Quick Contents

• Physical Installation
• Video Connections
• Control Connections
• Control Panel Connections
• Connecting Control Panels

Section 2:
Installation

À**ccom**®

Physical Installation

Unpacking

Remove the Dveous/MX chassis and Control Panel from the packing boxes. Inspect all articles for shipping damage. If you find any damage, notify the shipping carrier immediately for claims adjustments.

Compare the shipping box contents to the packing slip. Contact your sales representative if there are any unexplained shortages.

Power Consumption

The Dveous/MX chassis consumes less than 400 watts. The chassis normally powers the Control Panel with its 12VDC supply. If you install the Control Panel more than 33 feet (about 10 meters) from the chassis, you must use the optional 5200-CPPS Control Panel power supply, P/N 2800-0063. The Control Panel draws less than 25 watts. See page 19 for more information on cable lengths and the power supply.

Note: The Dveous/MX power switch is located on the rear of the chassis. For users who rack mount the chassis, it is recommended that a power strip be mounted towards the front of the rack for easier access to the power switch.

Note: Do not insert or remove boards or modules when chassis is powered.

Cooling and Airflow

Be sure that chassis air flow is not obstructed. Obstructed air flow may cause your system to overheat and potentially damage components. As with most video equipment, cool air is brought in to the front of the chassis and warm air exhausted out the back.

Rack Mounting

The Dveous/MX chassis is designed so that you can mount it in a standard 19-inch equipment rack. The Dveous/MX chassis weighs approximately 25 lb., depending on options, and occupies four rack units. It's dimensions are given below.

17.25"
43.82cm

16.0"
40.64cm

17.0"
43.18cm

7.0"
17.78cm

Holes for Rack Slide
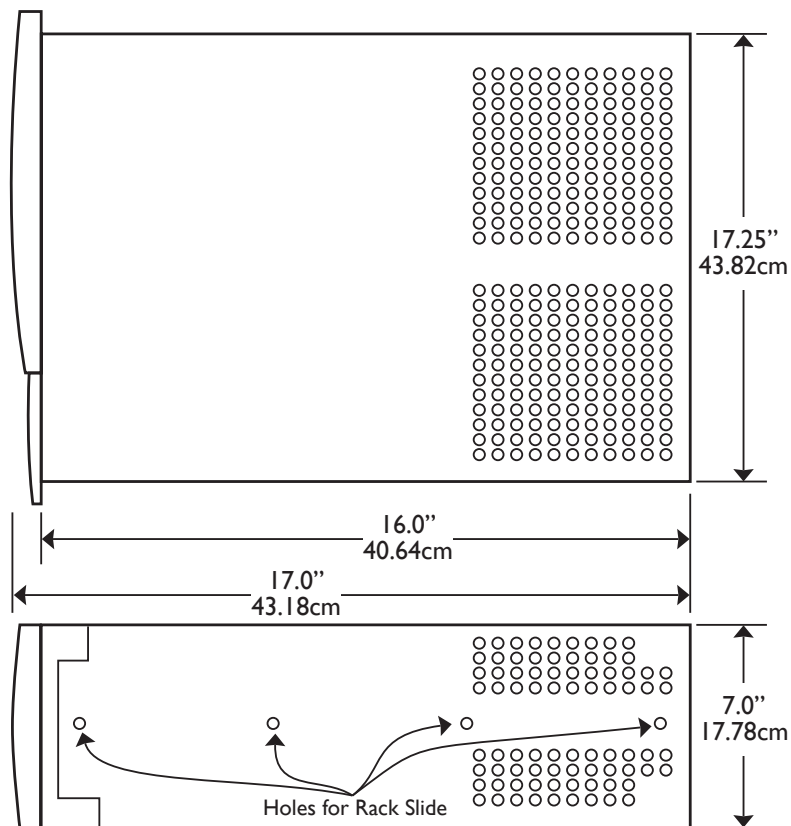
Before mounting the chassis onto the rack, you need to remove the front cover. The front trim will be replaced after the chassis is bolted to the rack.
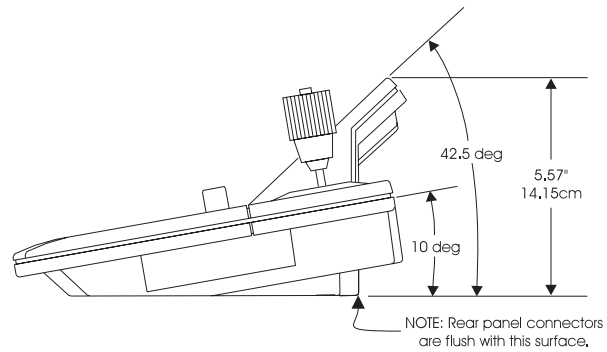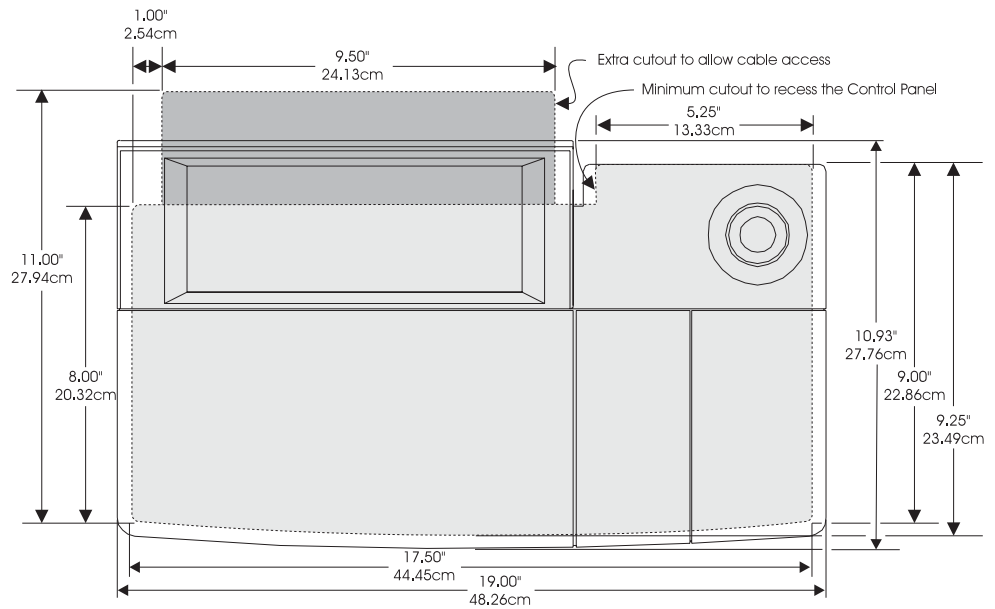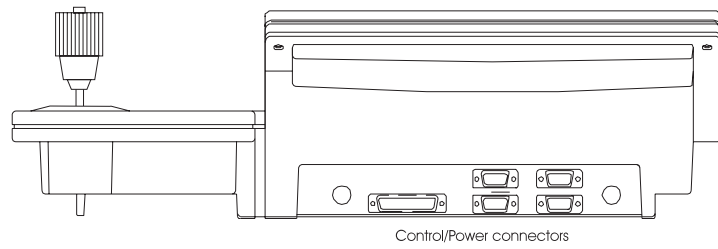
Remove Front Cover

