grass valley
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# User's Guide

3922 496 49941
version 4

## MCP 400
MASTER CONTROL PANEL

# Declaration of Conformity

We, Thomson Broadcast Solutions B.V., Kapittelweg 10, 4827 HG Breda, The Netherlands, declare under our sole responsibility that this product is in compliance with the following standards:

EN60065 : Safety
EN55103-1 : EMC (Emission)
EN55103-2 : EMC (Immunity)

following the provisions of:

a. the Safety Directives 73/23//EEC and 93/68/EEC
b. the EMC Directives 89/336/EEC and 93/68/EEC

# FCC Class A Statement

This product generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause interference to radio communications.
It has been tested and found to comply with the limits for a class A digital device pursuant to part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.
Operation of this product in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

# Copyright

# MCP400

## Master Control Panel

## User's Guide

## Contents

# Master Control Panel

## Introduction

The MCP 400 Master Control Panel allows you to control up to 99 LDK-type camera systems. It is a compact unit that supports both HD and SD cameras. The MCP 400 operates within a standard Ethernet-based camera control network using TCP/IP as communication protocols.

The MCP 400 can set up and control cameras in real-time and can carry out network configuration, and diagnostics. A comprehensive menu system is accessed via a touch screen.

The user interface is designed for convenience, with menu accessible functions for detailed setup and a clear display of settings and values. The rotary controls of the unit enable the values of selected functions to be easily and quickly set.

The MCP not only controls all camera functions, it can also be used to change the menu values of the latest LDK Base Stations. Extensive setup parameters for the MCP itself, the camera and base station are all available.

USB slots will, in the future, allow USB memory modules to be used for storing data and access control. Other USB peripherals can also be used to extend the functionality of the unit.

## Using this guide

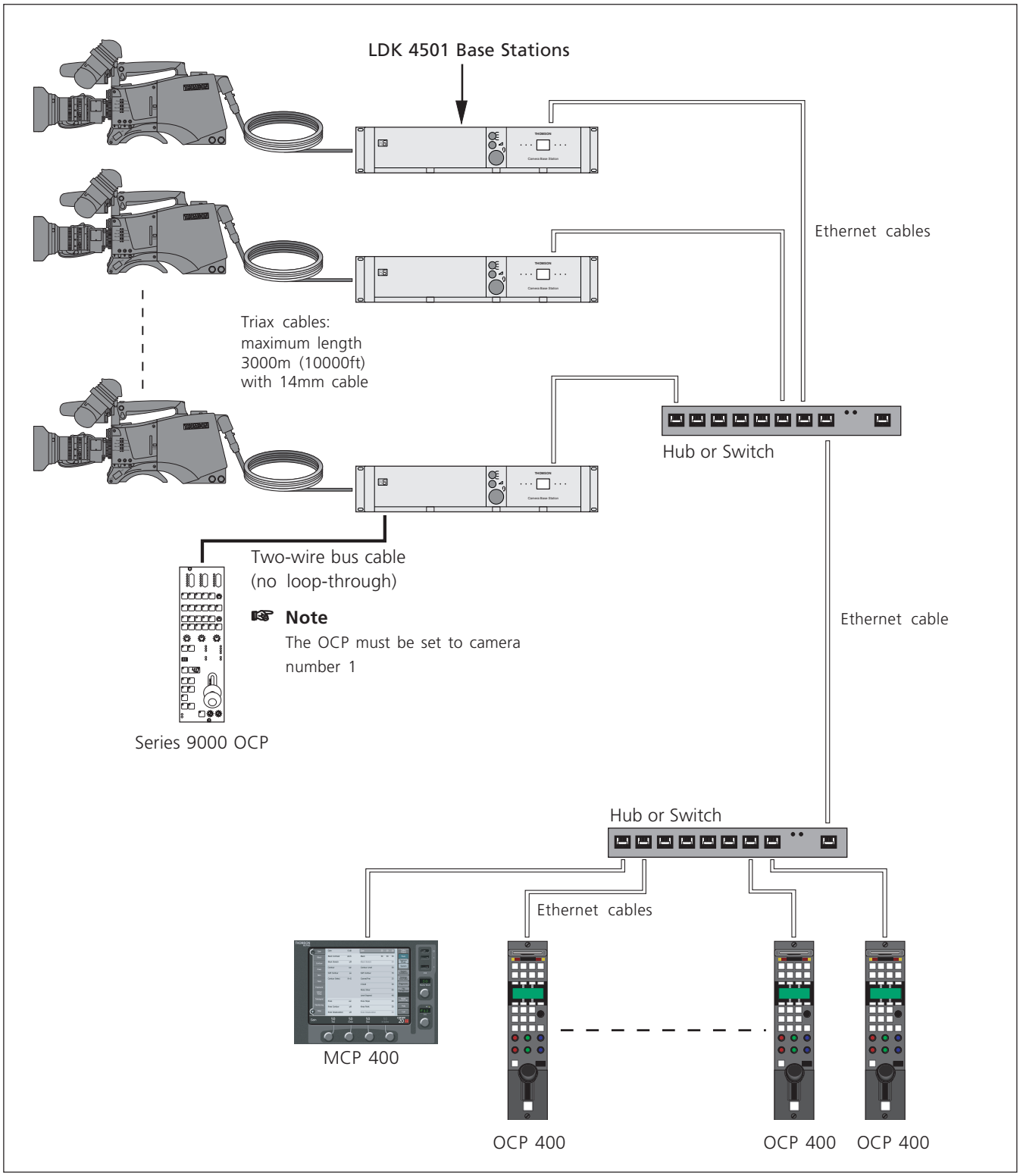
The MCP 400 can control many different types of camera. This guide includes sample menu items and functions. Depending on the type of camera to which the MCP is connected, not all of items or functions may be available. The values available are also camera dependent. The menu system only displays the relevant items.

## Connections

There are four types of connection (see further in the manual for the connector pinning):

- power supply
- network
- computer monitor (if required)
- USB device

MCP 400 panel in a C2IP network with multiple cameras




## Control network

The MCP 400 is connected to an Ethernet control network (**C2IP**).

# Location of controls

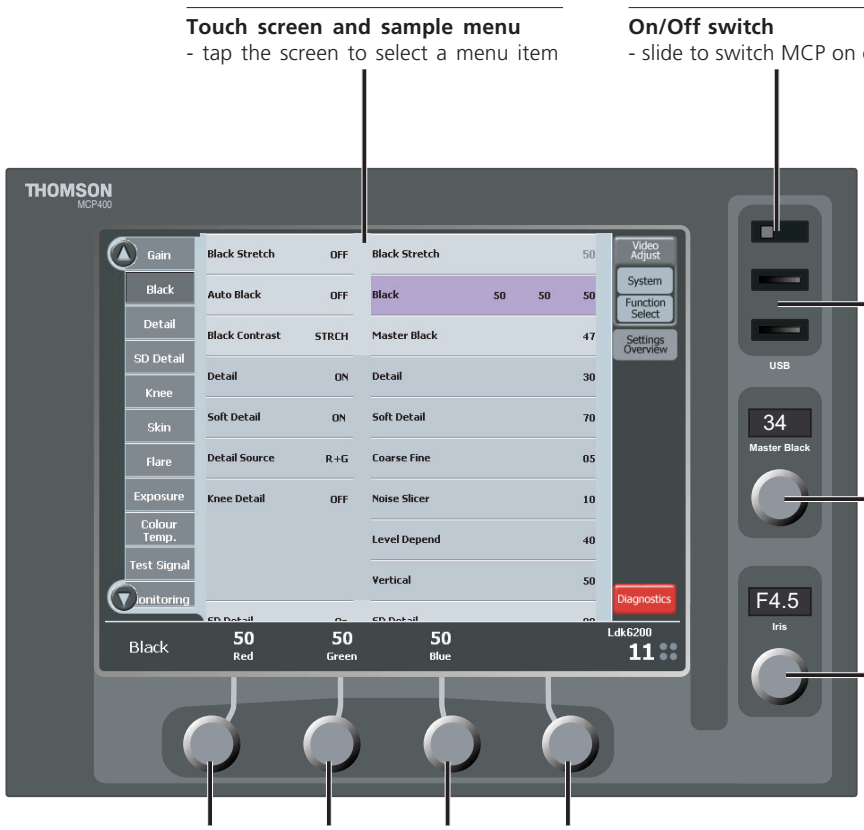
## Front panel

The front panel consists of a touch screen that displays and gives access to the menu system. The four assignable rotary controls across the bottom of the panel control the values of the functions displayed across the bottom of the screen.

## Screen layout

The screen is divided into sections:

- the panel on the right of the screen is the menu selection panel. It shows the main menus.
- the left of the screen displays a list of functions and scroll arrows.




**Touch screen and sample menu**
- tap the screen to select a menu item

**On/Off switch**
- slide to switch MCP on or off

**USB slots**
- plug USB devices into these sockets

**Master black rotary control**
- varies the value of the master black for the selected camera
- the display shows the master black value

**Iris control**
- varies the value of the iris for the selected camera
- the display shows the iris F-number
- the RE indicator lights when lens extender is in use

**Assignable rotary controls**
- vary the values of the functions displayed above them

## Switch on

To switch on the MCP, slide the on/off switch to the right. Wait for system to initialize and to detect network devices.

## Using the touch screen

After start-up a menu appears on the screen. Tap an item on the screen with your finger to select it.

- the centre of the screen shows functions and values associated with the video menu. Dialog boxes are also displayed on this part of the screen.
- the lower line shows the functions assigned to the rotary controls and their values.
- the camera type, the camera number and the on-air status are shown on the right of lower line.

## Rotary controls

Turn an assigned rotary control to change the value of the function associated with it on the display.

