QUBICAAMF

INSTALLATION MANUAL

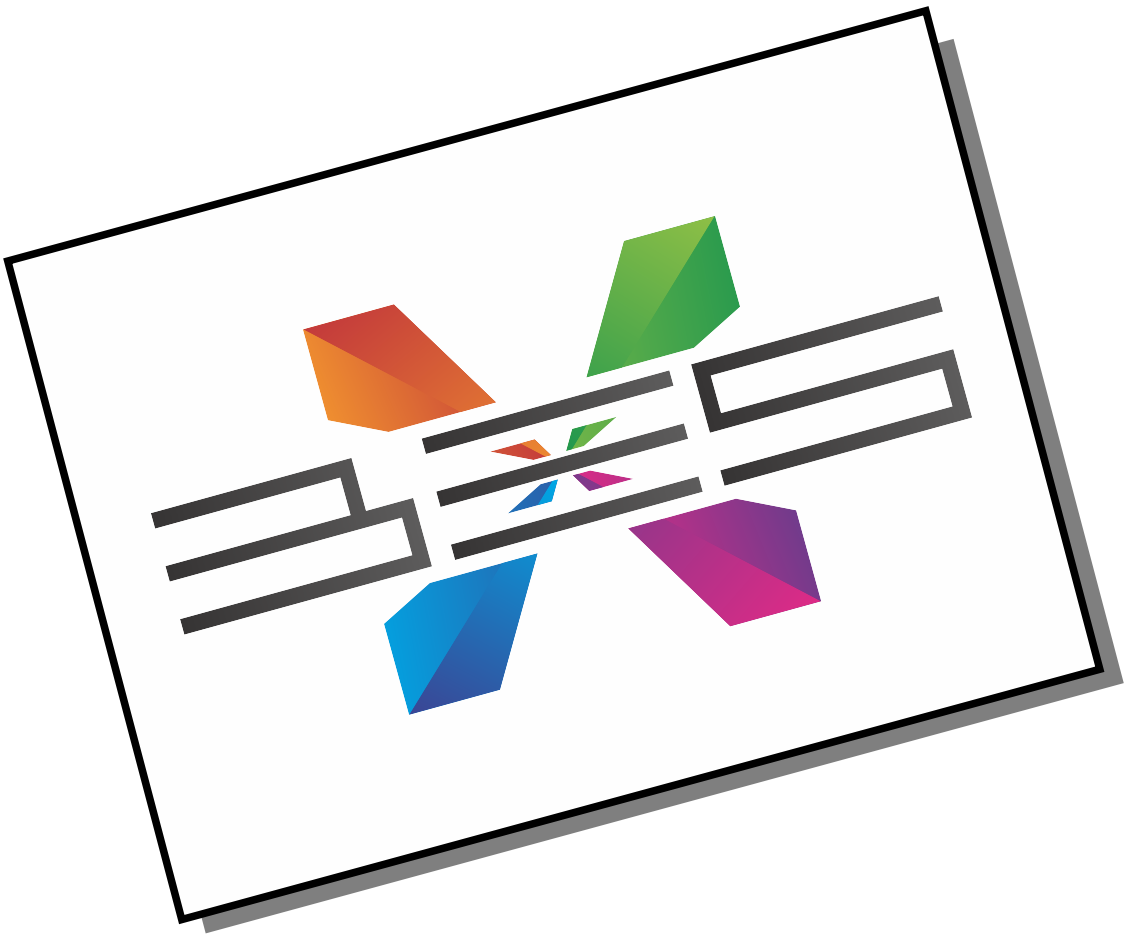

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Table of Contents

Summary of changes

REV 9 (JUN 2018)

- Added the 5HD-HUB.
- Revised 610325104 kit tables.
- Updated the console pedestal assembly tables.

REV 8 (April 2016)

- Added the 5HD-CPU.

REV 7 (February 2016)

- Added the paragraph “How to boot the BES X system in emergency (in the case of a ConquerorPRO server PC crash)”.
- Added the BES X Dual Mode installation and configuration paragraph.
- Updated the “How to upload animations to the 4HD/5HD-CPU units” procedure.

REV 6 (June 2015)

- Added new video server.
- Added “boot up sequence” section and updated the error list.
- Added the “How to” section.
- Revised section 3 “BES X system configurations”.
- Revised table “T.40.012 Cat.5e wall mounting box standard network cable”
- Added “LCOM wiring” to the section “LCOM line”

REV. 5 (February 2015):

- Added SuperTouch Rev.2.
- Added drawings for pedestals: 286002830, 286002861, 286002862, 286002863, 286002864, 286002865, 286002869.
- Added EMEA LG monitors.
- Updated System first startup procedure.

General Installation Notes

For devices directly connected to the power, it is necessary to check that the electrical capacity of the system is suitable for the maximum power requirements of the equipment (as indicated on the labels of the equipment).

Always open the circuit breaker and disconnect the power plug from the powered units before looking for, and clearing, any problem.

To reduce the risk of fire or electrical shock, do not expose this equipment to moisture.

This appliance must be positioned such that the mains supply cord connector is accessible after installation.

Be aware of the voltage being supplied to the equipment (i.e. from 100V to 240V) and that the equipment is set for the correct voltage (when applicable).

Failure to set the equipment for the correct voltage will result in damage to the equipment.

The electrical safety of the equipment is obtained only when the equipment is connected to an effective GROUNDING SYSTEM (in accordance with the existing electrical codes and safety regulations).

It is necessary to have the power and grounding inspected by a licensed and certified electrician.

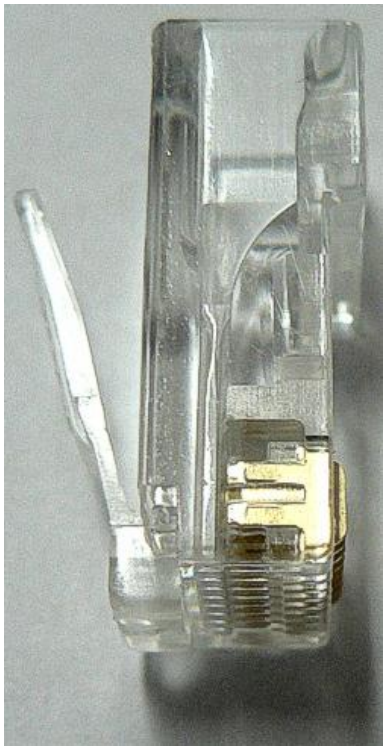
The manufacturer cannot be responsible for possible injury, damages or malfunctioning of the equipment due to the absence of or improper grounding of the equipment.

RJ45 connectors.

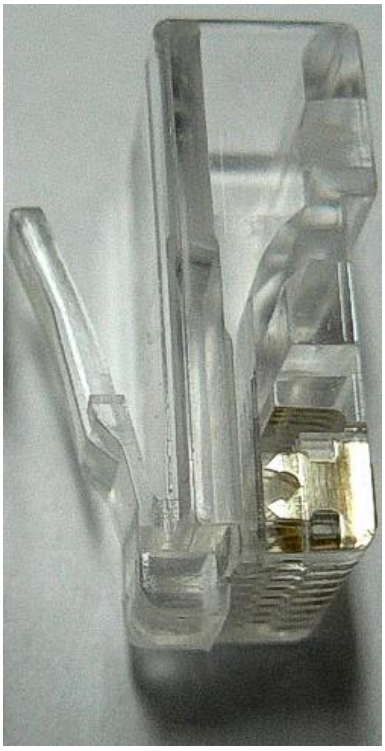
Each connector internally have sharp prongs that when crimped pierce the insulation of the wire and connect with the conductor. Ethernet cables may have solid or stranded wire conductors and the sharp prongs are different in the connectors made for each type of wire. Connectors for solid (single strand) wire often has three, slightly splayed, prongs on each contact to securely surround and grip the conductor.

Connectors for stranded wires have prongs that are designed to connect to multiple wire strands.

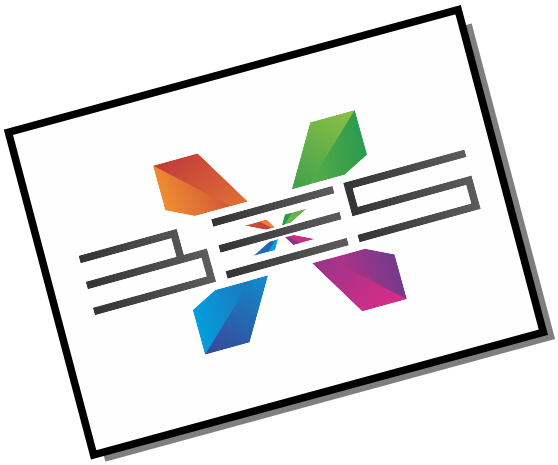
Connector plugs are designed for either solid or stranded wire; a plug for one wire type might not make reliable contact when crimped to a cable with wires of the other type.



RJ45 CONNECTOR FOR SOLID NETWORK CABLE



RJ45 CONNECTOR FOR PATCH NETWORK CABLE



SECTION 1

SYSTEM COMPONENTS

INSTALLATION MANUAL

The core of the BES X scoring system is composed by two units: the 4HD/5HD-HUB and the 4HD/5HD-CPU units. Install this couple of units for each pair of lanes present in the bowling center, as explained in this manual.

1.1 - 4HD-HUB and 5HD-HUB

IMPORTANT NOTE: the 5HD-HUB unit, P/N: 288250025, is supported by ConquerorPRO version 12.13.06 or higher.

The 4HD-HUB and the 5HD-HUB are the interfaces between the 4HD/5HD-CPU, the LCOM devices (pinspotter interfaces, camera, etc…) and all the other 4HD/5HD devices (such as the console) with the scoring network. The main functionalities of these units are to act as a network hub and supply power for all the devices connected to it, except for the main (or slave) scoring network switch connected to the N1 connector, that does not take power from the 4HD/5HD-HUB unit, so the turning on or off of these units (by the plugging or unplugging of the power cord) will result in the turning on or off of the entire pair of lanes. These units have to be installed on the rear side of the curtain wall (or on the aisle between each pair of pinspotters, if 90 XLi with CE safety kit are present).

There are two different versions for the 4HD-HUB unit. The last version is called “4HD-HUB Rev.3”. The main difference between the 4HD-HUB Rev.3 unit and the previous versions is the absence of the D1 and D2 ports on the 4HD-HUB Rev.3. During this manual we will refer to the “4HD-HUB Rev.3” as “4HD-HUB” for simplicity.

1.1.1 - Installation notes

The 4HD/5HD-HUB is the input/output device for the scoring system.

This unit communicates with the front desk via a standard network by the N1 connector and is connected to all other devices by a standard network with POE (Power Over Ethernet). **NEVER** connect, for any reason, a standard network device (such as a network switch) to a port different than the N1 port. Connecting a standard network device to a port different than N1 may result in major damages for the device or for the 4HD/5HD-HUB unit itself.

The 4HD/5HD-HUB unit must be installed on the curtain wall, between the pair of pinspotters, in an easily accessible position.

If the installation on the curtain wall is not possible, the 4HD/5HD-HUB unit can be placed on the wall behind the pinspotters.

If 90 XLi pinspotters with safety kit are present, install the 4HD/5HD-HUB on the panel located at the end of the aisle present between each pair of pinspotter, as explained in the table T.20.083.

The connection between the 4HD/5HD-HUB and the 4HD/5HD-CPU or the console are made with different cables according to the distance between the units:

- Up to 50 m (up to 150 ft.): one AWG-24 Cat. 5e network cable;
- More than 50 m (more than 150 ft.): one solid AWG-23 Cat. 6 cable.

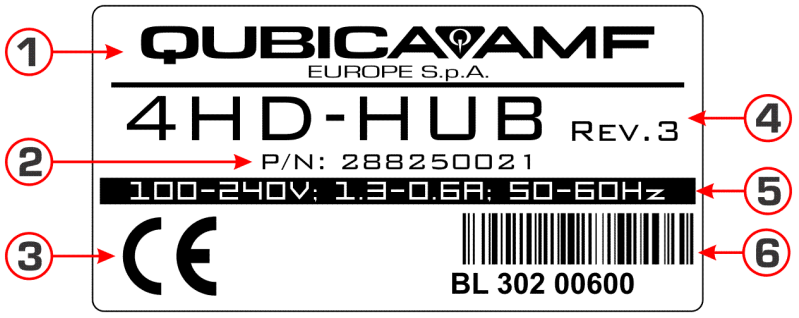
These cables are provided by QubicaAMF.

1.1.2 - 5HD-HUB label description

The image above displays the label located on the side of the 5HD-HUB unit.

1. Manufacturer (QubicaAMF Europe S.p.A.);
2. Part number (P/N: 288250025);
3. List of certifications (CE certification);
4. Name of the unit (5HD-HUB);
5. Electrical notes (100-240 V; 1.3-0.6 A; 50/60 Hz);
6. Serial number with bar code.

1.1.3 - 4HD-HUB label description



The image above displays the label located on the side of the 4HD-HUB unit.

7. Manufacturer (QubicaAMF Europe S.p.A.);
8. Part number (P/N: 288250021 or 288250018 or 288250014);
9. List of certifications (CE certification);
10. Name of the unit (4HD-HUB Rev.3);
11. Electrical notes (100-240 V; 1.3-0.6 A; 50/60 Hz);
12. Serial number with bar code.

1.1.4 - Connections

Power Specifications for the 4HD/5HD-HUB are: **100-240 V; 1.3-0.6 A; 50/60 Hz**.

On the 4HD-HUB the following connections are available:

Connectors on the left side of the 4HD-HUB unit**:**

- **L1 CPU COM line**: Network connection with POE for the 4HD/5HD-CPU.
- **L2 Powered COM line**: Currently not used.

- **L3 ODD console COM line**: Network connection with POE for the odd lane console (EasyKey or SuperTouch models only). When a single console per pair of lanes is installed, this output is not used.
- **L4 EVEN/SINGLE console COM line**: Network connection with POE for the even lane console (EasyKey or SuperTouch models only). This output is always used when the console have to be installed, even in the case of single console per pair of lanes.
- **PRESENT ONLY ON THE 4HD-HUB: P1 LCD console backlight**: Power out for SuperTouch console backlights NOT used with SuperTouch Ver.2 consoles (P/N: 288150026).
- **PRESENT ONLY ON THE 4HD-HUB Rev.2**: **D1 Console Data ODD**: For OLD console only. Power supply, XCOM and input / output audio channels for the odd lane console (Micro I, Micro II or Fly console models only). When a single console per pair of lanes is installed, this output is not used.
- **PRESENT ONLY ON THE 4HD-HUB Rev.2**: **D2 Console Data EVEN / SINGLE**: For OLD console only. Power supply, XCOM and input / output audio channels for the even lane console (Micro I, Micro II or Fly console models only). This output is always used when the console have to be installed, even in the case of single console per pair of lanes.
- **PRESENT ONLY ON THE 5HD-HUB**: **D1 Pinspotter COM line**: Connection to TMS pinspotter chassis.
- **PRESENT ONLY ON THE 5HD-HUB**: **D2 YCOM COM line**: Connection for Control I/O 3 **ONLY**.

Connectors on the upper side of the 4HD-HUB unit**:**

- **N1 Network**: Standard network connection to the scoring network.

4HD-HUB LEDs:

Each RJ45 port is provided of two colored LED (orange and green).

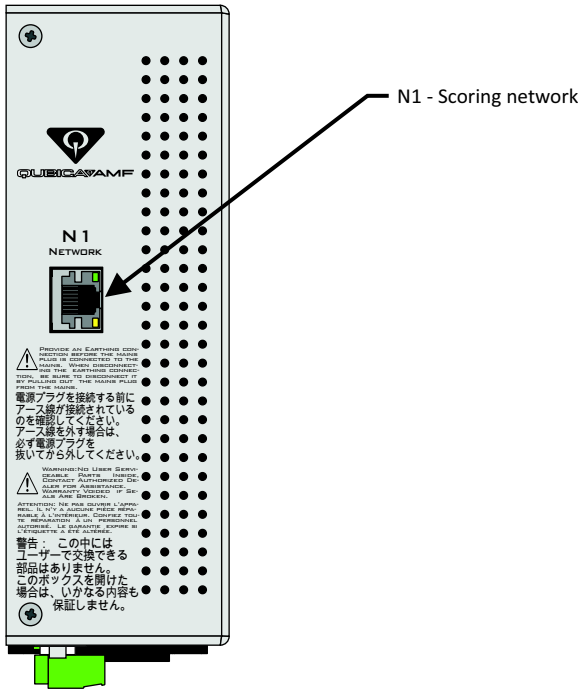
- **N1**:
  - **Green**: The LED is ON when a link is present.
  - **Orange**: The LED flashes when is transmitting or receiving data from the network.
- **L1, L2, L3 and L4**:
  - **Green**: Power Over Ethernet status. When the LED is ON, it indicates the 4HD-HUB is providing the correct power over Ethernet to the connected device.
  - **Orange**: The LED flashes when is transmitting or receiving data from the network.
- **4HD-HUB D1 and D2**:
  - **Green**: Power output status. When the LED is ON, it indicates the CPU is providing the correct power to the connected device
  - **Orange**: XCOM communication line. The LED flashes when the XCOM line is running.
- **5HD-HUB D1 and D2**:
  - **Tx**: The LED flashes when transmitting data from the connected device.
  - **Rx**: The LED flashes when receiving data from the connected device.

