

ernitec

SYSTEM **X**

Keyboard X

K111DX

Installation

User

Manual

Version 2.3

2851-00005

Table of Contents

Validity	Page 1
Compatibility	Page 1
Approvals	Page 1
Operation	Page 1
Trademarks	Page 1
Specifications	Page 1
Installation	Page 2
Unpacking the keyboard	Page 2
Assembling the keyboard	Page 2
K111FX Flush Mount keyboard	Page 2
Keyboard X power requirements	Page 2
Typical Keyboard X connections	Page 3
Service pin	Page 4
LON@Network Installation	Page 5
Free Topology	Page 5
Bus Topology	Page 5
Repeater	Page 6
Termination	Page 6
LON@Network Cables	Page 7
Cable Lengths	Page 8
General Installation Advise	Page 9
Cable Screen	Page 9
Junction Boxes	Page 9
Pass-Thru Junction Box	Page 9
Stub Junction Box	Page 9
Local Loop Junction Box	Page 10
Operation	Page 11
PTZ operation	Page 13
Camera Sequence	Page 16
Alarm Operation	Page 16
Alarm Enable/Disable	Page 17
Holiday Setup	Page 18
DVR Operation	Page 19
Special functions	Page 22
Macro Operation	Page 23
LonBox Operation	Page 23
Keyboard Setup	Page 24
Dome Setup	Page 25
Operator Messages	Page 26
Cable Connections	Page 28
Outline	Page 29
Cable Suppliers	Page 30
Ernitec Offices	Page 31

Validity

This manual covers the following keyboard(s):

- Keyboard type K111DX.
- Keyboard type K111FX.

Compatibility

This manual describes all possible operations from the K111DX Keyboard. However, actual features supported, depends on the connected equipment.

Approvals

All keyboard types are CE certified and approved with respect to EN 50081-1, EN 50130-4 (EMC) and EN 60950 (LVD).

Operation

The SYSTEM X keyboards can be used for operating SYSTEM X, as well as for direct operation of SYSTEM X Telemetry Receivers, and LON[®] Boxes.

Trademarks

Echelon, LON and LONWORKS are trademarks of Echelon Corporation registered in the United States and other countries.

Specifications

Keyboard X

Network:	TP/FT-10 Free Topology Channel
Power requirements:	9-14VAC, 45-60 Hz
Power consumption:	260mA @12VAC
Weight:	2 kg.

Power Supply (included)

Input:	230VAC \pm 6%, 50-60Hz
Output:	12VAC
Max. load:	7VA (PTC fuse)
Dimensions (HxWxL):	49x56x96mm
Approvals:	EN 60742 (Safety Transformers)

Printing Date: 02-09-2003

Installation

Unpacking the keyboard

After unpacking the keyboard, carefully check for any sign of damage. Any such damage should be reported to your supplier, before installation.

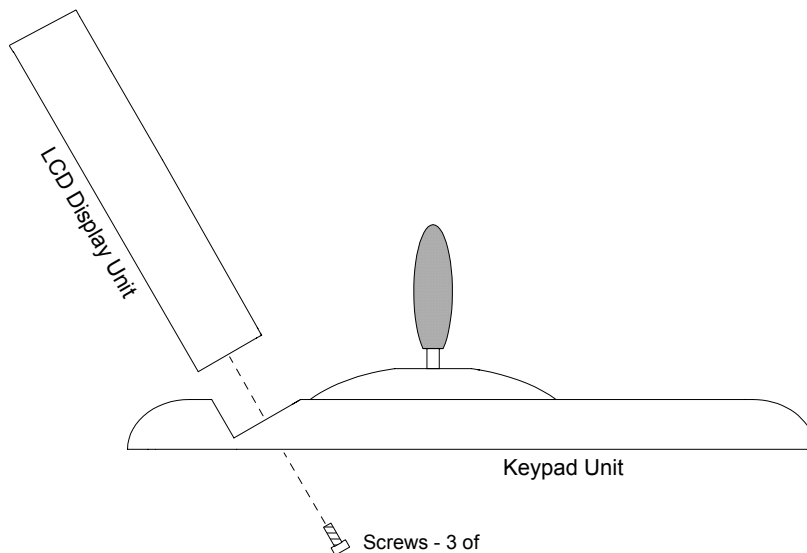
Check that the keyboard packing carton contains the following items:

- 1 SYSTEM X Keyboard.
- 1 Keyboard X Installation Manual (this manual)
- 1 Connector kit, incl. termination resistors.
- 1 Power supply.

Assembling the keyboard

To avoid damage during shipping, the Keyboard X is disassembled in two parts, when supplied.

To assemble, plug the LCD display unit in to the keypad unit, and secure it with the 3 screws supplied in the connector kit.



K111FX flush mount keyboard

Please see separate assembly instruction for details.