Turn the master black and iris rotary controls to change their values for the active camera.

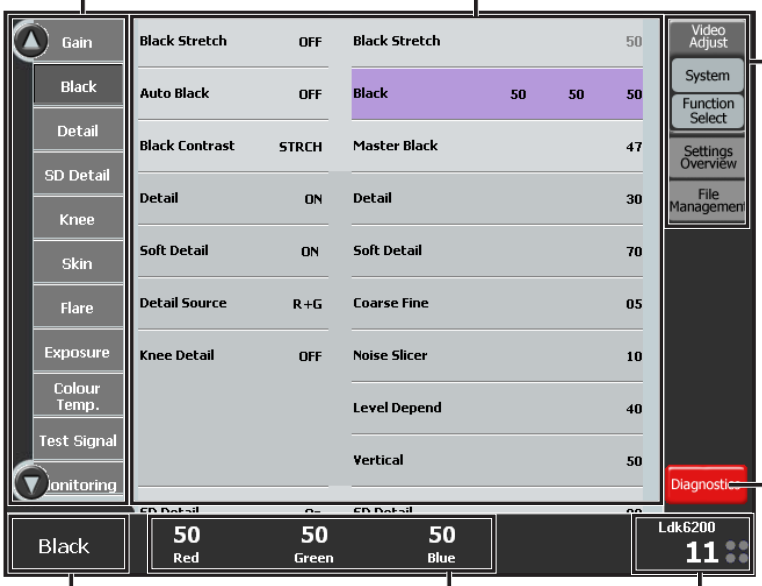
# Specifications

## LDK4630

Master Control Panel MCP400

| | |
|---|---|
| Dimensions | 85mm x 246mm x 177mm (depth x width x height) |
| Weight | 3.0kg |
| Operating temperature | 0°C to +45°C |
| Storage temperature | -20°C to +70°C |
| Power | +12 Vdc input nominal (+11 Vdc to +17 Vdc) |
| Power consumption | max. 30W |
| Ethernet | 10Base-T, 100Base-TX<br>compliant to IEEE Std 802.3 (edition 2000) |
| VGA output | RGB 0.7 Vpp (75 Ohm) TTL-compatible |
| USB (3x) | Standard USB rev. 1.10 compliant |

# Screen layout in single camera mode




**Function groups**
- displays function groups of the selected set

**Function field**
- displays available functions and their settings

**Main menu**
- select camera operation mode
- define and maintain groups of settings

**Diagnostics**
- provides a quick status overview of the system

**Camera selection**
- displays currently selected camera
- select a camera
- define and maintain groups of cameras

**Selected setting**
- displays the current function

**Analogue settings**
- displays the analogue settings for the selected function

## Single camera mode

The single camera mode can be used to control one specific camera in the system. At the top right of the screen, tap the VIDEO ADJUST button in the main menu to switch to single camera mode.

# Screen layout in multiple camera mode


**Camera selection**
- displays the selection of cameras

**Functions**
- displays available functions and their settings

**Main menu**
- select camera operation mode
- define and maintain groups of settings

**Function Matrix**
- view and modify settings for one or more camera(s)

**Diagnostics**
- provides a quick status overview of the system

**Camera selection**
- displays currently selected camera
- select one or more cameras
- define and maintain groups of cameras

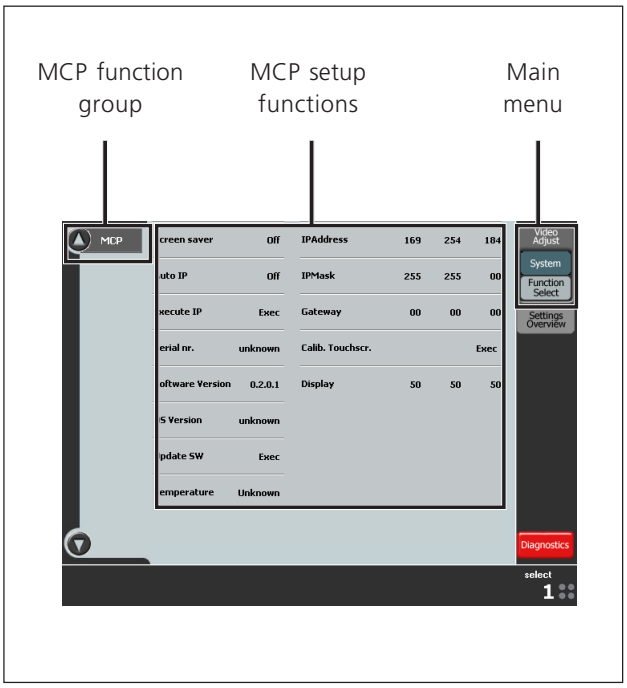
**Selected setting**
- displays the current function

**Analogue settings**
- displays the analogue settings for the selected function

## Multiple camera mode

The multiple camera mode can be used to control more than one camera at the same time. At the top right of the screen, tap the SETTINGS OVERVIEW button in the main menu to switch to multiple camera mode.

# Setting up the MCP




## Setup MCP screen

To go to the MCP setup screen tap the VIDEO ADJUST button in the main menu to enter the single camera mode. Then tap the SYSTEM button in the menu. A group of functions will appear at the left side of the screen. Select the MCP function group.

## Screen saver

The MCP comes with a screen saver option for your desktop convenience:

### Screen saver

Switches screen saver ON or OFF.

### Screen saver time

Select and use ROTARY CONTROL (C) to select the idle time in minutes before the screen saver pops up.

### Screen saver file

When screen saver is ON select one of the available screen saver files from the drop down list.

## Calibrate Touchscreen

When the MCP leaves the factory its touch screen is calibrated for accurate navigation. However it may need calibration if the navigation becomes less precise. Tap the EXEC of READY setting to run the calibration program.

1. A window opens to confirm the start of the calibration procedure. Tap OK to continue or CANCEL to cancel.
2. The calibration dialog window opens. Now tap the RUN button on the first tab at the top of the screen. Leave all other settings unaltered.
3. The calibration procedure asks you to tap the screen on several measuring points that are indicated by red circles. Point and press gently on the centre of the circles. The procedure cannot be cancelled!
4. After the procedure is executed you will be asked for a confirmation. Tap OK to return to the calibration dialog window. Tap OK again to close the window.
5. Switch to an other item in the main menu (e.g. VIDEO ADJUST) to store the calibration.

## Auto IP

By default the AUTO IP mode is ON but if you want to set up the IP parameters manually select OFF.

### IPAddress

Sets the IP Address used by the MCP by selecting four numbers from 0..255 using the ROTARY CONTROLS at the bottom.

### IPMask

Sets the Subnet Mask used by the MCP by selecting four numbers from 0..255 using the ROTARY CONTROLS at the bottom.

### Gateway

Sets the default gateway used by the MCP by selecting four numbers from 0..255 using the ROTARY CONTROLS at the bottom.

☞ **Note**

After changing AUTO IP or manual IP settings you MUST run the EXECUTE IP function to take the changes into effect.

☞ **Note**

Please contact your network administrator for more information about ethernet networking and IP settings.

## Execute IP

Runs a procedure on the network to establish the IP settings of the MCP. This function should always be executed after changing AUTO IP or manual IP settings.

## Display

Adjust brightness, contrast and gamma curve of the MCP's display using ROTARY CONTROLS A,B and C.

## Serial number

Displays the serial number of the MCP.

## Software version

Displays the software version of the MCP.

## OS version

Displays the operation system version of the MCP.

## Update SW

This function starts the automatic software update procedure:

1. Insert a standard USB memory stick in a free USB slot of the MCP. The software update file should be stored in the root directory of the memory stick.
2. Tap the word 'Exec' of the Update SW function and wait until the update procedure is executed.
3. The MCP reboots and starts with the new software.

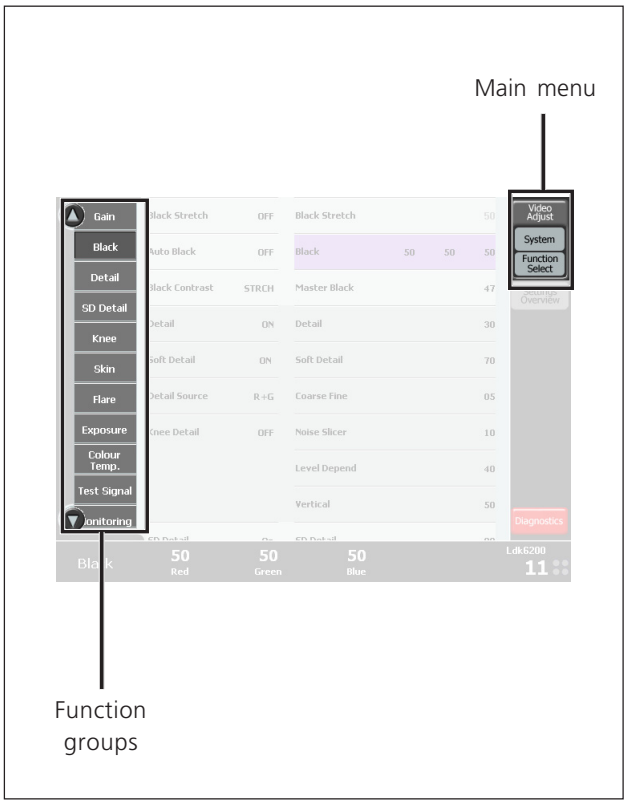
☞ **Note**

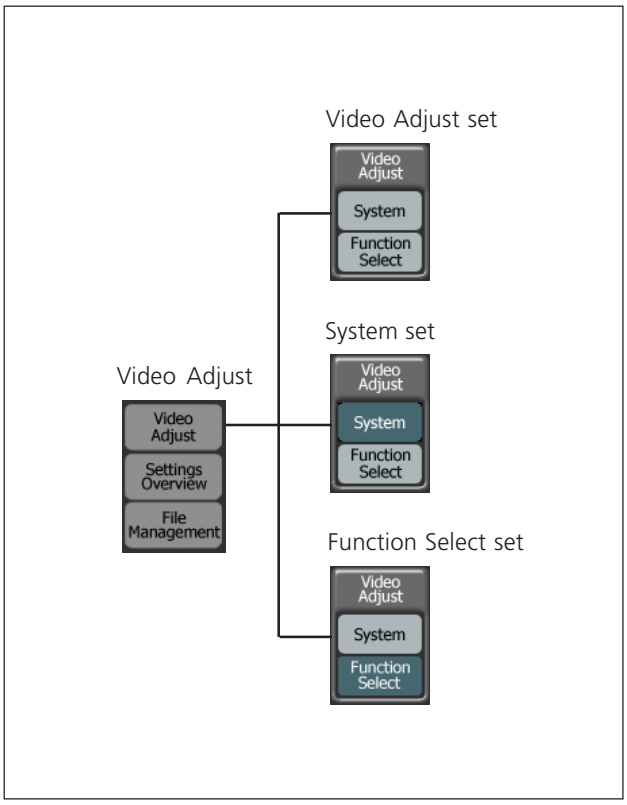
For more information about requiring and updating software please contact your local service authority.