1.1.5 - How the 4HD/5HD-HUB works

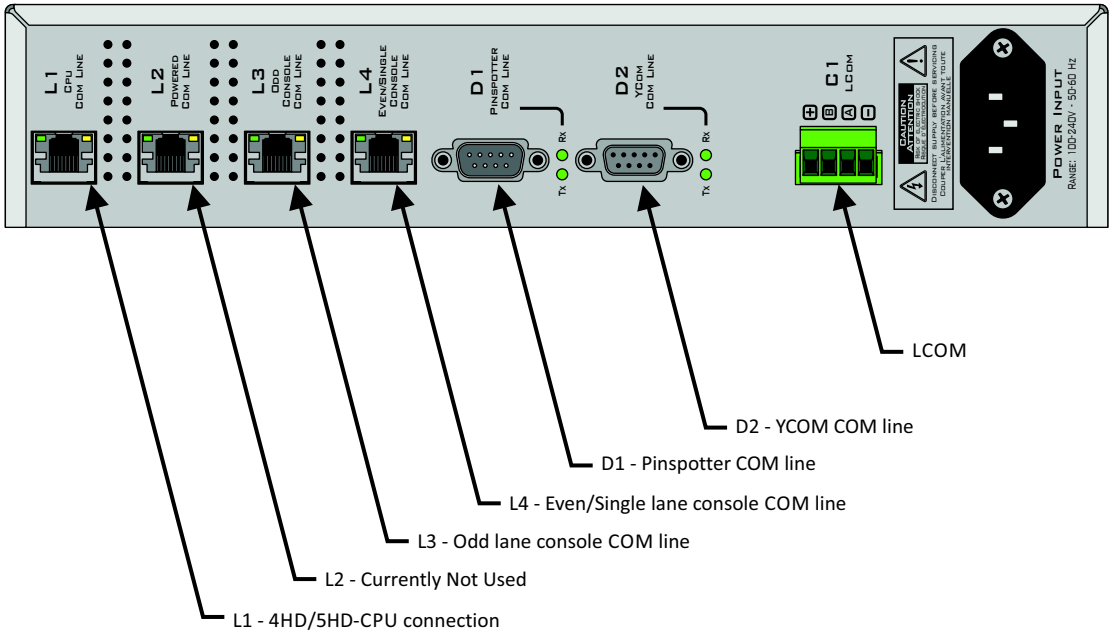
The communication between the 4HD/5HD-HUB unit and the front desk is based on the TCP/IP protocol.

The operation of the 4HD/5HD-HUB is similar to a normal network hub, with the additional functionality to give power to all the lane devices (4HD/5HD-CPU, SuperTouch, EasyKey, pinspotter interface, etc.) connected to it. The turning on/off of the 4HD/5HD-HUB will be the turning on/off of the entire pair of lanes devices (4HD/5HD-CPU, SuperTouch, EasyKey, pinspotter interface, etc.).

5HD-HUB
Upper View



5HD-HUB
Front View

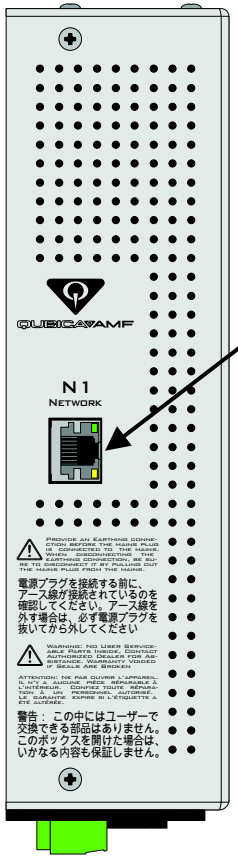


Dimensions

Heigth	300 mm	11” 13/16
Length	170 mm	6” 3/4
Depth	65 mm	2” 9/16
Weight	1800 g	4 lbs

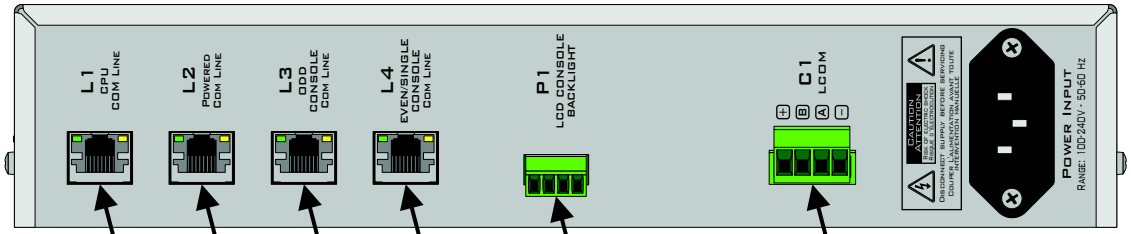
T.20.107	
288250025 5HD-HUB	
JUN 5th 2018	

4HD-HUB
Upper View



N1 - Scoring network

4HD-HUB
Front View



LCOM

P1 - Power out for LCD console back lights

L4 - Even/Single lane console COM line

L3 - Odd lane console COM line

L2 - Currently Not Used

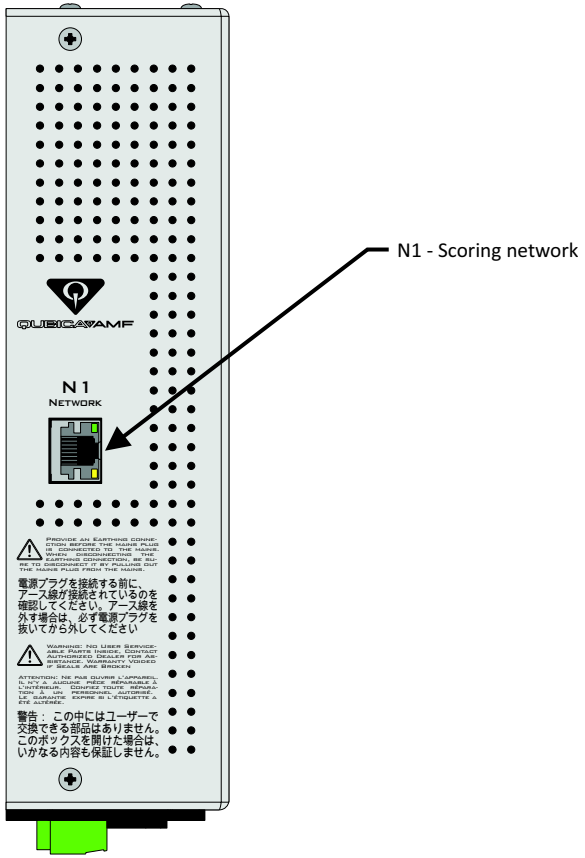
L1 - 4HD/5HD-CPU connection

Dimensions

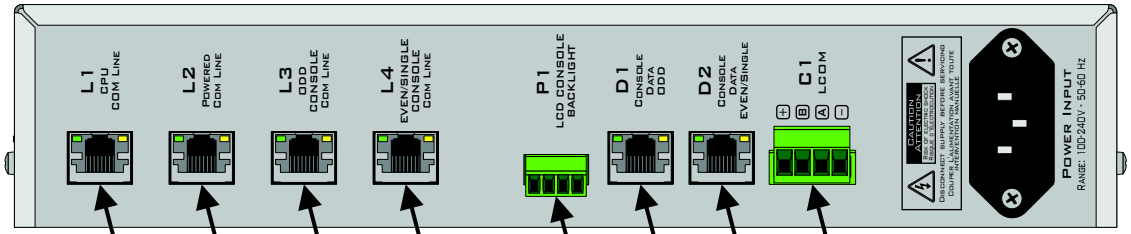
Heigth	300 mm	11” 13/16
Length	240 mm	9” 1/2
Depth	65 mm	2” 9/16
Weight	3000 g	6.6 lbs

T.20.102	
288250021 4HD-HUB REV.3	
APR 27th 2017	

4HD-HUB
Upper View



4HD-HUB
Front View



Dimensions

Heigth	300 mm	11” 13/16
Length	240 mm	9” 1/2
Depth	65 mm	2” 9/16
Weight	3000 g	6.6 lbs

T.20.076	
288250018 4HD-HUB	
APR 27th 2017	

1.2 - 4HD-CPU and 5HD-CPU

IMPORTANT NOTE: the 5HD-CPU unit, P/N: 288250023, is supported by ConquerorPRO version 12 or higher.

The 4HD-CPU and 5HD-CPU are the graphic engine of the BES X scoring system. Their functionality is to display the scoring grids, the animations, the different environments, etc… They are connected to the 4HD/5HD-HUB unit with a single network cable and must be installed near the overhead monitors.

These units can manage up to two independent video outputs for the scoring system, but can control (monitor ON/OFF, channel change, etc. only on supported monitors) up to three monitors (two for the scoring system and one with an independent video signal). They communicates and takes power from the 4HD/5HD-HUB unit through the network cable connected to the L1 connector and are connected to the overhead monitors through the HDMI connectors. These units must be installed near the overhead monitors, in particular the 4HD-CPU and the 5HD-CPU must be installed on the monitor frames if the monitor frames are supplied by QubicaAMF. If the monitor frames are not supplied by QubicaAMF, the 4HD-CPU or the 5HD-CPU unit shall be fixed to a vertical surface **NEAR** the overhead monitors, in an area that ensures the correct air recirculation, with the L1 connector facing upwards.

There are two versions for the 4HD-CPU unit with part numbers: 288250017 and 288250020.

There is one version of the 5HD-CPU unit, with part number: 288250023.

1.2.1 - Installation notes

The 4HD/5HD-CPU unit communicates with the 4HD/5HD-HUB via a standard network with POE. The connection between the 4HD/5HD-CPU and the 4HD/5HD-HUB is between the L1 port of the 4HD/5HD-CPU unit and the L1 port of the 4HD-HUB, as explained in this manual.

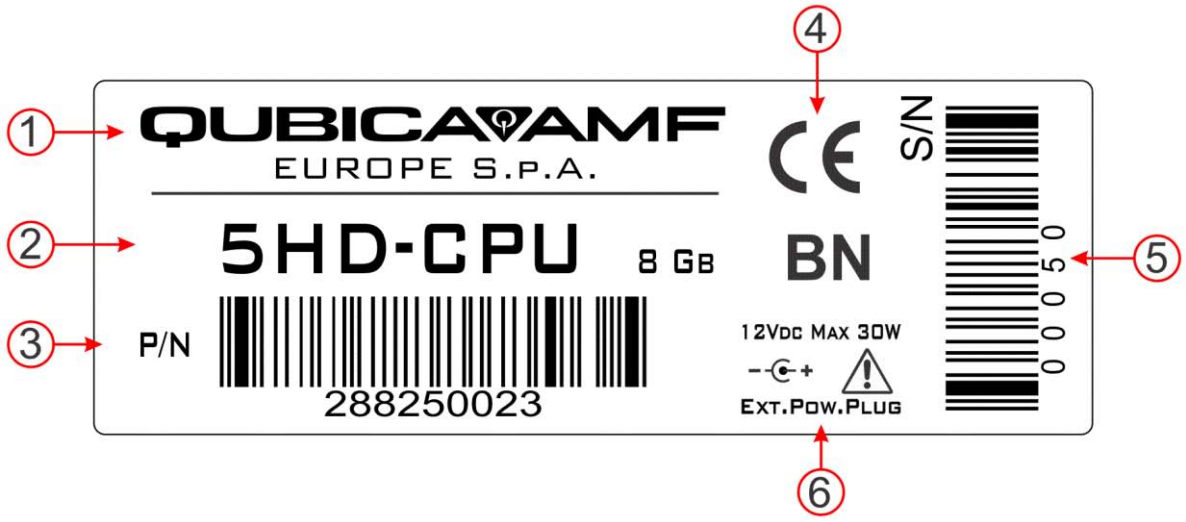
In the case of monitors and monitor frames provided by QubicaAMF the 4HD/5HD-CPU unit must be installed on the monitor frames. If the monitor frames are not supplied by QubicaAMF, the 4HD/5HD-CPU unit shall be fixed to a vertical surface **NEAR** the overhead monitors, in an area that ensures the correct air recirculation, with the L1 connector facing upwards.

The connection between the 4HD/5HD-HUB and the 4HD/5HD-CPU is made with a different cable, according to the distance between the units:

- Up to 50 m (up to 150 ft.): one AWG-24 Cat. 5e network cable;
- More than 50 m (more than 150 ft.): one solid AWG-23 Cat. 6 cable.

These cables are provided by QubicaAMF.

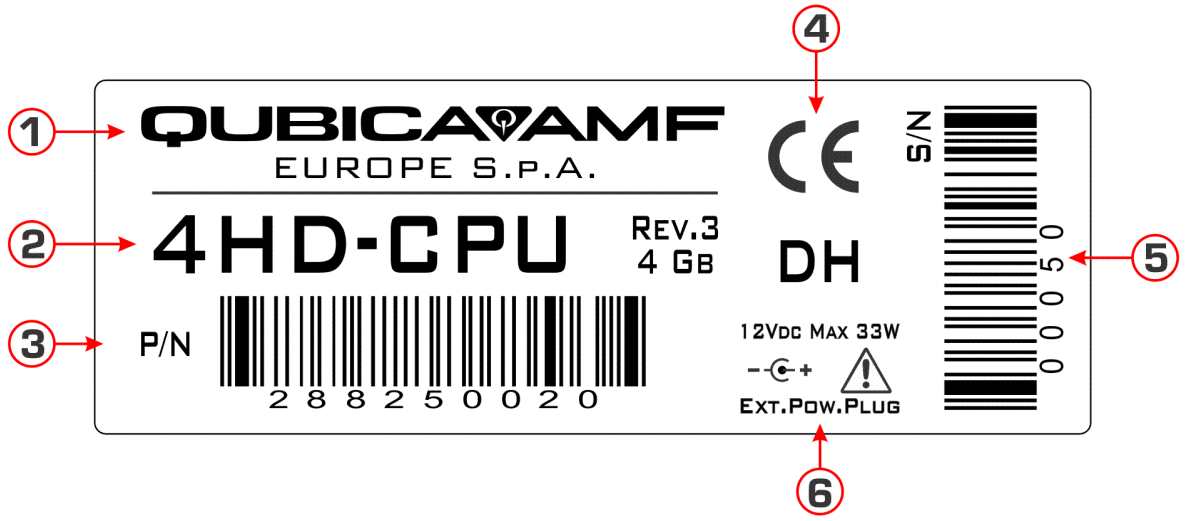
1.2.2 - 5HD-CPU Label description



The image above displays the label located on the side of the 5HD-CPU unit.

1. Manufacturer (QubicaAMF Europe S.p.A.);
2. Name of the unit (5HD-CPU);
3. Part number with bar code (P/N: 288250023);
4. List of certifications (CE certification);
5. Serial number with bar code.
6. Electrical specifications (12 VDC Max 30W Ext. Pow.Plug)

1.2.3 - 4HD-CPU Label description



The image above displays the label located on the side of the 4HD/5HD-CPU unit.

7. Manufacturer (QubicaAMF Europe S.p.A.);
8. Name of the unit (4HD-CPU);
9. Part number with bar code (P/N: 288250020 or 288250017);
10. List of certifications (CE certification);
11. Serial number with bar code.
12. Electrical specifications (12 VDC Max 33W Ext. Pow.Plug)

1.2.4 - Connections

On the 4HD/5HD-CPU the following connections are available:

Connectors on the upper side of the 4HD/5HD-CPU unit**:**

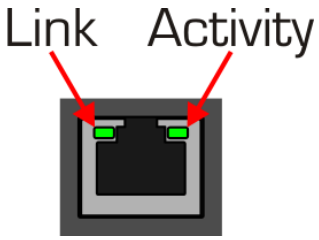
- **EXTERNAL POWER SUPPLY**: AC/DC external power supply. Not used when the 4HD/5HD-CPU is used for score purposes.
- **L1**: Network connection to the 4HD/5HD-HUB unit.
- **U1**: Currently not used.
- **U2**: Currently not used.