Keyboard X power requirements

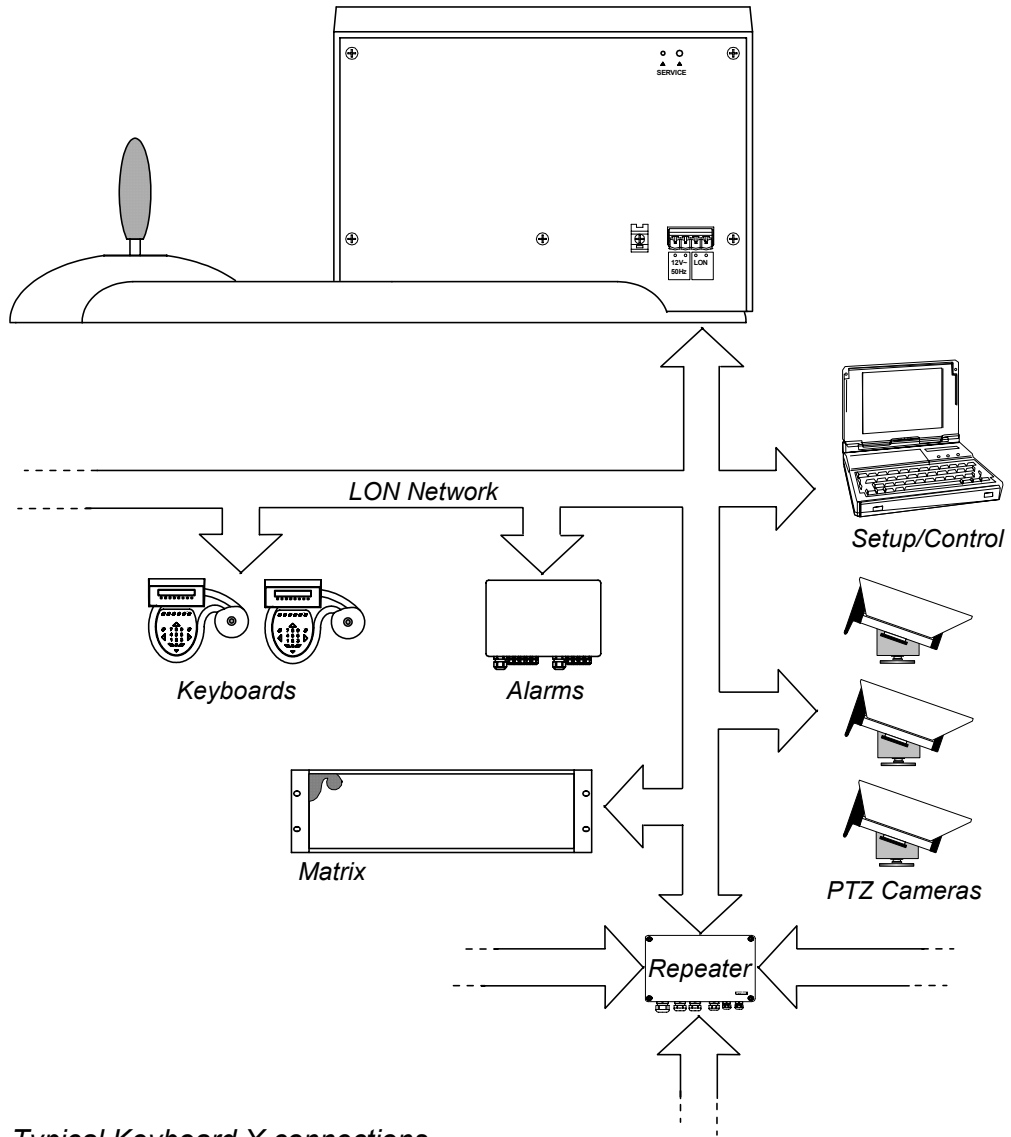
The Keyboard X is powered from the included power supply.

Alternatively, it can be powered from an external source with the following specifications:

- 9 - 14VAC
- 45 - 60Hz
- Min. 260mA @12VAC

Typical Keyboard X connections

The typical connections for the SYSTEM X keyboard, are shown in the figure below:



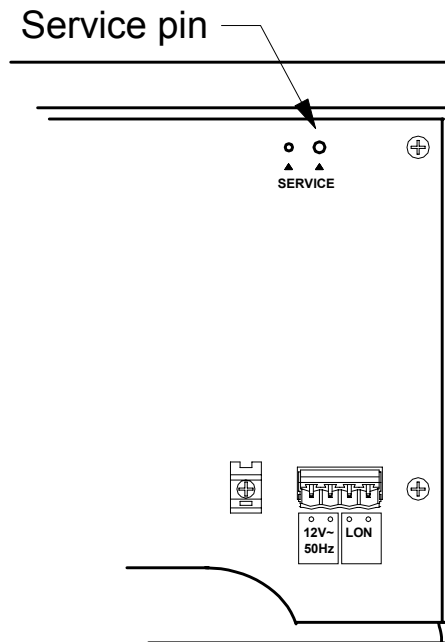
Typical Keyboard X connections

Service pin

When the keyboard is connected to the LON[®] Network, the service pin must be pressed for the *NodeManger* software to identify the keyboard. Use a small screwdriver, or similar, to press the service pin.

Make sure that the *NodeManager* software is running, and online, prior to pressing the service pin.

It is of out most importance to keep track of the order in which service pins are pressed on the various SYSTEM X units.



Please see the *NodeManager Manual* for full details on the function, and importance, of the service pin.

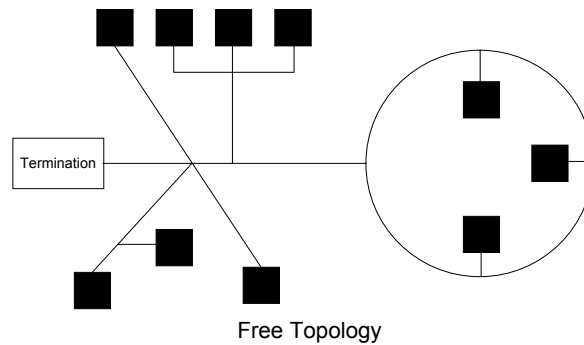
LON[®] Network Installation

All SYSTEM X components (nodes) are connected together in a common LONWORKS[®] communication network.

There are two ways of building a LONWORKS[®] network: Free topology or bus topology.

Free Topology

In a free topology network, there are no demands as to how the cables are routed between the nodes. It can be point-to-point, bus, star, tree, or a mixture.

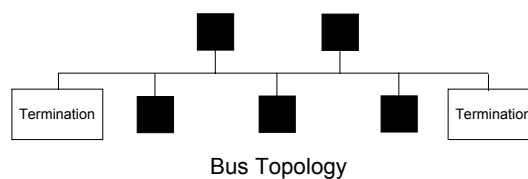


When using free topology, the maximum cable length in one segment is approx. 500 meters, and is calculated adding together all cables used. The maximum number of nodes in one segment is 64. If more than 500 meters, or more than 64 nodes, is required, two or more network segments can be made, using a repeater between each segment.

Bus Topology

In a bus topology network, all nodes are connected on a bus. Cable stubs can be used to connect the individual nodes to the bus, as long as the length of the stub is maximum 3 meters.

The advantage of bus topology, is that the cable length can be longer than when using free topology. This can be useful e.g. when making network connection to remote PTZ cameras.