## Temperature

Displays the current MCP temperature in the unit in degrees Celsius.

# Operating a single camera




## Single camera mode

To switch to the single camera mode tap on the VIDEO ADJUST button in the main menu. The upper part of the menu opens and three buttons are displayed, one of which is the VIDEO ADJUST button, the other two are SYSTEM and FUNCTION SELECT.

## Function sets

Each of the three buttons selects a set of function groups that are displayed at the left side of the screen. If the selected set contains more groups than will fit on the screen use the round scroll buttons on the top and bottom to scroll through the groups.

### Video Adjust

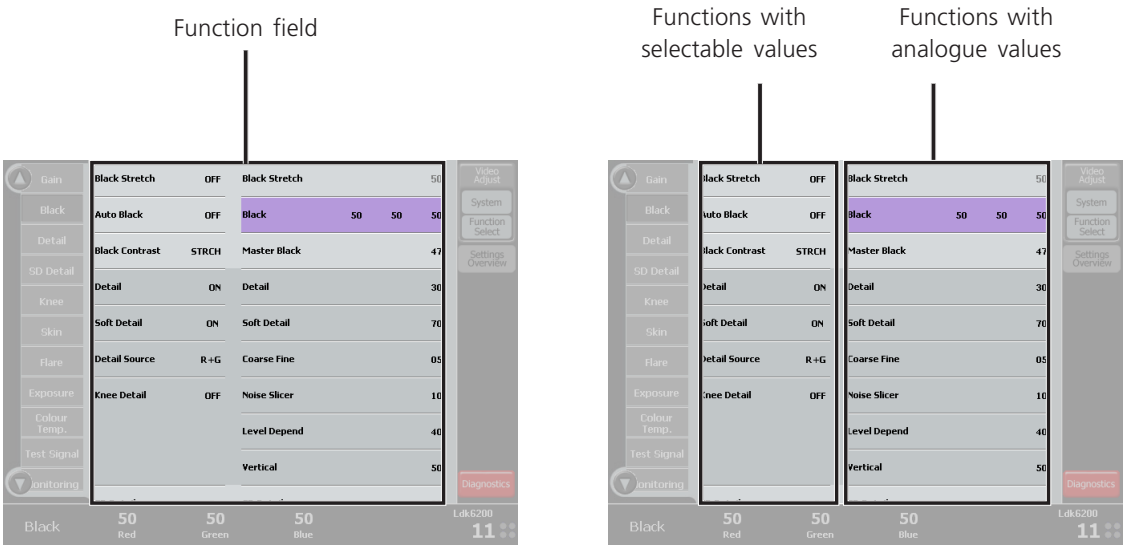
This set contains all main video function groups. Note that the available groups depend on your camera type and version.

### System

This set contains all system function groups including setup functions for the MCP and camera, diagnostics and scene files.

### Function Select

A user programmable set of functions. When you tap this button a function select dialog will appear. For more information about defining your own set of function groups please refer to the section 'Function Select'.




## Function field

The centre of the screen shows a part of the FUNCTION FIELD that holds all the functions and values in the selected function set. All functions in the FUNCTION FIELD are associated with the groups in left side menu.

Note that the FUNCTION FIELD can be larger than the displayed area. Functions that are out of view can be accessed by selected the groups at the left. The visible window will scroll to the chosen function group.

## Changing values

Functions that have selectable values are at the left side of the FUNCTION FIELD while functions with analogue values are at the right side.

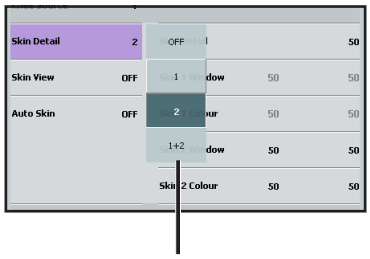
Tap the value displayed next to a function to change it. If there are only two possible values, tapping the value toggles between the two values. If there are more than two values, a drop down list of values appears. Tap the value you want in the list.

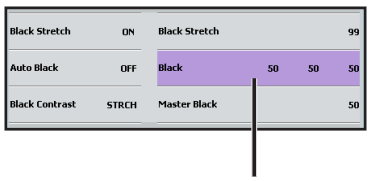
If you select an analogue function, the values to be changed are shown above the rotary controls at the bottom of the screen. Use the appropriate rotary control to change the value.

☞ **Note**

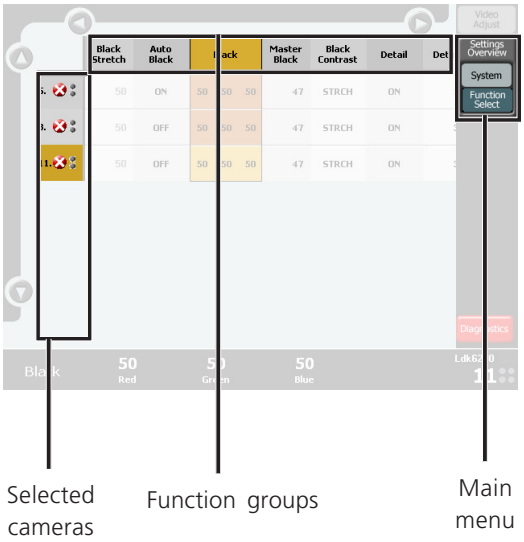
If an item is unavailable it is shaded. For example, if a switch function is off, its associated analogue controls are shaded.

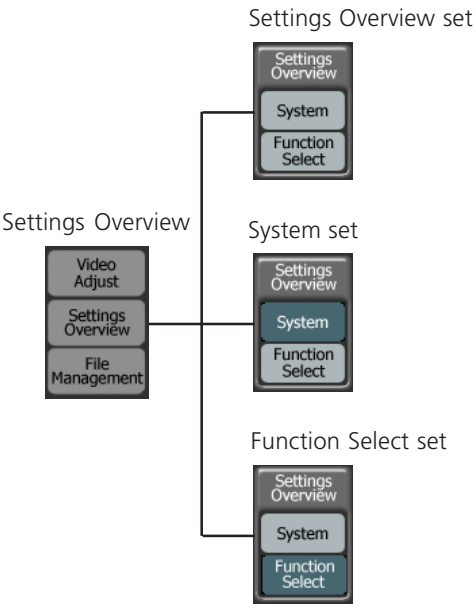
EXAMPLES



# Operating multiple cameras



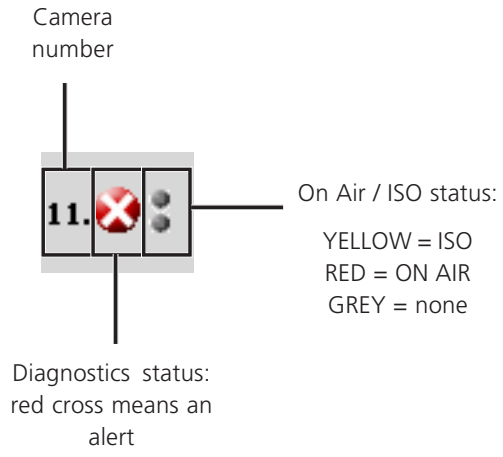




## Multiple camera mode

To switch to the multiple camera mode tap on the SETTINGS OVERVIEW button in the main menu. The lower part of the menu opens and three buttons are displayed, one of which is the SETTINGS OVERVIEW button, the other two are SYSTEM and FUNCTION SELECT.

## Monitoring cameras

At the left side the cameras are listed with their number, diagnostic and On Air status. Tap the Diagnostics button at the right side of the screen to see detailed information.




## Function sets

Each of the three buttons selects a set of functions that are displayed at top centre of the screen. If the selected set contains more functions than will fit on the screen use the round scroll buttons on the top and bottom to scroll through the functions.

### Settings Overview

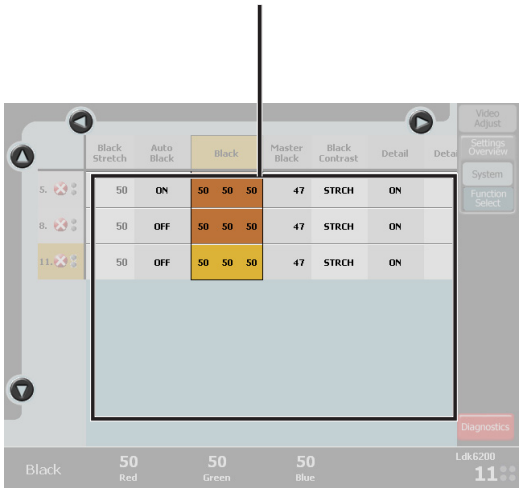
This set contains all main video functions. Note that the available groups depend on your camera type and version.

