Mentor RG
Mentor CX
Quick Start Guide

trilogy

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This guide is intended as a Quick Start Reference only. Comprehensive information covering the products is provided on the accompanying CD.

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First Steps

- Carefully unpack all items and inspect for any transit damage.
- Locate the despatch note (one per consignment) and check that all items match your purchase order.
- You may find it helpful to record the serial numbers in a safe place. They may be required later if additional software options are purchased.
- Connect 1 or 2 IEC mains cables to each unit.
    - The power supplies are auto sensing for input voltages from 100 – 240 VAC. There is no power switch: the unit will power-up immediately.
    - The two power supplies provide main and backup operation. If only one is connected, the unit will show an alarm message under the Status menu.
- The Mentor RG boot cycle takes approximately 60 seconds: when ready, the display screen shows:

MENTOR RG Main Menu
<SDI> AV Audio Lock Setup Status

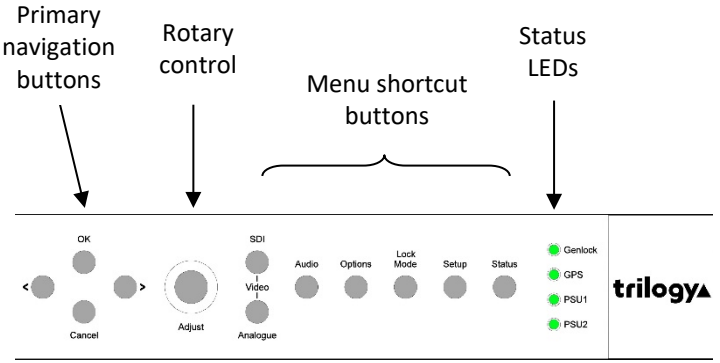
- Mentor CX takes around 5 seconds to boot.
- Both Mentor CX and RG include Vector web based management. These are now integrated and the Mentor CX landing page provides a comprehensive status overview.

Mentor RG - Connections

- Connect video cables according to the rear panel legend.
- Wiring details for the D-type multi-way connectors are given on pages 10 and 11 of this guide.
- Separate fault loops are provided on the 25 pin connector to indicate power supply or fan failure. These should be connected to an external monitoring system or to the Mentor CX.
- For management and configuration using Vector, the browser based set-up and management utility, the Mentor RG should be connected to a local area network, using a standard CAT 5 Ethernet cable (not supplied).
- Although DHCP support is also offered, a static IP address is recommended.
- When first powered up, the Mentor RG is configured with static IP address settings. If the factory default IP address is not suitable, your first task is to change it to match your local network environment. See page 12 of this guide for more information.

Mentor RG - Using the Front Panel Controls

- Use the left – right arrow buttons < >, or the rotary control to navigate the menus.
- Press OK to select an option, or to go deeper into the menu.
- Press Cancel to exit the current menu level and return towards the top level.
- The currently highlighted item is indicated with chevrons: <highlighted>.
- The currently selected value is indicated with square brackets: [selected] or asterisks: *selected*.



- When using the rotary control to increase or decrease values, the increment can be adjusted by changing the Δ value shown on the LCD. Use the left / right keys to highlight Δ, then the rotary control to adjust. Typically, Δ values of 1, 10 or 100 are available.
- Default menu behaviour is for the display to return to the next higher level after ten seconds of inactivity. This mode can be disabled using the Setup Display menu – see the User Guide on the accompanying CD for more information.

Mentor RG - Confirming Hardware Options

- Each Mentor RG may be fitted with up to three option boards.
- To see which option boards are fitted, scroll right until <Options> is selected and press OK. If no options are fitted, this menu item will not appear.
- The normal hardware configuration is:

Slot	Typical hardware configuration
1	360-15 GPS Board
2	360-20 SD/HD/3G Board
3	360-16 Tri-level sync Board

Mentor RG - Memory

- Any changes made to system parameters are effective immediately the “OK” button is pressed.
- The currently active settings are saved in non-volatile memory, so they are preserved if the Mentor RG is restarted.
- Four on-board memory banks are provided: complete settings may be saved to, or loaded from each of these memory locations at any time.
- For security, we suggest that you save the current active settings in a designated memory bank.
- Configuration files may be backed up remotely or transferred between units by using the Vector web based management feature.

See the “Setup Memory” menu, or the User Guide for more information.

Mentor RG - System Defaults

On initial power-up, the Mentor RG will use its internal oven controlled oscillator as the master reference, until either:

- A video genlock signal or 5/10 MHz reference is applied and configured.
- Or if the GPS option is fitted, full 1PPS lock is attained.

The following additional defaults apply:

Parameter	Setting
Digital Video	625/50 standard
SDI Test Pattern	100% Colour Bars
SDI Ident	On
Analogue Video	All Black/burst
AES Audio	Off
Analogue Audio	Off
LTC	Off

Mentor RG - GPS

Choice of antenna and cable type is the key to achieving optimum performance from the GPS option.

