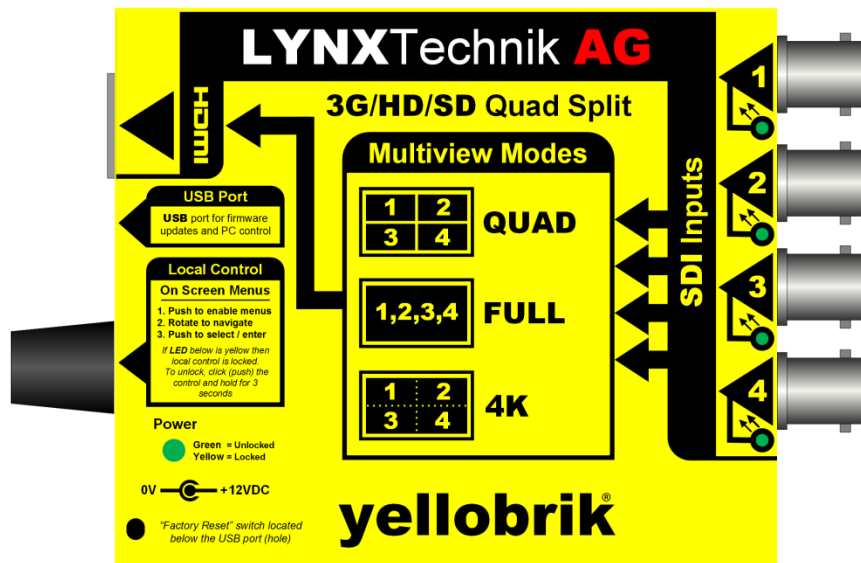# yellobrik®

Reference Manual

P MV 1841

3G/HD/SD Quad Split Multiviewer

Revision 1.1 – March 2016

LYNXTechnik AG®
Broadcast Television Equipment

| This Manual Supports Device Revisions:	
P MV 1841 Firmware Revision	728

Table of Contents

Product Description

The P MV 1841 is a 3G/HD/SD-SDI Quad Split MultiViewer with an HDMI output. In addition to the quad split functionality, the module can also accept a quad link 12G 4k.

The PMV 1841 is a compact quad split multiviewer ideal for applications needing basic quad split multiview capability into an HDMI monitor. Four SDI inputs are supported with a single HDMI output. The module has three basic modes of operation; Quad Split, Full Screen and 4K Monitoring.

The module is simple to setup and configure using the integrated local control and on screen menu system. All settings are automatically stored in flash RAM. USB is port is provided for firmware updates and also PC/MAC control using the yelloGUI application.

