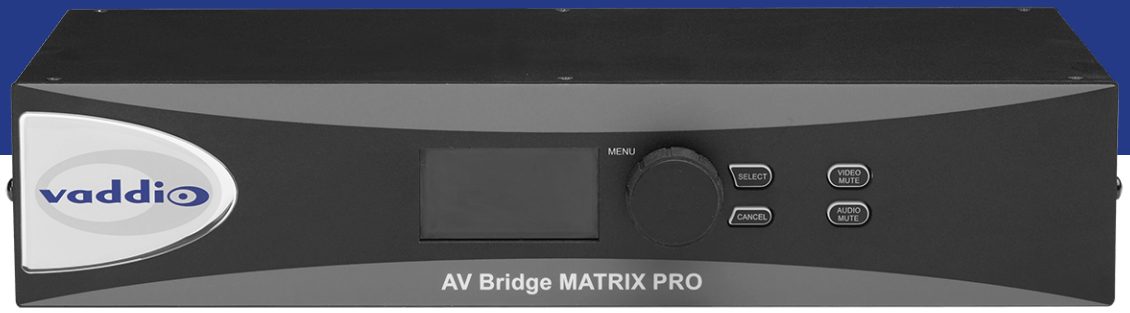

Installation Guide for the

AV Bridge MATRIX PRO

Multimedia Room Solution

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Overview

This guide provides information about the AV Bridge MATRIX PRO multimedia room solution:

- 999-8230-000 – North America
- 999-8230-001 – Europe and UK
- 999-8230-009 – Australia and New Zealand

About this Guide

This guide covers:

- Unpacking the multimedia room solution
- Tips for a successful installation
- Information on connecting the multimedia room solution
- Equipment power-on

Complete product information is available in the **Integrator's Complete Guide to the AV Bridge MATRIX PROMultimedia Room Solution**.

Features

Inputs and Outputs:

- Quick-Connect inputs for three Vaddio cameras
- Video input for computer or other video source
- HDMI and proprietary Quick-Connect video outputs
- Four EasyMic microphone inputs
- Four additional balanced mic/line inputs with 48 V phantom power
- Four balanced audio outputs
- Simultaneous USB and IP streaming
- External RS-232 control input

Cameras and Video:

- Automatically identifies and configures for Vaddio cameras
- Access to settings stored on each connected camera
- Independently configurable output resolutions
- Configurable picture-in-picture (PIP) for conferencing
- Split screen – top/bottom or quad split showing all four video inputs simultaneously
- Seamless video transitions with software adjustable transition time - cross-fades and straight cuts

Audio:

- Automatic audio mixing with controls to to manage audio levels manually if desired
- Acoustic echo cancellation with selectable AEC reference
- Assignable chairman priority gives one microphone a 3dB boost over the others
- Crosspoint gain configurable separately for each point in the audio matrix

Control

- Browser-based web interface for operation, configuration and system administration
- Triggers for programmed actions such as changing the video source, moving a camera to one of its presets, and most other operations:
  - Up to 10 external hardware trigger inputs
  - Up to 50 software triggers
  - Up to four EasyMIC MicPOD One Touch triggers

Product Compatibility

The AV Bridge MATRIX PRO is compatible with the following products.

Vaddio Cameras

May require an update to the camera's firmware.

Product	RS-232	IP
RoboSHOT Series (may use Quick-Connect or OneLINK device)	Yes	Yes*
ConferenceSHOT Series**	Yes	Yes
ClearVIEW HD 20SE	Yes	No
PowerVIEW HD 22/30	Yes	No
ZoomSHOT 20	Yes	No
WideSHOT	Yes	No
DocCAM 20 HDBT with OneLINK device	Yes	Yes

* IP control always uses the camera's IP address, not the address of its extension device (if one is used).