Rack Support
(2 supplied)

Air Flow

Push lock sockets, 4 places.
Pull forward to remove cover.
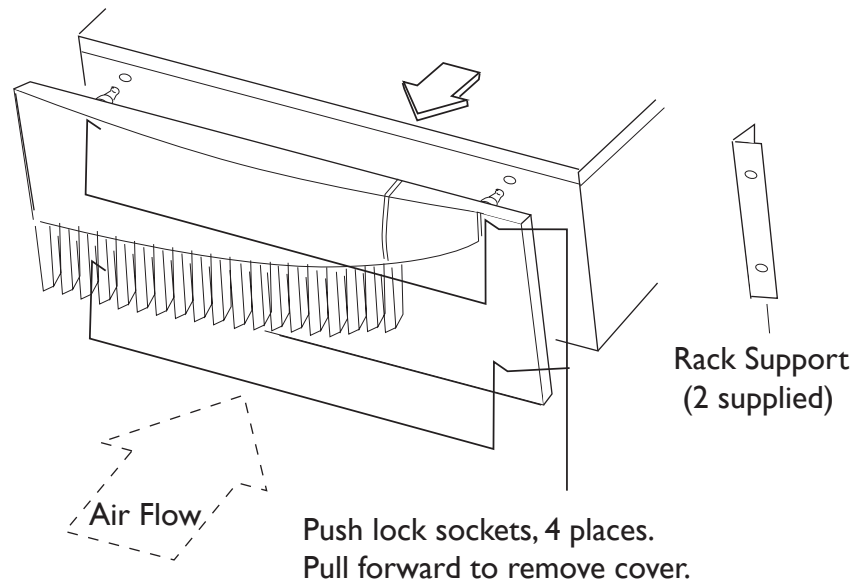
Install Chassis in Rack   Two L-shaped rack supports, one on each side, are mounted on the front of the chassis. The bolts used to secure the equipment into the rack are provided by the rack manufacturer or may be obtained from a local hardware supplier. **Rack slides are shipped with the unit and these must be installed for necessary support when rack mounting.**

Control Panel Mounting

The Control Panel is designed to sit on a counter top or in a 19 inch rack rail console. You can countersink the base of the Control Panel, but doing so takes away access to the floppy drive. Also, be sure to allow access to the connections on the rear of the Control Panel base. The darker shaded cutout area is required for cable access, notice the control/power connector location below.

Control/Power connectors

1.00"
2.54cm

9.50"
24.13cm

Extra cutout to allow cable access

Minimum cutout to recess the Control Panel

5.25"
13.33cm

11.00"
27.94cm

8.00"
20.32cm

10.93"
27.76cm

9.00"
22.86cm

9.25"
23.49cm

17.50"
44.45cm

19.00"
48.26cm

42.5 deg

5.57"
14.15cm

10 deg

NOTE: Rear panel connectors
are flush with this surface.

Video Connections

This section describes the video signal connectors on the rear of the Dveous/MX chassis.

N

Note: There is no Analog Video I/O on the Dveous/MX.

Serial Video Inputs

The 6 standard and 6 optional 10 bit serial inputs have a High Definition (HD) data rate of 1.5Gbits per second and conform to the SMPTE 292M format. In Standard Definition (SD), these inputs have a data rate of 270Mbits per second and conform to SMPTE 259M format. All of these may be either video inputs or key inputs.