Controls and Connections
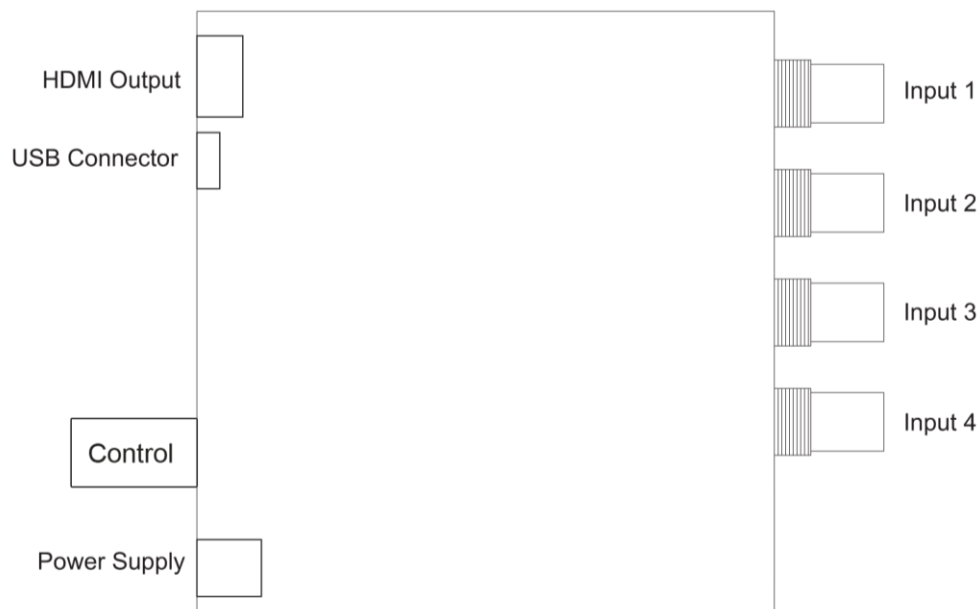
On Screen Menu

To access the on screen menu press the control knob on the side of the module (press and hold for 3 seconds if "lock" functionality is activated – see "General" for detailed description). Turn the control knob to navigate through the menu. To enter a desired menu press the knob again.
To get back to the lower menu level, press the knob while the "back" entry is highlighted.
The on screen menu will automatically switch off after 5 seconds if not used or you can use the Exit entry at the bottom of the root menu.

Multi

The settings for the multiview display can be adjusted in this menu.

```
┌─────────────────────────────────────────────────────┐
│          yellobrik – PMV1841 Quad Split               │
├─────────────────────────────────────────────────────┤
│                                                       │
│   Multi        ▶  │  ◀  Back                          │
│   Video           │     Layout              Quad      │
│   Text            │     Output Resolution   1080p50   │
│   Audio           │     Border Color        White     │
│   Markers         │                                   │
│   Scopes          │                                   │
│   Alarms          │                                   │
│   General         │                                   │
│   Exit            │                                   │
│                                                       │
│                                                       │
│                                                       │
└─────────────────────────────────────────────────────┘
```
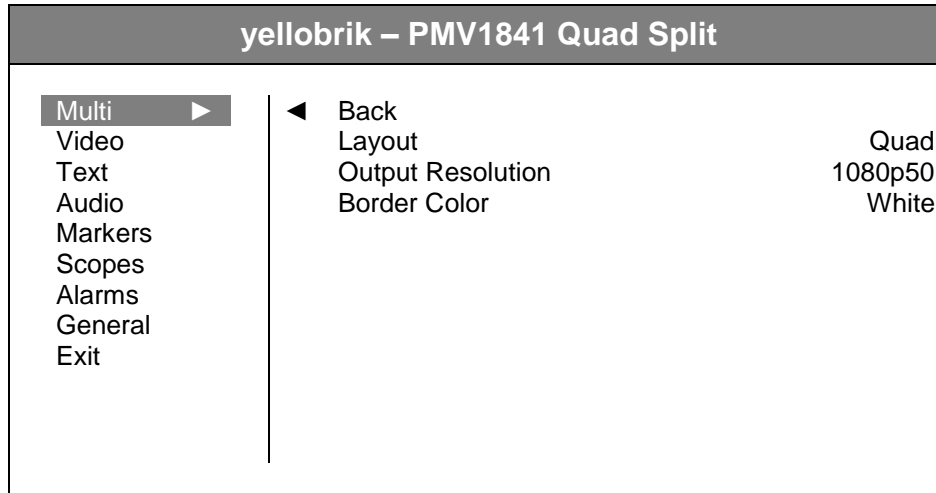
- **Layout**
  Sets the multiview layout and configuration.
    o **Quad**
      Classical quad split layout with all four input signals shown simultaneously.
    o **Full 1-4**
      Full image view of the selected input.
    o **4k UHD**
      Activating this mode will convert a quad link 12G 4k UHD (3840 x 2160) image to a 3G output image.
    o **4k DCI**
      Activating this mode will convert a quad link 12G 4k UHD (4096 x 2160) image to a 3G output image.

- **Border Color**
  Choose the color for the multiview borders (Black / Gray [1, 2, 3, 4, 5, 6, 7, 8] / White / Blue / Red / Magenta / Green / Cyan / Yellow).

