E-Mux control).

Set baud rate

- Press the **F7** key to toggle between the valid baud rates for E-Mux control. The baud rate chosen must match the one set up for RS232 in the E-Mux (Baud rate - 2400 - is automatically selected for RS485 PTZ control).

Set the function of the AUX keys

- Press the **F9** key to get to the **AUX** menu.
- Press the **F6** key to toggle between **Latch/No Latch** function.

Change the password

- Press the **F9** key to get to the **Change Password** menu.
- Press **F7** and enter the new password (4 digits).
- Re-enter the new password.

Set the volume of the key-press beeper

- Press the **F9** key to get the **Beep** menu.
- Press the **F4** key to toggle between **HIGH** - **LOW** - **OFF**.

Test and re-calibrate joystick

Use this function to re-calibrate the joystick in case e.g. pan & tilts are moving although the joystick is released.

- Press the **F9** key to get the **Test joystick** menu.
- Press the **F7** key to enter the test and re-calibration functions.

Start programming of keyboard.
Press ESC to leave set-up.

OK

FAULT

ESC + MENU

Enter Password (Default password is 0000)

Enter Password: XXXX

0 → 0 → 0 → 0

Select Mode of operation and Baud rate.

F4:OpMode XXXXXX	F6:Comm. XXXX	F7:Baud XXXX	F9: More

- F4:OpMode XXXXXX → CamCtrl*
- F6:Comm. XXXX → RS485*
- F7:Baud XXXX → 1200/2400*/4800 9600/19200/38400

Set Function of AUX relays in Telemetry Rx.
Change password.

F4:Kbd. No XX	F6: AUX XX XXXX	F7:Change Password	F9: More

- F4:Kbd. No XX → *Not used*
- F6: AUX XX XXXX → Latch* / No Latch
- F7:Change Password → Enter Password: XXXX → Reenter Password: XXXX

Service menu only

F4: ArcNet Stat.	F6:Error Log	F7:S/W Ver.	F9: More

- F4: ArcNet Stat. → *Not used*
- F6:Error Log → *Not used*
- F7:S/W Ver. → Displays software version & release date.

Set beeper tone.
Reset keyboard settings to default (marked with an *).
Test and re-calibrate joystick.

F4: Beep XXXX	F6:Reset Settings	F7:Test Joystick	F9: More

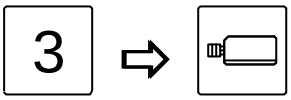
- F4: Beep XXXX → HIGH* / LOW / OFF
- F6:Reset Settings → Resets all settings to default
- F7:Test Joystick → Test and re-calibration of joystick

Operation of telemetry receivers

This section will describe operation telemetry receivers directly from the 1504M keyboard.

Select Camera

If Camera 3 is to be controlled:



Select camera number 3

All subsequent operations are now directed to camera 3 until a new camera is selected.

Select all cameras (broadcast)

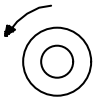
If all cameras should be operated simultaneously, press:

Broadcast commands

Warning: When e.g. activating the pan functions all cameras will pan! The broadcast function should therefore be used with care!

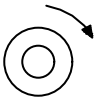
Zoom

Change the focal length:



Joystick

Zoom wide



Joystick

Zoom narrow

Focus

If the picture on the selected monitor is not in focus, press:

Focus near

Focus far

Iris

If the picture on the monitor is too dark or light, press:

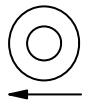
Iris open

Iris close

Note: Available only if supported by the connected equipment.

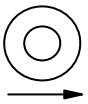
Pan Camera

If the camera should be panned left or right, press:



Joystick

Pan left



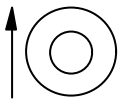
Joystick

Pan right

JOYSTICK NOTE: When controlling a variable speed Pan/tilt, BDR-575, ICU or SATURN, pushing the joystick towards its extremes will increase speed.

Tilt Camera

If the camera should be tilted up or down, press:



Joystick

Tilt up

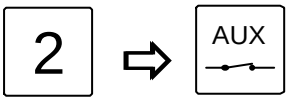
Joystick

Tilt down

JOYSTICK NOTE: When controlling a variable speed Pan/tilt, BDR-575, ICU or SATURN, pushing the joystick towards its extremes will increase speed.

Activating an AUX-relay

To activate AUX-relay 2, press:

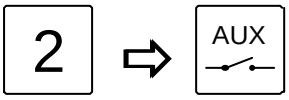


Activate AUX 2 relay.