N
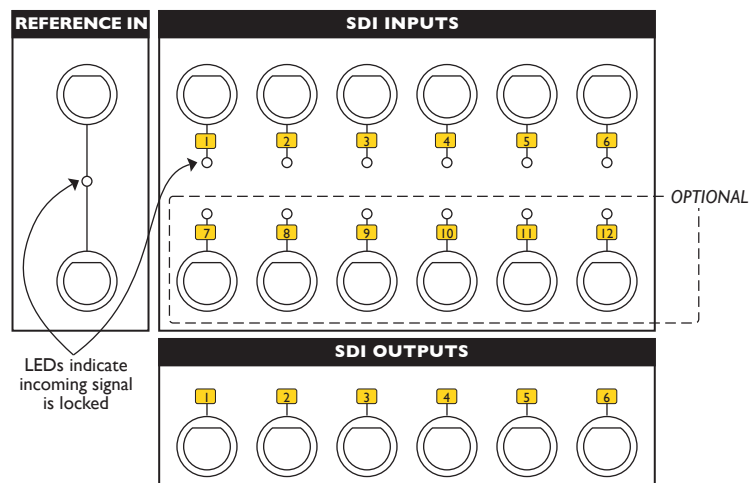
Note: Video inputs 7-12 are only available if the optional input boards is installed.

Reference Input

You must operate Dveous/MX locked to an external reference input. Dveous/MX accepts either tri-level sync or black burst (bi-level) in NTSC or PAL as reference. The reference must match the selected video format frame rate. For instance, NTSC black burst will lock up to 525 SD formats as well as any HD formats running at 59.94 or 29.97. HD at 1080/24P would require tri-level sync running at a 24 frame rate.
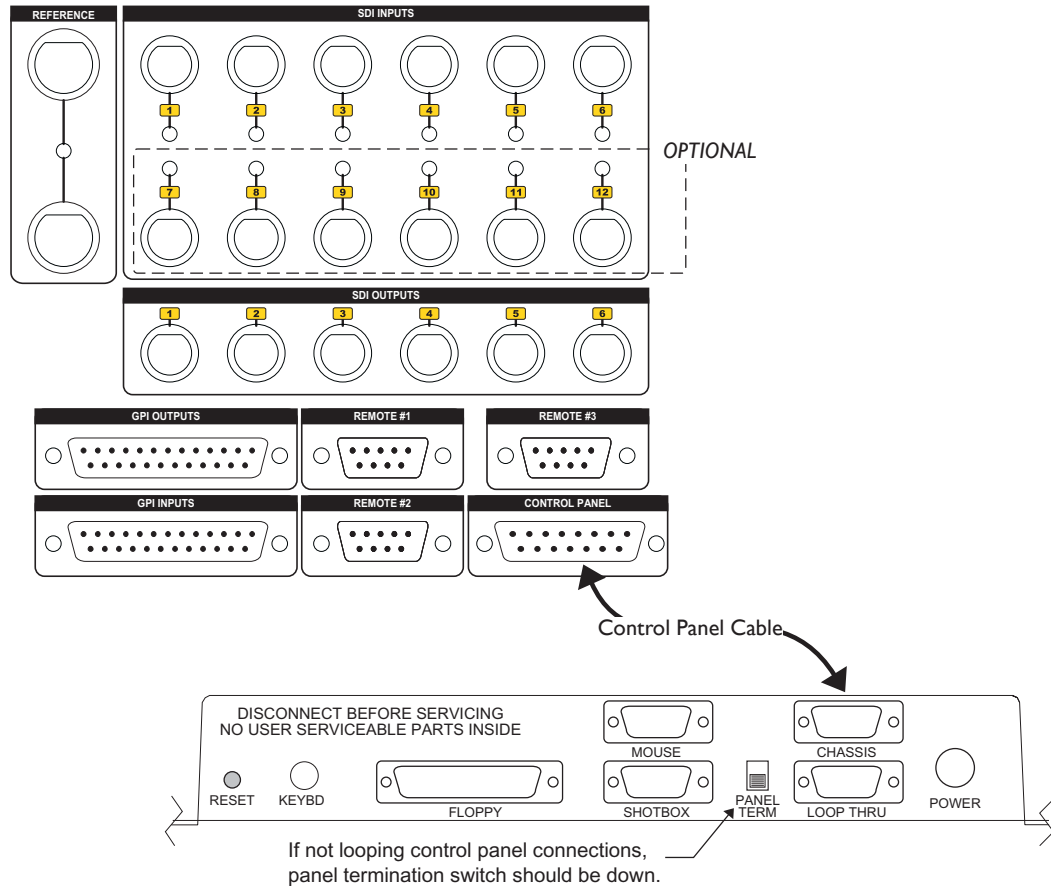
The reference input is a high impedance loop thru for daisy chaining the reference signal to other devices. This loop thru must be terminated at 75-ohm if not used and termination should always be at the end of the reference signal.

Serial Video Outputs

The Dveous/MX supports six 10 bit serial outputs. The HD data rate is 1.5Gbits per second. The SD data rate is 270Mbits per second. Outputs are selectable as combined video, combined key, channel video or channel key outputs. Please refer to Section 6 - Setup Menus for more information on output setup options.

