ASTRA V Server

Technical Reference Sheet

TRS-1036-05

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Aveco
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Table of Contents

List of Figures

INTRODUCTION

OVERVIEW

Aveco's automation servers are industrial computers with a Linux operating system that are used as a platform for Aveco's automation systems. Automation software consists of a large set of dedicated software modules that can be used to build the required solution, from an all-in-one automation server providing MCR and Studio automation together with media asset workflow orchestration, up to large networks of geographically distributed redundant automation servers providing distributed functionality.

The role of our automation has always been to integrate the third-party products of our customers' choice to deliver optimum solutions for their business models; we make a working playout facility out of a customer-selected of third-party components.

DESCRIPTION

With features including multi-site disaster recovery, multi-path architecture for flexible control and redundancy options, with hot-swappable modules for expansions, upgrades, and repairs, you can be certain of your on-air status.

Equipped with ASTRA MCR or ASTRA Studio, the ASTRA V server becomes the most powerful, reliable, and user-friendly broadcast automation system on the market.

PACKAGE CONTENTS

Delivery varies depending on the redundancy model and the license to control serial devices and GPI. For serial and GPI control, an ASTRA V Breakout Box is used. The system could scale up by adding more ASTRA servers into the so-called “orbital architecture”.

SINGLE SERVER

Qty	Content
1	ASTRA V Server (equipped with VRP7 card)
2	Power cable, 1m

SINGLE SERVER WITH BREAKOUT BOX

Qty	Content
1	ASTRA V Server
2	Power cable, 1m
1	ASTRA V Breakout Box
1	Patch cable (Data I/O)

MIRRORED SERVERS

Qty	Content
2	ASTRA V Server (equipped with VRP7 card)
4	Power cable, 1m

MIRRORED SERVERS WITH BREAKOUT BOX

Qty	Content
2	ASTRA V Server
4	Power cable, 1m
1	ASTRA V Breakout Box
2	Patch cable (Data I/O), 1m

CABLES TO CONTROLLED DEVICES

Cables to connect the ASTRA V Breakout Box with interfacing devices are not provided by Aveco.

When supplying cables to connected devices, refer to the below pinout of the GPI, and the RS422 connectors.

INSTALLATION

The ASTRA V Server comes pre-installed. For basic functionality, it is only necessary to connect it to the ethernet network. Please consult with the assigned contact person on how to proceed with this step.

TECHNICAL SPECIFICATIONS

ASTRA V SERVER SPECIFICATIONS

Figure 1. ASTRA V Server - Front Panel Schematic

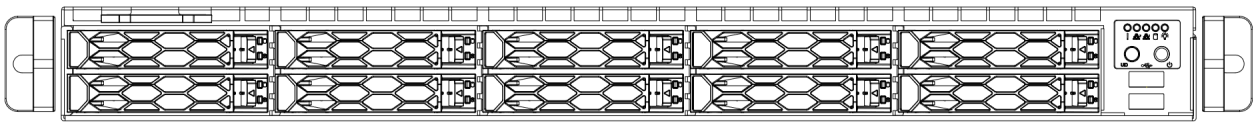
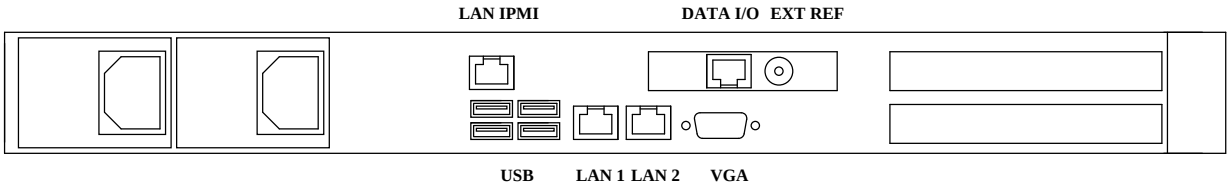


Figure 2. ASTRA V Server - Back Panel Schematic



Connectivity	
Ethernet	3x RJ45 (2x LAN, 1x IPMI)
Video Reference Input	Black burst or Tri-level (format: PAL, NTSC, 1080i), BNC terminated
Breakout Box	1x RJ45 data cable with PoE

Physical	
Dimensions	1U, depth 600mm
Weight	~12kg

Power	
Power Supply	Redundant, hot swap, two power cords
Voltage	Input voltage 110-240V, 50-60Hz
Power Consumption	280 W

ASTRA V BREAKOUT BOX SPECIFICATIONS

OVERVIEW

The Breakout Box (BB) manages serial and GPI control line connections to controlled devices. It also serves as a Switch-Over Unit (SOU) between main and backup ASTRA V servers in redundant configurations.