Antenna

Trilogy recommends either the Trimble Bullet III antenna or Trimble Acutime 360 Smart antenna. Other antennae may be suitable: please check manufacturer's specifications.

Cable for Bullet III

The table below details various potential cable types with length restrictions.

Recommended Cable Types For Use With Trimble Bullet III Antenna				
	RG59	†CT125	CT167	LMR400
Nominal Impedance (Ω)	75	75	75	50
Nominal Diameter (mm)	6.15	7.8	10.1	10.3
Cable < 35 metres	✓	✓	✓	✓
Cable < 50 metres		✓	✓	✓
Cable < 75 metres		✓	✓	✓
Cable < 100 metres			✓	✓
†CT125 is also marketed as CX125				

The Acutime 360 smart antenna is connected by multi-core data cable and performance is not affected by cable length. For more information, please check the Mentor RG User Guide provided on the accompanying CD.

Mentor RG - Connector Wiring Details

Full AES functionality is enabled by the additional software feature, 360-23-00. If the feature is not enabled, the AES outputs provide AES digital silence only.

Fixed D9 socket on chassis - AES	
Pin	**Description**
1	AES 1 + (out)
2	AES 1 - (out)
3	Shield
4	n/c
5	0V GND
6	Shield
7	AES 2 + (out)
8	AES 2 - (out)
9	Shield

Two balanced LTC outputs plus one balanced LTC input are provided. When there is a valid LTC input present it is possible to lock the time code to this LTC input. LTC functionality is enabled by the additional timecode software feature, 360-22-00.

Fixed D9 socket on chassis - LTC	
Pin	**Description**
1	LTC 1 + (out)
2	LTC 1 - (out)
3	Shield
4	LTC + (in)
5	0V GND
6	Shield
7	LTC 2 + (out)
8	LTC 2 - (out)
9	LTC - (in)

Fixed D25 socket on chassis – Analogue Audio / Remote		
Pin	**Description**	**Notes**
1	Fan OK - 1	Pair with 16 - Closed if OK
2	RS422 CTS-	
3	RS422 RXD+	or RS232 RX
4	RS422 TXD+	or RS232 TX
5	RS422 RTS-	
6	RS422 TXD-	
7	GND	
8	RS422 RXD-	
9	GND	
10	+ 12V DC./ 0.3A	Internal 0.5A thermal reset
11	Analogue Audio Out 1+	
12	Analogue Audio Out 2 +	
13	GND	
14	Power OK - 1	Pair with 15. Closed if OK
15	Power OK - 2	Pair with 14. Closed if OK
16	Fan OK - 2	Pair with 1. Closed if OK
17	GPIO - Output 1	
18	GPIO - Input 2	
19	GPIO - Input 1	
20	RS422 CTS+	or RS232 CTS
21	GPIO - Output 2	
22	RS422 RTS+	or RS232 RTS
23	Analogue Audio Out 1-	
24	Analogue Audio Out 2-	
25	GND	

Mentor RG - Vector

Mentor RG software includes the browser based set-up and management utility, Vector which greatly simplifies initial set-up and management of Mentor RG.

To start using Vector, follow these simple steps:

- Power up the Mentor RG and wait until it has initialised: this takes around 60 seconds.
- Although DHCP support is also offered, a static IP address is recommended. When first powered up, Mentor RG is configured with a static IP address. If the factory default IP address is not suitable, your first task is to change it to match your local network environment.
- Using the front panel controls, navigate to: SETUP >> MORE >> COMMS >> NETWORK.
- Enter IP ADDRESS and SUBNET MASK values which are appropriate for your network. The gateway address is optional. If you are unsure, consult your IT Administrator.
- Connect the Ethernet port on the Mentor RG to your network, using a standard RJ-45 cable (not supplied).
- On a PC connected to the same network as the Mentor RG, open your web browser.
- Navigate to the address **http://<address>** where <address> is that which you entered on the Mentor RG front panel. For example, **http://192.168.1.50.**
- At the log-in screen, enter the default username ***admin*** and password ***trilogy***.
- Vector is provided for Mentor RG and CX: register the reference generators on the CX Admin | System Settings page to enable a comprehensive status overview. See page 18 for details.

Mentor CX – Getting Started

Without option modules, the Mentor CX provides six changeover "channels", where each channel comprises two inputs and one output. Up to 6 option boards may be fitted: each one provides two additional channels for a maximum capacity of 18 channels.

These are the available option modules:

Module	Description
331-20-00	Two channel Universal option module
331-21-00	Two channel Passive option module
331-22-00	Two channel SD/HD/3G video option module

In addition, the Mentor CX main board provides 2 channels each of AES and LTC.