- **HDMI**
    o **Output Resolution**
      Sets the output resolution of the HDMI output.
        ▪ 1080p 60 / 50 / 30 / 25
        ▪ 1080i 60 / 50
        ▪ 720p 60 / 50
    o **Bit Depth**
      Sets the bit depth of the HDMI output
        ▪ Auto
        ▪ 8 Bit
        ▪ 10 Bit
        ▪ 12 Bit

- o **Color Range**
  Sets the color range of the HDMI output
    - Auto
    - Limited
    - Full
- o **Color Space**
  Sets the color space of the HDMI output
    - Auto
    - RGB
    - YCbCr 4:2:2
    - YCbCr 4:4:4
- o **IT Content**
  Sets the IT content of the HDMI output
    - No Data
    - Graphics
    - Photo
    - Cinema
    - Game
- o **Quad Audio Src**
  Selects the audio source that is embedded into the HDMI output when in quad view (in full view the audio of the selected input will automatically be embedded)
    - Input 1 – 4
- o **Testpattern**
  The PMV1841 has an internal test pattern generator. Selecting a testpattern will output this instead of the video input. The output standard is determined by the HDMI Output Resolution setting.
    - 100% Colorbar
    - 75% Colorbar
    - Grey Scale
    - White
    - Green
    - Red
    - Blue
    - Black
    - Pludge
    - Cross Hatch

- **Back**
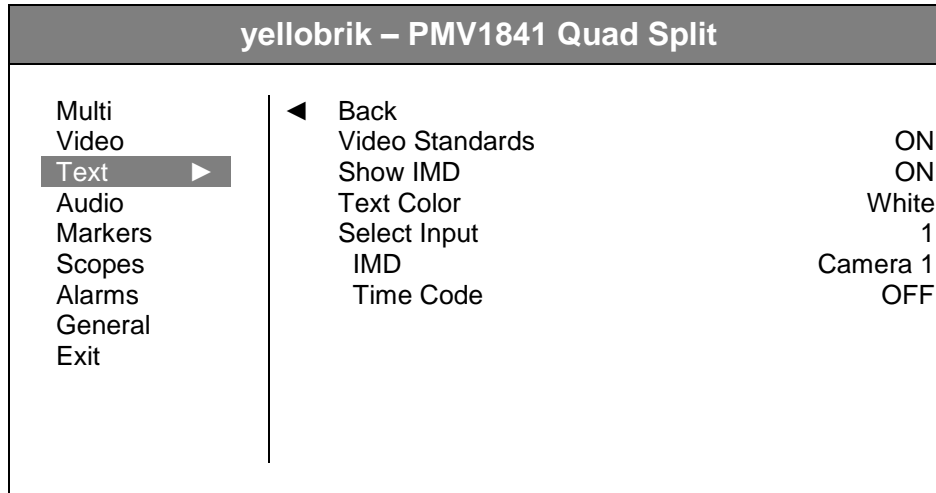 Select "back" to return to the root menu.