Control Connections

See the following pages for details of the control and power connectors on the chassis and control panels. Their functions, and their pinouts are described.

OPTIONAL

Control Panel Cable

DISCONNECT BEFORE SERVICING
NO USER SERVICEABLE PARTS INSIDE

RESET   KEYBD   FLOPPY   MOUSE   SHOTBOX   PANEL TERM   CHASSIS   LOOP THRU   POWER

If not looping control panel connections, panel termination switch should be down.

Control Panel

This is a 15-pin female D subminiature connector that uses RS-422 communications. It also supplies +12VDC power for the Control Panels located near the Dveous/MX chassis. Control Panels requiring a cable longer than 33 feet (10 meters) do not use this power. A Remote Power supply is available for these long-run installations. See Using a Local Control Panel Supply, later in this section for more information on powering the Control Panel. The RS-422 communications support cable lengths of up to approximately 2000 feet (610 meters).
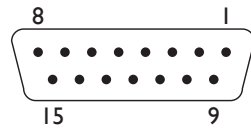
Table 2-1: C/P Connector Pinout

Pin	Function
1	+12VDC Power Supply (output)
2	+ Receive Data (input)
3	+ Transmit Data (output)
4	12VDC Power Supply Return
5	Not Used
6	+12VDC Power Supply (output)
7	– Transmit Data (output)
8	– Receive Data (input)
9	12VDC Power Supply Return
10	Not Used
11	Not Used
12	Chassis Ground
13-15	Not Used

Note: Pins 6 and 4 provide a second set of power and return lines for the Control Panel. These are in addition to those used (1 and 9) on other Abekas equipment. Their purpose is to reduce line losses.

Serial Connectors

Three serial connectors are provided: Remote 1, Remote 2 and Remote 3. These are 9-pin female D subminiature connectors.
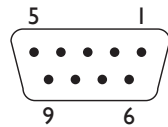

Table 2-2: Serial Connector Pinout

Pin	Function
1	Chassis Ground
2	– Transmit Data (output)
3	+ Receive Data (output)
4	Signal Ground
5	Not Used
6	Signal Ground
7	+ Transmit Data (output)
8	– Receive Data (input)
9	Chassis Ground

Note: Not all interfacing devices use standard 422 cabling. Check with the manufacturer of interfacing device for any differences to the above pinouts.

GPI In (General Purpose Interface Inputs)

This is a 25-pin female D subminiature connector you can use for a switch closure-based remote interface. There are 12 user-assignable GPI inputs, and each is configurable as either isolated closure or dry closure. There is a default function assigned to each input.
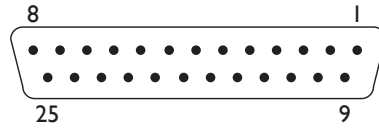
Table 2-3: GPI In Connector Pinout

Pin	Function
1	Chassis Ground
14	– GPI 1 In
2	+ GPI 1 In
15	– GPI 2 In
3	+ GPI 2 In
16	– GPI 3 In
4	+ GPI 3 In
17	– GPI 4 In
5	+ GPI 4 In
18	– GPI 5 In
6	+ GPI 5 In
19	– GPI 6 In
7	+ GPI 6 In
20	– GPI 7 In
8	+ GPI 7 In
21	– GPI 8 In
9	+ GPI 8 In
22	– GPI 9 In
10	+ GPI 9 In
23	– GPI 10 In
11	+ GPI 10 In
24	– GPI 11 In
12	+ GPI 11 In
25	– GPI 12 In
13	+ GPI 12 In

Selecting GPI Input Type

The GPI inputs can read either a simple contact closure or an external voltage between 5 and 24 volts. To choose between these two modes, set the GPI Input Jumpers located on the system motherboard.
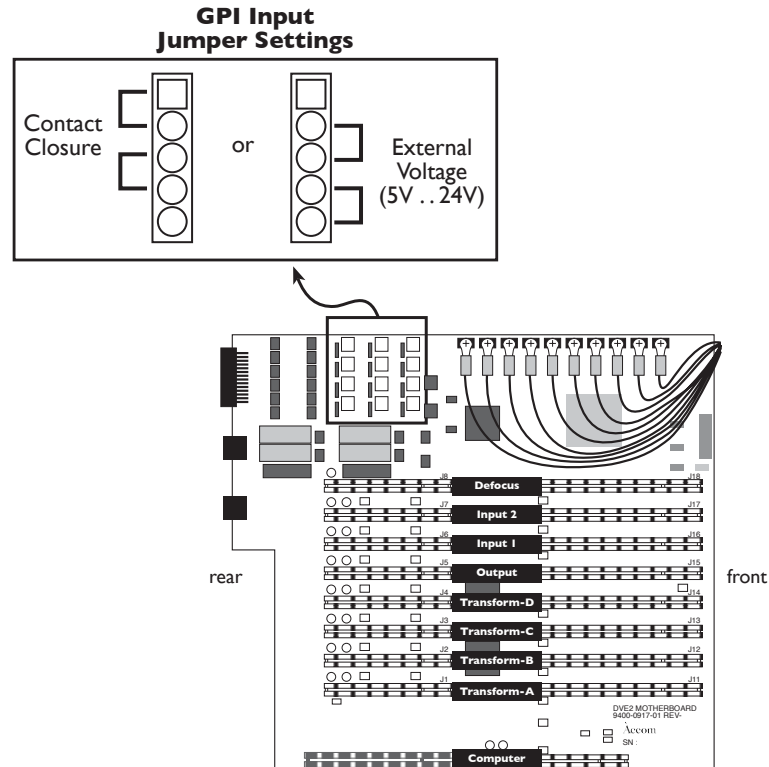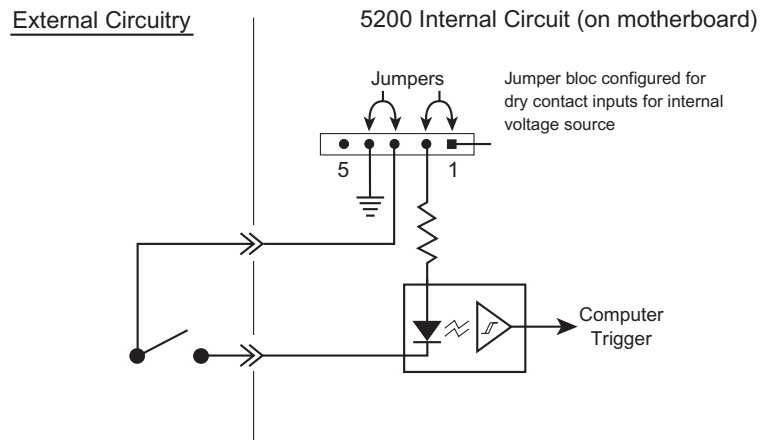