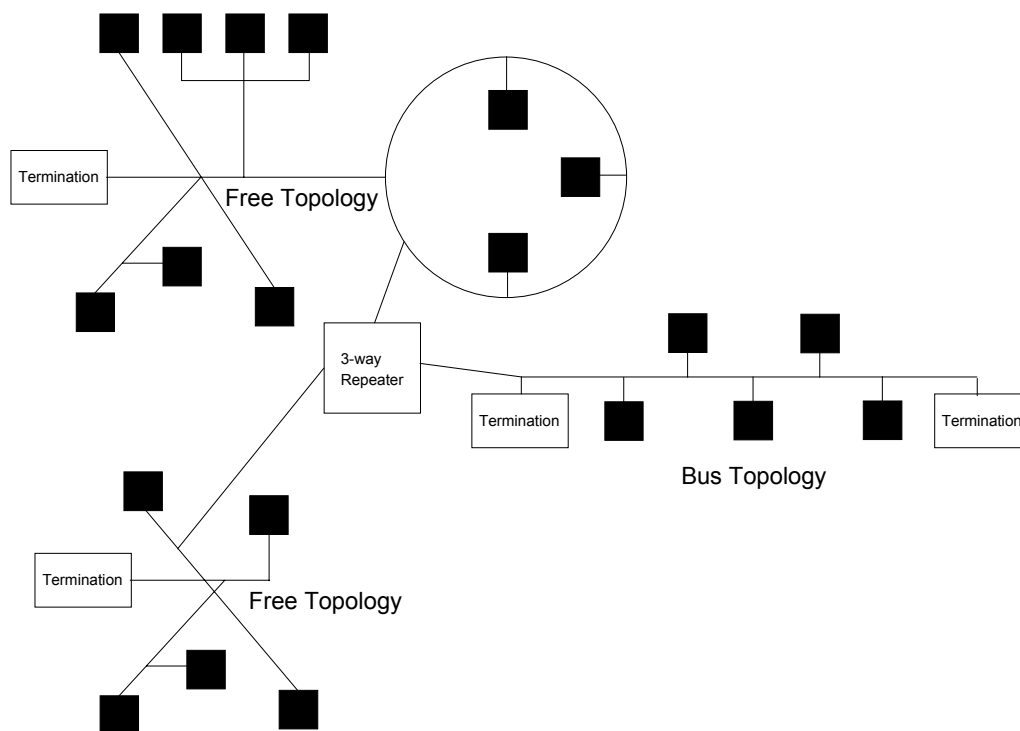
The maximum number of nodes on one bus is 64. Maximum length of the network bus depends on the type of cable used. If more nodes, and/or longer cable length, is required, two or more network segments can be made, using a repeater between each segment.

Repeater

If the maximum numbers of nodes (max. 64) or total cable distance are exceeded, a Repeater can be added to interconnect two or more network segments.

A repeater can also be used to convert from a free topology network to a bus topology network. This can be useful when e.g. making network connection to remote PTZ cameras.

Note that only one Repeater should be placed in series between any two nodes in a segment



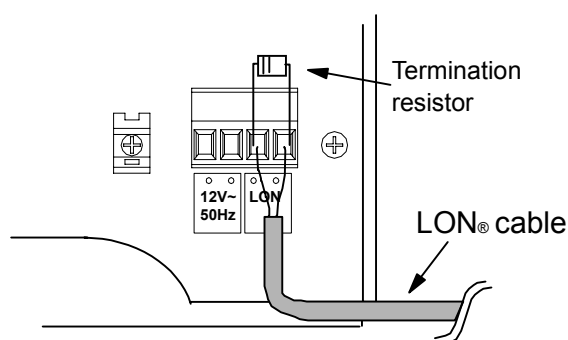
Termination

Each network segment require termination for proper data transmission performance. The type of termination varies depending on whether Free topology or Bus topology is used.

In a free topology network segment, only one termination is required and may be placed anywhere on the network. The termination resistor should be a 52 ohm, 1/4W type.

In a bus topology network segment, two terminations are required, one at each end of the bus. The termination resistors should each be a 105 ohm, 1/4W type.

Termination resistors are easily fitted using the LON[®] connectors on the SYSTEM X units.



LON® Network Cables

The following five cable types have been validated by Echelon®, but other cable types may be used provided they have specifications similar to the ones listed below.

Validated cables:

Cable type	AWG	Diameter	Shielded ⁴⁾
TIA/EIA 568A ¹⁾ Category 5 cable	24AWG	0,5mm	Both
Belden 8471 (PVC jacket) or equivalent cable	16AWG	1,3mm	No
Belden 85102 (Tefzel jacket) or equal cable	16AWG	1,3mm	No
Level IV ²⁾ cable	22AWG	0,65mm	Both
J-Y(St)Y ³⁾ 2x2x0.8	20,4AWG	0,8mm	Yes

¹⁾ Any cable that meets the TIA/EIA 568A standard, is suitable for LON® Networks.

²⁾ Standard originally specified by the National Electrical Manufacturers Association (NEMA).

³⁾ The J-Y(St)Y cable is normally only available in Europe.

⁴⁾ In order to comply with EMC/EMI standard EN 50130-4, shielded cable must be used.

Examples on TIA/EIA 568A Category 5 cables:

Cable type	AWG	Diameter	Shielded
Belden 1624	24AWG	0,5mm	Yes
Belden 1633A	24AWG	0,5mm	Yes
Belden 1668A	24AWG	0,5mm	Yes

Examples on NEMA Level IV cables:

Cable type	AWG	Diameter	Shielded
Anixter 9F220154	22AWG	0,65mm	Yes

Examples on J-Y(St)Y 2x2x0.8 cables:

Cable type	AWG	Diameter	Shielded
Anixter 4QJB2	20,4AWG	0,8mm	Yes
Coferro J-Y(St)Y	20,4AWG	0,8mm	Yes
Waschek 240208	20,4AWG	0,8mm	Yes
Eupen J-Y(St)Y Lg	20,4AWG	0,8mm	Yes

A list of cable suppliers can be found in the back of this manual.