### System

This set contains all system functions like camera setup functions, diagnostics and file management.

### Function Select

A user programmable set of functions. When you tap this button a function select dialog will appear. For more information about defining your own set of functions please refer to the section 'Function Select'.




Function matrix

## Function matrix

The centre of the screen shows a part of the FUNCTION MATRIX that holds all the functions and values in the selected function set.

Note that the FUNCTION MATRIX can be much larger than the displayed area. Functions that are out of view can be accessed by scrolling through the functions using the scroll buttons at the top.

If there are more cameras than will fit on the screen you scroll through the camera using the scroll buttons at the right side of the matrix.

## Changing values

Tap the value displayed next to a switch function to change it. If there are only two values, tapping the value toggles between the two values. If there are more than two values, a list of values appears. Tap the value you want in the list.

If you select an analogue function, the values to be changed are shown above the rotary controls at the bottom of the screen.

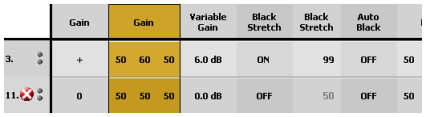
**Note**

If an item is unavailable it is shaded. For example, if a switch function is off, its associated analogue controls are shaded.

## Operating combined functions

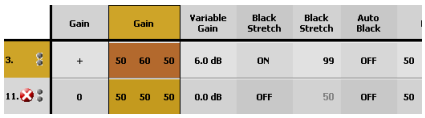
The matrix function setup in the multiple camera mode makes it possible to combine a function and operate it for multiple cameras simultaneously.

Click on a function at the top of the matrix. If you have selected more than one camera the row of values underneath the function is selected:



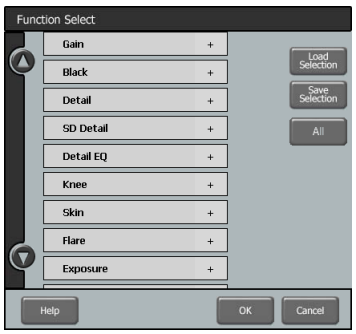

Combined function

Click on one of the values in the row: this value will become the master value, the values of all other cameras will follow its settings:




Select a master value

If the values are analogue they can be changed using the ROTARY CONTROLS at the bottom. If the values are select or toggle values, the selected value will be set for all camera the same.

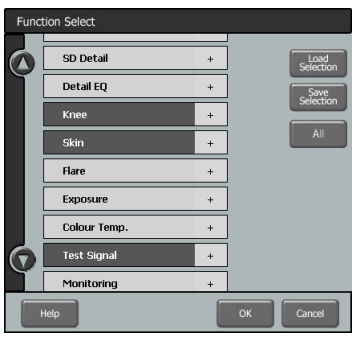



## Function selection

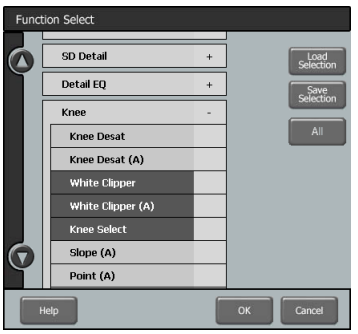
You can define your own set of functions by tapping the FUNCTION SELECT button in the single or the multiple camera mode. The following function selection window will open: You now see a list of all functions that can be controlled by the MCP.

☞ **Note**

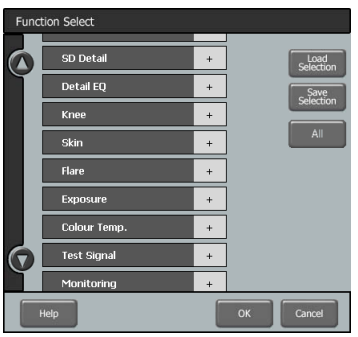
When the function selection window opens your current selection is erased! Reload your selection by tapping the LOAD SELECTION button.




Make a selection of function groups by tapping the name of the group in the list. Use the scroll button to go through the entire list. Tapping a selected item again unselects that item.




You can also select single functions within a group. Tap on the '+'-sign at the right side of an item to unfold a function group. Now you can select and unselect functions by tapping their names.




If you want to control all available functions tap the ALL button and the list of function groups will be selected.

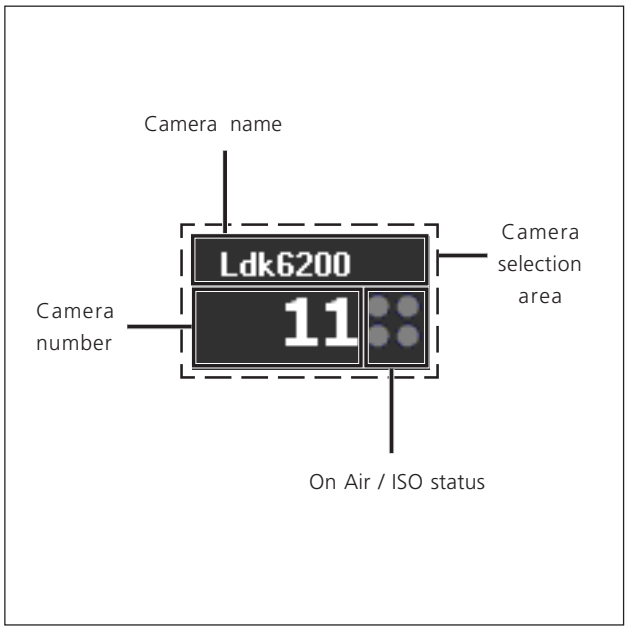
When you are done selecting functions and groups tap the SAVE SELECTION button and then the OK button to close the window.

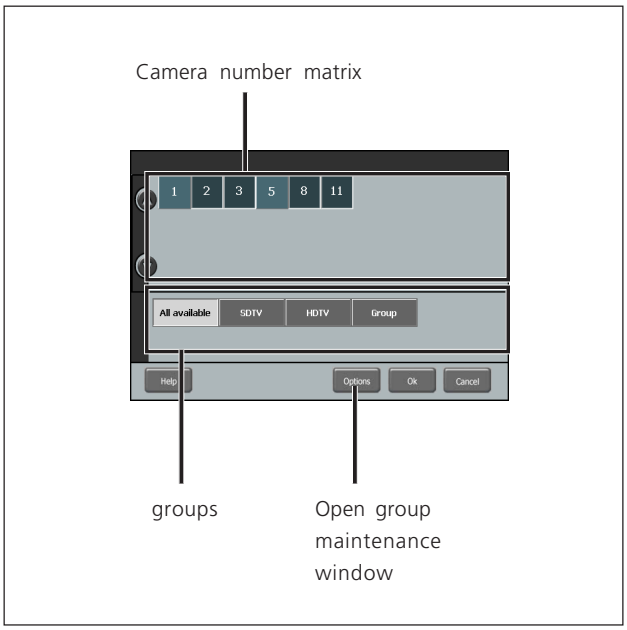
☞ **Note**

Remember always to save your selection by tapping the SAVE SELECTION button!

After closing this window the FUNCTION SELECT button will be highlighted and your selection of functions is now active.

# Camera selection




## Information display

In the lower right corner of the screen the current camera information is shown:

### Camera number

Logical system number of the current camera that is set in the base station.

### Camera name

Name of the current camera.

### ISO / On Air status

Normally grey, these four dots light up yellow when the camera has ISO status and they are red when the camera is On Air.

☞ **Note**

When in the multiple camera mode no camera is selected, the message 'select CAM' is shown.

## Selecting camera(s)

Tap anywhere in the lower right corner of the screen to open the camera selection window. You can now select one or more cameras or a predefined group of cameras.

The upper half of the window shows the numbers of the cameras within the selected group. The default group is the ALL AVAILABLE group that contains all available cameras in the system. If you have defined your own groups they will be shown here. Learn more about managing groups in the section 'camera groups'

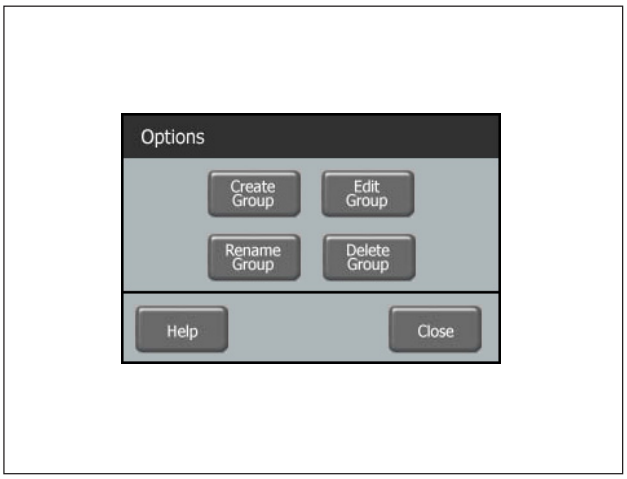
*In single camera mode:*

1. Tap a camera group to see the cameras in this group. Select the ALL AVAILABLE group to see all cameras in the system.
2. Select a camera by tapping its number in the camera matrix. This camera will immediately be selected and the camera selection window closes.