GPI Inputs

All GPI inputs work as switch closures through an opto-isolator. The following schematics show a dry contact and an external voltage interface.

Electrical Specifications The following specifications are for the opto-isolator (device # H11L1) used in Dveous/MX.

- INPUT LED MAXIMUM RATINGS
    - Reverse Voltage (V_R): 6 V.
    - Continuous Forward Current (I_F): 60 mA.
    - Peak Forward Current (300 μSec Pulse): 1.2 A.
    - Forward (Turn On) Voltage (V_F): 1.5 V (1.2 V Typical).
    - Isolation Surge Voltage (Peak AC Voltage, 60Hz, 1 Second Duration): 7500 V.

DRY GPI INPUTS

External Circuitry   5200 Internal Circuit (on motherboard)

Jumpers   Jumper bloc configured for
dry contact inputs for internal
voltage source

5   1

Computer
Trigger

ISOLATED (External Voltage) GPI INPUTS

External Circuitry   5200 Internal Circuit (on motherboard)

Jumpers   Jumper bloc configured for
dry contact inputs for internal
voltage source

+5 V to
+24 V   5   1

Gnd

Computer
Trigger
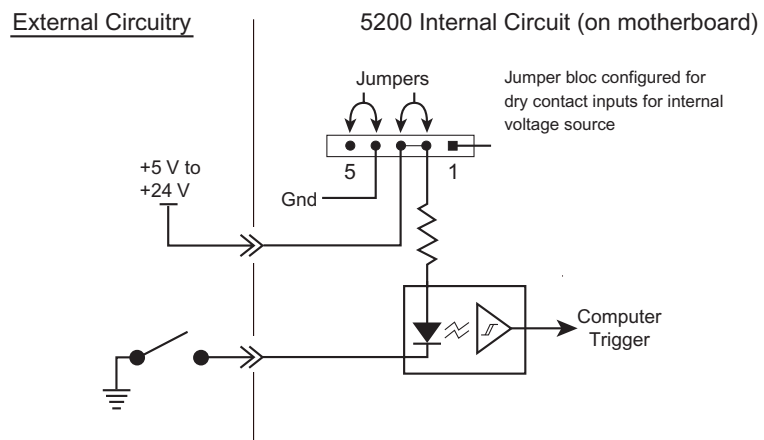
GPI Out (General Purpose Interface Outputs)

This is a 25-pin female D subminiature connector. It supplies tally information and can be used for keyframe-based switch closure control of an external device. The GPI outputs are programmable on a keyframe-by-keyframe basis. Electrically, they are configured as isolated closures.
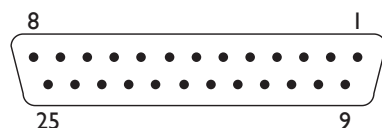