Cable Lengths

Validated cables:

TIA/EIA 568A Category 5 cable:	
Free Topology, max. node-to-node	250 meters
Free Topology, max. total length	450 meters
Bus Topology, max. total length	900 meters
Belden 8471 cable:	
Free Topology, max. node-to-node	400 meters
Free Topology, max. total length	500 meters
Bus Topology, max. total length	2700 meters
Belden 85102 cable:	
Free Topology, max. node-to-node	500 meters
Free Topology, max. total length	500 meters
Bus Topology, max. total length	2700 meters
Level IV cable:	
Free Topology, max. node-to-node	400 meters (0,65mm/24AWG)
Free Topology, max. total length	500 meters (0,65mm/24AWG)
Bus Topology, max. total length	1400 meters (0,65mm/24AWG)
J-Y(St)Y 2x2x0.8 cable:	
Free Topology, max. node-to-node	320 meters
Free Topology, max. total length	500 meters
Bus Topology, max. total length	900 meters

General Installation Advise

The network is polarity insensitive and therefore either of the two twisted pair wires can be connected to either of the LON[®] connectors on the SYSTEM X components.

Due to the risk of cross-talk/interference, it is recommended not to run LON[®] Network cables close to high voltage cable, or cables carrying video signals.

Cable Screen

In countries where the CE approval is mandatory, LON[®] cables with an overall screen must be used in order to comply with EMC/EMI standard EN 50130-4.

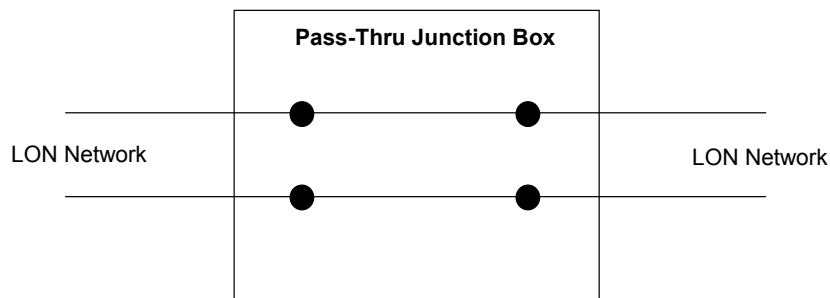
Please see the individual *SYSTEM X Installation Manuals* for details on how to connect the cable screen.

Junction Boxes

When splicing/terminating cables in the LON[®] Network installation, the following methods are normally used.

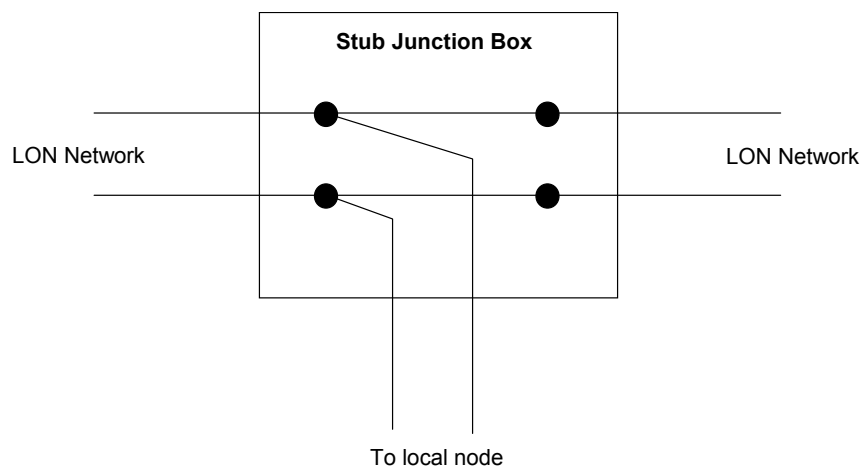
Pass-Thru Junction Box

A pass-thru junction box is used to splice two cables. No SYSTEM X nodes or connectors are provided at a pass-thru junction box.



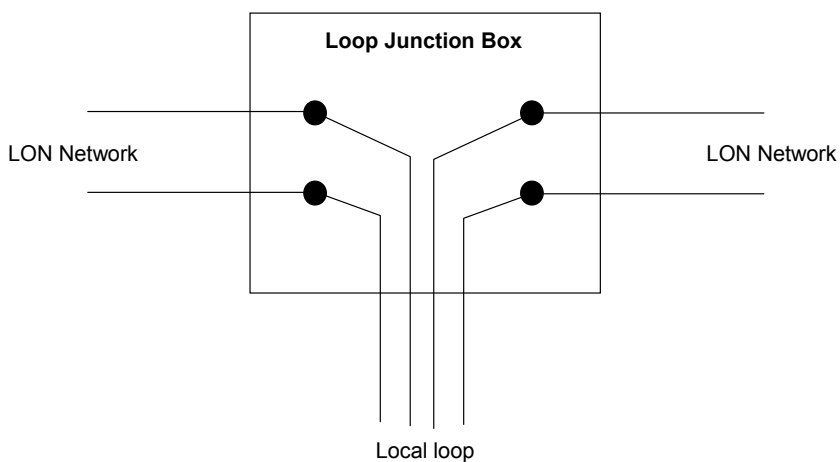
Stub Junction Box

A stub junction box is used to splice two cables and provide a stub for servicing a local SYSTEM X node.



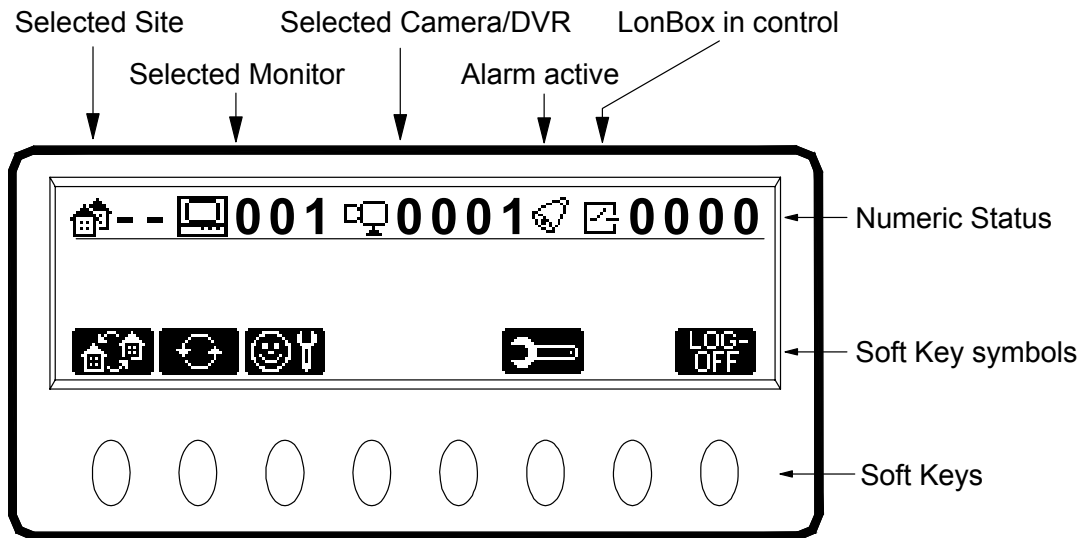
Local Loop Junction Box

A local loop junction box is used to terminate two cables, and provide a wiring loop for servicing one, or more, local SYSTEM X nodes.