Video

In this menu the individual input images can be configured.

```
┌─────────────────────────────────────────────────────────────┐
│            yellobrik – PMV1841 Quad Split                     │
├─────────────────────────────────────────────────────────────┤
│   Multi            ◄   Back                                   │
│   Video        ►       Select Input                      1    │
│   Text                   Display Video                   ON    │
│   Audio                  Size                           000    │
│   Markers                H-Pos                          000    │
│   Scopes                 V-Pos                          000    │
│   Alarms                 Aspect Ratio                   16:9   │
│   General                                                     │
│   Exit                                                        │
│                                                               │
│                                                               │
│                                                               │
└─────────────────────────────────────────────────────────────┘
```
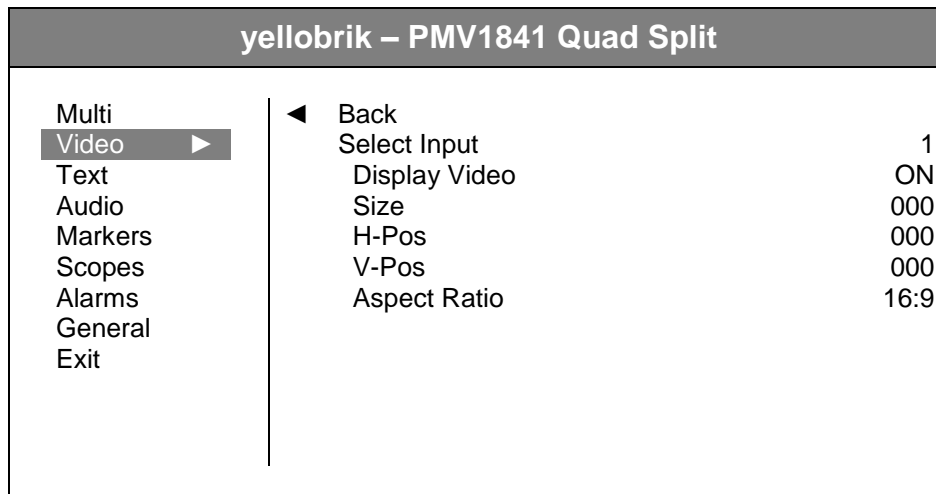
- **Select Input**
  Choose the input (1 – 4) which the following should affect.

- **Display Video**
  Turn the selected input ON or OFF. When turned OFF, the video won't be displayed even if a valid signal is connected.

- **Size**
  Adjusts the size (255 – 150) of the image while maintaining the aspect ratio. The overlay features will not be scaled. The fixed position overlays (e.g. IMD, video standards display, time code, alarms etc.) will be moved outside of the image when scaling.

- **H-Pos**
  Adjusts the horizontal position (0 – 105) of the image. This parameter depends on the size adjustment. If the image is full size, the H-Pos parameter does not have an effect. In addition to this, the range of this parameter that has an effect depends on the amount that the size has been reduced e.g. if the size has been reduced to 200 the range of the H-Pos that has an influence on the image is from 0-55.

- **V-Pos**
  Adjusts the vertical position (0 – 105) of the image. The behavior and range of tis parameter is the same as the H-Pos parameter.

- **Aspect Ratio**
  Adjusts the aspect ratio (16:9 / 4:3) of the image.

- **Back**
  Select "back" to return to the root menu.

Text

Activate and adjust the text overlays.

```
┌──────────────────────────────────────────────────────┐
│              yellobrik – PMV1841 Quad Split            │
├──────────────────────────────────────────────────────┤
│   Multi           ◄   Back                             │
│   Video               Video Standards            ON    │
│   Text        ►       Show IMD                   ON    │
│   Audio               Text Color              White    │
│   Markers             Select Input                1    │
│   Scopes               IMD                  Camera 1   │
│   Alarms               Time Code               OFF     │
│   General                                              │
│   Exit                                                 │
│                                                        │
│                                                        │
│                                                        │
└──────────────────────────────────────────────────────┘
```

- **Video Standards**
  Turn the video standard burn-in for all inputs ON or OFF.

- **Show IMD**
  Turn the IMD (In Monitor Display) for all the inputs ON or OFF.

- **Text Color**
  Choose the color of the text (Black / Gray [1, 2, 3, 4, 5, 6, 7, 8] / White / Blue / Red /
  Magenta / Green / Cyan / Yellow). The text color for all the inputs will be affected.

- **Select Input**
  Choose the input (1 – 4) which the following should affect.

- **IMD**
  Edit the xx character IMD text for the selected input. The IMD provides up to 16
  characters.

- **TimeCode**
  Turn the ATC time code burn-in ON or OFF for the selected input.

- **Back**
  Select "back" to return to the root menu.