*In multiple camera mode:*

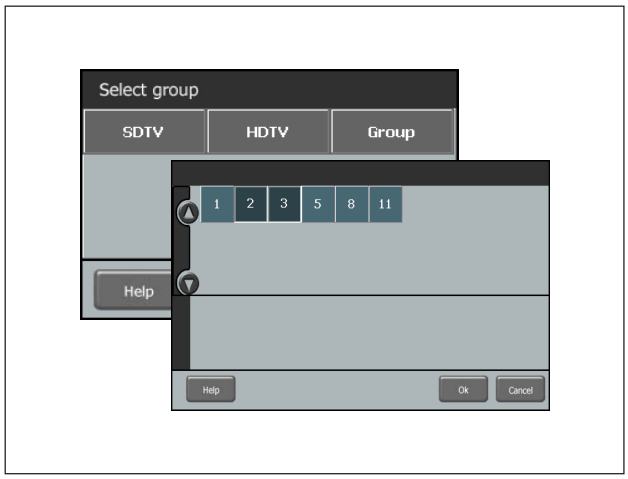
1. Tap a camera group and it will be immediately selected and the camera selection window closes, OR:
2. If a group was selected the camera selection windows displays all cameras in that group. You can make a new selection from the cameras. Tap the OK button to activate this selection.
3. Tap the ALL AVAILABLE button to show all cameras and make a selection by tapping camera numbers. When your are done, tap the OK button to activate the selection.

# Camera groups




## Managing groups

To make studio control easy, especially with large numbers of cameras in one system, you can define and maintain groups of cameras. Tap the OPTIONS button in the camera selection window to open the groups management window.

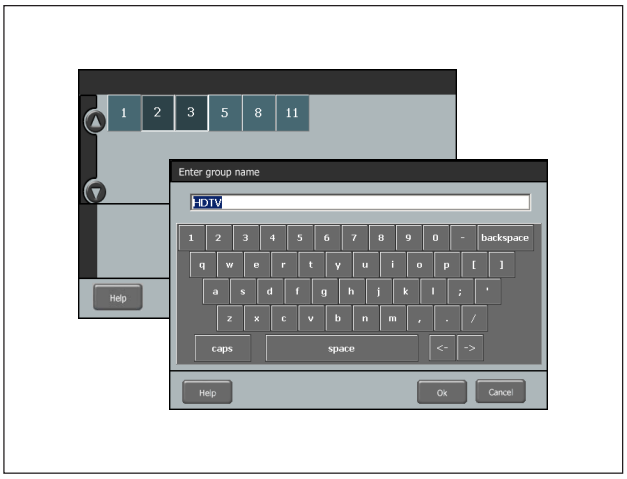



## Edit a group

To change the set of cameras in a group tap the EDIT GROUP button in the OPTIONS window and a list of existing groups will be displayed. Tap the name of the group you want to edit.

A list of all available cameras is shown. Cameras that are already in the selected group are highlighted. Make a new selection of cameras by selecting or unselecting their numbers.

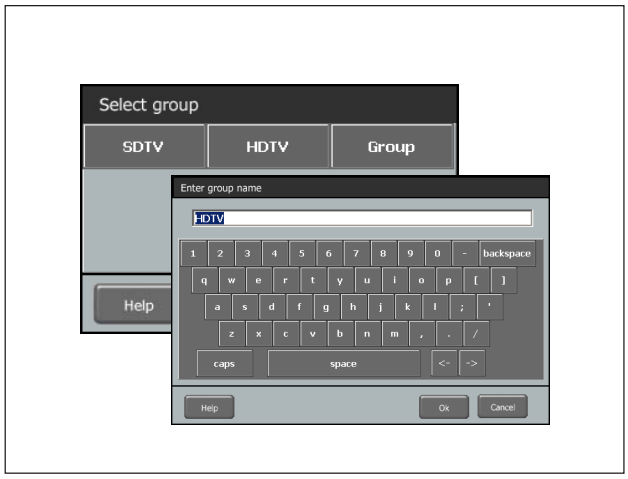
When you are done tap the OK button to return to the OPTIONS window.




## Create a new group

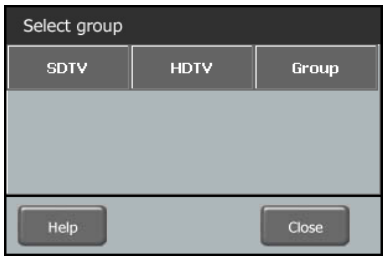
In the OPTIONS window tap the CREATE GROUP button to open a new window. A list of all available cameras is shown. Select the cameras you want to add to your group by tapping their numbers.

When you are done selecting cameras tap the OK button. Use the keyboard layout to enter a name for your new group. Tap the OK button to return to the OPTIONS window. Tap CLOSE to return to the camera selection window. Your new group has been added to the groups list.



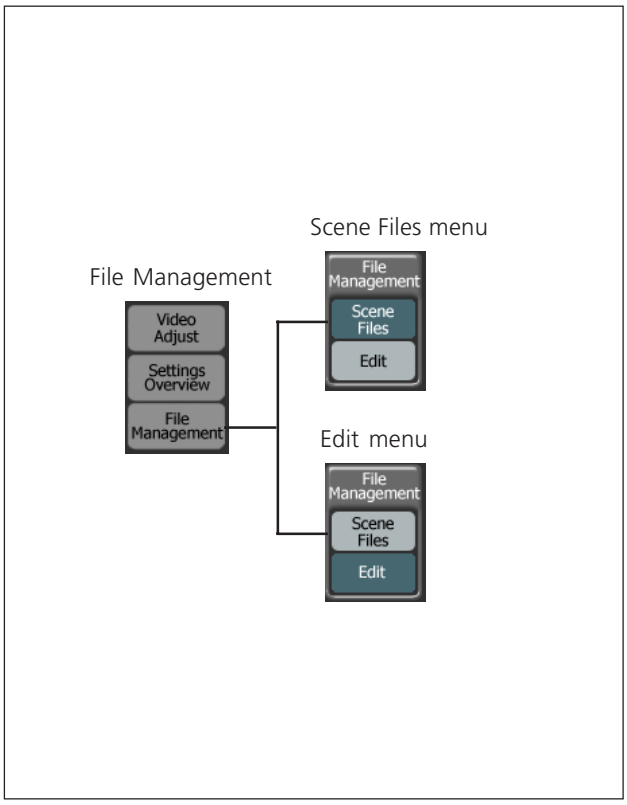

## Rename a group

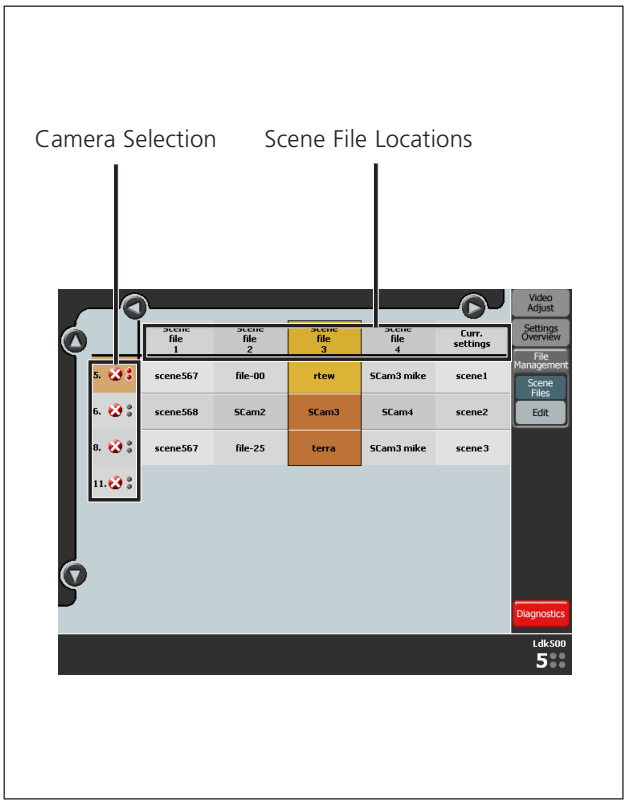
To change the name of a group within a group tap the RENAME GROUP button in the OPTIONS window and a list of existing groups will be displayed. Tap the name of the group you want to change and enter a new name in the keyboard window. Tap the OK button to return to the OPTIONS window.




## Delete a group

To delete an a group of cameras tap the DELETE GROUP button in the OPTIONS window. A list of existing groups will be displayed. Tap the name of the group you want to delete. The group is deleted immediately and the window closes.




## File Management

The MCP 400 has a file management system that enables the user to manage Camera Scene Files. Usually these files are only available within the camera but with File Management they can be transferred to and from a USB memory stick.

To access File Management tap on the FILE MANAGEMENT button in the main menu at the top right of the MCP 400 screen. The menu opens and two submenus appear: the Scene Files menu and the Edit menu.

## Scene Files menu

Scene files are sets of video functions and their parameters. A camera has 4 scene files and 2 standard files (factory and customer type). The MCP 400's File Management also regards the camera's current settings as a special Scene File.

Scene Files are stored in Scene File Locations in the camera or on a USB memory stick that is connected to the MCP 400. When the Scene Files menu is activated, a matrix windows appears. At the top the names of all 7 Scene File Locations are displayed (scroll to see them all):

| Scene file 1 | Scene file 2 | Scene file 3 | Scene file 4 | Curr. settings | Factory std. | Customer std. |
|---|---|---|---|---|---|---|
| scene567 | file-00 | rtew | SCam3 mike | scene1 | Factory std. | Cust std. |

### Scene File Location 1,2,3 and 4

Contain up to 4 scene files that can be recalled, stored or transported between the USB memory stick and the camera. Each file can have its own distinctive filename that provides information about the scene file or its contents.

### Current Settings Location

Holds a 'file-like' representation of the actual camera settings. It's name is copied from the most recently recalled or restored Scene File.