Operation

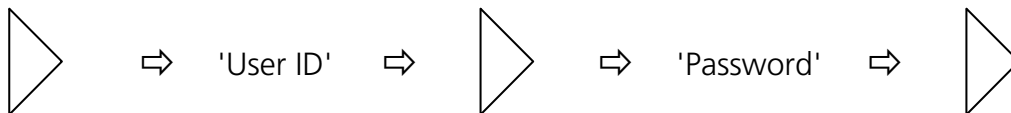
In addition to the normal keys, the Keyboard X also uses so-called 'Soft Keys'. The function of the 'Soft Keys' depends on what selections the operator has made. The 'Soft Key symbols' in the keyboard LCD display, changes according to the selections made by the operator.



The Escape key ^{ESCAPE}  can be used to step back through the 'Soft Key symbols'.

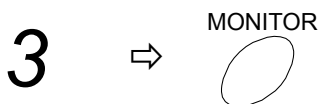
When operating a keyboard for the first time, the user will have to log on with *User ID* and *Password*, and then select a monitor and a camera as the first operation.

User Log-on



Enter 'User ID' and 'Password'.

Select Monitor



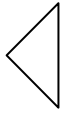
Selects Monitor 3

Select Camera

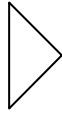


Selects Camera 1 on the selected monitor

Next/Previous Camera



Previous Camera



Next Camera

(Disabled if a DVR camera is selected).

Display Text

TEXT



Toggles on/off Status Text, Camera Text and Time/Date, on the selected monitor.

Options:

All text OFF.

Only Camera text ON.

Camera text and Time/Date ON.

All text ON.

Select Remote Site (Soft Key)

3



Selects Remote Site 3

The first camera on the Remote Site, will be displayed on the selected monitor.

Select Local Site (Soft Key)



Selects Local Site

The first camera on the Local Site, will be displayed on the selected monitor.

PTZ operation

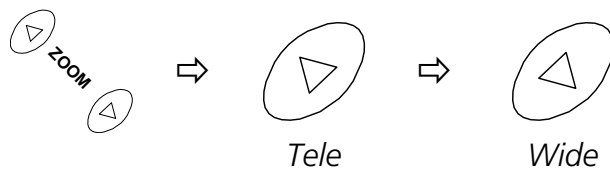
PTZ Control



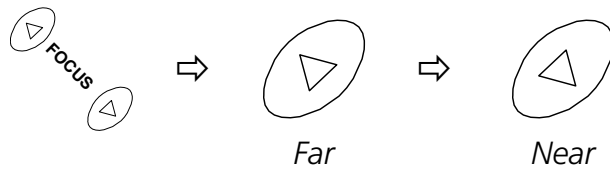
Enables/disables PTZ control for the selected camera

Using the joystick, or pressing one of the zoom/focus/iris keys, will also enable PTZ control.

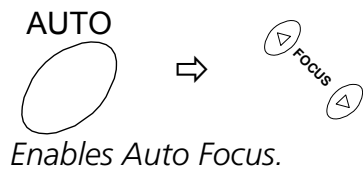
Zoom



Focus

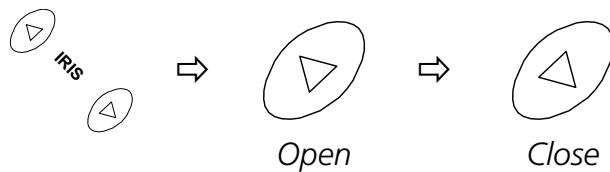


Auto Focus

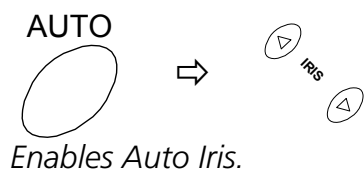


Enables Auto Focus.

Iris

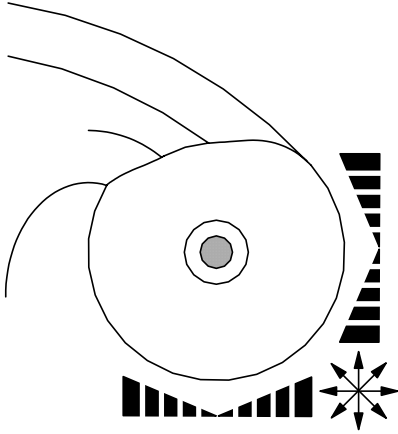


Auto Iris



Enables Auto Iris.

Pan/Tilt



When controlling a variable speed Pan/Tilt, pushing the joystick towards its extremes will increase speed

Auto panning (Soft Key)



Starts Auto Panning at predefined speed.



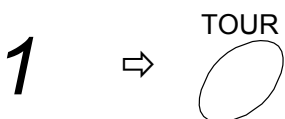
*Starts Auto Panning at e.g. 25% of maximum Pan Speed.
Actual speed depends on Pan/Tilt used.*

Call Preset (Soft Key)



Calls preset 1, on the selected PTZ camera.