** Includes cameras marked ClearSHOT 10 USB.

Non-Vaddio Cameras

Product	RS-232	IP
Sony BRC Z330, Z700, H700, H900	Yes	No
Sony EVI-H100S	Yes	No
Sony SRG 120, SRG 300	Yes	No
Panasonic AW-HE 40, AW-HE 130	Yes	No

Control Devices

USB joysticks

Audio

- EasyMIC series tabletop and ceiling microphones
- EasyUSB mixers and I/O devices
- Audio-Technica AT U891R boundary microphone

Trigger Devices

- PresenterPOD devices
- StepVIEW mats

Unpacking the Room Solution

Make sure you received all the items you expected. Here are the packing lists for the AV Bridge MATRIX PRO multimedia room solution.

North America: AV Bridge MATRIX PRO, part number 999-8230-000

Europe/UK: AV Bridge MATRIX PRO, part number 999-8230-001

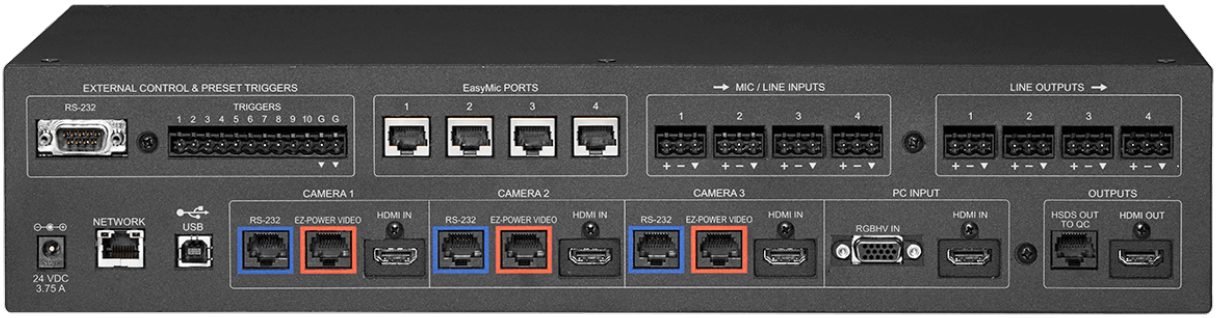
Australia: AV Bridge MATRIX PRO, part number 999-8230-009

- AV Bridge MATRIX PRO
- 24V, 3.75A power supply with AC cord set(s)
- 3-position phoenix-style connectors, qty 8
- 12-position phoenix-style connector
- 6 ft (1.83 m) USB 2.0 cable, type A to B
- Rack mounting ears, qty. 2
- Quick-Start Guide

A Quick Look at the Multimedia Room Solution

- 8-line illuminated display – View basic operation and configuration menu and system information
- Menu knob – Navigate the operation/configuration menu
- Select and Cancel buttons – Work with the operation/configuration menu
- Video Mute button – Stop sending video. Press the button again to resume sending video from the selected source. When video is muted, the AV Bridge MATRIX PRO sends a black screen or color bar pattern instead.
- Audio Mute button – Stop sending audio. Press the button again to resume sending audio.
- Dimensionally enhanced puffy badge – We have spared no expense to provide a lovely, dimensionally enhanced, puffy badge to enhance your visual experience. It's quite shiny. We hope you'll enjoy it.

Connector Panel



- External control: RS-232 port for external control device; trigger inputs for up to 10 presenter-controlled devices
- EasyMic Ports: Connections for 4 Vaddio EasyMic tabletop or ceiling microphones
- Mic/Line Inputs: Connections for 4 additional microphones or other balanced audio sources
- Line Outputs: Connections for 4 balanced audio outputs
- 24 VDC 3.75A: Power connection
- Network: Control, IP streaming, graphics
- USB 2.0 port: Uncompressed audio and video stream
- RS-232 ports (Camera 1 – Camera 3): Camera control connections
- EZPower Video ports (Camera 1 – Camera 3): Power to and video from Vaddio cameras that are compatible with Vaddio Quick-Connect devices
- HDMI inputs (Camera 1 – Camera 3): Video from connected cameras that are not compatible with Vaddio Quick-Connect devices
- PC Input (RGBHV In and HDMI In): Video inputs for a computer or other video source
- HSDS Out to QC: Vaddio proprietary-format video output; connect to a Vaddio Quick-Connect device feeding a display or projector
- HDMI Out: HDMI video and audio output

Installation

This section covers how to install and connect the product. It also provides safety information and other guidance related to installing the product.