Table 2-4: GPI Out Connector Pinout

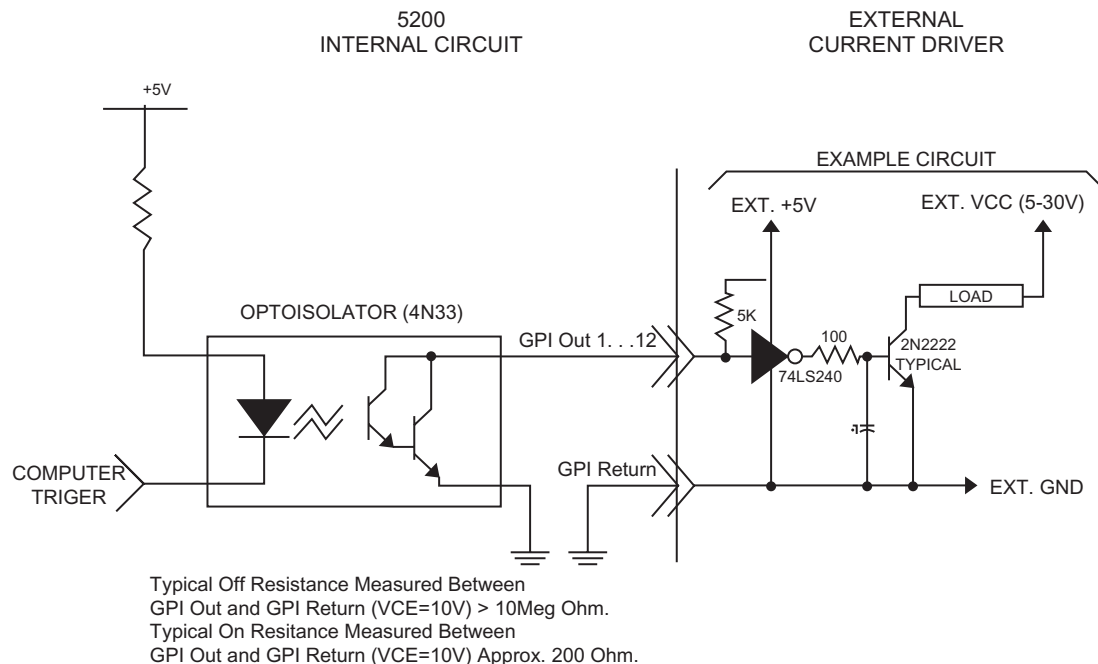| Pin	Function
1	Chassis Ground
14	– GPI 1 Out
2	+ GPI 1 Out
15	– GPI 2 Out
3	+ GPI 2 Out
16	– GPI 3 Out
4	+ GPI 3 Out
17	– GPI 4 Out
5	+ GPI 4 Out
18	– GPI 5 Out
6	+ GPI 5 Out
19	– GPI 6 Out
7	+ GPI 6 Out
20	– GPI 7 Out
8	+ GPI 7 Out
21	– GPI 8 Out
9	+ GPI 8 Out
22	– GPI 9 Out
10	+ GPI 9 Out
23	– GPI 10 Out
11	+ GPI 10 Out
24	– GPI 11 Out
12	+ GPI 11 Out
25	– GPI 12 Out
13	+ GPI 12 Out

GPI Outputs

2

All GPI outputs work as solid state opto-isolated switch closures. Opto-isolators have limited drive current capability, so some form of external drive interface is needed for applications that need greater current than that supplied by the opto-isolator output. The schematic below shows an example current driver circuit you can build. The 2N2222 general purpose transistor provides up to 650mW of drive. Check all applicable data sheets for the external devices shown below before building your current driver.

Electrical Specifications The following specifications are for the opto-isolator (device # 4N33) used in Dveous/MX.

■ OUTPUT DETECTOR MAXIMUM RATINGS
- Collector - Emitter Voltage (V_{CEO}): 30 V.
- Emitter - Collector Voltage (V_{ECO}): 5 V.
- Collector Current - Continuous (I_C): 150 mA.
- Power Dissipation (P_D): 150 mW.
- Isolation Surge Voltage (Peak AC Voltage, 60Hz, 1 Second Duration): 7500 V.

Typical Off Resistance Measured Between
GPI Out and GPI Return (VCE=10V) > 10Meg Ohm.
Typical On Resitance Measured Between
GPI Out and GPI Return (VCE=10V) Approx. 200 Ohm.

Control Panel Connections

See the following pages for details of the Control Panel connectors, their functions, and their pinouts.

Not Currently Supported

DISCONNECT BEFORE SERVICING
NO USER SERVICEABLE PARTS INSIDE

MOUSE   CHASSIS

RESET   KEYBD   FLOPPY   SHOTBOX   PANEL   LOOP THRU   POWER
                                                TERM

If not looping control panel connections,
panel termination switch should be down.
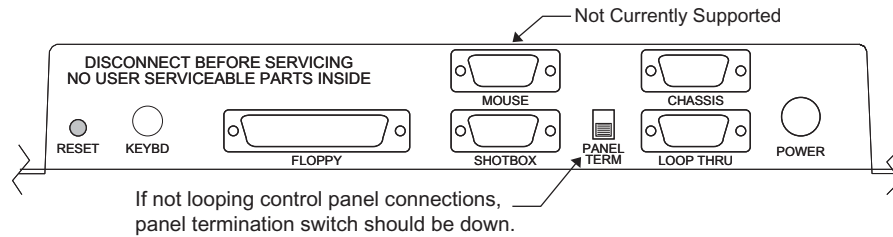
Note: The termination should be in the down position for single panel installations. For multiple panel installations, terminate (switch in down position) the last panel in the chain.

Keybd

This is a 6-pin female PS/2 connector for connecting an external QWERTY keyboard. This keyboard can be used to name files and add comments to them.