Connectors on the upper side of the 4HD/5HD-CPU unit**:**

- **EVEN CTRL**: Serial control for the even lane overhead monitor. Only for supported monitors.
- **EVEN HDMI**: Digital video output for the even lane overhead monitor. The control through the HDMI connector works only on supported monitors (actually on AccuVision Gen.3 and Gen.4).
- **AUX CTRL**: Serial control for the third overhead monitor. Only for supported monitors.
- **4HD-CPU ONLY: AUX HDMI**: HDMI control **ONLY** for the third overhead monitor. The control through the HDMI connector works only on supported monitors (actually on AccuVision Gen.3 and Gen.4).
- **ODD CTRL**: Serial control for the odd lane overhead monitor. Only for supported monitors.
- **ODD HDMI**: Digital video output for the odd lane overhead monitor. The control through the HDMI connector works only on supported monitors (actually on AccuVision Gen.3 and Gen.4).

4HD/5HD-CPU LEDs:

The L1 network port is provided of two colored LED (both LEDs are green). The LED on the top left angle of the port, is ON with an active link and OFF if it is disconnected. The LED on the top right angle will blink with the activity of the network.



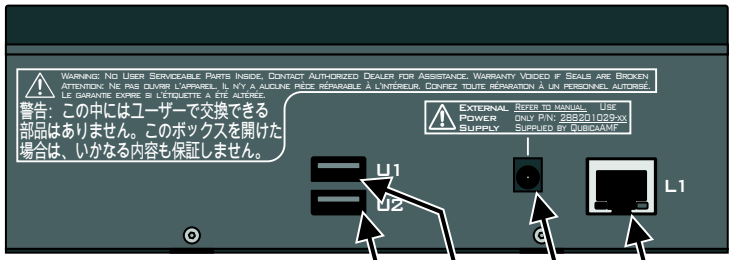
1.2.5 - How the 4HD/5HD-CPU works

The communication between the 4HD/5HD-CPU unit and the 4HD/5HD-HUB is based on the TCP/IP protocol.

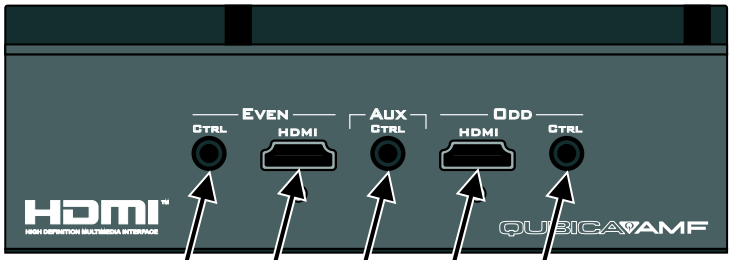
Thus 4HD/5HD-CPU units have an IP address that changes depending on the number of the pair of lanes where they are installed. E.g., the address is 192.168.216.101 for the pair no. 1, 192.168.216.102 for the pair no. 2, …….3 for the pair no. 3 and so on.

This information is displayed on the lane monitors during the booting process, when testing the devices, together with the information concerning the version of programs loaded on the 4HD/5HD-CPU and the serial number, that is an univocal number that identifies the 4HD/5HD-CPU unit. The serial number is used to address the 4HD/5HD-CPU units, it can be read on the lane monitors and on a specific label applied on one side of the 4HD/5HD-CPU unit.

5HD-CPU
Upper View



5HD-CPU
Bottom View



EVEN CTRL - Even lane monitor serial control

EVEN HDMI - Even lane monitor HDMI

AUX CTRL - Third monitor serial control

ODD HDMI - Odd lane monitor HDMI

ODD CTRL - Odd lane monitor serial control

L1 - 4HD-HUB connection

External power supply - **NOT USED**

U1 - Currently **NOT USED**

U2 - Currently **NOT USED**

Dimensions

Heigth	124 mm	4” 7/8
Length	155 mm	6” 1/8
Depth	55 mm	2” 3/16
Weight	600 g	1.3 lbs

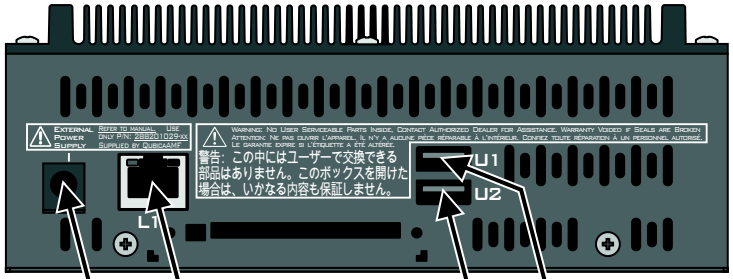
The 5HD-CPU, P/N 288250023, is supported by **ConquerorPRO version 12 or higher**.

T.20.106

288250023
5HD-CPU

APR 27th 2017

4HD-CPU
Upper View



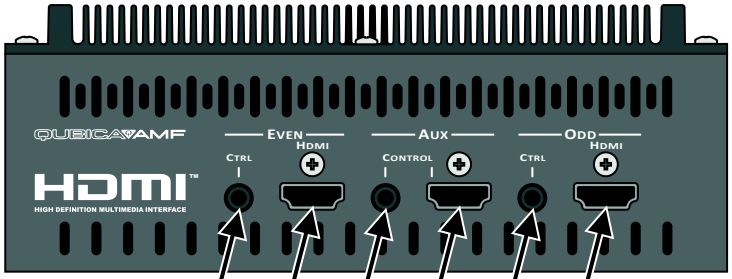
U1 - Currently Not Used

U2 - Currently Not Used

L1 - 4HD-HUB connection

EXTERNAL POWER SUPPLY - **NOT USED**

4HD-CPU
Bottom View



EVEN CTRL - Even lane monitor serial control

EVEN HDMI - Even lane monitor HDMI

AUX CTRL - Third monitor serial control

AUX HDMI - Third monitor HDMI - HDMI Control **ONLY**

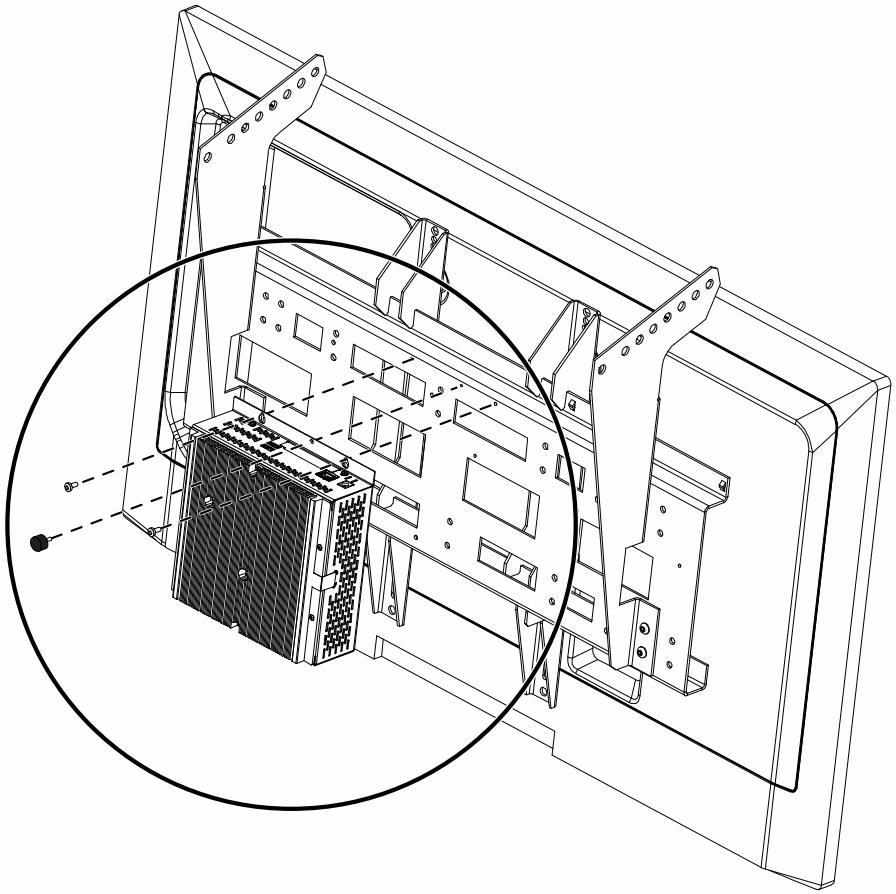
ODD CTRL - Odd lane monitor serial control

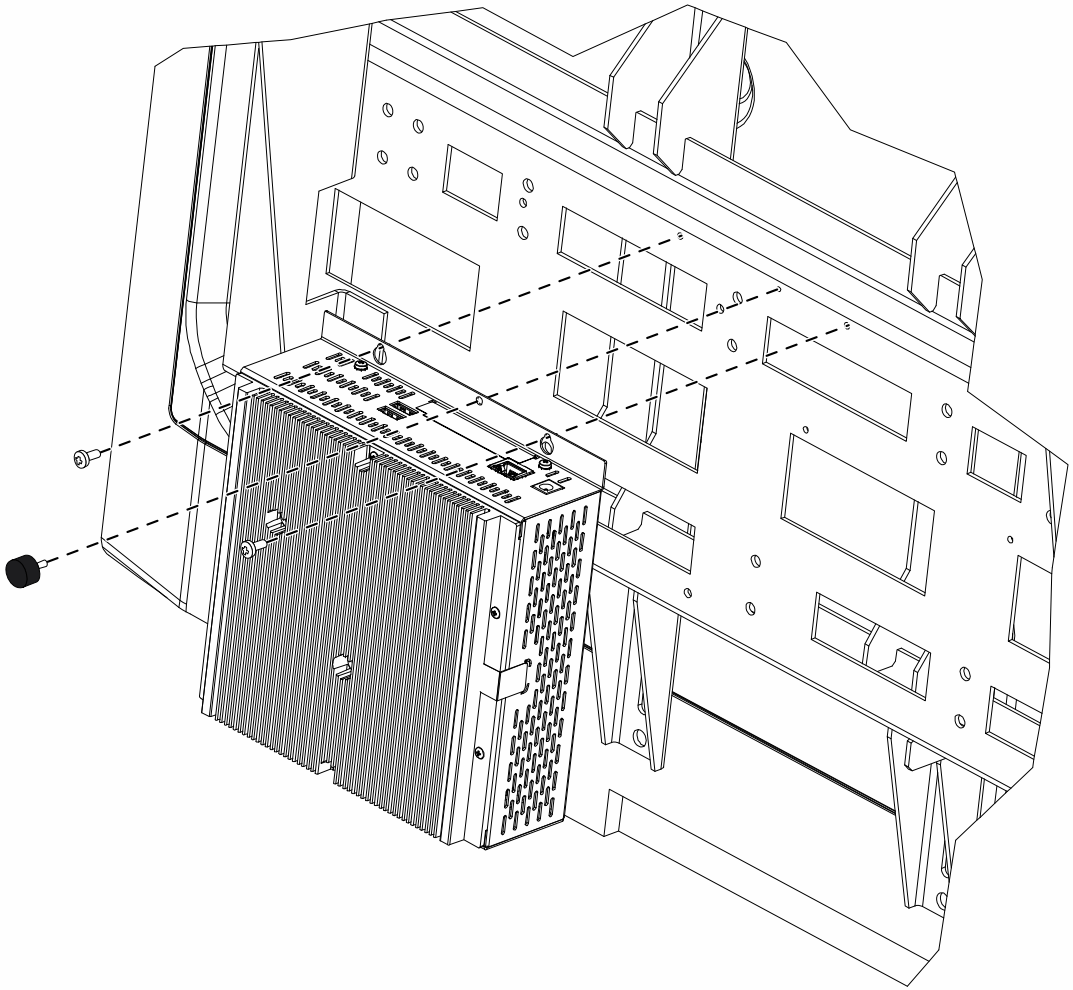
ODD HDMI - Odd lane monitor HDMI

Dimensions

Heigth	190 mm	7” 1/2
Length	185 mm	7” 5/16
Depth	68 mm	2” 11/16
Weight	1200 g	2.6 lbs

T.20.084	
288250020 OR 288250017 4HD-CPU	
OCT 15th 2013	



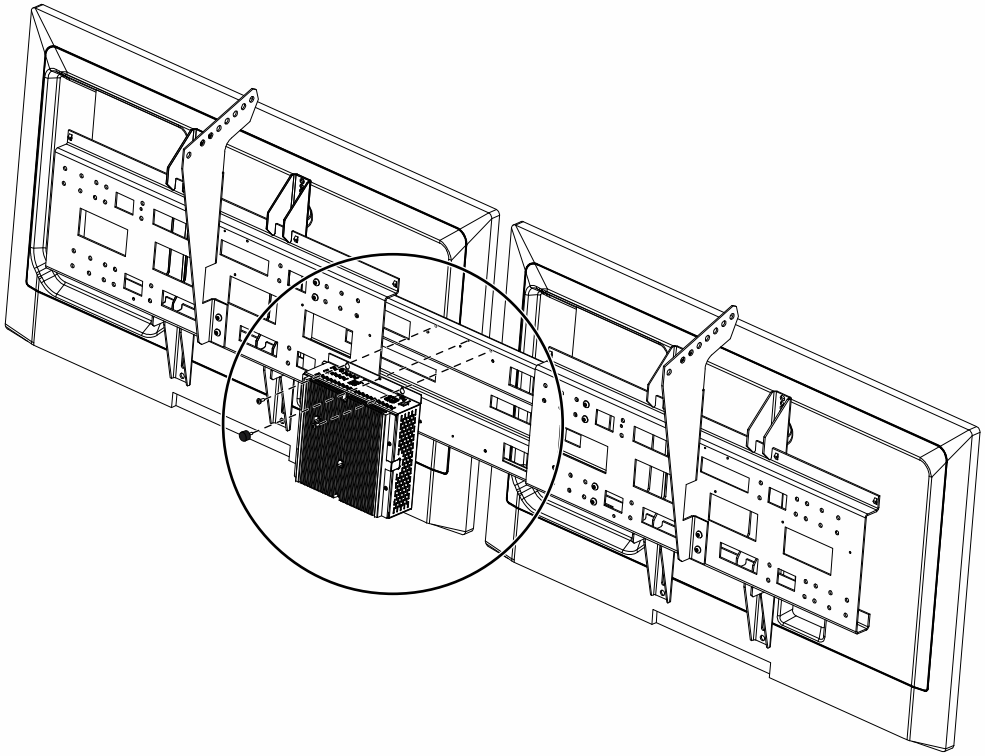


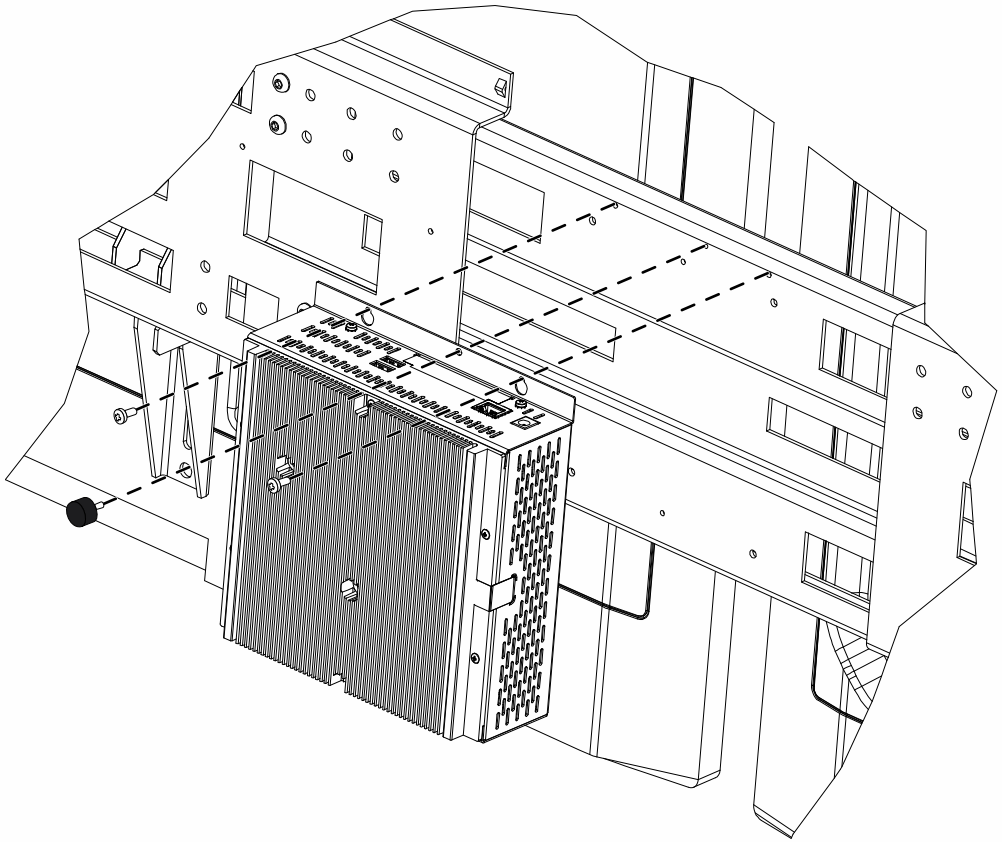
This drawing shows how the 4HD-CPU is fixed to the monitor frame.
The 5HD-CPU is mounted in exactly the same way as the 4HD-CPU.