Note

This product is intended for installation and use only in environments where all RS-232 and PoE+ connections originate within the building.

Don't Void Your Warranty!

Caution

This product is for indoor use. Do not install it outdoors or in a humid environment without the appropriate protective enclosure. Do not allow it to come into contact with any liquid.

Do not install or operate this product if it has been dropped, damaged, or exposed to liquids. If any of these things happen, return it to Vaddio for safety and functional testing.

Cabling Notes

Use Cat-5e or better cable and standard RJ-45 connectors (568B termination). We recommend using high-quality connectors and a high-quality crimping tool.

Note

Use standard RJ-45 connectors and a good crimping tool. Do not use pass-through RJ-45 connectors. Poorly terminated cables can damage the connectors on the product, cause intermittent connections, and degrade signal quality. Test cable pin-outs and continuity before connecting them.

Intact – will make reliable contact with cable connector

Damaged – Bent contact fingers will NOT make reliable contact with cable connector

Caution

Check Cat-5 cables for continuity before using them. Using the wrong pin-out may damage the camera system and void the warranty.

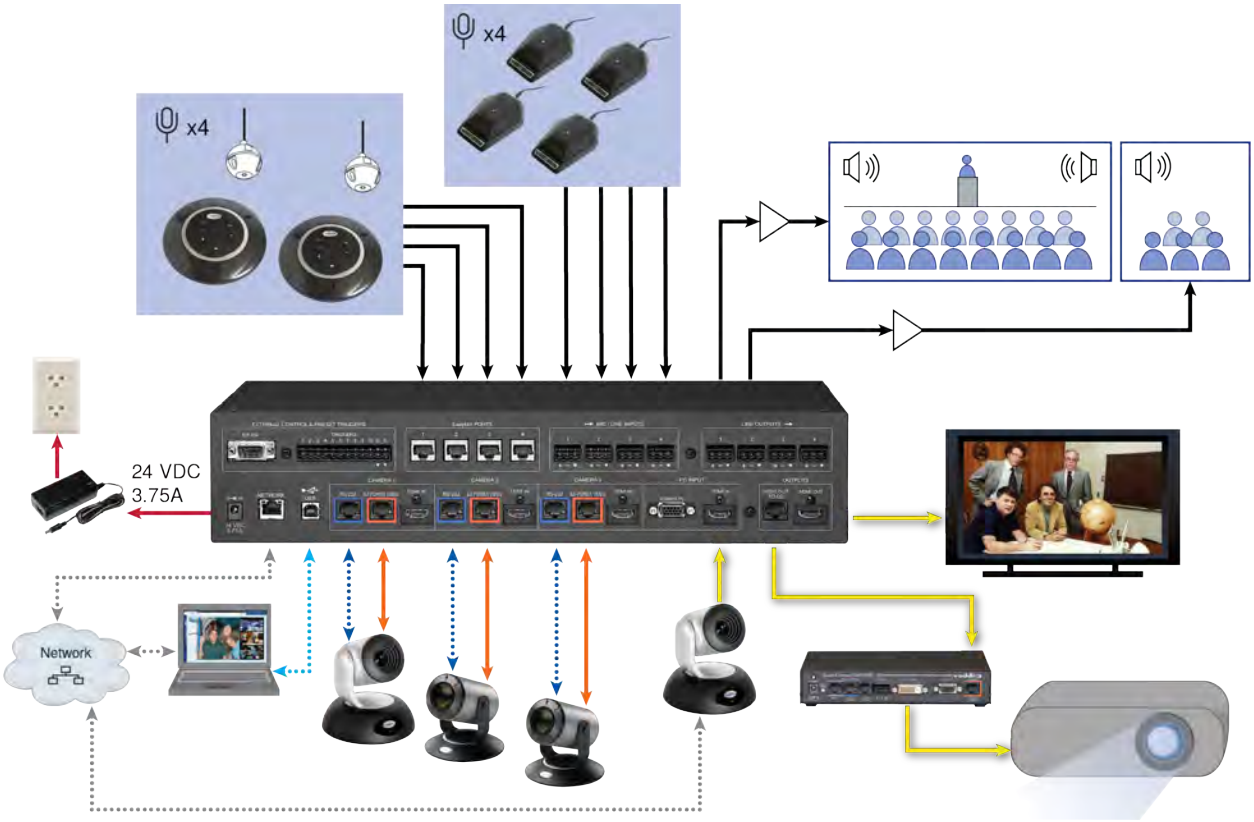
Pro Tip

To prevent tragic mishaps, label both ends of every cable.

Basic Connections

This diagram illustrates some of the possibilities of the AV Bridge MATRIX PRO – multiple camera and microphone inputs, multiple display and audio outputs.

In place of at least one of the EasyMic microphones, you can connect an EasyUSB Pro Mic I/O with up to four PZM microphones connected to it.



Note

Because the AV Bridge MATRIX PRO provides camera extension functionality, cable distance for cameras 1 through 3 is up to 100 ft. (30 m) for PTZ cameras, or 150 ft. (45 m) for fixed cameras.

RS-232 Serial Communication Settings and Port Pin-outs

The RS-232 serial ports (color-coded blue) on the back panel provide camera control for video inputs 1 through 3.