Audio

This menu provides settings for the audio level meters for the individual inputs.

```
┌─────────────────────────────────────────────────────────┐
│             yellobrik – PMV1841 Quad Split               │
├─────────────────────────────────────────────────────────┤
│  Multi              ◄   Back                             │
│  Video                  Select Input                1   │
│  Text                     Audio Meters             ON   │
│  Audio       ►            No. of Channels           8   │
│  Markers                  H-Pos                   000   │
│  Scopes                   V-Pos                   000   │
│  Alarms                   Meter Size            Small   │
│  General                Test Level           -18dBFS   │
│  Exit                   PGM Level             -9dBFS   │
│                                                         │
│                                                         │
│                                                         │
└─────────────────────────────────────────────────────────┘
```

- **Select Input**
  Choose the input (1 – 4) which the following should affect.

- **Audio Meters**
  Turn the audio level meters ON or OFF for the selected input.

- **No. of Channels**
  Select the number of audio channels (4 / 8 / 16) for the audio level meter of the selected input.

- **H-Pos**
  Adjusts the horizontal position (0 – 255) of the audio level meter.

- **V-Pos**
  Adjusts the vertical position (0 – 255) of the audio level meter.

- **Meter Size**
  Choose between a small or large size of the audio level meter.

- **Test Level**
  Adjust the threshold of the yellow test level indication (-60dBFS – 0dBFS). This setting affects the audio level meters of all the inputs.

- **PGM Level**
  Adjust the threshold of the red peak program level indication (-60dBFS – 0dBFS). This setting affects the audio level meters of all the inputs.

- **Back**
  Select "back" to return to the root menu.

Markers

Activate and adjust the markers for the individual inputs.

```
┌─────────────────────────────────────────────────────────┐
│            yellobrik – PMV1841 Quad Split                 │
├─────────────────────────────────────────────────────────┤
│   Multi          ◄   Back                                 │
│   Video              Select Input                      1  │
│   Text                 Center Cross                   ON  │
│   Audio                Safe Area                      85  │
│   Markers    ►         Aspect Ratio                 User  │
│   Scopes                 Horizontal Markers          000  │
│   Alarms                 Vertical Markers            000  │
│   General            Markers Color                 White  │
│   Exit               Curtain Transparency            Med  │
│                                                           │
│                                                           │
│                                                           │
└─────────────────────────────────────────────────────────┘
```

- **Select Input**
  Choose the input (1 – 4) which the following should affect.

- **Center Cross**
  Turn the center cross ON or OFF.

- **Safe Area**
  Activate the safe area display. Choose between various safe area markers (80 / 85 / 88 / 90 / 93).

- **Aspect Ratio**
  Choose between a long list of displayable aspect ratio markers (16:9 / 4:3 / 15:9 / 14:9 / 13:9 / 1.85:1 / 2.35:1 / 1.85:1 + 4:3 / User)

- **Horizontal Markers**
  Adjusts the position (0 – 255) of the horizontal user markers. Aspect Ratio needs to be set to "User" for this adjustment to have an effect.

- **Vertical Markers**
  Adjusts the position (0 – 255) of the vertical user markers. Aspect Ratio needs to be set to "User" for this adjustment to have an effect.

- **Markers Color**
  Choose the color of the markers (Black / Gray [1, 2, 3, 4, 5, 6, 7, 8] / White / Blue / Red / Magenta / Green / Cyan / Yellow). The markers color of all the inputs will be affected.

- **Curtain Transparency**
  This control adjusts the transparency of the area outside of the markers (Full / Max / Med / Min). This adjustment of the curtain transparency will affect all inputs.

- **Back**
  Select "back" to return to the root menu.