Table 2-5: Keyboard Connector Pinout

Pin	Function
1	Data
2	No Connection
3	Ground
4	+5 VDC
5	Clock
6	No Connection
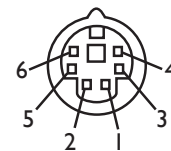
Floppy

This is a 25-pin female D subminiature connector, used to connect the optional 5200-FDD external floppy drive, P/N 9500-0204. This option is used if you countersink the Control Panel or otherwise block access to the built in floppy drive. Note that connecting an external floppy drive does not deactivate the internal drive; both are active and usable.
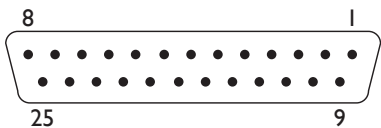
Table 2-6: Floppy Connector Pinout

Pin	Function
1	Read Data
2	PU
3	Write Enable
4	Write Data
5	Step
6	Index
7	Track 00
8	Write Protect
9	Head Load
10	Direction
11	PU
12	Drive Select 4
13	Not Used
14	Ground
15	Ground
16	Ground
17	Ground
18	Ground
19	Ground
20	VCC
21	VCC
22	VCC
23	Head Side
24	Drive Select 2
25	Disk Changed

Mouse

Note: This connector is not currently supported.

Chassis

Use the Chassis connector to connect to the Dveous/MX Main Chassis. When using the standard Control Panel and a cable length of 33 feet (10 meters) or less, this port also provides the +12VDC power (see Connecting Control Panels, later in this section).
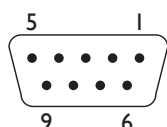
Table 2-7: Chassis Connector Pinout

Pin	Function
1	+12VDC Power Supply (input)
2	+ Transmit Data (output)
3	+ Receive Data (input)
4	12VDC Power Supply Return
5	Chassis Ground
6	+12VDC Power Supply (input)
7	– Receive Data (input)
8	– Transmit Data (output)
9	12VDC Power Supply Return

Note: Pins with the same name (1 and 6, 4 and 9) are tied together in the Control Panel chassis. Double pins are provided to reduce voltage losses with small gauge wire or long cable lengths. With heavier wire, you need use only one pin of each pair. Do not connect pin 5 (Chassis Ground) to pins 4 or 9 (12VDC Return).

Shot Box

This 9-pin female D subminiature connector has the same pin outs as the above chassis connector. Accom no longer supplies the Shot Box option for Dveous/MX. A shotbox from a "classic" Dveous will work when connected to this port.

Loop Thru

Use this 9-pin female D subminiature connector to connect an additional Control Panel. The power is not supplied to this connector, only the communications lines. Each additional Control Panel must use the optional 5200-CPPS Control Panel power supply, part number 2800-0063. See Using a Local Control Panel Supply, later in this section.
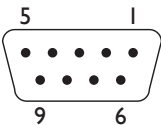
Table 2-8: Loop Thru Connector Pinout

Pin	Function
1	Not Used
2	+ Transmit Data (output)
3	+ Receive Data (input)
4	Signal Ground
5	Chassis Ground
6	Not Used
7	– Receive Data (input)
8	– Transmit Data (output)
9	Signal Ground

Power

This 5-pin female DIN connector accepts Control Panel power from the 5200-CPPS Control Panel remote power supply, P/N 2800-0063, and is used when the Dveous/MX chassis is located more than 33 feet (10 meters) from the Control Panel. See Using a Local Control Panel Supply, later in this section, for information on locally powering the Control Panel.
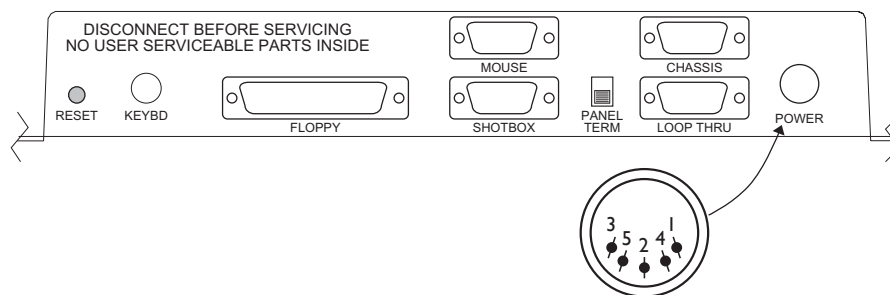