Figure 3. Breakout Box - Front Panel

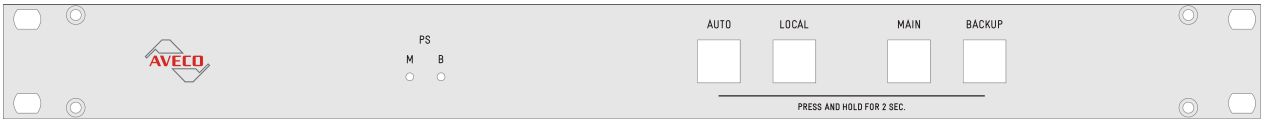
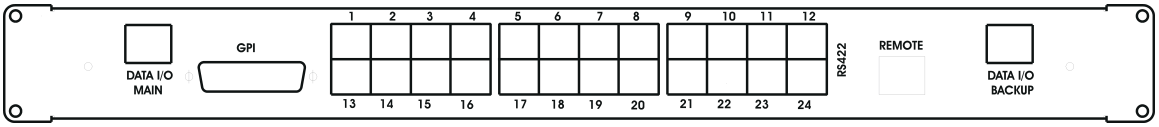


Figure 4. Breakout Box - Back Panel Schematics



Connectivity	
DATA I/O	2x RJ45 data cable connecting to ASTRA V server
RS 422	24x RJ45
GPI I/O	1x D-SUB 25 F
REMOTE	Interface for remote control panel (not part of the standard supply)

Physical	
Dimensions	1U, depth 200mm
Weight	~1,5kg

Power	
Power Supply	PoE from ASTRA V servers

ASTRA V BREAKOUT BOX CONNECTORS

RS422 ports	24 ports, max. baud rate 115200 bps
GPI OUT	8 ports, max. switching capacity 24V DC, 200 mA
GPI IN	8 ports

Figure 5. Serial Connectors

Serial Connectors 1-24 RJ45 8 pin female RS422	
1	Tx A(-)
2	Tx B(+)
3	Rx A(-)
4	NC
5	NC
6	Rx B(+)
7	GND
8	GND

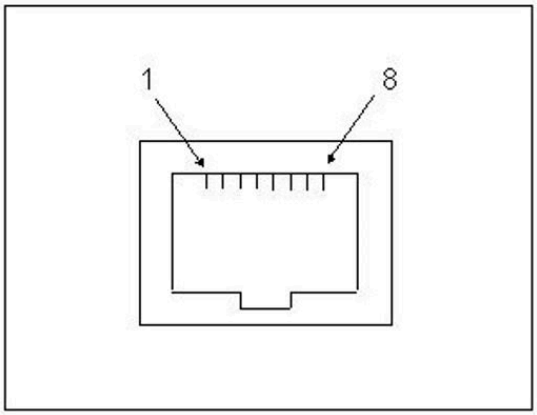


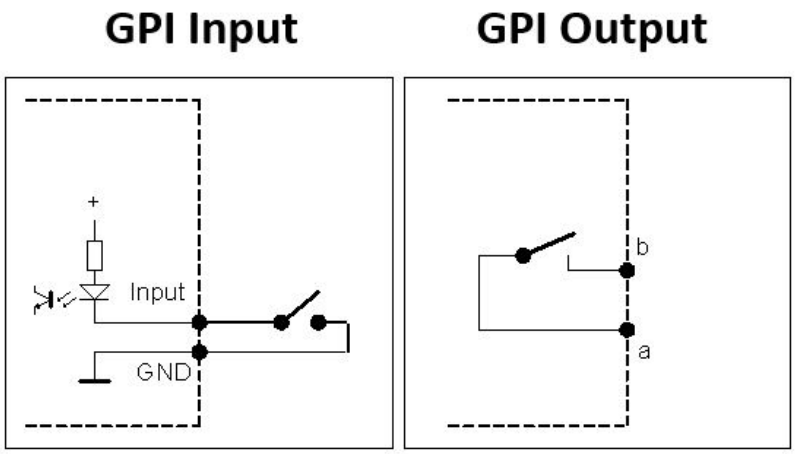
Figure 6. GPI Connectors

Connectors GPI
D-SUB 25 pin female

GPI OUT, GPI IN

1	GPI OUT 1 a	14	GPI OUT 5 a
2	GPI OUT 1 b	15	GPI OUT 5 b
3	GPI OUT 2 a	16	GPI OUT 6 a
4	GPI OUT 2 b	17	GPI OUT 6 b
5	GPI OUT 3 a	18	GPI OUT 7 a
6	GPI OUT 3 b	19	GPI OUT 7 b
7	GPI OUT 4 a	20	GPI OUT 8 a
8	GPI OUT 4 b	21	GPI OUT 8 b
9	GPI IN 1	22	GPI IN 6
10	GPI IN 2	23	GPI IN 7
11	GPI IN 3	24	GPI IN 8
12	GPI IN 4	25	GND
13	GPI IN 5		

Figure 7. Schematic of GPI input and output

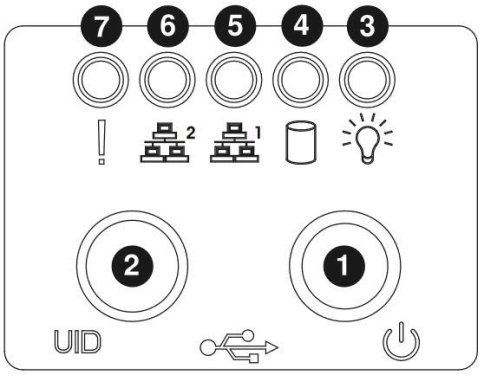


OPERATION

CHASSIS CONTROL PANEL

The chassis control panel is found in the upper right corner of the front panel. The control panel contains a power button, reset button, and several LED indicators.