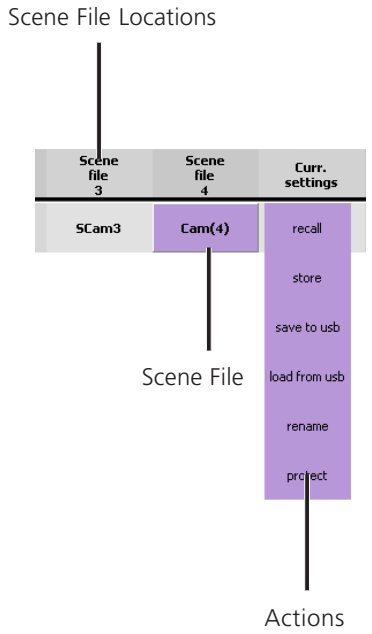
### Factory Standard File Location

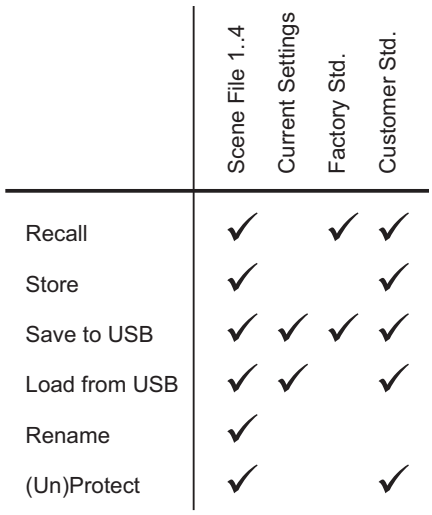
Holds a file named 'Fact.Std' that contains the factory default functions and parameters for the camera. Both the name and the contents cannot be changed.

### Customer Standard File Location

Holds a Customer Standard File that can be used to reset the camera to your own default values. The Customer Standard File can be managed like any of the 4 scene files execpt that its name is always 'Cust. Std.' to indicate that it is a Standard File.

# File management




Available actions for Scene File Locations

## Scene File actions

When you click on a filename in the matrix a drop-down menu appears showing the actions that are available for that file. On the next page you can find a summary and explanation of the actions.

## Recall

Copies the selected Scene File from its file location to the camera's Current Settings File.

☞ **Note**

It is not possible to Recall a Scene File while the camera is On Air. The message 'On Air!' is displayed.

## Store

Copies the camera's Current Settings File into the selected Scene File Location. This action is not available when the location is protected.

☞ **Note**

The existing file stored in this location will be deleted.

## Save to USB

Copies the Scene File from this location to the MCP 400's USB memory stick.

## Load from USB

Copies the Scene File from the MCP 400's USB memory stick into this location. This action is not available when the location is protected.

## Rename

Changes the name of the Scene File in this location. This action is not available when the location is protected.

☞ **Note**

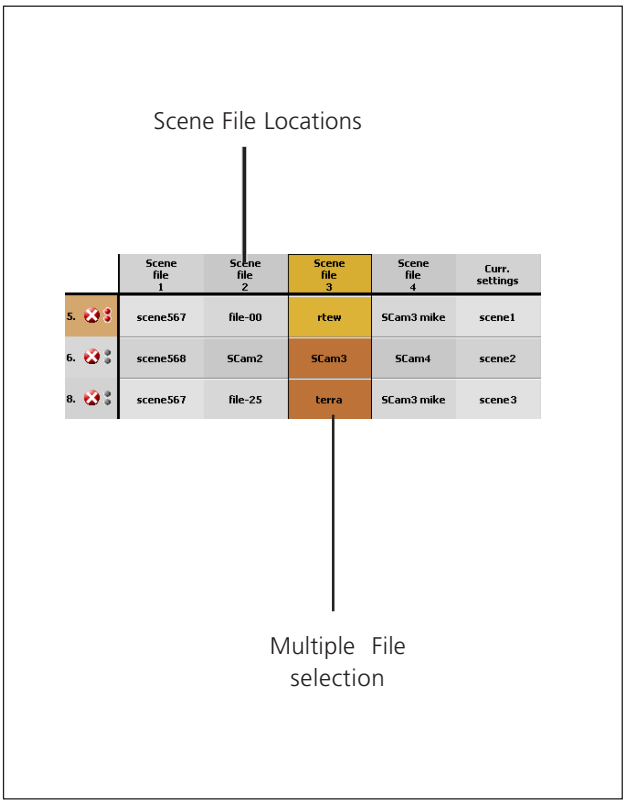
Files stored on the USB memory stick will not be renamed by this operation.

## Protect/Unprotect

Prevent a file from being overwritten the location can be protected. This action toggles between protected and unprotected status.

☞ **Note**

After a camera software update all scene file locations are empty and the current settings file is restored to the factory default settings. You can only Store, Load from USB and Rename a scene file location.




## Multiple File Control

To set up a number of cameras simultaneously select a row of Scene File Locations at the top of the matrix. Tap one of the Locations to open the action menu:

'Recall' and 'Store' are carried out for each selected camera individually.

'Save to USB' only saves the Scene File of the selected camera to the USB memory stick.

'Load from USB' loads a single Scene File from the USB memory stick into all Scene File Locations.

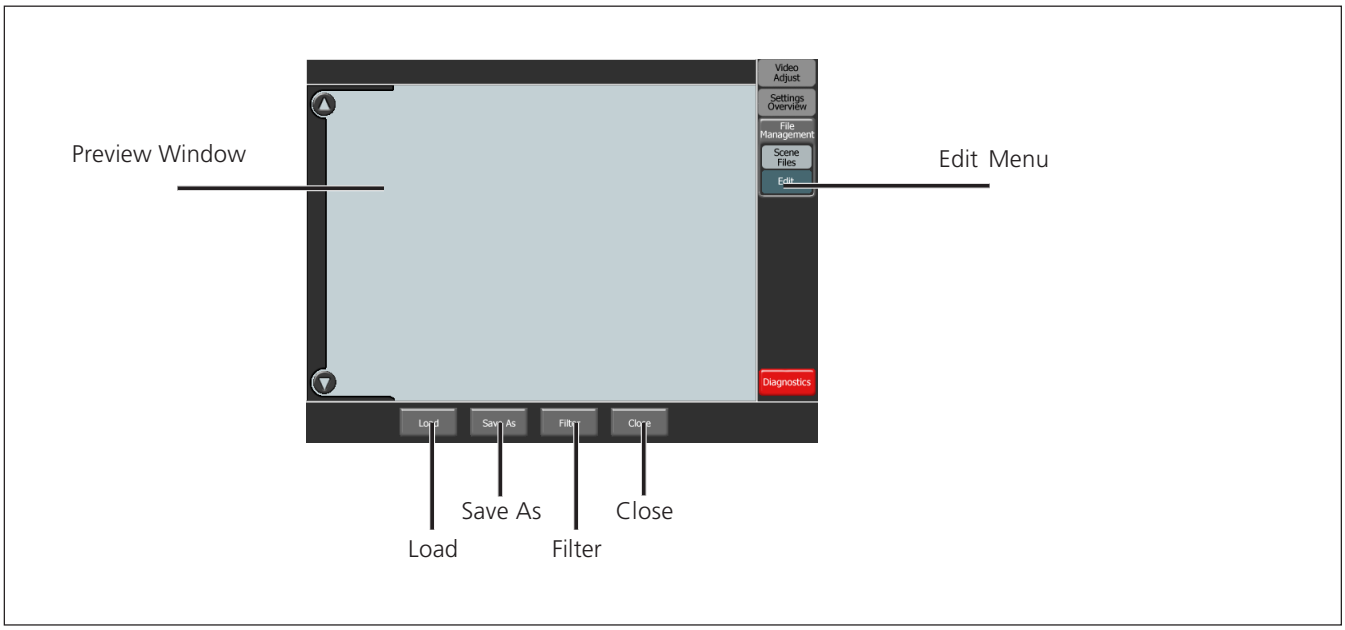
☞ **Note**

Be careful when loading a Scene File into the Current Settings: all cameras that are not On Air will immediately use the new settings.

'Rename' is carried out sequentially for all selected Scene Files.

'Protect/Unprotected' inverts the protection status of all Scene Files.