Camera communication parameters are as follows:

Parameter	Value
Communication Speed	9600 bps (default)
Start bits	1
Stop bits	1
Data bits	8
Parity	None
Flow control	None

Camera RS-232 connector pin-out:

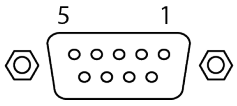
- Pin 1: Not used
- Pin 2: Not used
- Pin 3: Not used
- Pin 4: Not used
- Pin 5: Not used
- Pin 6: GND
- Pin 7: TXD (to RXD of camera)
- Pin 8: RXD (from TXD of camera)

Caution

Check Cat-5 cables for continuity before using them. Using the wrong pin-out may damage the camera system and void the warranty.

External Control connector pin-out:

- Pin 1: Not used
- Pin 2: TXD (to RXD of connected device)
- Pin 3: RXD (to TXD of connected device)
- Pin 4: Not used
- Pin 5: GND
- Pins 6 – 9: Not used



External control communication parameters are as follows:

Parameter	Value
Communication Speed	38400 bps (default)
Start bits	1
Stop bits	1
Data bits	8
Parity	None
Flow control	None

Depending on the equipment connected to the RS-232 port, you may need a null-modem (crossover) cable.

Ensuring Compatibility

Although the AV Bridge MATRIX PRO automatically identifies and configures for Vaddio cameras when they are connected, Vaddio products may be unable to communicate with each other if the firmware for one or more devices is out of date. When you set up a Vaddio pro A/V product, be sure the associated Vaddio cameras have been updated to a firmware version that supports the device.

Powering Up

1. Power up all the cameras to be used.
2. Connect the power supply.
3. Power up the camera controller, if your setup includes one.

When you power up the AV Bridge MATRIX PRO for the first time, you will need to access the web interface to configure it for operation.

To see the current IP address, dial to the Network menu on the front panel and press the Select button. Browse to this address to access the web interface.

Next Steps

Download manuals, dimensional drawings, and other information from www.vaddio.com/support.

Troubleshooting and Care

If the equipment does not power up as expected, use this table to determine whether to call Vaddio Technical Support.