Figure 8. Control Panel



POWER SWITCHES AND STATUS LED INDICATORS OF THE SERVER

Control Panel Features		
Item	**Features**	**Description**
1	Power button	The main power switch applies or removes primary power from the power supply to the server but maintains standby power.
2	UID button	The unit identification (UID) button turns on or off the UID LED on the rear of the chassis. This is useful for locating the server in a large rack environment.
3	Power LED	Indicates power is being supplied to the system power supply units. This LED is illuminated when the system is operating normally.
4	HDD	Indicates activity on the hard drive when flashing.
5	NIC LED	Indicates network activity on LAN1 when flashing.
6	NIC LED	Indicates network activity on LAN2 when flashing.
7	Information LED	Alerts operator to several states, as noted in the table below.

Information LED	
Status	**Description**
Continuously On and Red	Overheating has occurred (This may be caused by cable congestion.)
Blinking Red (1Hz)	Fan failure, check for an inoperative fan
Blinking Red (0.25Hz)	Power failure, check for a non-operational power supply
Solid Blue	UID has been activated locally to locate the server in a rack environment

Information LED	
Blinking Blue (300ms)	UID has been activated using IPMI to locate the server in a rack environment

POWER ON THE SERVER

The server is switched on using the POWER button on the front panel of the server. The ASTRA system starts automatically. During the startup process, it is possible to interrupt the startup sequence.

POWER OFF THE SERVER

It is necessary to shut down the system gracefully. In order to proceed, use the attached VGA monitor and PC keyboard or use the IPMI interface. To switch off the server, follow the instructions on the monitor.

1. Stop the system - press “S” and confirm with “Y”
2. Power off - press “P”

Alternatively use “R” or “P” to confirm the first option and then no more action is needed.

BREAKOUT BOX (BBOX)

OPERATION MODES

SERVER CONNECTION MODES

- **MAIN Mode**: Routes all serial and GPI control lines to MAIN ASTRA server
- **BACKUP Mode**: Routes all serial and GPI control lines to BACKup ASTRA server

CONTROL MODES

- **AUTO Mode**: ASTRA system controls the switch over; front panel manual controls are disabled
- **LOCAL Mode**: Front panel manual controls are active; automation control is disabled

FRONT PANEL CONTROLS

Control Button	Function
AUTO	Activates AUTO mode when held for 2 seconds
LOCAL	Activates LOCAL mode when held for 2 seconds
MAIN	Switches to MAIN server when held for 2 seconds (only in LOCAL mode)
BACKUP	Switches to BACKUP server when held for 2 seconds (only in LOCAL mode)

STATUS INDICATORS

Indicator	State	Meaning
AUTO Button	Blue	SOU is in AUTO mode
LOCAL Button	Red	SOU is in LOCAL mode
MAIN Button	Blue	SOU is in MAIN mode
BACKUP Button	Red	SOU is in BACKUP mode
PS Lights M/B	On	Power available on respective lead

SPECIAL OPERATING CONDITIONS

SINGLE SYSTEM CONFIGURATION

- AUTO and LOCAL buttons are deactivated
- Manual switching between MAIN and BACKUP modes is disabled

MIRRORED SYSTEMS CONFIGURATION

- **If the Breakout Box disconnects or malfunctions:**

  - ASTRA system switches to SLAVE Mode (no equipment control).
  - A manual force switch to MASTER is possible from the server menu.
- **Partial Disconnection:** If only the BACKUP ASTRA disconnects from the BBOX, the MAIN path remains active regardless of indicated status.

EMERGENCY PROCEDURES

EMERGENCY MASTER ACTIVATION (BBOX MALFUNCTION)

1. Disconnect DATA I/O MAIN and DATA I/O BACKUP cable
2. In the server menu navigate to MASTER/SLAVE control
3. Select “Force this server to be the MASTER”

SYSTEM RESTORATION AFTER BBOX REPAIR

METHOD 1: FULL SYSTEM RESTART

1. Shutdown both MAIN and BACK ASTRA
2. Connect DATA I/O MAIN and DATA I/O BACKUP cable
3. For MAIN as MASTER:
   - Start MAIN ASTRA, wait for full startup, then switch to LOCAL mode
   - Start BACK ASTRA (you can switch to AUTO)
4. For BACK as MASTER:
   - Start BACK ASTRA, wait for full startup, then switch to LOCAL mode
   - Start MAIN ASTRA (you can switch to AUTO)

METHOD 2: LIVE RECOVERY (MAIN AS EMERGENCY MASTER)

1. Connect DATA I/O MAIN
2. Wait for MAIN-BBOX communication, then switch to LOCAL mode
3. Connect DATA I/O BACKUP (you can switch to AUTO)

CABLING

ASTRA Server 1U ships with only two power cables used to provide power to the server. Cables to connect any other devices to the ASTRA server are not provided with the server unit and are to be supplied by the system integrator, the end customer, or may be bundled with other devices.