T.00.071

MOUNTING THE
4HD/5HD-CPU ON A
SINGLE MONITOR FRAME

APR 27th 2017





This drawing shows how the 4HD-CPU is fixed to the monitor frame.
The 5HD-CPU is mounted in exactly the same way as the 4HD-CPU.

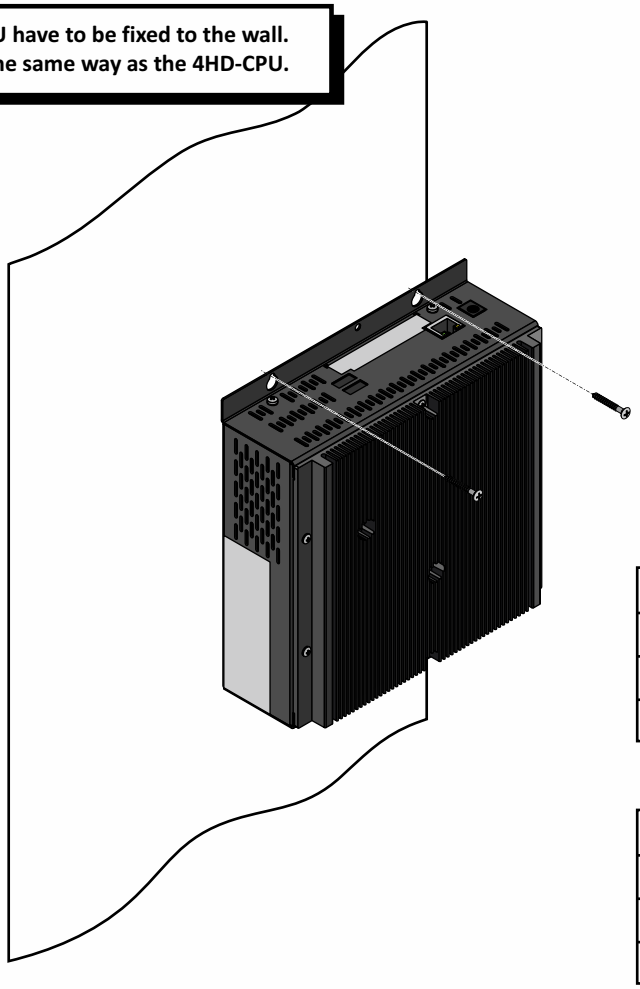
T.00.072

MOUNTING THE
4HD/5HD-CPU ON A
DOUBLE MONITOR FRAME

APR 27th 2017

CPU unit mounting

This drawing shows how the 4HD-CPU have to be fixed to the wall.
The 5HD-CPU is mounted in exactly the same way as the 4HD-CPU.



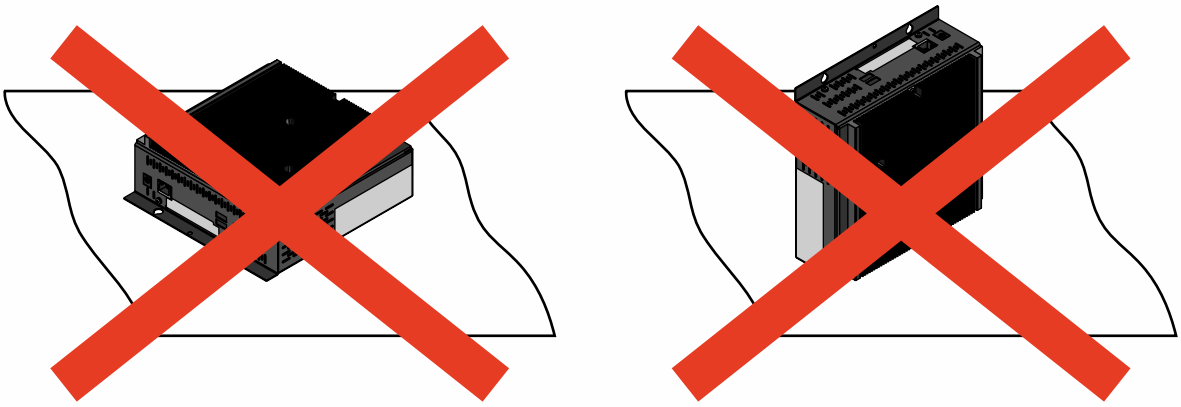
4HD-CPU Dimensions

Heigth	190 mm	7.49”
Length	185 mm	7.28”
Depth	68 mm	2.68”
Weight	1200 g	2.6 lbs

5HD-CPU Dimensions

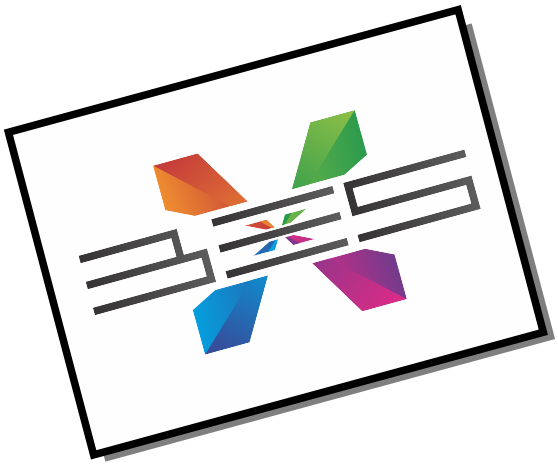
Heigth	124 mm	4.88”
Length	155 mm	6.10”
Depth	55 mm	2.17”
Weight	600 g	1.3 lbs

CPU unit What NOT to do



NEVER LAY DOWN THE UNIT IN ANY WAY FOR ANY REASON. THE 4HD/5HD-CPU UNIT MUST BE FIXED TO A VERTICAL SURFACE WITH THE NETWORK CONNECTOR FACING UPWARDS, AS SHOWN IN THIS TABLE, IN ORDER TO ENSURE TO THE UNIT THE PROPER AIR RECIRCULATION.

T.90.174	
CPU MOUNTING	
JUN 28th 2017	



SECTION 2

ELECTRICAL SPECIFICATIONS

INSTALLATION MANUAL

Provide AC power to the system components via an electrical subpanel that is dedicated solely to the BES X system. The subpanel must have a neutral bus and a separate insulated third-wire isolated ground that is connected at the main service panel only.

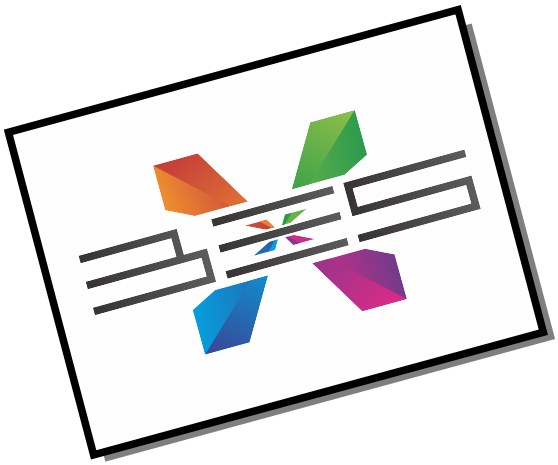
Provide AC power to other system components as described with each component, including installing distribution boxes and running power cables to the final location of the other system components.

Test the electrical ground before installing any components and periodically thereafter it to ensure the BES X system remains properly grounded.

IMPORTANT: Only QubicaAMF-supplied devices should be plugged into the outlets dedicated for QubicaAMF components.

ALWAYS FOLLOW YOUR LOCAL CODES FOR WIRE STANDARDS AND WIRING CIRCUIT.

PLEASE REFER TO THE “BES X PRE-INSTALLATION MANUAL” FOR FURTHER AND DETAILED INFORMATION.



SECTION 3

BES X SYSTEM CONFIGURATIONS

INSTALLATION MANUAL

IMPORTANT NOTE: Never, for any reason, run low voltage signal cables (such as network cables) near any kind of high voltage source.

3.1 - No console present

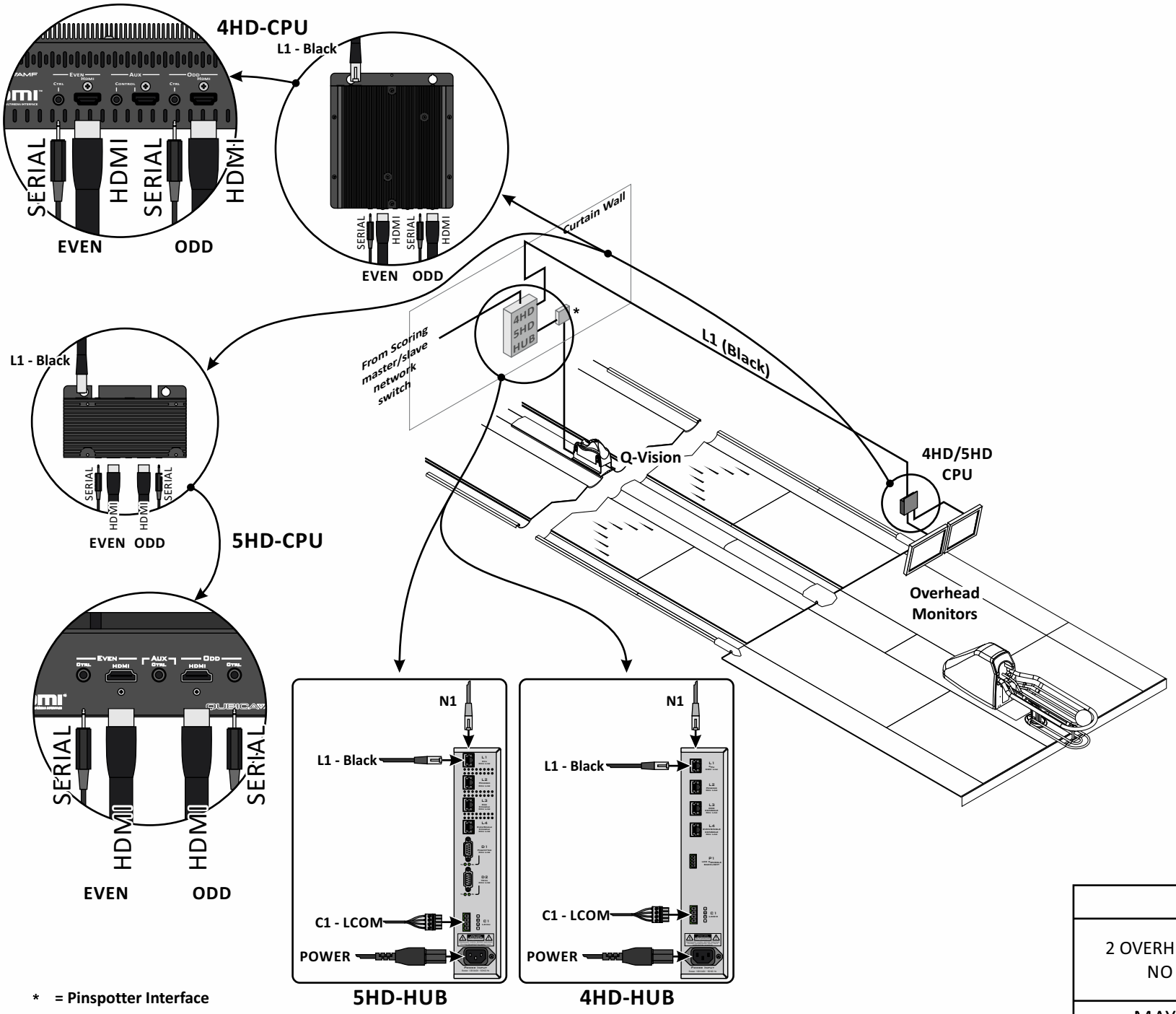
This is the simplest configuration. On each pair of lanes there will be installed:

- the camera (Q-Vision or T/M-Vision);
- the pinspotter interface;
- other optional LCOM devices (Bumper interface, Q-FOUL, TMR, etc…);
- one 4HD/5HD-HUB;
- one 4HD/5HD-CPU;
- the overhead monitors (i.e.: two overhead monitors).

The camera, the pinspotter interface and the other optional LCOM devices are connected to the 4HD/5HD-HUB via the LCOM cable (Refer to section “6 – LCOM Line” for further information).

The L1 port of the 4HD/5HD-CPU is connected to the L1 port of the 4HD/5HD-HUB via a network cable.

Each overhead monitor is connected to the proper port of the 4HD/5HD-CPU unit with a HDMI cable. If the monitors does not support commands by the HDMI, a serial communication cable (P/N: 288401007) has to be installed between the overhead monitor and the 4HD/5HD-CPU in order to be controlled directly from a ConquerorPRO computer.



* = Pinspotter Interface

T.10.025	
2 OVERHEAD MONITORS NO CONSOLE	
MAY 21st 2018	

3.2 - EasyKey console brief description

The EasyKey console is the keyboard console. It gives access to the basic on-lane functions of the BES X system.

The EasyKey console is InterCom ready. This fact does not means that the InterCom system will be available on the lanes, because the InterCom have to be purchased separately (Q-Com system).

During the operation of the lanes on the EasyKey console will be highlighted only the buttons that have a function in the context.

During the boot of the system the EasyKey console will light different buttons (letters and numbers), then a single character will blink for a few seconds:

- "O" button blinking: the EasyKey console is configured to run in the "Twin" configuration, so two EasyKey consoles on the same pedestal;
- "Q" button blinking: The EasyKey console is configured to operate as a single console with a single pedestal (one EasyKey console per lane with a single pedestal or one EasyKey console per pair of lanes).

3.3 - EasyKey Pair console

In this configuration on each pair of lanes there will be installed:

- the camera (Q-Vision or T/M-Vision);
- the pinspotter interface;
- other optional LCOM devices (Bumper interface, Q-FOUL, TMR, etc…);
- one 4HD/5HD-HUB;
- one 4HD/5HD-CPU;
- the overhead monitors (i.e.: two overhead monitors);
- one EasyKey console.

The camera, the pinspotter interface and the other optional LCOM devices are connected to the 4HD/5HD-HUB via the LCOM cable (Refer to section "6 – LCOM Line" for further information).