Note

If the equipment behaves in a way that suggests even a remote possibility of a bad cable, please try a known good, factory made patch cable with the same pin-out. Our technical support team encounters defective factory-made cables from time to time, and we've seen cables that only worked some of the time. A cable may pass a standard continuity check but be unable to pass enough power to the connected device.

Crimping tools can crimp unevenly, contacts can break internally, and individual conductors in the cable can break inside the jacketing material. Any of these can cause insufficient or intermittent contact, resulting in a cable that passes a continuity check but does not work when it is routed into place or repositioned.

(The author would like to confess having made more than a few almost-good cables. It happens.)

What is it doing?	Possible causes	Check and correct
Nothing. The display is off and the buttons do not light up.	Power is not connected.	Check the connections from the wall outlet to the power supply and from the power supply to the device.
	The wall outlet is not active. (Check by finding out if it powers something else, such as a laptop or phone charger.)	Use a different outlet.
	The device or its power supply is bad.	Contact your reseller or Vaddio Technical Support.
Unresponsive camera (no video, unable to control the camera, or both)	A cable is connected to the wrong port.	Check and correct cable connections.
	A cable is bad. (This can even be a problem with factory cables.)	Check using a known good cable with the same pin-out.
	There is a problem with the camera.	Refer to the troubleshooting information in the camera manual.

Operation, Storage, and Care

For smears or smudges on the product, wipe with a clean, soft cloth. Do not use any abrasive chemicals.

Keep this device away from food and liquids.

Do not operate or store the device under any of the following conditions:

- Temperatures above 40°C (104°F) or below 0°C (32°F)
- High humidity, condensing or wet environments
- Inclement weather
- Severe vibration
- In a microwave oven
- Dry environments with an excess of static discharge

Do not attempt to take this product apart. There are no user-serviceable components inside.

Compliance Statements and Declarations of Conformity

Compliance testing was performed to the following regulations:

FCC Part 15 (15.107, 15.109), Subpart B	Class A
ICES-003, Issue 54: 2012	Class A
EMC Directive 2004/108/EC	Class A
EN 55022: December 2010	Class A
EN 55024: November 2010	Class A
KN22 2008 (CISPR 22: 2006)	Class A
KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)	Class A
IEC 60950-1:2005 (2nd Edition); Am 1: 2009 + Am 2: 2013	Safety
EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013	Safety

FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B, 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 his/her own expense.

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.

Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.

ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

European Compliance

This product has been evaluated for electromagnetic compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:

CE

EMC Directive 2004/108/EC	
EN 55022: December 2010	Conducted and Radiated Emissions
EN 55024: November 2010	Immunity
EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001	Electrostatic Discharge
EN 61000-4-3: 2006 + A1: 2008	Radiated Immunity
EN 61000-4-4: 2004 + Corrigendum 2006	Electrical Fast Transients
EN 61000-4-5: 2006	Surge Immunity
EN 61000-4-6: 2009	Conducted Immunity
EN 61000-4-8: 2010	Power Frequency Magnetic Field
EN 61000-4-11: 2004	Voltage Dips, Interrupts and Fluctuations
KN22 2008 (CISPR 22: 2006)	Conducted and Radiated Emissions
KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)	IT Immunity Characteristics
EN 61000-4-2	Electrostatic Discharge
EN 61000-4-3	Radiated Immunity
EN 61000-4-4	Electrical Fast Transients
EN 61000-4-5	Surge Immunity
EN 61000-4-6	Conducted Immunity
EN 61000-4-8	Power Frequency Magnetic Field
EN 61000-4-11	Voltage Dips, Interrupts and Fluctuations
IEC 60950-1: 2005 (2nd Edition); Am 1: 2009 + Am 2: 2013	Safety
EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013	Safety

Warranty Information

See Vaddio Warranty, Service and Return Policies posted on support.vaddio.com for complete details.