Scopes

This menu provides settings for the waveform and vector scope displays for each input individually.

```
┌─────────────────────────────────────────────────────┐
│            yellobrik – PMV1841 Quad Split            │
├─────────────────────────────────────────────────────┤
│   Multi          ◄   Back                            │
│   Video              Select Input                1   │
│   Text                 Waveform                  ON  │
│   Audio                  Type                    RGB │
│   Markers                H-Pos                   000 │
│   Scopes      ►          V-Pos                   000 │
│   Alarms                 Size                    Small│
│   General              Vectorscope               OFF │
│   Exit                   H-Pos                   000 │
│                          V-Pos                   000 │
│                          Size                    Small│
│                        Transparency              OFF │
└─────────────────────────────────────────────────────┘
```

- **Select Input**
  Choose the input (1 – 4) which the following should affect.

- **Waveform**
  Turn the waveform display ON or OFF for the selected input.

- **Type**
  Select the type of waveform (RGB / R / G / B / YCbCr / Y / Cb / Cr) that is to be displayed.

- **H-Pos**
  Adjusts the horizontal position (0 – 255) of the waveform display.

- **V-Pos**
  Adjusts the vertical position (0 – 255) of the waveform display.

- **Size**
  Choose between a small or large size of the waveform display.

- **Vector**
  Turn the vector scope display ON or OFF for the selected input.

- **H-Pos**
  Adjusts the horizontal position (0 – 255) of the vector scope display.

- **V-Pos**
  Adjusts the vertical position (0 – 255) of the vector scope display.

- **Size**
  Choose between a small or large size of the vector scope display.

- **Scope Transparency**
  Adjust the transparency (OFF / Min / Med / Max) of the scopes.

- **Back**
  Select "back" to return to the root menu.

Alarms

This menu provides settings for alarm indications for each individual input.

yellobrik – PMV1841 Quad Split		
Multi	◄ Back	
Video	Select Input	1
Text	No Input	OFF
Audio	Black	OFF
Markers	No Audio	OFF
Scopes	Silence Audio Ch.	1
Alarms ►	No Input Color	Red
General	Black Color	Red
Exit	Black Duration	5s
	Audio Color	Red
	Silence Duration	5s
	Silence Threshold	-30dBFS

- **Select Input**
  Choose the input (1 – 4) which the following should affect.

- **No Input**
  Turn the "No Input" alarm indication ON or OFF for the selected input. This alarm indicates a missing SDI input signal.

- **Black**
  Turn the "Black" alarm indication ON or OFF for the selected input. This alarm indicates if the content of the video is black.

- **No Audio**
  Turn the "No Audio" alarm indication ON or OFF for the selected input. This alarm indicates if no audio is embedded in the SDI input.

- **Silence Audio Ch.**
  Activate the "Silence Audio Ch." alarm indication for the selected input by selecting the audio channel that is to be monitored (1 – 16).

- **No Input Color**
  Choose the color of the "No Input" alarm (White / Yellow / Cyan / Green / Magenta / Red / Blue / Black). This setting will affect all inputs.

- **Black Color**
  Choose the color of the "Black" alarm (Black / Blue / Green / Red / Cyan / Magenta / Yellow / White). This setting will affect all inputs.

- **Black Duration**
  Setup the time (0s – 60s) that the module should wait until it triggers the "Black" alarm. This setting will affect all inputs.

- **Audio Color**
  Choose the color of the Audio alarms (No Audio and Silence) (Black / Blue / Green / Red / Cyan / Magenta / Yellow / White). This setting will affect all inputs.

- **Silence Duration**
  Setup the time (0s – 60s) that the module should wait until it triggers the "Silence" alarm. This setting will affect all inputs.

- **Threshold**
  Define the audio level threshold (-60dBFS – 0dBFS) for the "Silence" alarm. This setting will affect all inputs.

- **Back**
  Select "back" to return to the root menu.