*Note: If the Keyboard is set for **No Latch** operation the relay is automatically de-activated when the AUX-key is released. If set for **Latch** operation the relay will remain activated when the key is released.*

De-activating an AUX-relay

To de-activate AUX-relay 2, press:

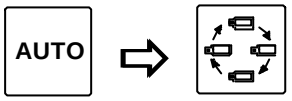


De-activate AUX 2 relay.

*Note: Used only if the Keyboard 1504M is set for **Latch** operation.*

Auto panning (BDR-575, SATURN and ICU only)

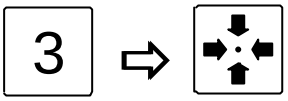
To start auto panning, press:



Start auto panning

Call Preposition (not available on Series BDR-51X)

To call preposition number 3, press:



Call preposition number 3

Note: Valid range BDR-55X and ICU: 1-30, BDR-575: 1-126, SATURN: 1-127.

Start Sequence of pre-positions

To start the pre-programmed sequence of pre-positions, press:

Start sequence.

The sequence of pre-positions is automatically aborted when another function is operated.

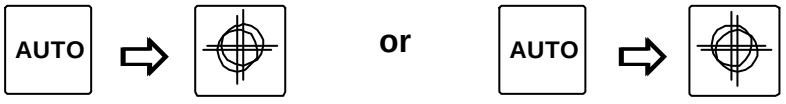
Remove/insert text (Series BDR-550 only)

Remove/insert the text generated by the currently controlled telemetry receiver:

Remove or Insert text from telemetry receiver

Auto focus (ICU and SATURN only)

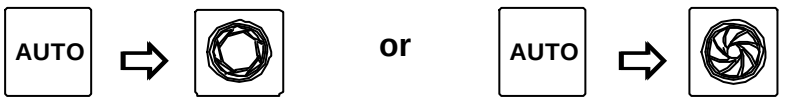
In order to switch to auto focus, press:



Enable auto focus

Auto iris (ICU and SATURN only)

In order to switch to auto iris, press:



Enable auto iris

Back light compensation (ICU and SATURN only)

In order to enable/disable Back light compensation, press:

Back light compensation ON/OFF

Programming the Telemetry Receiver

The programming features are not available on the telemetry receivers Series BDR-51X.

Save preposition

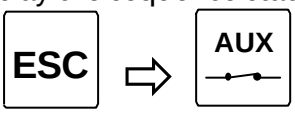
To save preposition number 3, move the camera to the desired view, and press:

Save preposition number 3

Note: Valid range BDR-55X and ICU: 1-30, BDR-575: 1-126, SATURN: 1-127.

Display preposition sequence stack (available on the BDR-55X only)

To display the sequence stack stored in the telemetry receiver currently being controlled:



Display preposition sequence stack

Insert a preposition in the sequence stack

To insert preposition number 1 in the sequence stack stored in the telemetry receiver:

Insert preposition number 1 in the stack

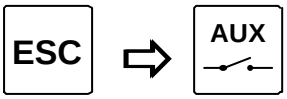
Delete a preposition from the sequence stack

To delete preposition number 1 from the sequence stack stored in the telemetry receiver:

Delete prepos. number 1 from the stack

Clear the preposition sequence stack

Clear the preposition sequence stack stored in the telemetry receiver currently being controlled:



Clear the preposition sequence stack

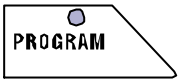
Set the pre-position sequence dwell time

To set the dwell time for the telemetry receiver currently being controlled to 15 seconds, press:

Set dwell time to 15 sec.

The dwell time range is 0 to 255 sec.

On the E-Mux, press:

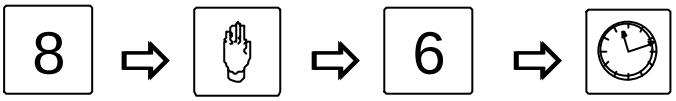


and select the following menus:

Serial Ports → RS-232 Port →
Baud: 9600
Parity: None
Mode: 1 Stop
Code: 8-Bit ASCII
Flow Control: None

Set Home position

To use preposition 8 as Home-position with a time-out of 60 seconds, press:

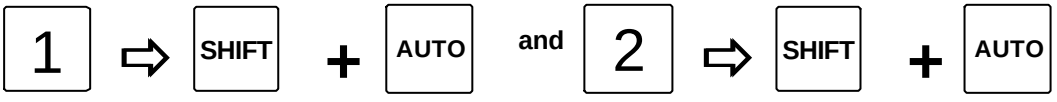


Use pre-position 8 as Home position with a 60 sec. time-out

Note, that the time-out entry automatically is multiplied with 10.
Max. time-out entry is 255 corresponding to 2550 seconds.