Hardware* warranty: Two (2) year limited warranty on all parts and labor for Vaddio manufactured products. Vaddio warrants its manufactured products against defects in materials and workmanship for a period of two years from the day of purchase, to the original purchaser, if Vaddio receives notice of such defects during the warranty. Vaddio, at its option, will repair or replace products that prove to be defective. Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

Exclusions: The above warranty shall not apply to defects resulting from improper or inadequate maintenance by the customer, customers applied software or interfacing, unauthorized modifications or misuse, mishandling, operation outside the normal environmental specifications for the product, use of the incorrect power supply, modified power supply or improper site operation and maintenance. OEM and special order products manufactured by other companies are excluded and are covered by the manufacturer's warranty.

Vaddio Service Department: Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty. If the product is out of warranty, Vaddio will test then repair the product or products. The cost of parts and labor charge will be estimated by a technician and confirmed by the customer prior to repair. All components must be returned for testing as a complete unit. Vaddio will not accept responsibility for shipment after it has left the premises.

Vaddio Technical Support: Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted by email at support@vaddio.com or by phone at one of the phone numbers listed on support.vaddio.com.

Return Material Authorization (RMA) number: Before returning a product for repair or replacement request an RMA from Vaddio's technical support. Provide the technician with a return phone number, e-mail address, shipping address, product serial numbers and original purchase order number. Describe the reason for repairs or returns as well as the date of purchase. See the General RMA Terms and Procedures section for more information. RMAs are valid for 30 days and will be issued to Vaddio dealers only. End users must return products through Vaddio dealers. Include the assigned RMA number in all correspondence with Vaddio. Write the assigned RMA number clearly on the shipping label of the box when returning the product. All products returned for credit are subject to a restocking charge. Special order product are non-cancelable and not returnable.

Voided varranty: The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, use of incorrect power supply, use of a modified power supply or unauthorized repair.

Shipping and handling: Vaddio will not pay for inbound shipping transportation or insurance charges or accept any responsibility for laws and ordinances from inbound transit. Vaddio will pay for outbound shipping, transportation, and insurance charges for all items under warranty but will not assume responsibility for loss and/or damage by the outbound freight carrier. If the return shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. Contact your carrier immediately.

Products not under warranty: Payment arrangements are required before outbound shipment for all out of warranty products.

Photo Credits

European Space Agency (ESA) astronaut Samantha Cristoforetti, a Flight Engineer with Expedition 42, photographs the Earth through a window in the Cupola on the International Space Station
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Carl Sagan, Bruce Murray, Louis Friedman (founders) and Harry Ashmore (advisor), on the occasion of signing the papers formally incorporating The Planetary Society
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Main Control Room / Mission Control Room of ESA at the European Space Operations Centre (ESOC) in Darmstadt, Germany
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Expedition 42 on orbit crew portrait, International Space Station, Mar. 7, 2015 – Barry Wilmore (Commander) Top, Upside down, to the right cosmonaut Elena Serova, & ESA European Space Agency Samantha Cristoforetti. Bottom center US astronaut Terry Virts, top left cosmonauts Alexander Samokutyaev and Anton Shkaplerov.
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European Space Agency astronaut Luca Parmitano, Expedition 36 flight engineer, outside the International Space Station
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Chris Cassidy, Luca Parmitano, and Karen Nyberg, ISS, 2013. Photo Credit: NASA

Nicolas Altobelli, Rosetta Scientist at ESA's European Space Astronomy Centre, Villanueva de la Cañada, Madrid, Spain
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Andrea Accomazzo, ESA Rosetta Spacecraft Operations Manager, providing a live update from the Main Control Room at ESA's European Space Operations Centre, Darmstadt, Germany during the Rosetta wake-up day.
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Visit us at support.vaddio.com for firmware updates, specifications, drawings, manuals, technical support information, and more.

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In British Columbia, Milestone AV Technologies ULC carries on business as MAVT Milestone AV Technologies ULC.

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