General

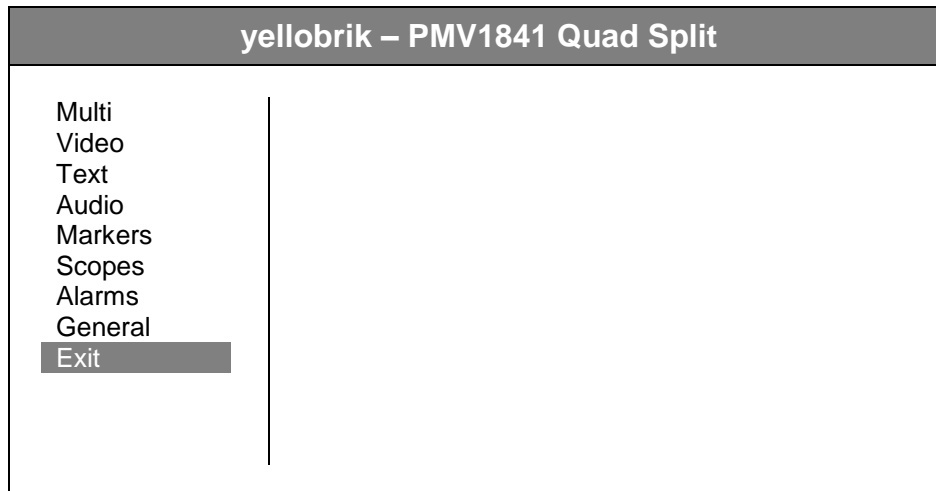This menu provides general settings and information for the device.

```
┌─────────────────────────────────────────────────────────┐
│            yellobrik – PMV1841 Quad Split               │
├─────────────────────────────────────────────────────────┤
│  Multi            ◄  Back                                │
│  Video               OSD H-Pos                    000   │
│  Text                OSD V-Pos                    000   │
│  Audio               OSD Transparency             OFF   │
│  Markers             OSD Lock                      ON   │
│  Scopes              Factory Reset                      │
│  Alarms              Serial Number                999   │
│  General    ►        SW Version                   699   │
│  Exit                                                   │
│                                                         │
│                                                         │
│                                                         │
└─────────────────────────────────────────────────────────┘
```

- **OSD H-Pos**
  Adjusts the horizontal position (0 – 255) of the on screen display.

- **OSD V-Pos**
  Adjusts the vertical position (0 – 255) of the on screen display.

- **OSD Transp**
  Adjust the transparency (OFF / Min / Med / Max) of the on screen display.

- **OSD Lock**
  Activating this function will lock the OSD to avoid accidently turning the menu on by knocking the control encoder. To indicate the activated "Lock" functionality the general status LED of the module will be amber.
  To access the "locked" menu press and hold the control encoder for 3 seconds.

- **Factory Reset**
  Reset the module to the factory default configuration.

- **Serial Number**
  Displays the serial number of the module.

- **SW Version**
  This entry will display the software version that the module is running on. To update the software, download the latest yelloGUI software from our homepage (www.lynx-technik.com) and connect the module via USB to the computer running the software (the module needs to be powered in order to update).

- **Back**
  Select "back" to return to the root menu.

Exit

Pressing this entry will turn the on screen menu off.

```
┌─────────────────────────────────────────────────────────────┐
│            yellobrik – PMV1841 Quad Split                   │
├──────────────────┬──────────────────────────────────────────┤
│   Multi          │                                          │
│   Video          │                                          │
│   Text           │                                          │
│   Audio          │                                          │
│   Markers        │                                          │
│   Scopes         │                                          │
│   Alarms         │                                          │
│   General        │                                          │
│   Exit           │                                          │
│                  │                                          │
│                  │                                          │
└──────────────────┴──────────────────────────────────────────┘
```

yelloGUI Compatible

The P MV 1841 can also be setup / controlled via USB using a PC or MAC with the yelloGUI software application which can be downloaded from our website.
www.lynx-technik.com

Warranty

LYNX Technik AG warrants that the product will be free from defects in materials and workmanship for a period of two (3) years from the date of shipment. If this product proves defective during the warranty period, LYNX Technik AG at its option will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, customer must notify LYNX Technik of the defect before expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by LYNX Technik, with shipping charges prepaid. LYNX Technik shall pay for the return of the product to the customer if the shipment is within the country which the LYNX Technik service center is located. Customer shall be responsible for payment of all shipping charges, duties, taxes and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure, or damage caused by improper use or improper or inadequate maintenance and care. LYNX Technik shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than LYNX Technik representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of non LYNX Technik supplies; or d) to service a product which has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty servicing the product.