Set Auto panning limits (available on the ICU, SATURN & BDR-575 only)

To set the two limit positions for auto panning, for the camera being controlled:



Set auto panning limit 1 (left)

Set auto panning limit 2 (right)

E-Mux control

This section describes E-Mux operation from the 1504M keyboard.

The 1504M can control one E-Mux Multiplexer via the RS232 interface.

For specific details on the various Multiplexer functions, please refer to the documentation for the E-Mux Multiplexer.

Setup of E-Mux

To set up the E-Mux for 1504M control, the following should be programmed.

Select E-Mux control Mode

To enter E-Mux control mode, press:

E-MUX

E-Mux Control Mode

Once in E-Mux control mode, it is not possible to control connected PTZ cameras. To leave E-Mux control mode, and enter PTZ mode, press the E-MUX key again.

Toggle between display modes

To toggle between the display modes pre-programmed in the E-Mux , press:

DISP

Toggle between display modes

Spot monitor

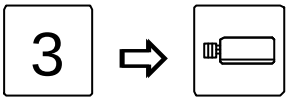
To select the spot monitor, press:

Select Spot monitor

This is a toggle function between Spot and Main monitor operation.

Camera selection

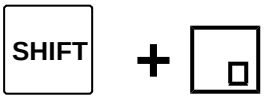
To select e.g. camera 3:



Select camera number 3

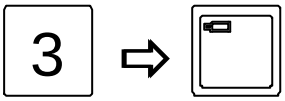
Picture-in-Picture 2-Screen configuration (PIP)

To enter PIP mode, press:



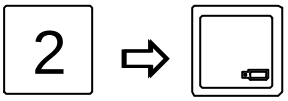
PIP mode

To select a camera for the large window:



Selects camera 3 for the large window

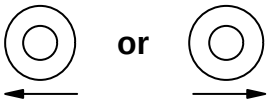
To select a camera for the small PIP window:



Selects camera 2 for the small PIP window

Reposition small PIP window

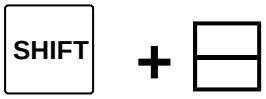
The Joystick can be used to reposition the small PIP window in one of the four corners:



Reposition the small PIP window

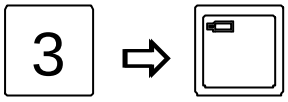
Horizontal 2-Screen configuration

To select horizontal 2-Screen configuration, press:



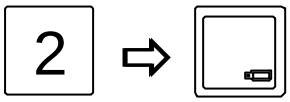
Horizontal 2-Screen

To select a camera for the top window:



Select camera 3 for top window

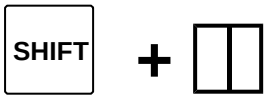
To select a camera for the bottom window:



Select camera 2 for bottom window

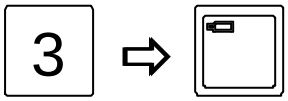
Vertical 2-Screen configuration

To select vertical 2-Screen configuration, press:



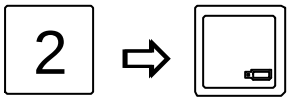
Vertical 2-Screen

To select a camera for the left window:



Select camera 3 for left window

To select a camera for the right window:



Select camera 2 for right window

Sequence

In PIP mode, or horizontal/vertical 2-Screen, a camera sequence can be started in the PIP window (PIP mode), or the bottom/right window (horizontal/vertical 2-Screen):

Start camera sequence

Freeze picture

To freeze the currently selected camera:

Freeze camera (toggle function)

Only valid for the Main monitor.

Zoom

To activate zoom (x2) on the currently selected camera:

ZOOM

Zoom

Use the Joystick to 'Pan and Tilt' while in zoom mode.

Programming

To enter programming mode of the E-Mux:

PROG

Enter programming mode

The programming key is also used as the 'Enter' key in the menus. While in programming mode, use the Joystick to navigate the menus.

Play

To activate play view on the Main monitor:

PLAY

Play view

While in play mode, select the required camera to view, or select the desired multi-screen view .

Record

To activate record mode of the Multiplexer:

REC

Record mode

View

To activate view mode of the Multiplexer:

VIEW

View mode

In view mode, the Main monitor shows what is being sent to the VCR while in Record mode, or from the VCR while in Play mode.

Direct multi-screen configuration selection

The following multi-screen configuration modes can be selected directly:

SHIFT +

Full screen view on Main monitor

SHIFT +

Quad split screen

SHIFT +

9-way split screen

SHIFT +

10-way split screen

SHIFT +

13-way split screen

SHIFT +

16-way split screen