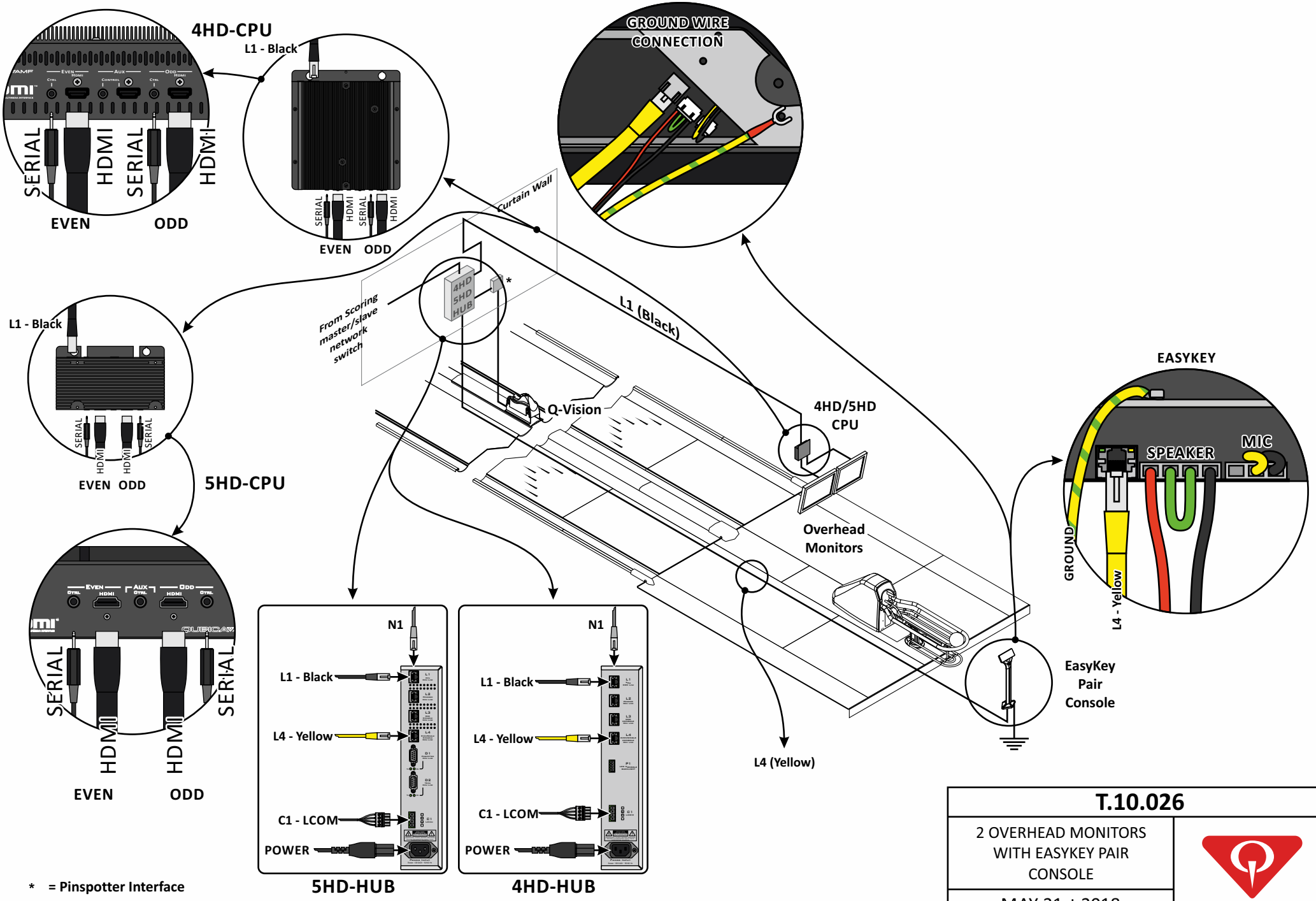
The L1 port of the 4HD/5HD-CPU is connected to the L1 port of the 4HD/5HD-HUB via a network cable.

Each overhead monitor is connected to the proper port of the 4HD/5HD-CPU unit with a HDMI cable. If the monitors does not support commands by the HDMI, a serial communication cable (P/N: 288401007) has to be installed between the overhead monitor and the 4HD/5HD-CPU in order to be controlled directly from a ConquerorPRO computer.

The EasyKey Pair is a single EasyKey console on a single stand installed on each pair of lanes.

The EasyKey console is connected to the L4 port of the 4HD/5HD-HUB through a network cable (yellow cable).

Each console has to be connected to ground. Please refer to the section "**5 – Suggested ground connection**" of the **BES X – PRE-Installation Manual** for further information.



T.10.026	
2 OVERHEAD MONITORS WITH EASYKEY PAIR CONSOLE	
MAY 21st 2018	

3.4 - EasyKey Lane and EasyKey Twin console

In this configuration on each pair of lanes there will be installed:

- the camera (Q-Vision or T/M-Vision);
- the pinspotter interface;
- other optional LCOM devices (Bumper interface, Q-FOUL, TMR, etc…);
- one 4HD/5HD-HUB;
- one 4HD/5HD-CPU;
- the overhead monitors (i.e.: two overhead monitors);

For the console there are two options:

- EasyKey Lane: two EasyKey console on two different stands (please refer to table T.10.027);
- EasyKey Twin: two EasyKey console on the same stand (please refer to table T.10.028).

The camera, the pinspotter interface and the other optional LCOM devices are connected to the 4HD/5HD-HUB via the LCOM cable (Refer to section "6 – LCOM Line" for further information).

The L1 port of the 4HD/5HD-CPU is connected to the L1 port of the 4HD/5HD-HUB via a network cable.

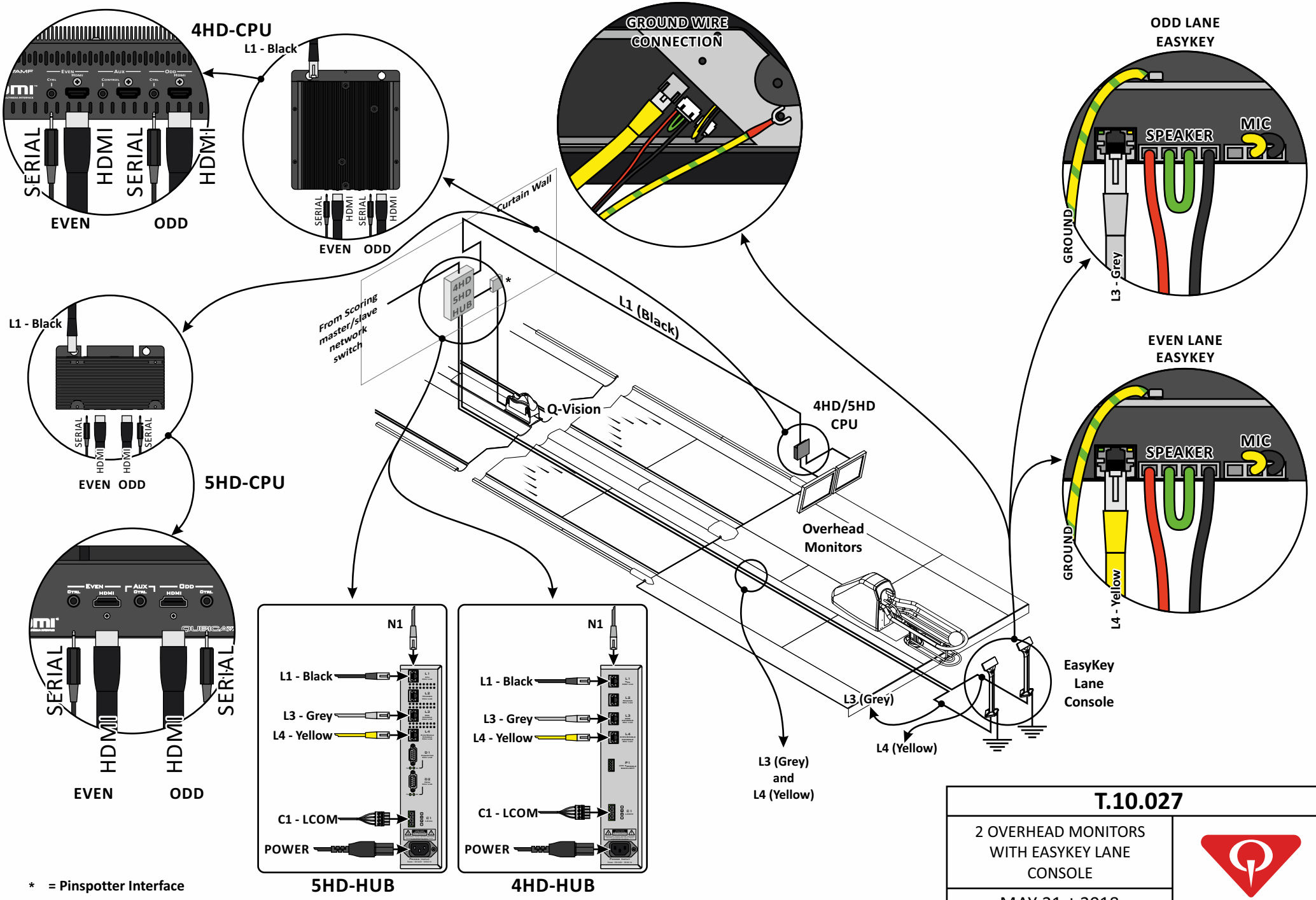
Each overhead monitor is connected to the proper port of the 4HD/5HD-CPU unit with a HDMI cable. If the monitors does not support commands by the HDMI, a serial communication cable (P/N: 288401007) has to be installed between the overhead monitor and the 4HD/5HD-CPU in order to be controlled directly from a ConquerorPRO computer.

The EasyKey console on the ODD lane is connected to the L3 port of the 4HD/5HD-HUB through a network cable (grey cable).

The EasyKey console on the EVEN lane is connected to the L4 port of the 4HD/5HD-HUB through a network cable (yellow cable).

The difference between the two console configuration are in the quantity of stands and on the quantity of speakers installed, because each stand has only one speaker. Due to this fact the connection cable for the speaker is slightly different between the two situations.

Each console has to be connected to ground. Please refer to the section "**5 – Suggested ground connection**" of the **BES X – PRE-Installation Manual** for further information.

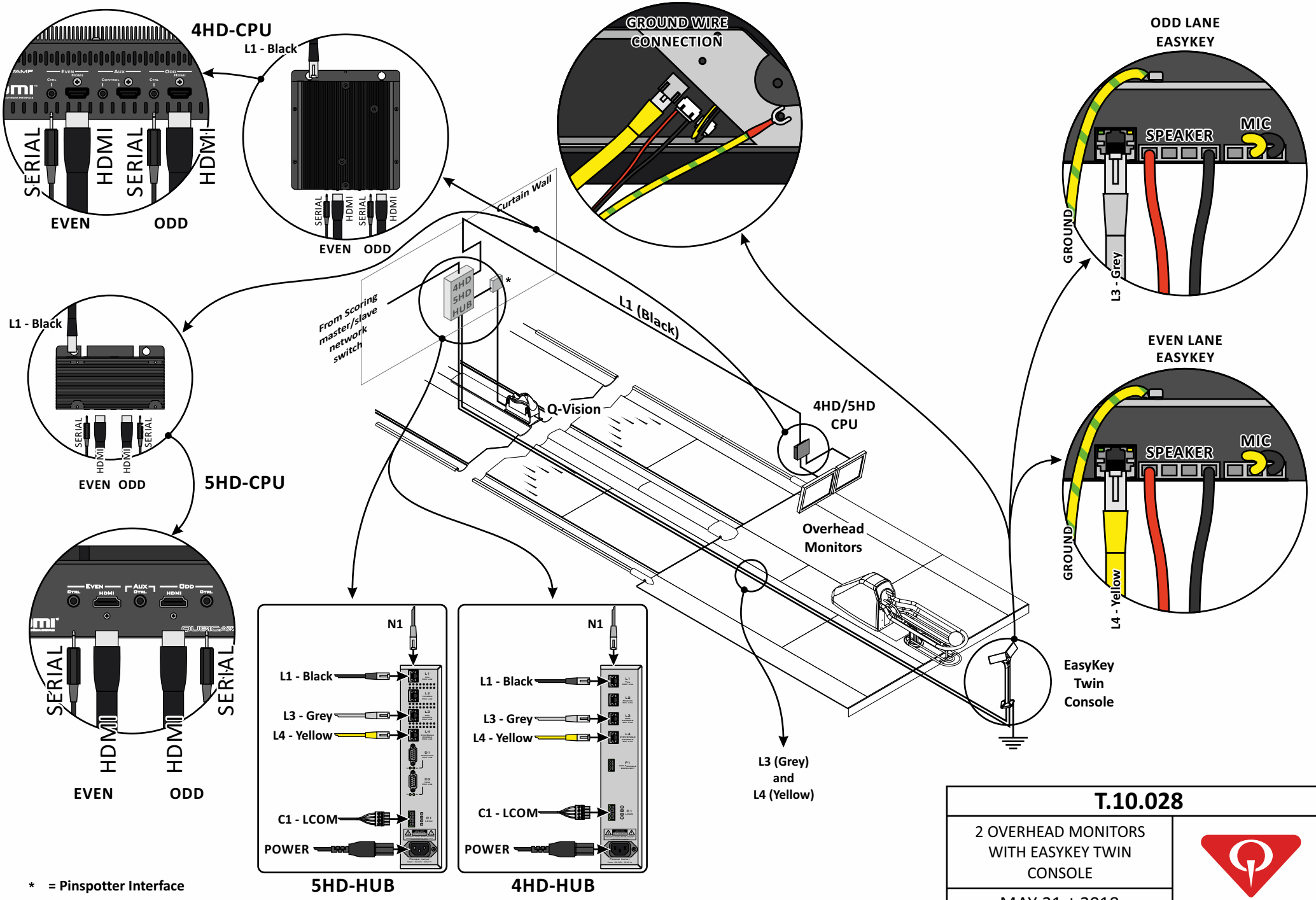


* = Pinspotter Interface

T.10.027

2 OVERHEAD MONITORS WITH EASYKEY LANE CONSOLE

MAY 21st 2018



* = Pinspotter Interface

T.10.028

2 OVERHEAD MONITORS WITH EASYKEY TWIN CONSOLE

MAY 21st 2018

3.5 - SuperTouch console brief description

The SuperTouch console is the touch screen console. It gives access to all of the on-lane functions of the BES X system.

The SuperTouch console is InterCom ready. This fact does not means that the InterCom system will be available on the lanes, because the InterCom have to be purchased separately (Q-Com system).

There are two versions for the SuperTouch console: SuperTouch console (P/N: 288150024) and SuperTouch Ver.2 (P/N: 288150026). The main differences between the two versions for these consoles is that the SuperTouch consoles (P/N: 288150024) needs to be connected to the 4HD/5HD-HUB unit using two network cables, while the new SuperTouch Ver.2 console (P/N: 288150026) needs to be connected to the 4HD/5HD-HUB unit using one network cable.

It is possible to install the new SuperTouch Ver.2 console (P/N: 288150026) along with the old SuperTouch (P/N: 288150024).

3.6 - SuperTouch Pair console

In this configuration on each pair of lanes there will be installed:

- the camera (Q-Vision or T/M-Vision);
- the pinspotter interface;
- other optional LCOM devices (Bumper interface, Q-FOUL, TMR, etc…);
- one 4HD/5HD-HUB;
- one 4HD/5HD-CPU;
- the overhead monitors (i.e.: two overhead monitors);
- one SuperTouch console.

The camera, the pinspotter interface and the other optional LCOM devices are connected to the 4HD/5HD-HUB via the LCOM cable (Refer to section “6 – LCOM Line” for further information).

The L1 port of the 4HD/5HD-CPU is connected to the L1 port of the 4HD/5HD-HUB via a network cable.

Each overhead monitor is connected to the proper port of the 4HD/5HD-CPU unit with a HDMI cable. If the monitors does not support commands by the HDMI, a serial communication cable (PN: 288401007) has to be installed between the overhead monitor and the 4HD/5HD-CPU in order to be controlled directly from a ConquerorPRO computer.