Preset Tour



Starts Preset Tour 1, on the selected PTZ camera

Auxiliary Function (Soft Key)



Activate/Deactivate AUX relay 1, on the selected PTZ camera

Direct Auxiliary Functions (Soft Keys)



Activate/De-activate the AUX relay

Backlight Compensation (Soft Key)



Toggle BLC on/off, on the selected PTZ camera

Define Preset (Soft Keys)



Defines Preset number 1

Maximum number of Presets depends on the Telemetry Receiver used

Set Auto Panning Limits (Soft Keys)

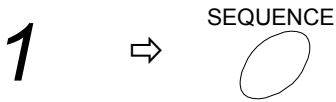


Set left limit

Set right limit

Camera Sequence

Start Sequence



Starts Sequence 1 on the selected monitor

Hold Sequence



*Pauses the sequence on the selected monitor.
Pressing HOLD again, resumes the sequence.*

Alarm Operation

Clear Alarm



*Clears the alarm currently active on the
selected alarm monitor.*

Step Through Active Alarms



*Steps through the alarm
texts for the active alarms
on the alarm monitor.*

*Switches to the selected
alarm.*

Alarm Enable/Disable

From the keyboard, the operator can enable/disable specific alarm inputs.

The NodeManager software can generate a list, with the required alarm information.



Select alarm enable/disable menu.

Select Site



Select the site number where the alarm is connected.

Select Alarm Type



Select the Alarm Type. 0=Normal alarm, 5=Tamper alarm.

Select Alarm Box Number



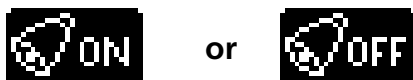
Select the Alarm Box number.

Select Alarm Input Pin



Select the Input pin for the selected alarm box.

Enable/disable Alarm



Enable (ON) or Disable (OFF) the selected alarm.

Alarm status



Displays status for the selected alarm.

Holiday Setup

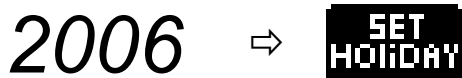
Up to 30 Holidays can be programmed 1 year ahead.

Alarms activated on a Holiday will be handled according to the Alarm Zone setup in the NodeManager software.



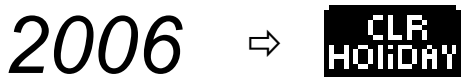
Select Holiday setup menu.

Set Holiday



Set June 20, as Holiday.

Clear Holiday



Clear June 20, as Holiday.

Holiday Status



Display Holiday status for June.

DVR operation

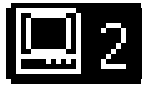
When selecting a camera input, that has a DVR connected, the camera symbol will automatically change to a DVR control symbol.

Take DVR control



Enables/disables DVR control of the selected DVR.

DVR Monitors (Soft Keys)



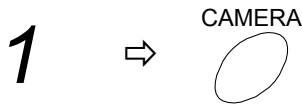
Main monitor

Spot monitor 1

Spot monitor 2

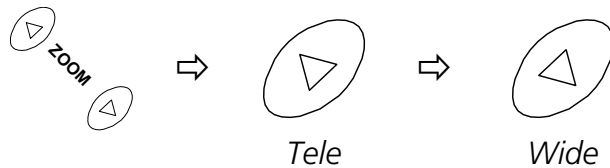
Select between DVR monitor outputs.

Select Camera



Selects Camera 1 on the selected DVR monitor

Digital Zoom



Hold zoom key until function activates.

Use joystick to "pan/tilt" while zoomed in.














Split Screen Modes (Soft Key)



Toggles between split screen modes.

Direct Split Screen Modes (Soft Key)

Direct selection of 9-way split, cameras 1-9.

- | | | | |
|-----------|---|---|-----------------------------|
| 1 | ⇒ |  | <i>4-way, camera 1-4</i> |
| 2 | ⇒ |  | <i>4-way, camera 5-8</i> |
| 3 | ⇒ |  | <i>4-way, camera 9-12</i> |
| 4 | ⇒ |  | <i>4-way, camera 13-16</i> |
| 5 | ⇒ |  | <i>9-way, camera 1-9</i> |
| 6 | ⇒ |  | <i>9-way, camera 10-18</i> |
| 7 | ⇒ |  | <i>16-way, camera 1-16</i> |
| 8 | ⇒ |  | <i>10-way, camera 1-10</i> |
| 9 | ⇒ |  | <i>13-way, camera 1-13</i> |
| 10 | ⇒ |  | <i>10-way, camera 11-20</i> |
| 11 | ⇒ |  | <i>20-way, split 4x5</i> |
| 12 | ⇒ |  | <i>20-way, split 5x4</i> |
| 13 | ⇒ |  | <i>4-way, camera 17-20</i> |

Copy (Soft Key)

Copy Mode.

Menu Access (Soft Key)

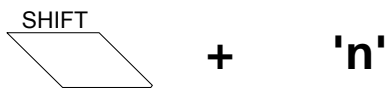


Access menu system.

Some menus uses numeric selections, others are navigated using the joystick.

For details on navigating the DVR menus, please see the *Instructions for the DVR*.

Numeric Menu Selections



Hold 'SHIFT' and press number.

Playback (Soft Key)



Start playback mode.

Freeze (Soft Key)



Toggles image freeze on/off, on the main monitor

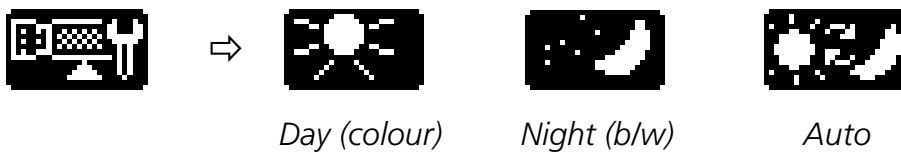
Record (Soft Key)



Toggles recording on/off.

Special functions

Day/Night/Auto mode (Soft Key)



For cameras/domes with Day/Night camera.

Auto/IR mode (Soft Key)



Toggles between Auto and IR (b/w) mode.

(Orion Dome only)

Camera connection Status



Select the Camera connection status menu.

Show camera connection status in groups of 32 cameras.

'X' means camera is detected.

Macro Operation

Macros (Soft Keys)



Macro soft key menu

Start/Stop/Pause Macro (Soft Keys)



Macro No.

Start

Pause

Stop

LonBox Operation

LonBox Control (Soft Key)



Takes control of LonBox 1



Release control of LonBox

LonBox Relays (Soft Keys)



Activate/Deactivate LonBox relays

Keyboard setup

A few setup options are made available for the user.