- For management and configuration using Vector, the browser based set-up and management utility, the Mentor CX should be connected to a local area network, using a standard CAT 5 Ethernet cable (not supplied).
- When first powered up, the Mentor RG is configured with a factory default static IP address of 192.168.1.252. If the factory default IP address is not suitable, your first task is to change it to match your local network environment. See page 18 of this guide for more information.
- Although DHCP support is offered, a static IP address is recommended.

Mentor CX - Connections

- Mentor CX uses the ‘Micro BNC’ connector type, which is interchangeable with the Amphenol ‘HD BNC’ range.
- Trilogy offers a short interconnect cable for Mentor RG outputs to Mentor CX channel inputs – please contact your usual sales channel for more information.
- Wiring details for the D-type multi-way connectors start on page 15 of this guide.

Mentor CX - Connector Wiring Details

AES and LTC

From SPG A

AES in from SPG A: Chassis D9 plug (male)	
Pin	**Description**
1	AES 1 + (in)
2	AES 1 - (in)
3	n/c
4	n/c
5	n/c
6	n/c
7	AES 2 + (in)
8	AES 2 - (in)
9	n/c

From SPG B

AES in from SPG B: Chassis D9 plug (male) - identical

LTC in from SPG A: Chassis D9 plug (male)	
Pin	**Description**
1	LTC 1 + (in)
2	LTC 1 – (in)
3	n/c
4	Fault Loop + (in)
5	n/c
6	n/c
7	LTC 2 + (in)
8	LTC 2 – (in)
9	Fault Loop – (in)

LTC in from SPG B: Chassis D9 plug (male) - identical

AES out: Chassis D9 socket (female)	
Pin	**Description**
1	AES 1 + (out)
2	AES 1 - (out)
3	Shield
4	Fault Loop + (out)
5	0V GND
6	Shield
7	AES 2 + (out)
8	AES 2 - (out)
9	Fault Loop - (out)

LTC out: Chassis D9 socket (female)	
Pin	**Description**
1	LTC 1 + (out)
2	LTC 1 – (out)
3	Shield
4	TXD (see note 1)
5	0V GND
6	Shield
7	LTC 2 + (out)
8	LTC 2 – (out)
9	RXD (see note 1)

Note 1 – serial data is for internal debug purposes only.

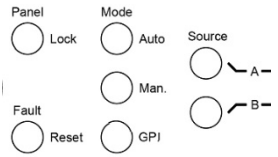
GPI

GPI: Chassis D9 socket (female)	
Pin	**Description**
1	GND
2	GPI input 1
3	GPI input 2
4	GPI out 2 -
5	+12VDC (fused 500 mA)
6	GPI out 1 +
7	GPI out 1 -
8	GPI out 2 +
9	GND

Please see the Mentor CX User Guide for further details.

Mentor CX – Front Panel

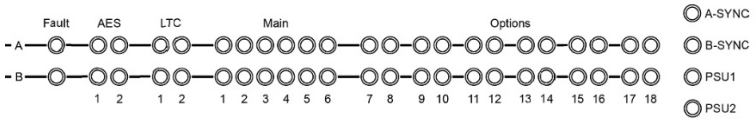
Controls



Panel Lock: press to lock / unlock panel controls. Long press for Configuration Mode – see User Guide for details.

Source (SPG) selection A/B: only active in Manual mode.

Indicators



LEDs within controls illuminate blue to show “selected”.

Status LEDs illuminate as follows:

- Green = input OK
- Flashing Green = input in warning
- Red = channel input in error
- Yellow = inputs A and B are different format and are not in error
- Flashing Red = invalid state
- Off = channel not enabled.

Mentor CX - Vector

- When first powered up, Mentor CX will have a factory default IP address of 192.168.1.252. To change this to a value appropriate for your application, connect a laptop directly to the Ethernet port and add a temporary IP address in the 192.168.1.x subnet to the laptop.
- Open a web browser at 192.168.1.252 and log in to the Admin page of Vector for Mentor CX using default username ***admin*** and password ***trilogy***.
- Enter IP ADDRESS and SUBNET MASK values which are appropriate for your network. The gateway address is optional. If you are unsure, consult your IT Administrator.
- Remove the laptop and connect the Ethernet port on the Mentor CX to your network, using a standard RJ-45 cable (not supplied).
- On a PC connected to the same network as the Mentor CX, open your web browser.
- Navigate to the address **http://<address>** where **<address>** is that previously entered on the Mentor CX admin page. For example, **http://192.168.1.50.**
- Finally, register the Mentor RG reference generators on the Mentor CX Admin | System Settings page to enable a comprehensive status overview.

An example screen shot of Vector which greatly simplifies management of the Mentor RG and CX

Notes

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