The SuperTouch Ver.2 (PN: 288150026) is connected to:

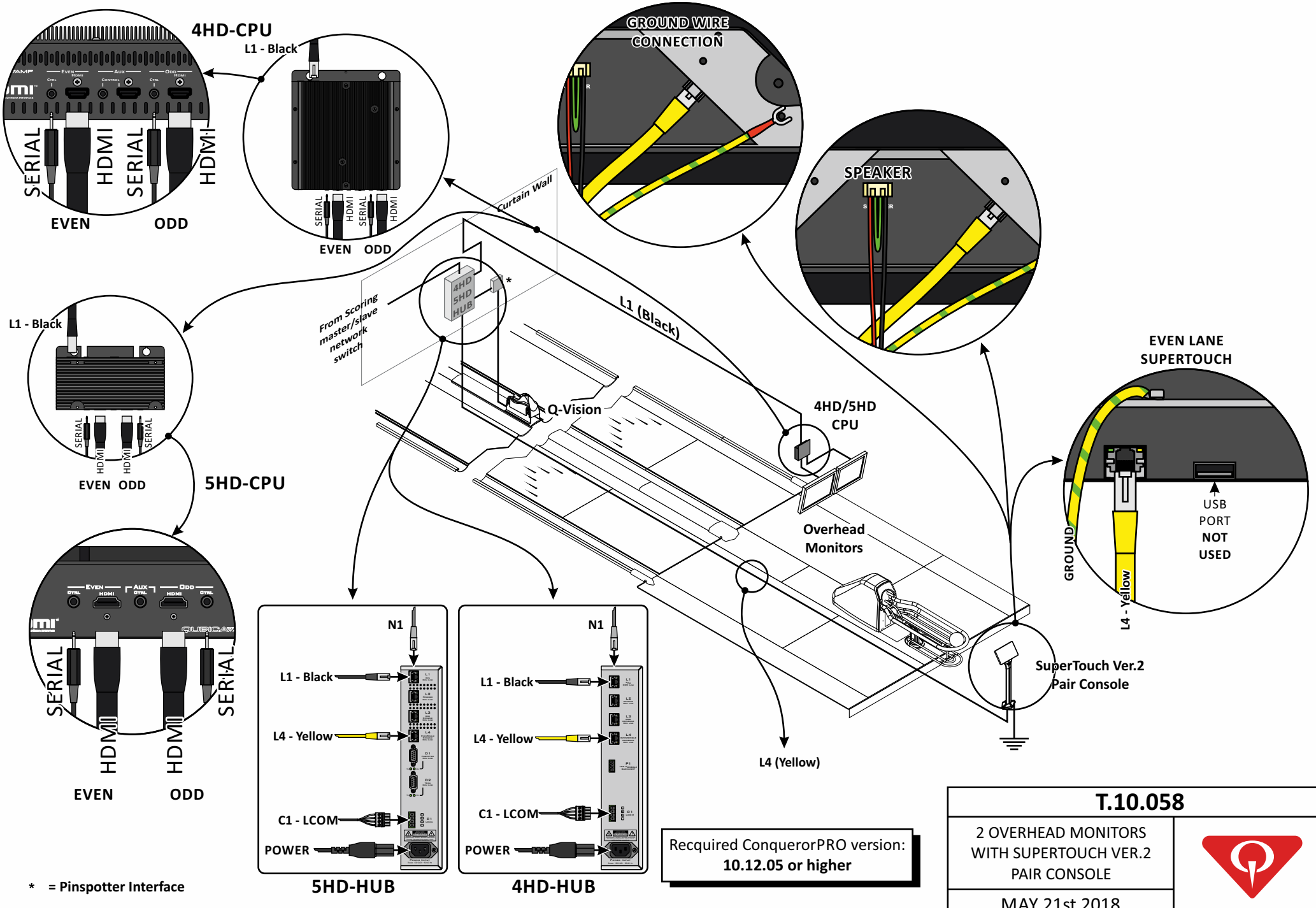
- L4 port of the 4HD/5HD-HUB through a network cable (yellow cable);

Or

The SuperTouch (PN: 288150024) is connected to:

- L4 port of the 4HD-HUB through a network cable (yellow cable);
- P1 port of the 4HD-HUB through a network cable (blue cable): connect the network cable on the 4HD-HUB side to the 288401035 cable adapter then the 288401035 cable adapter to the P1 connector of the 4HD-HUB unit.

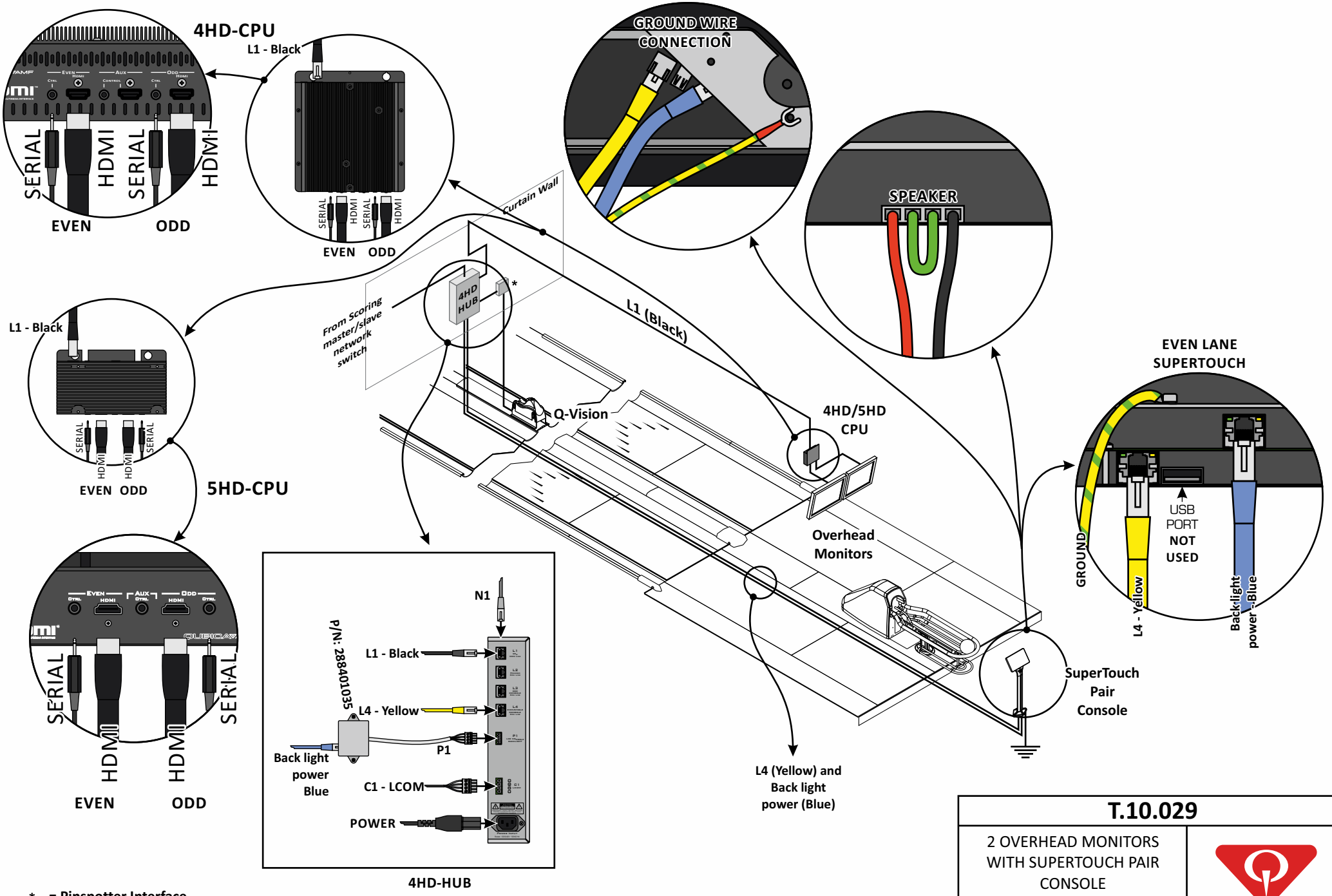
Each console has to be connected to ground. Please refer to the section “**5 – Suggested ground connection**” of the **BES X – PRE-Installation Manual** for further information.



* = Pinspotter Interface

Recquired ConquerorPRO version: **10.12.05 or higher**

T.10.058	
2 OVERHEAD MONITORS WITH SUPERTOUCH VER.2 PAIR CONSOLE	
MAY 21st 2018	



* = Pinspotter Interface

T.10.029

2 OVERHEAD MONITORS WITH SUPERTOUCH PAIR CONSOLE

APR 28th 2017

3.7 - SuperTouch Lane console

In this configuration on each pair of lanes there will be installed:

- the camera (Q-Vision or T/M-Vision);
- the pinspotter interface;
- other optional LCOM devices (Bumper interface, Q-FOUL, TMR, etc…);
- one 4HD/5HD-HUB;
- one 4HD/5HD-CPU;
- the overhead monitors (i.e.: two overhead monitors);
- two SuperTouch console.

The camera, the pinspotter interface and the other optional LCOM devices are connected to the 4HD/5HD-HUB via the LCOM cable (Refer to section "6 – LCOM Line" for further information).

The L1 port of the 4HD/5HD-CPU is connected to the L1 port of the 4HD/5HD-HUB via a network cable.

Each overhead monitor is connected to the proper port of the 4HD/5HD-CPU unit with a HDMI cable. If the monitors does not support commands by the HDMI, a serial communication cable (P/N: 288401007) has to be installed between the overhead monitor and the 4HD/5HD-CPU in order to be controlled directly from a ConquerorPRO computer.

The SuperTouch Ver.2 (PN: 288150026) on the odd lane is connected to:

- L3 port of the 4HD/5HD-HUB through a network cable (grey cable);

The SuperTouch Ver.2 (PN: 288150026) on the even lane is connected to:

- L4 port of the 4HD/5HD-HUB through a network cable (yellow cable);

Or

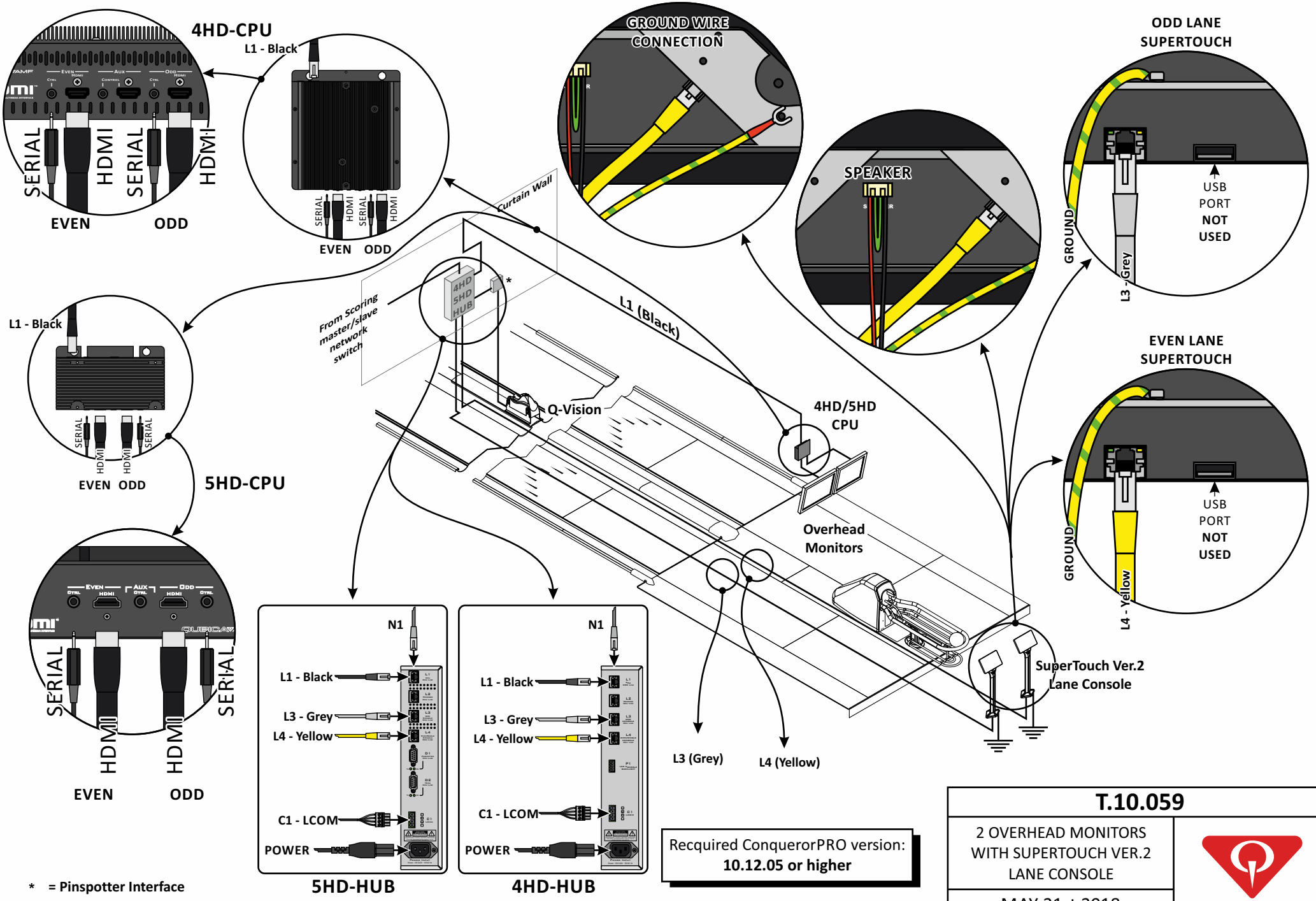
The SuperTouch console (PN: 288150024) on the odd lane is connected to:

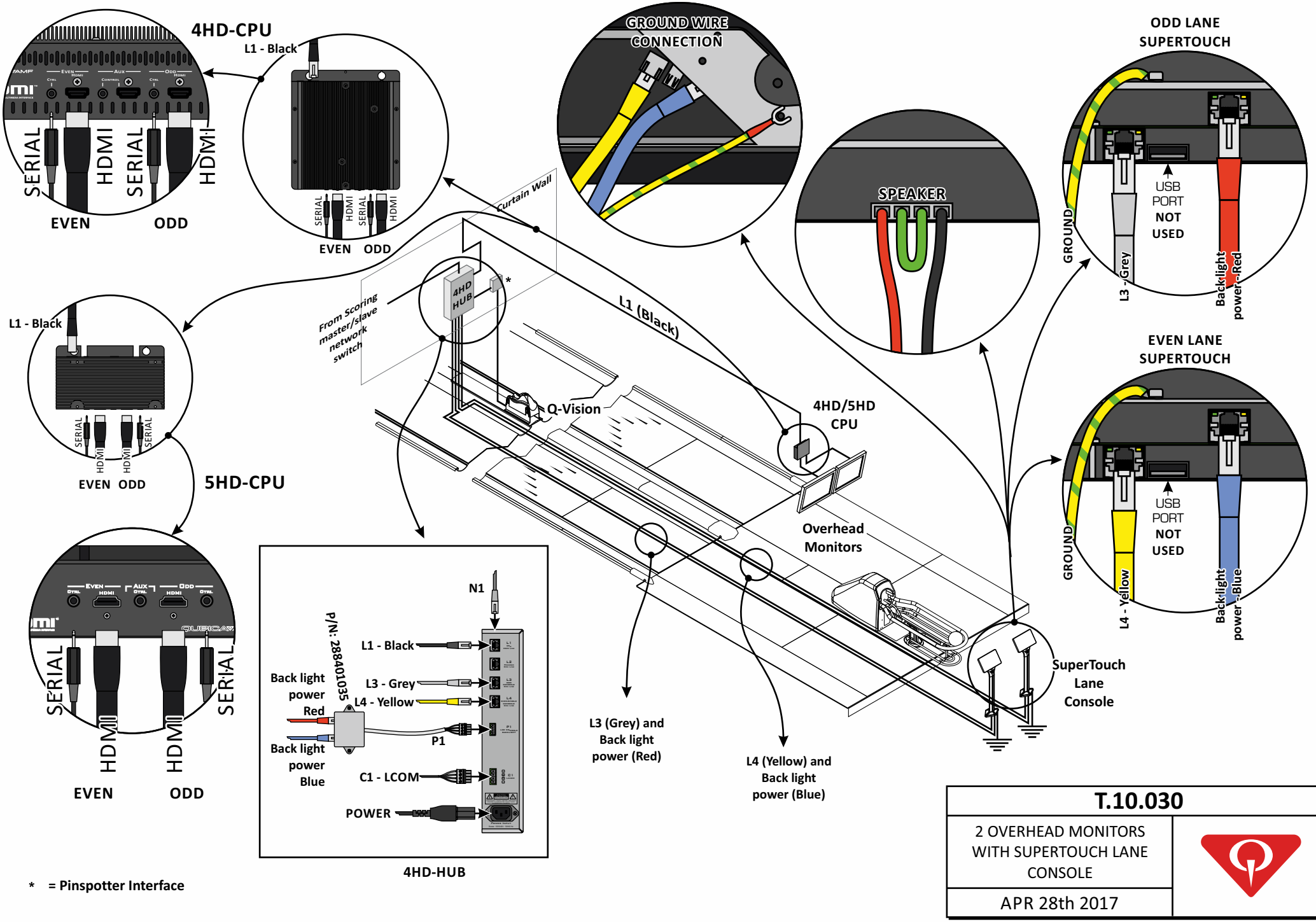
- L3 port of the 4HD-HUB through a network cable (grey cable);
- P1 port of the 4HD-HUB through a network cable (red cable): connect the network cable on the 4HD-HUB side to the 288401035 cable adapter then the 288401035 cable adapter to the P1 connector of the 4HD-HUB unit.

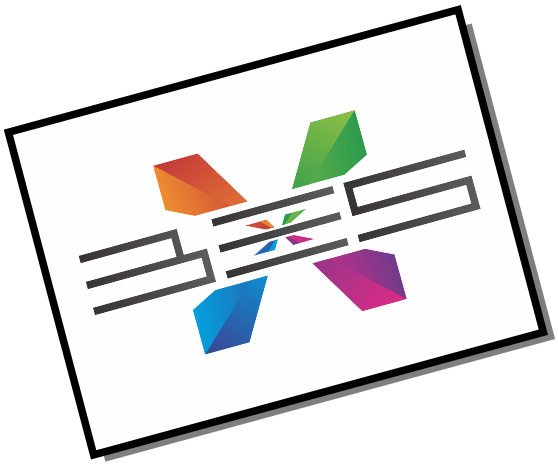
The SuperTouch console (PN: 288150024) on the even lane is connected to:

- L4 port of the 4HD-HUB through a network cable (yellow cable);
- P1 port of the 4HD-HUB through a network cable (blue cable): connect the network cable on the 4HD-HUB side to the 288401035 cable adapter then the 288401035 cable adapter to the P1 connector of the 4HD-HUB unit.