Language (Soft Keys)



Toggles between the four languages available (if programmed)

Keyboard beeper (Soft Keys)



Animate Softkeys (Soft Keys)



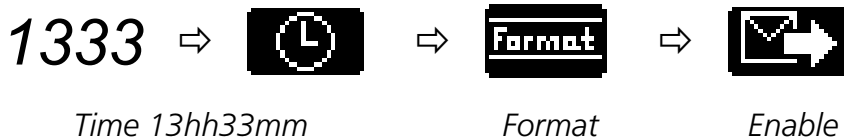
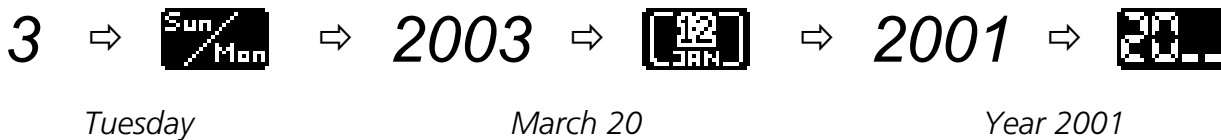
Toggles between animated and static Softkeys

Set Time/Date (Soft Keys)



Set Time/Date, format and weekday

To set e.g. Tuesday, March 20, 2001, 13:33



Dome setup

When navigating the menu system on connected Domes, the following general keys can be used.

Some Dome types may require special key combinations for specific menu operations. Please see the *I151SX-DOME Installation Manual*, for details.

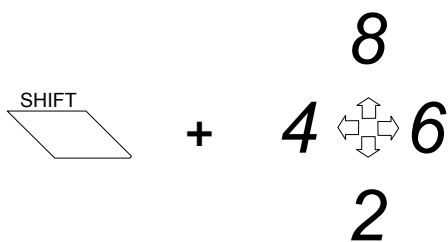
Access menu system

MENU



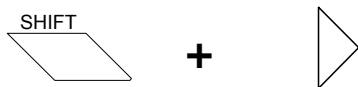
Access menu system.

Navigate menu system



UP / DOWN / RIGHT / LEFT

ENTER/Select



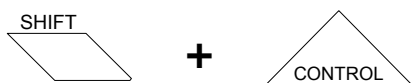
Enter sub-menu, and/or select option.

Return



Exits to the previous menu.

Exit menu system



Exit menu system.

Operator Messages

The Keyboard X displays various operator messages for guidance, when e.g. wrong/invalid selections are made.

Type your user ID. Press Next

Key in your user ID defined during installation, and press *Next* (right arrow key).

Type your password. Press Next

Key in your password defined during installation, and press *Next* (right arrow key).

Invalid User ID

You have entered an invalid user ID.

Wrong Password

You have entered a wrong password.

User 'XXXX' is logged on

You have logged on to the system, and the keyboard is ready for operation.

Automatic logoff in 'X' seconds

You will be logged off in 'X' seconds, due to 'X' seconds of inactivity, defined during installation. Press the *Clear* key to override logoff.

Illegal key: 'X'

You have pressed an illegal or invalid key.

Illegal key: Shift+'X'

You have pressed an illegal or invalid key combination.

Invalid camera: 'X'

The selected camera does not exist, or is made invalid.

Invalid Monitor: 'X'

The selected monitor does not exist, or is made invalid.

Invalid sequence: 'X'

The selected camera sequence does not exist.

Camera 'X' controlled by kbd. 'X'. Press CONTROL

The selected PTZ camera is controlled by keyboard 'X'. Press the CONTROL key to take the control from keyboard 'X' (if your user priority allows it).

Camera 'X' controlled by Matrix

The selected PTZ camera is being controlled by a matrix/macro. Press the CONTROL key to take the control from the matrix/macro (if your user priority allows it).

Camera 'X' does not respond

The selected camera is fixed, and does not respond to PTZ control.
The selected PTZ camera is switched off, faulty or off line.

Preset 'X' reached

The selected preset is reached.

Preset 'X' stored

The preset has been stored by the Telemetry Receiver.

Monitor 'X' controlled by kbd. 'X'

The selected monitor is being controlled by keyboard 'X', which has higher user priority.

Monitor 'X' controlled by Alarm

The selected monitor is in alarm mode, and can only be selected by the alarm keyboard defined during installation.

Monitor 'X' controlled by Macro

The selected monitor is running a macro, started by a higher priority user.

Communication Error

Communication on the LON Network has failed.

Matrix reset, monitor control lost

The SYSTEM X matrix has been rebooted, and all keyboard control is lost.

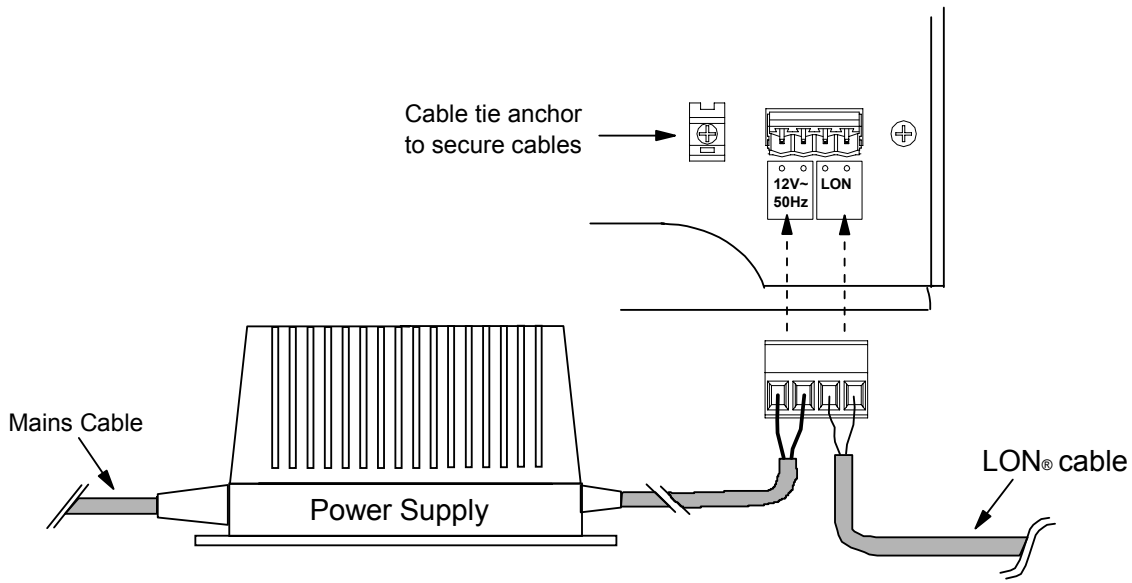
No free Videolink from Site 'X'

All video links from Site 'X' are used by higher priority users.