# File management: edit files

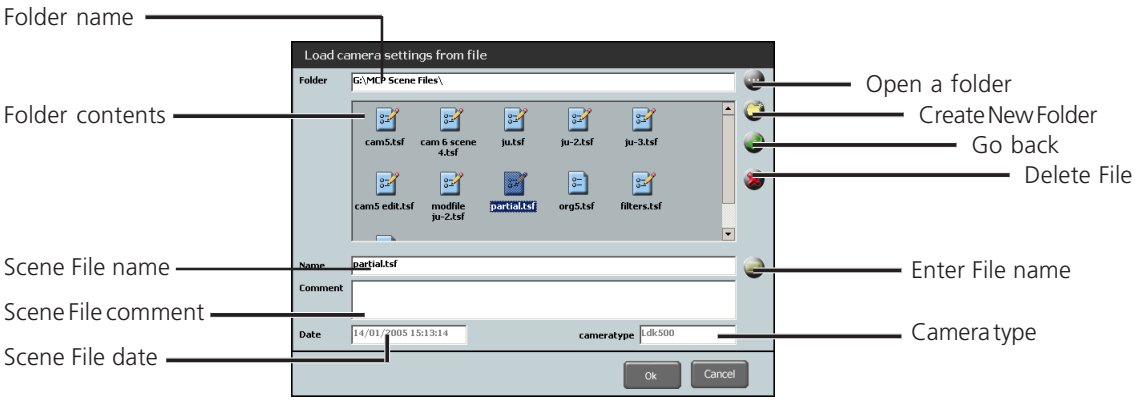



## Edit menu

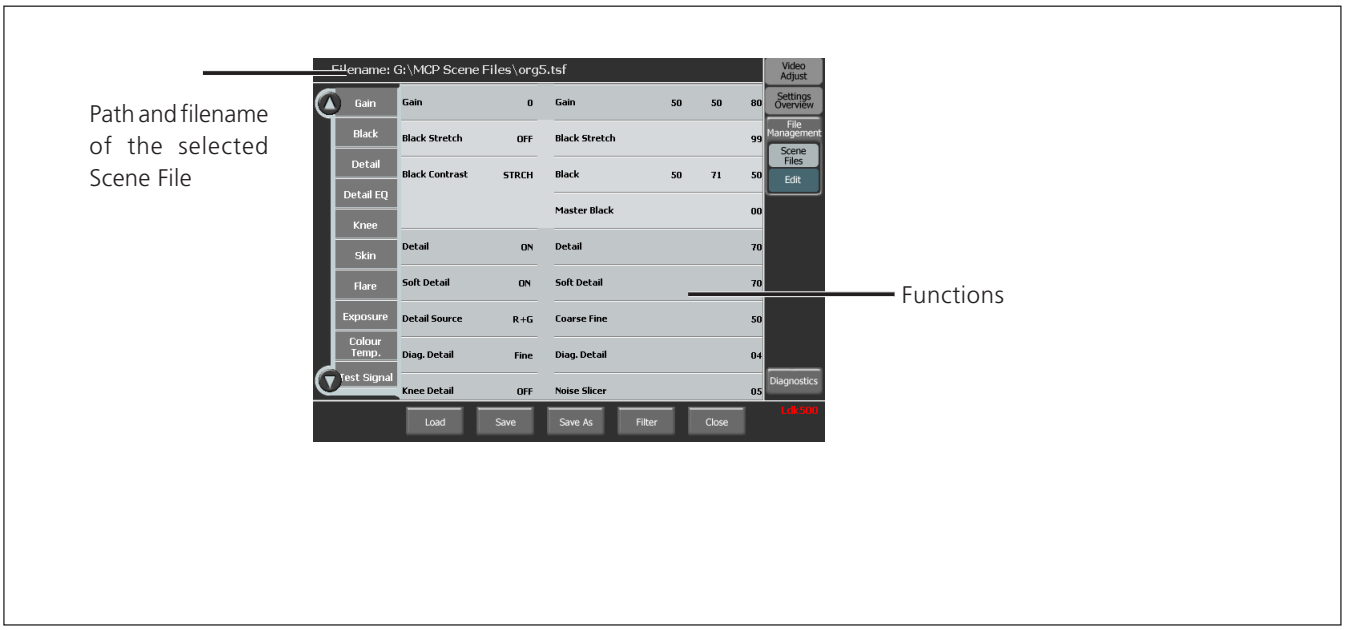
The second option in the File Management menu is the Edit menu. It is used to filter functions from a Scene File to build your own customized set of functions to load into the camera. Proceed as follows:

1. Tap the Edit menu in the File Management menu to open a new window. At the bottom you will see 4 buttons: Load, Save As, Filter and Close.
2. Be sure a USB memory stick is inserted into the MCP 400. Tap the Load button to open the File dialog window. The contents of the root folder of the USB memory stick appears.
3. In the Files window select a Scene File by tapping its icon.


4. Tap the 'OK' button to load the Scene File. The functions preview displays all functions that are in the Scene File.
5. Tap the 'Filter' button to open the Filter Menu. Select of unselect functions as described in chapter "Function Selection" on page 16 of this guide.



# File management: edit files

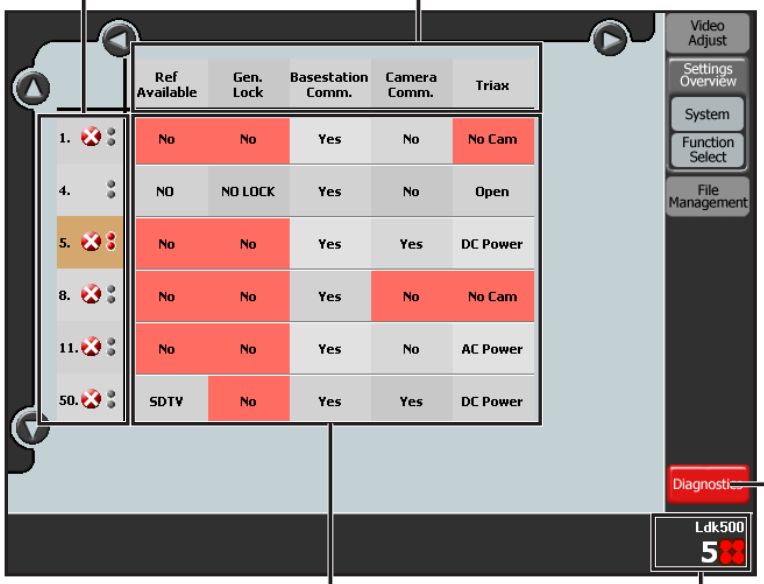



6. Tap the 'Save As' button to save your edited Scene File back to the USB memory stick. After saving the Scene File the icon changes to:


The pencil symbol indicates that this file is an edited file.

☞ **Note**

Edited Scene Files can only be used to load into the Current Settings File Location.




**Camera selection**
- displays your selection of cameras

**Diagnostic Parameters**
- information sources

**Diagnostics**
- provides a quick status overview of the system

**Camera selection**
- displays currently selected camera
- select one or more cameras
- define and maintain groups of cameras

**Diagnostics panel**
- view diagnostic values for all cameras in your selection

## Diagnostics

This screen provides diagnostics for the camera system. The diagnostic parameters are at the top of the screen and the current values and messages are below.

### Ref Available

Shows the video reference status at the basestation reference input. Can be SDTV, HDTV or No (warning highlight).

### Gen. Lock

Shows Gen. Lock status at the base station Gen. Lock input. Can be Yes, No Lock or No (warning highlight).

### Basestation Comm.

Shows the communication status between MCP and the camera basestation. Can be Yes or No (warning highlight).

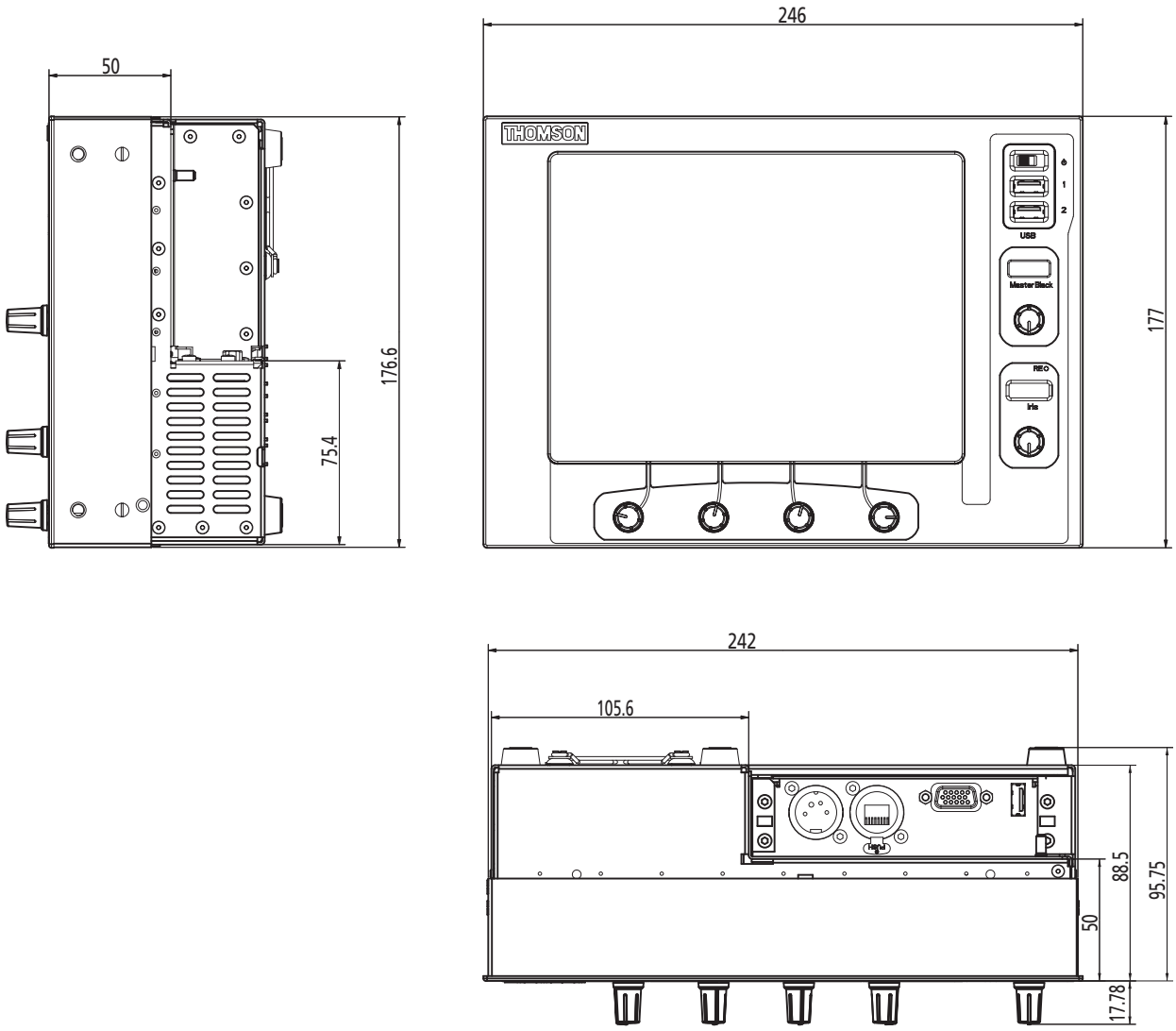
### Camera Comm.