Each console has to be connected to ground. Please refer to the section "**5 – Suggested ground connection**" of the **BES X – PRE-Installation Manual** for further information.


4HD-CPU
L1 - Black
SERIAL
HDMI
SERIAL
HDMI
EVEN
ODD
GROUND WIRE CONNECTION
SPEAKER
ODD LANE SUPERTOUCH
USB PORT NOT USED
GROUND
L3 - Grey
Curtain Wall
From Scoring master/slave network switch
4HD 5HD HUB
*
L1 (Black)
Q-Vision
4HD/5HD CPU
Overhead Monitors
EVEN LANE SUPERTOUCH
USB PORT NOT USED
GROUND
L4 - Yellow
L1 - Black
EVEN ODD
5HD-CPU
SERIAL
HDMI
SERIAL
HDMI
EVEN
ODD
SuperTouch Ver.2 Lane Console
L3 (Grey)
L4 (Yellow)
N1
L1 - Black
L3 - Grey
L4 - Yellow
C1 - LCOM
POWER
5HD-HUB
N1
L1 - Black
L3 - Grey
L4 - Yellow
C1 - LCOM
POWER
4HD-HUB
* = Pinspotter Interface
Recquired ConquerorPRO version:
10.12.05 or higher
T.10.059
2 OVERHEAD MONITORS WITH SUPERTOUCH VER.2 LANE CONSOLE
MAY 21st 2018

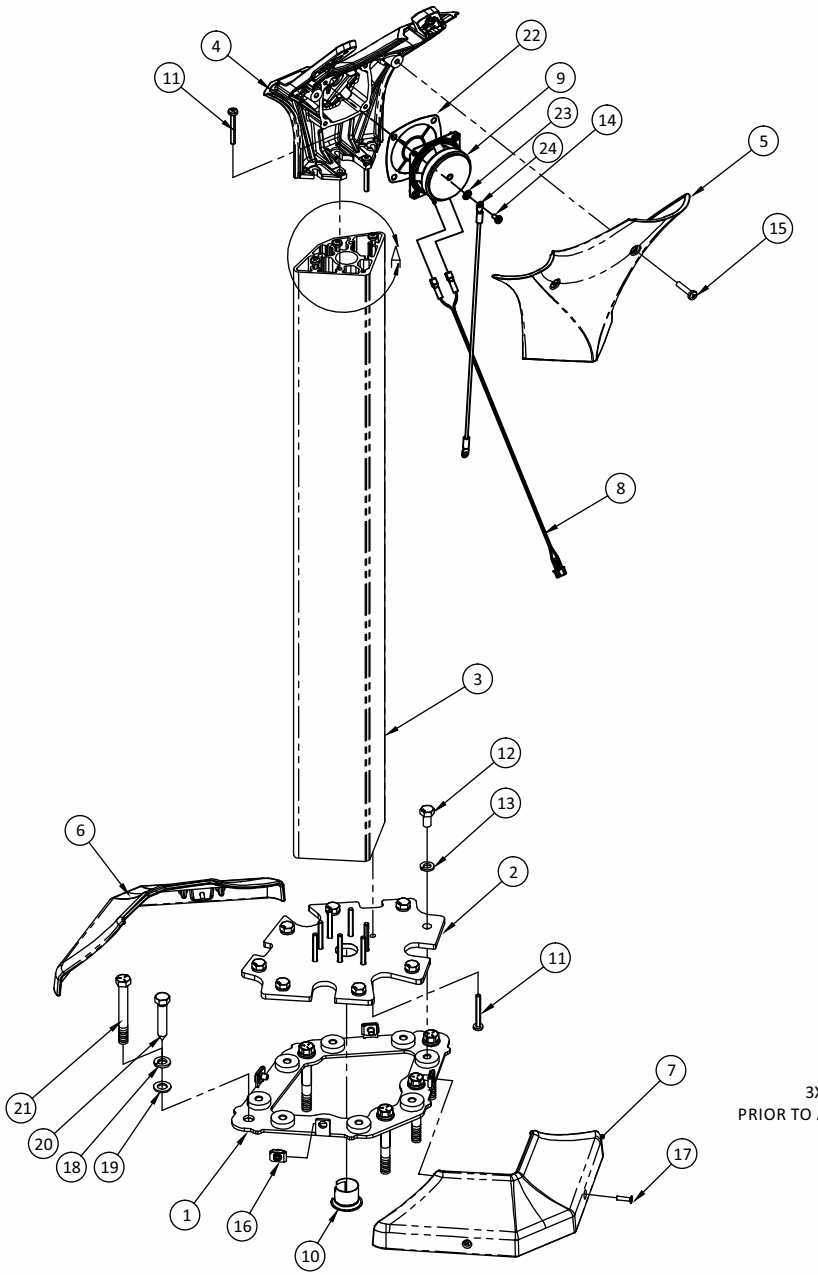

4HD-CPU
L1 - Black
SERIAL
HDMI
SERIAL
HDMI
EVEN
ODD
GROUND WIRE CONNECTION
SPEAKER
ODD LANE SUPERTOUCH
USB PORT NOT USED
GROUND
L3 - Grey
Backlight power - Red
EVEN LANE SUPERTOUCH
USB PORT NOT USED
GROUND
L4 - Yellow
Backlight power - Blue
Curtain Wall
From Scoring master/slave network switch
4HD HUB
*
L1 (Black)
Q-Vision
4HD/5HD CPU
Overhead Monitors
SuperTouch Lane Console
L1 - Black
5HD-CPU
EVEN
ODD
L3 (Grey) and Back light power (Red)
L4 (Yellow) and Back light power (Blue)
N1
P/N: 28801035
L1 - Black
Back light power Red
L3 - Grey
L4 - Yellow
P1
Back light power Blue
C1 - LCOM
POWER
4HD-HUB
* = Pinspotter Interface
T.10.030
2 OVERHEAD MONITORS WITH SUPERTOUCH LANE CONSOLE
APR 28th 2017

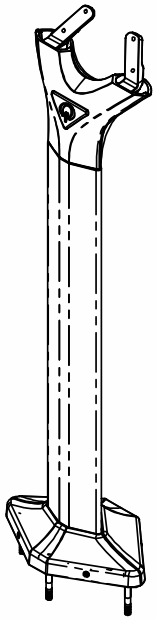


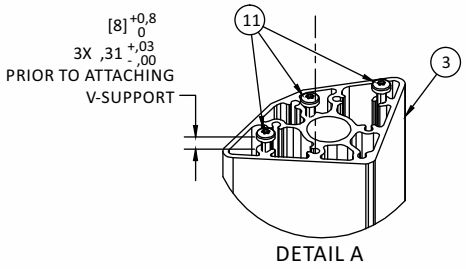
SECTION 4

CONSOLE PEDESTAL ASSEMBLY

INSTALLATION MANUAL







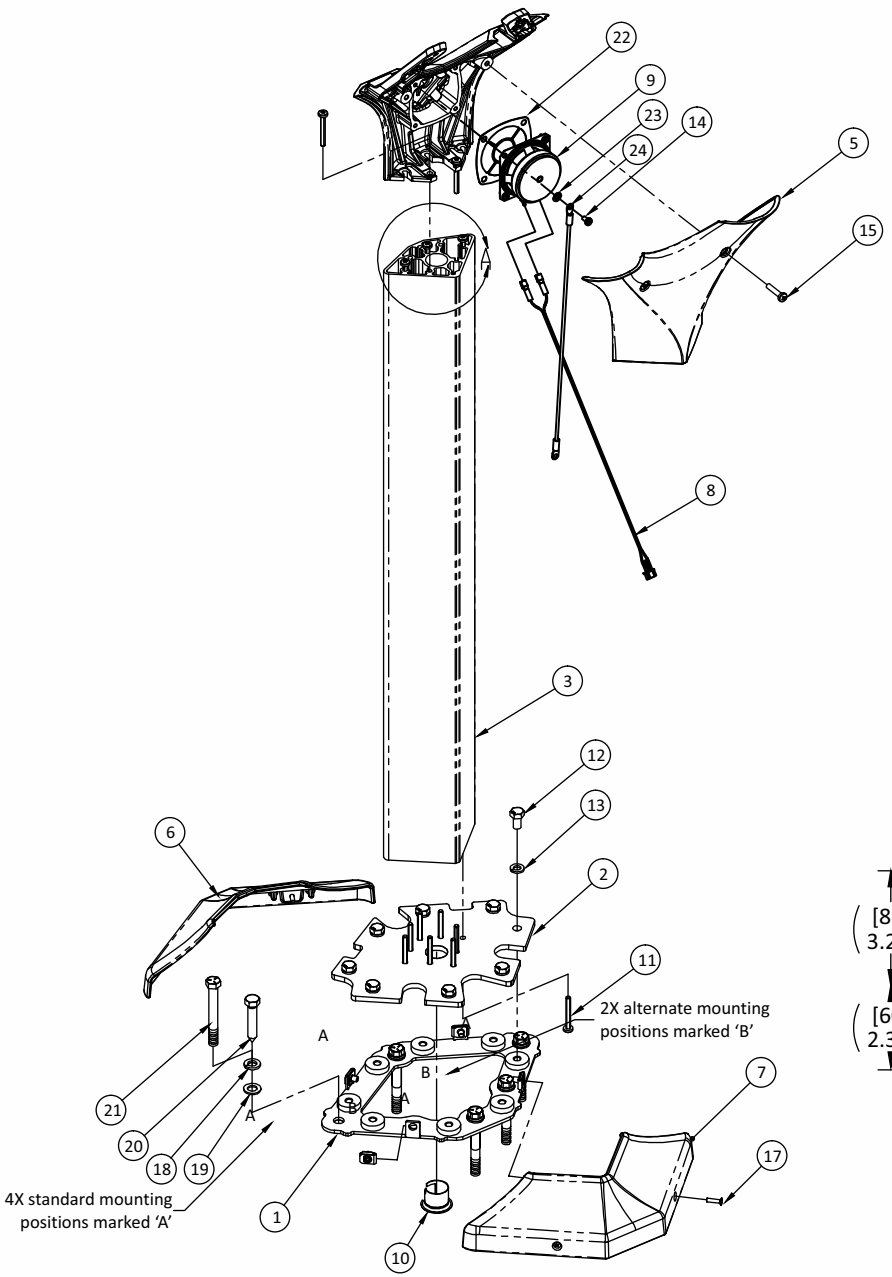
DETAIL A

PARTS LIST			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	286002802	Base sheet metal - Lower
2	1	286002806	Base sheet metal - Higher
3	1	286002857	Console extrusion machined
		286002859	Console extrusion short
4	1	286002866	V-Support single assembly
5	1	286002852	V-Support back
6	1	286002854	Front base cover
7	1	286002855	Rear base cover
8	1	286002824	Speaker wire harness single
9	1	770047105	Speaker
10	1	741510403	3/4" anti-short bushing
11	13	821805407	PHTTS M5-,8 X 40 ZN THFM TRI
12	8	802408167	HHCS M8-1,25 X 16 CL10,9 ZN
13	8	927158127	SWM M8 D-127A ZN
14	4	863040087	PHPMS M4-,7 X 8 ZN
15	2	813005257	PHPMS M5-,8 X 25 ZN
16	4	724520001	CON U M4-,7 TPH ZN
17	4	819304167	FHPMS M4-,7 X 16 ZN
18	5	951164007	SWM 3/8 ANSI ZN
19	9	948767132	FW 0,41 X 0,73 X 0,06 ZN
20	5	810564420	HHLB 3/8 X 2,00 ZN
21	5	709007063	ANCR TB 3/8 X 3,00 ZN
22	1	286002873	Speaker plate
23	1	01033	ETLW10 ANSI ZN
24	1	088500224	CBL, ground, wireway cover

T.10.060

286002861 SINGLE AND
286002863 SHORT SINGLE
PEDESTAL ASSEMBLY
PARTS

JUN 20th 2018

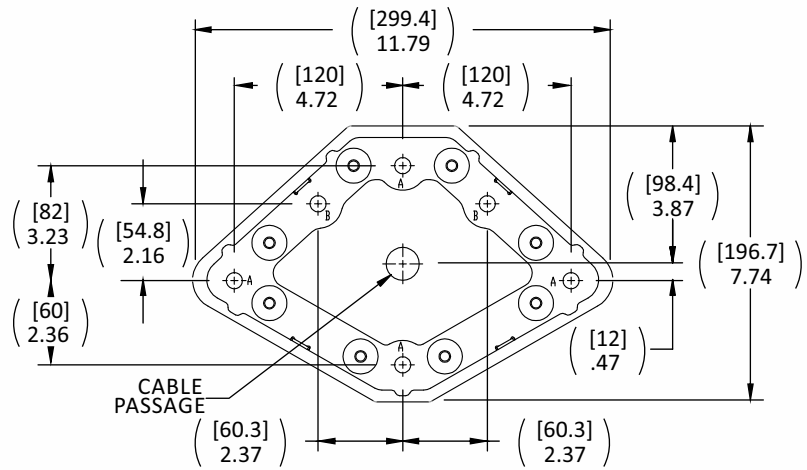


INSTALLATION INSTRUCTIONS:

1. Un-pack pedestal,
2. Remove mounting hardware stretch wrapped to extrusion (item 3).
3. Remove V-Support back (item 5) secured by 2 PHPMS M5-,8 X 25 SCREWS (item 15).
4. Remove front & rear base covers (items 6 & 7) secured by 4 FHPMS M4-,7 X 16 ZN screws (item 17).
5. Position pedestal on the floor in the desired position and orientation. **NOTE:** Please install the pedestal in a position far enough away from the ball rack to avoid potential damage caused by bowling balls falling from the ball rack.
6. Mark/transfer the mounting holes in base sheet metal - lower (item 1) to the floor. Note if the standard mounting hole positions marked 'A' in the plan view below interfere with the cable conduit in the floor, use both of the aternate positions marked 'B' in the plan view below for the supplied anchors.
7. Remove base sheet metal - lower (item 1) from base sheet metal - upper (item 2) secured with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
8. Position base sheet metal - lower (item 1) on the floor and install with the appropriate supplied anchors.
   For wood floors drill Ø 1/4 holes and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 19), SWM 3/8 ANSI ZN (item 18), and HHLB 3/8 X 2.00 ZN (item 20).
   For concrete floors drill Ø 3/8 holes to a minimum depth of 3-1/2 inches [89mm], clear the holes of all debris and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 19), SWM 3/8 ANSI ZN (item 18) and ANCR TB 3/8 X 3.00 ZN (item 21). Drive taper bolt into place leaving 3/16 inch [4.8mm] head clearance. Tighten taper bolt to minimum of 40FT-LB [54 N.m].
   NOTE: extra flat washers FW 0.41 X 0.73 X 0.06 ZN are included for leveling purposes; if not needed discard.
9. Install console cables thru the anti-short bushing (item 10) and thru the extrusion (item 3).
10. Re-install pedestal on base sheet metal - lower and secure with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
11. Re-install front & rear base covers (items 6 & 7); secure using 4 FHPMS M4-.7 X 16 screws (item 17).
12. Install keyboard or LCD assembly and connect per instructions provided with keyboard or LCD.
13. Re-install V-Support back (item 5); secure using 2 PHPMS M5-.8 X 25 screws (item 15).
    Take care not to pinch any wires or cables.