No access to Site 'X'

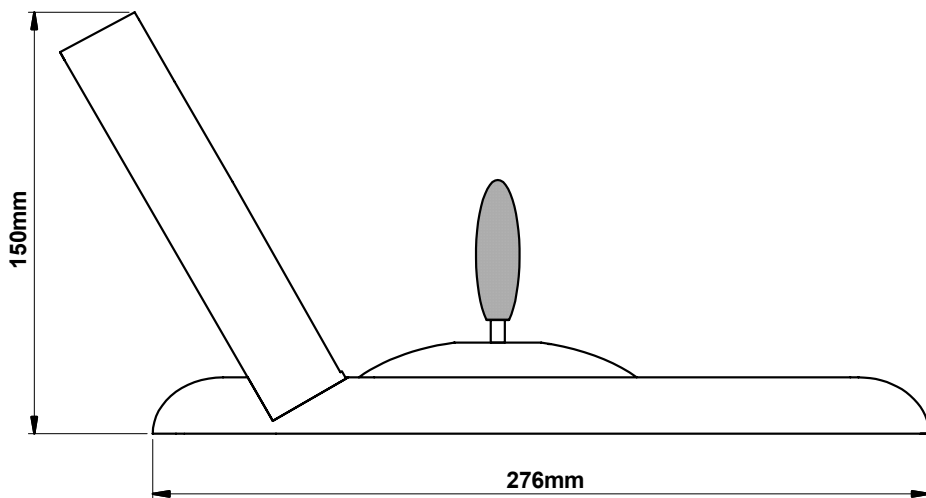
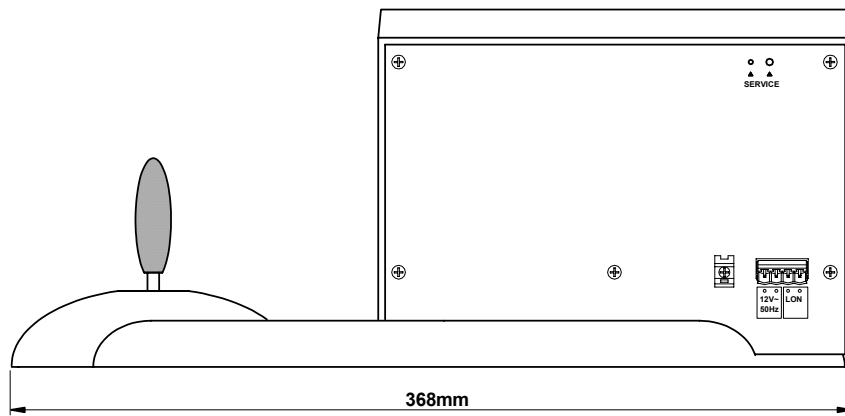
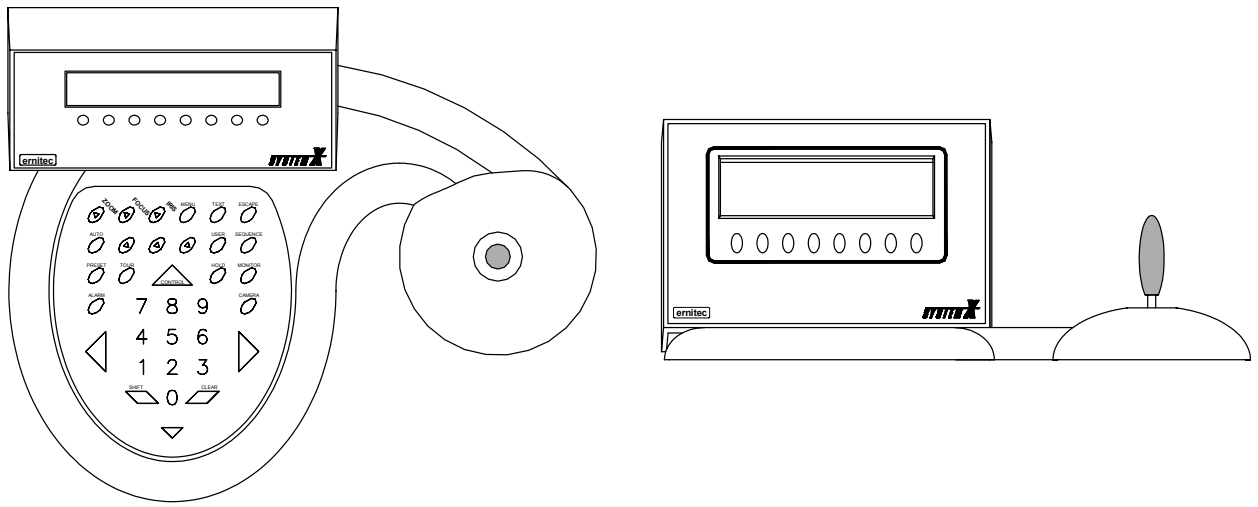
The Site does not exist, or you are not allowed to access it.

Cable Connections



Please note: If a shielded LON® cable is used, the shield should NOT be connected at the Keyboard.

Outline



Cable Suppliers

Belden Wire & Cable (Europe Headquarters)

BWC - The Netherlands
Edisonstraat 9, Postbus 9
5928 PG Venlo, 5900 AA
The Netherlands
Phone: +31 77 387 8555
Fax: +31 77 387 8448
sales.info@belden.nl
www.belden.com

Anixter International Ltd.

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Fax: +44 1895 81 81 82
info@anixter.net
www.anixter.co.uk

Coferro A/S

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coferro@coferro.dk
www.coferro.dk

Waschek Kabel GmbH

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Eupen - Cable Division

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