Shows the communication status between MCP and the camera. Can be Yes or No (warning highlight).

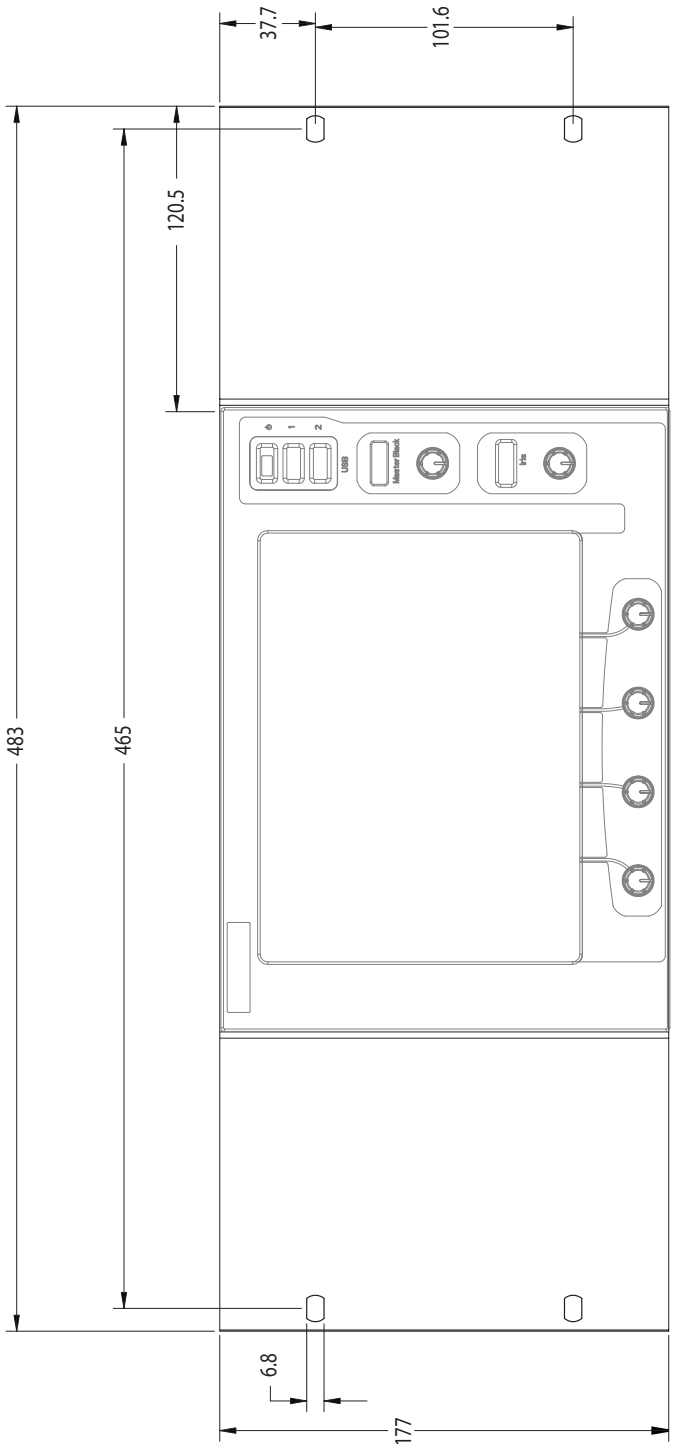
### Triax

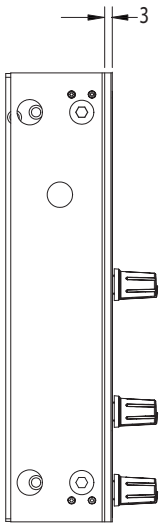
Shows Triax power status for the camers. Can be Open, AC Power, DC Power or No Cam (warning highlight).

# Dimensions


50
176.6
75.4
246
THOMSON
USB
Master Black
REC
Iris
177
242
105.6
88.5
95.75
50
17.78

# Rack mounting

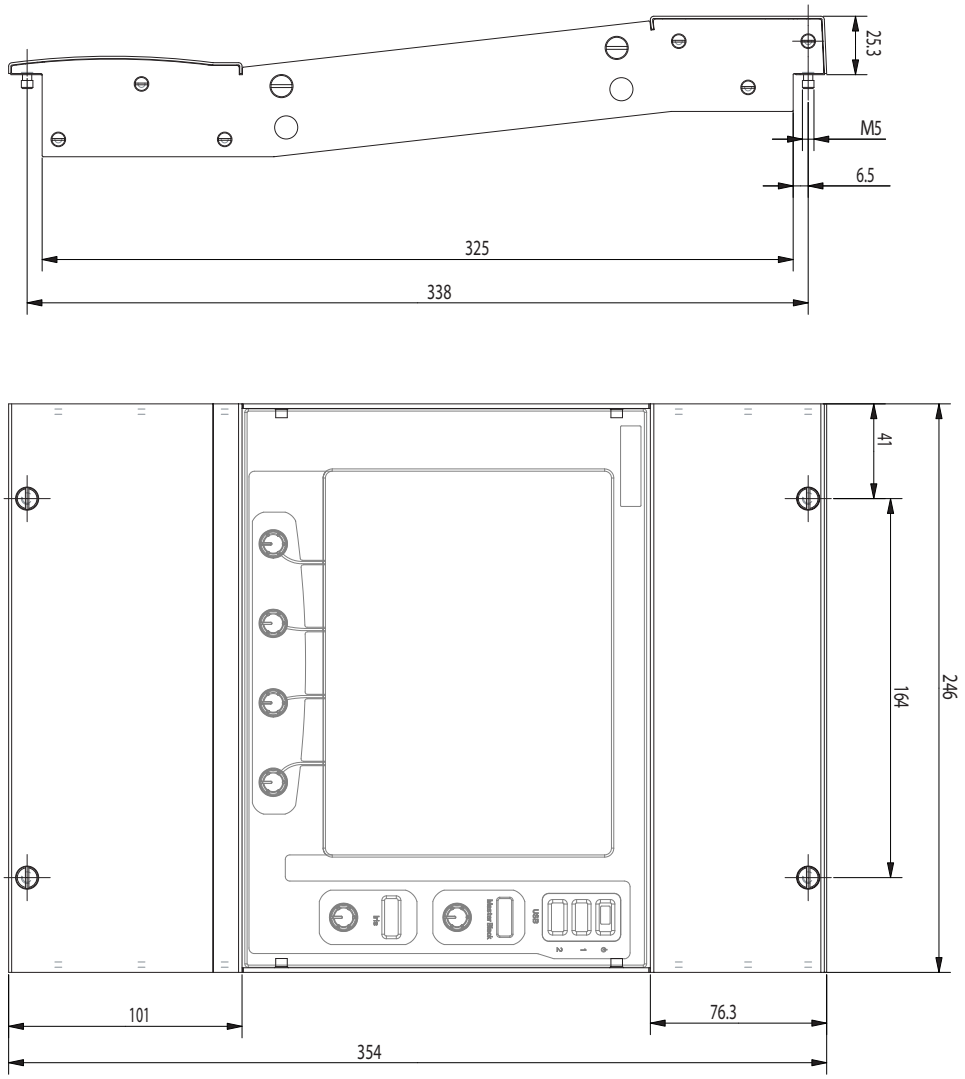



## Mounting accessory

LDK5230/00 19" Mounting brackets for MCP 400

# Desktop mounting




**Note**

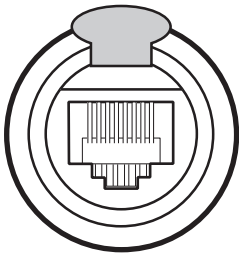
When mounting the MCP 400 using the desktop bracket, make sure that a distance of 96.0 mm underneath the bracket is needed to ensure proper mounting.

## Mounting accessory

LDK5235/00 Desktop mounting brackets for MCP 400

# Connectors

## Ethernet Connector - Panel View

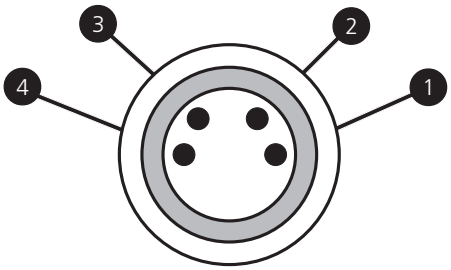


X222

**8-pin Standard Ethernet RJ-45 connector**

1. TX+
2. TX-
3. RX+
4. No connection
5. No connection
6. RX-
7. No connection
8. No connection

## Power input socket




X202

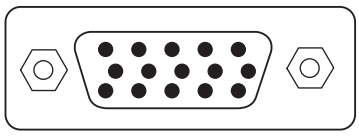
**XLR 4-pin male; panel view**

1. Ground
2. No connection
3. No connection
4. +12 Vdc input nominal (+11 Vdc to +17 Vdc)
   - Max. current 4.5A
   - Power consumption 30W max.

**CAUTION**

⚠ The input voltage must not exceed +17 Vdc.

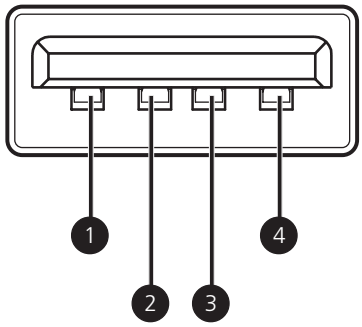
## VGA Connector



X208

**15-pin sub-D female,**
Standard VGA monitor signal

## USB Connector




X0000

**4-pin USB-type male,**

1. Vcc
2. Data (-)
3. Data (+)
4. Ground