THIS WARRANTY IS GIVEN BY LYNX TECHNIK WITH RESPECT TO THIS PRODUCT IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. LYNX TECHNIK AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. LYNX TECHNIK`S RESPONISIBILITY TO REPAIR AND REPLACE DEFECTIVE PRODUCTS IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. LYNX TECHNIK AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER LYNX TECHNIK OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Regulatory information

Europe

Declaration of Conformity

We　　　　LYNX Technik AG
　　　　　　Brunnenweg 3
　　　　　　D-64331 Weiterstadt
　　　　　　Germany
Declare under our sole responsibility that the product

　　TYPE: **P MV 1841**

To which this declaration relates is in conformity with the following standards (environments E1-E3):
　　EN 55103-1 /1996
　　EN 55103-2 /1996
　　EN 60950-1 /2006
Following the provisions of 89/336/EEC and 73/23/EEC directives.

Winfried Deckelmann

Weiterstadt, August 2015

Place and date of issue　　　　*Legal Signature*

USA

FCC 47 Part 15

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Specifications

SDI Video Input	
Number of Inputs	4x SDI video on 75 Ohm BNC connector
Supported Standards	SMPTE ST 259M (SDTV) SMPTE ST 292-1 (HDTV 1,5 Gb/s) SMPTE 424 M (3Gb/s) supporting ST 425-1 Level A and Level B-DL
4k Quad Link Standards	UHD 3840 x 2160 DCI 4096 x 2160
Return Loss	> 15dB to 1.5GHz and > 10dB up to 3GHz
Cable Length	Automatic cable EQ (Belden 1694A cable) 340m @ 270Mbit/s, 150m @ 1.5Gbit/s, 120m @ 3Gbit/s
HDMI Video Ouputs	
Number of Outputs	1x HDMI on Type A connector
HDMI Standard	1.4a
Embedded Audio	2 Channels of selected Input for full view
Local Control	
Type of control	On Screen Menu
Control	Rotary Push Encoder
Processing	
Input to Output Delay	1 Frame
USB	
Connector	Standard USB port for yelloGUI interface and firmware updates (Mini Type "B" plug)
Physical	
Size	138mm x 90mm x 22mm (5.13" x 3.54" x 0.86") including connectors
Weight	230g (8.11oz)
Power	
Consumption	+12VDC @ 4.9W nominal
Power Input Range	supports 10 - 14VDC
Ambient	
Temperature	5 – 40°C (41 – 104°F)
Humidity	90% Humidity (non condensing)

Getting Help

Support Contact

If the module isn't working as expected, or have questions please contact your local distributor, authorized dealer or reseller for more details. Please do not return products to LYNX without an RMA.

For FAQs and Technical support visit **http://support.lynx-technik.com**

LYNX Technik Knowledge Base

Frequently asked questions

General Product Info

General product information is available on **http://www.lynx-technik.com**

Contact Information

Please contact your local distributor; this is your local and fastest method for obtaining support and sales information.

LYNX Technik can be contacted directly using the information below.

Address   LYNX Technik AG
                   Brunnenweg 3
                   D-64331 Weiterstadt
                   Germany

Website   www.lynx-technik.com

E-Mail   info@lynx-technik.com

LYNX Technik manufactures a complete range of high quality modular products for broadcast and Professional markets, please contact your local representative or visit our web site for more product information.

LYNXTechnik **AG**
Broadcast Television Equipment