Table 2-9: Power Connector Pinout

Pin	Function
1	Shield
2	Ground
3	+12VDC
4	Ground
5	+12VDC

Note: Pins with the same name (2 and 4, 3 and 5) are tied together in the Control Panel chassis. Double pins are provided to reduce voltage losses with small gauge wire or long cable lengths. With heavier wire, you need use only one pin of each pair. Do not connect pin 1 (Shield) to pins 2 or 4 (Ground).
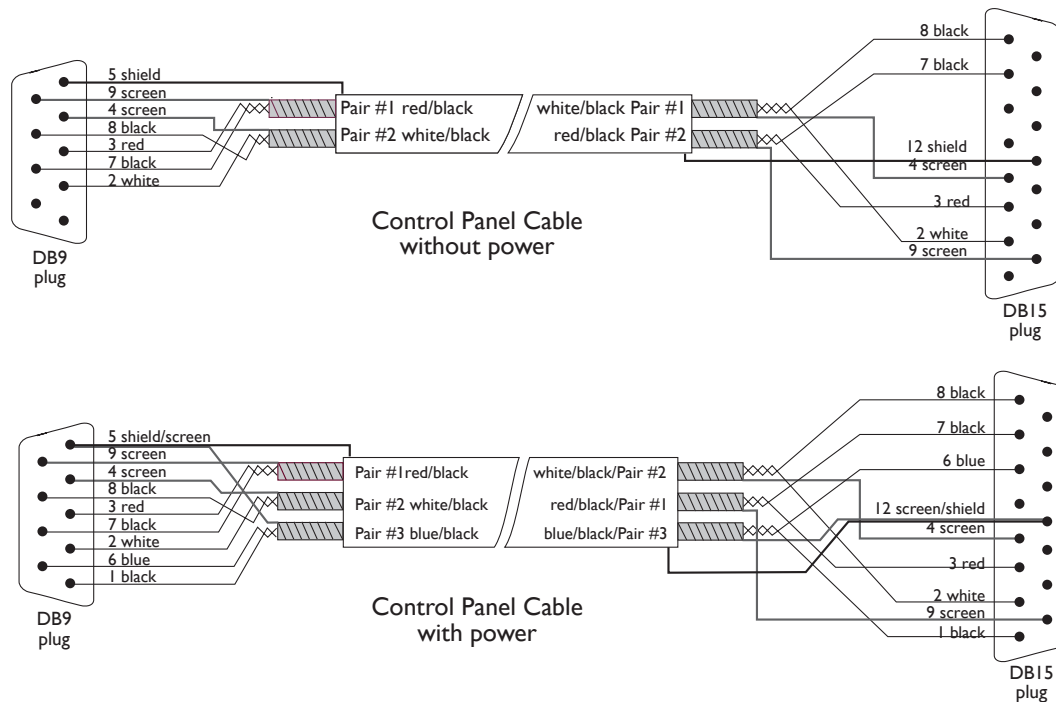
Connecting Control Panels

Accom supplies a 33-foot (10-meter) cable for connecting a Control Panel to the Dveous/MX chassis. This cable carries RS-422 communications between the Control Panel and chassis, and +12VDC power to the Control Panel. The wiring of this cable is NOT standard RS-422 (see the pinout). It has a 15-pin male D connector on the chassis end and a 9-pin male D connector on the Control Panel end (Part number 9000-0204).

Instead of using an Accom-supplied cable, you can construct a custom cable. There are two things to keep in mind:

◉ The chassis 12VDC power supply can drive a Control Panel up to 33 feet (10 meters) away. Longer distances require a local power supply at the Control Panel location (Option 5200-CPPS).

◉ The RS-422 communications have a cable length limit of 2000 feet (610 meters).

A longer, non-power carrying cable available from Accom is:
100 ft. (30 meters) – #9000-0207-01

The cable should be 22 gauge with twisted-pair conductors. An overall-shield cable or a cable with individual screened pairs with a shield can be used. Also, both power carrying and non-power carrying cables are shown.

Àccom.

5 shield
9 screen
4 screen
8 black
3 red
7 black
2 white

Pair #1 red/black
Pair #2 white/black

white/black Pair #1
red/black Pair #2

8 black
7 black

12 shield
4 screen

3 red

2 white
9 screen

DB9
plug

**Control Panel Cable
without power**

DB15
plug

5 shield/screen
9 screen
4 screen
8 black
3 red
7 black
2 white
6 blue
1 black

Pair #1red/black
Pair #2 white/black
Pair #3 blue/black

white/black/Pair #2
red/black/Pair #1
blue/black/Pair #3

8 black
7 black
6 blue

12 screen/shield
4 screen

3 red

2 white
9 screen
1 black

DB9
plug

**Control Panel Cable
with power**

DB15
plug

Control Panel Pin	Function	Chassis Pin
1	+12V Power Supply →	1
2	+ Receive Data ←	2
3	+Transmit Data →	3
4	Circuit Ground	4
N/A	Not Used	5
6	+12V Power Supply	6
7	-Transmit Data →	7
8	-Receive Data ←	8
9	12V Return	9
N/A	Not Used	10
N/A	Not Used	11
5	Chassis Ground	12
N/A	Not Used	13
N/A	Not Used	14
N/A	Not Used	15

N
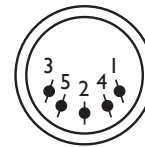
Note: The termination switch should be in the down position (terminated) for single panel installations. For multiple panel installations, terminate only the last panel in the chain (switch in down position).

Using a Local Control Panel Supply

The Dveous/MX chassis supplies 12VDC to power the Control Panel. This is sufficient for cable runs of up to 33 feet (10 meters). Longer cable runs require the Abekas 5200-CPPS Control Panel power supply, P/N 2800-0063, which has the connector needed to plug into the rear of the Control Panel. It auto-senses for input voltages from 90 - 250 VAC and 47 - 63 Hz.

Because of possible damage to the Control Panel electronics, we strongly discourage using a local supply other than one from Accom. If you connect your own supply to the Control Panel, you must use a 12VDC 2.5 amp supply.

Note: The Control Panel uses the input voltage directly. Do not connect a supply greater than 12VDC. There is no internal regulator.

The connector used is a 5-pin male DIN type. The connector pinout is as follows:

Table 2-10: Local Power Connector Pinout

Pin	Function
1	Shield
2	Ground
3	+12VDC
4	Ground
5	+12VDC

Note: Pins with the same name (2 and 4, 3 and 5) are tied together in the Control Panel chassis. Double pins are provided to reduce voltage losses with small gauge wire or long cable lengths. With heavier wire, you need use only one pin of each pair. Do not connect pin 1 (Shield) to pins 2 or 4 (Ground).