PLAN VIEW

REAR OF PEDESTAL

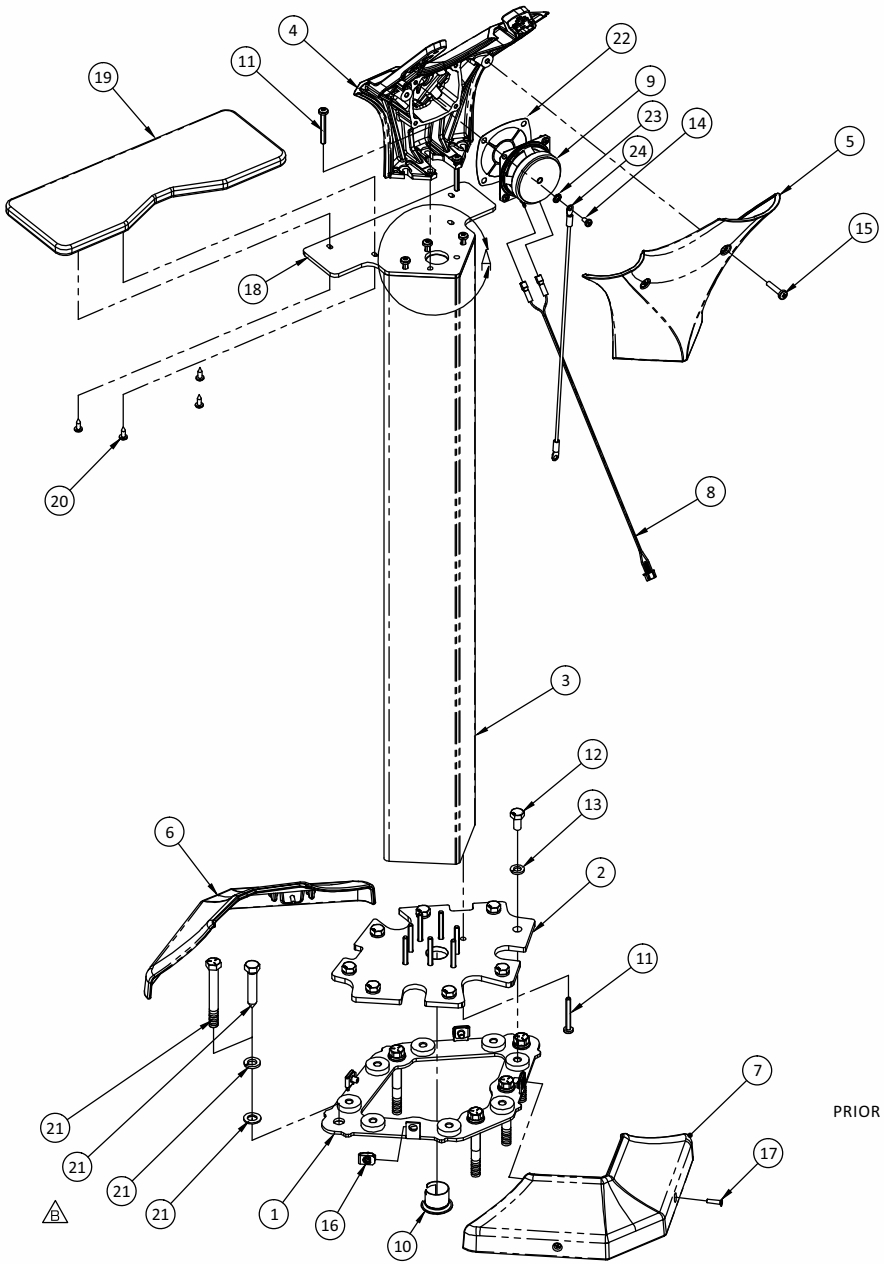


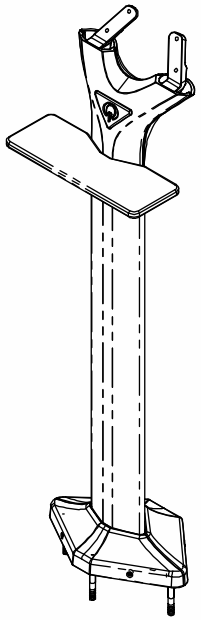
FRONT OF PEDESTAL

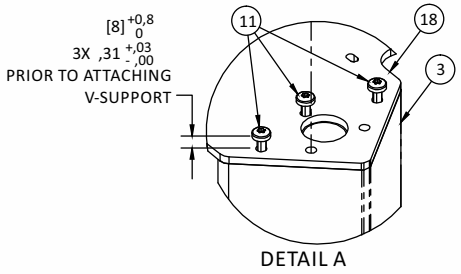
T.10.061

286002861 SINGLE AND 286002863 SHORT SINGLE PEDESTAL ASSEMBLY INSTRUCTIONS

JUN 20th 2018







DETAIL A

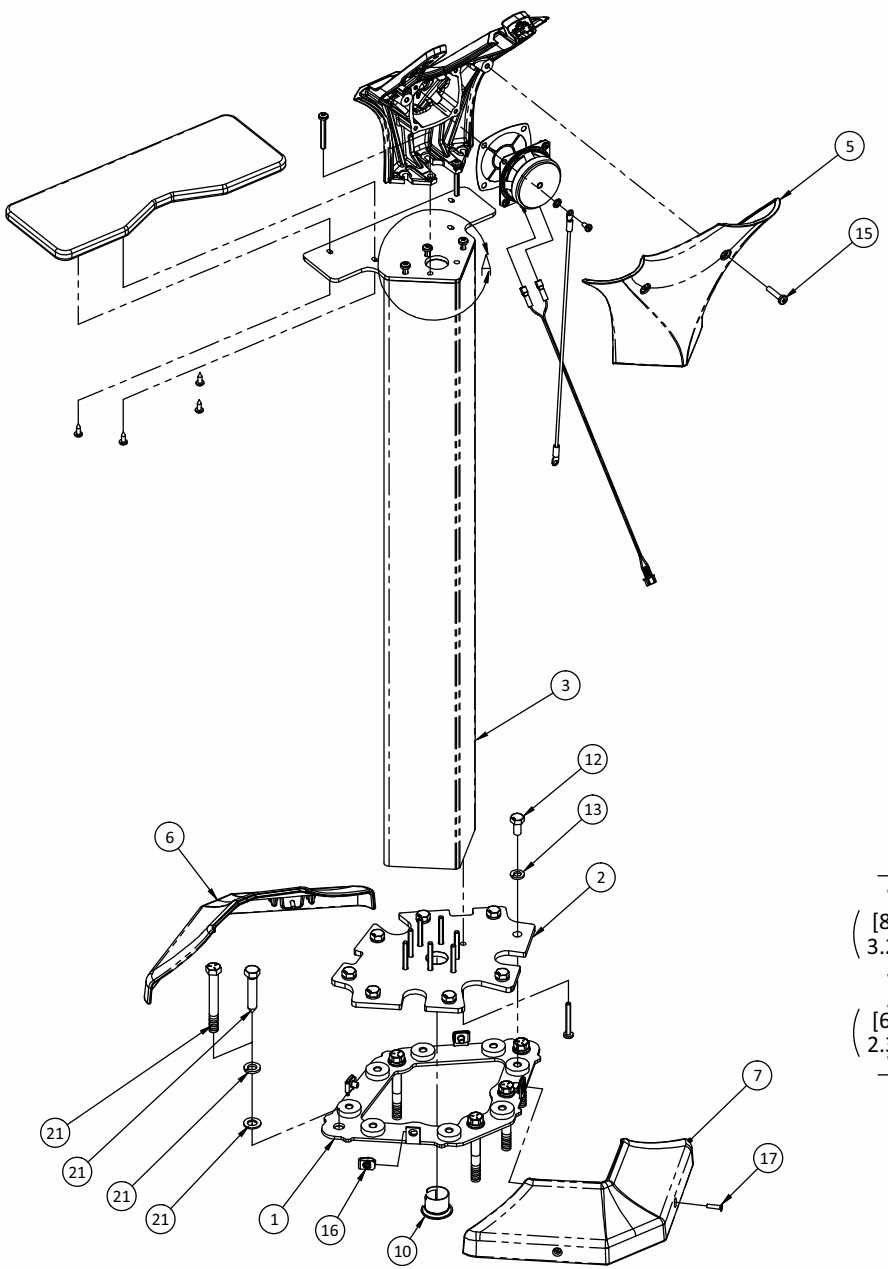
PARTS LIST			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	286002802	Base sheet metal - Lower
2	1	286002806	Base sheet metal - Higher
3	1	286002857	Console extrusion machined
4	1	286002866	V-Support single assembly
5	1	286002852	V-Support back
6	1	286002854	Front base cover
7	1	286002855	Rear base cover
8	1	286002824	Speaker wire harness single
9	1	770047105	Speaker
10	1	741510403	3/4" anti-short bushing
11	13	821805407	PHTTS M5-,8 X 40 ZN THFM TRI
12	8	802408167	HHCS M8-1,25 X 16 CL10,9 ZN
13	8	927158127	SWM M8 D-127A ZN
14	4	863040087	PHPMS M4-,7 X 8 ZN
15	2	813005257	PHPMS M5-,8 X 25 ZN
16	4	724520001	CON U M4-,7 TPH ZN
17	4	819304167	FHPMS M4-,7 X 16 ZN
18	1	286002860	Console table plate
19	1	286002832	Console table top
20	4	822332081	PHPTS 8 X .5 BO TYAB
21	5	286002800HW	Pedestal installation hardware
22	1	286002873	Speaker plate
23	1	01033	ETLW10 ANSI ZN
24	1	088500224	CBL, ground, wireway cover

B

T.10.065

286002864 SINGLE PEDESTAL ASSEMBLY PARTS

JUN 20th 2018

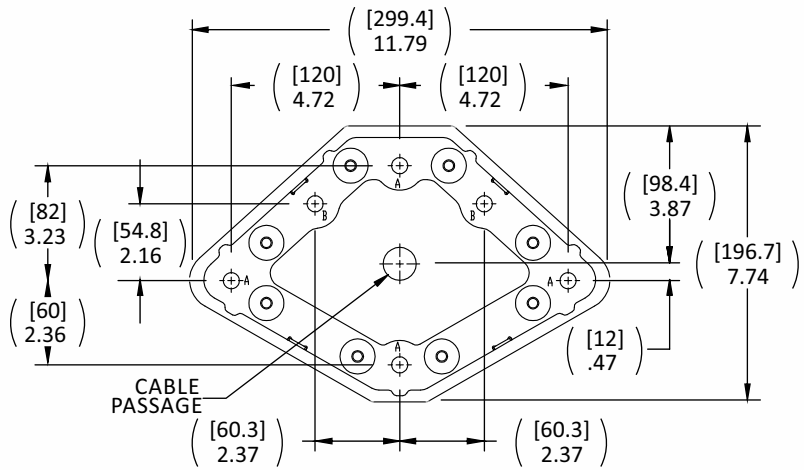


INSTALLATION INSTRUCTIONS:

1. Un-pack pedestal,
2. Remove mounting hardware stretch wrapped to extrusion (item 3).
3. Remove V-Support back (item 5) secured by 2 PHPMS M5-,8 X 25 SCREWS (item 15).
4. Remove front & rear base covers (items 6 & 7) secured by 4 FHPMS M4-,7 X 16 ZN screws (item 17).
5. Position pedestal on the floor in the desired position and orientation. **NOTE:** Please install the pedestal in a position far enough away from the ball rack to avoid potential damage caused by bowling balls falling from the ball rack.
6. Mark/transfer the mounting holes in base sheet metal - lower (item 1) to the floor.
   Note if the standard mounting hole positions marked 'A' in the plan view below interfere with the cable conduit in the floor, use both of the aternate positions marked 'B' in the plan view below for the supplied anchors.
7. Remove base sheet metal - lower (item 1) from base sheet metal - upper (item 2) secured with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
8. Position base sheet metal - lower (item 1) on the floor and install with the appropriate supplied anchors.
   For wood floors drill Ø 1/4 holes and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 21), SWM 3/8 ANSI ZN (item 21), and HHLB 3/8 X 2.00 ZN (item 21).
   For concrete floors drill Ø 3/8 holes to a minimum depth of 3-1/2 inches [89mm], clear the holes of all debris and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 21), SWM 3/8 ANSI ZN (item 21) and ANCR TB 3/8 X 3.00 ZN (item 21). Drive taper bolt into place leaving 3/16 inch [4.8mm] head clearance. Tighten taper bolt to minimum of 40FT-LB [54 N.m].
   NOTE: extra flat washers FW 0.41 X 0.73 X 0.06 ZN are included for leveling purposes; if not needed discard.
9. Install console cables thru the anti-short bushing (item 10) and thru the extrusion (item 3).
10. Re-install pedestal on base sheet metal - lower and secure with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
11. Re-install front & rear base covers (items 6 & 7); secure using 4 FHPMS M4-.7 X 16 screws (item 17).
12. Install keyboard or LCD assembly and connect per instructions provided with keyboard or LCD.
13. Re-install V-Support back (item 5); secure using 2 PHPMS M5-.8 X 25 screws (item 15).
    Take care not to pinch any wires or cables.

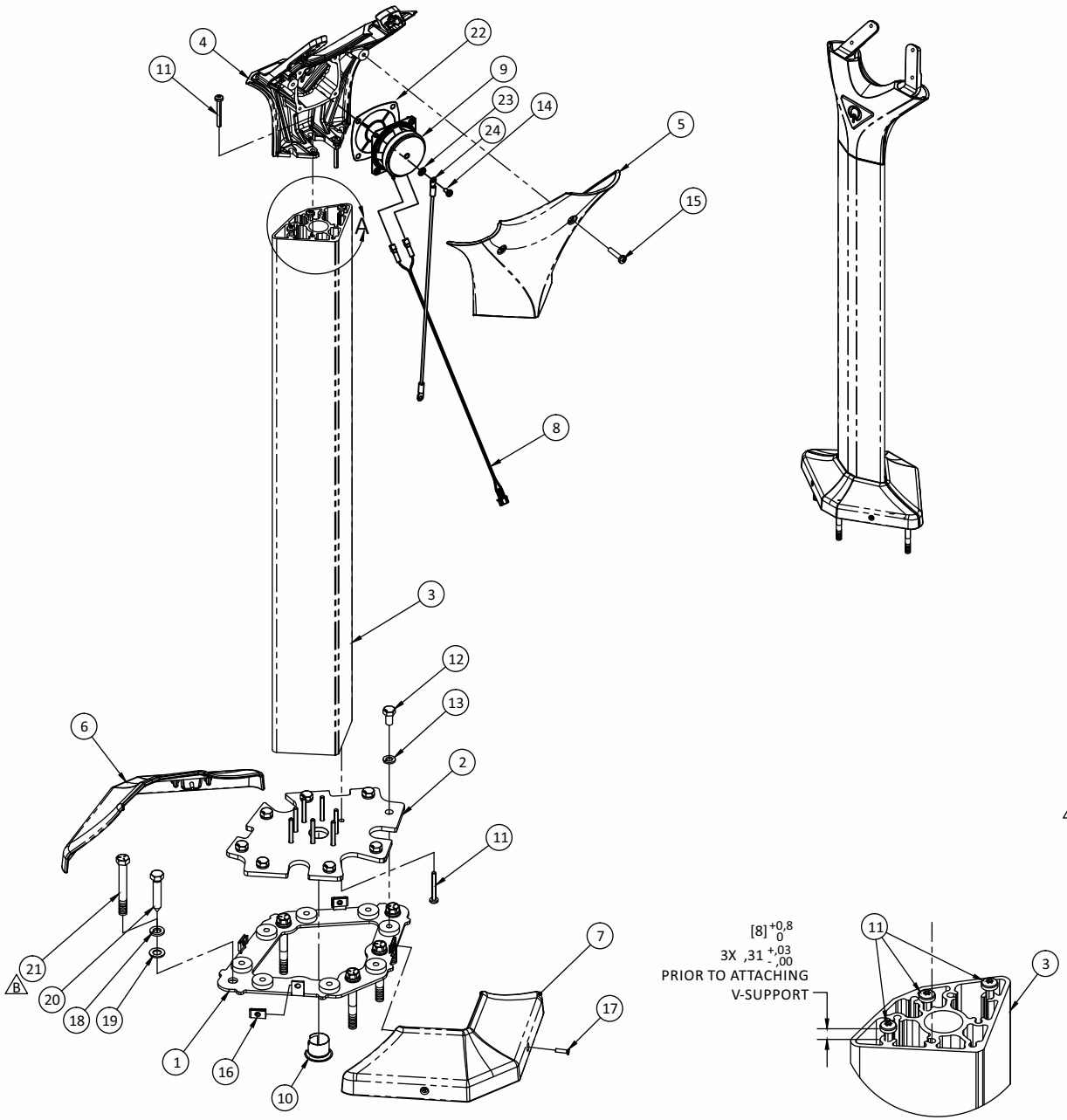
PLAN VIEW

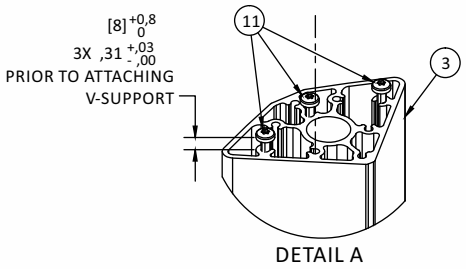
REAR OF PEDESTAL



FRONT OF PEDESTAL

T.10.066	
286002864 SINGLE PEDESTAL ASSEMBLY INSTRUCTIONS	
JUN 20th 2018	





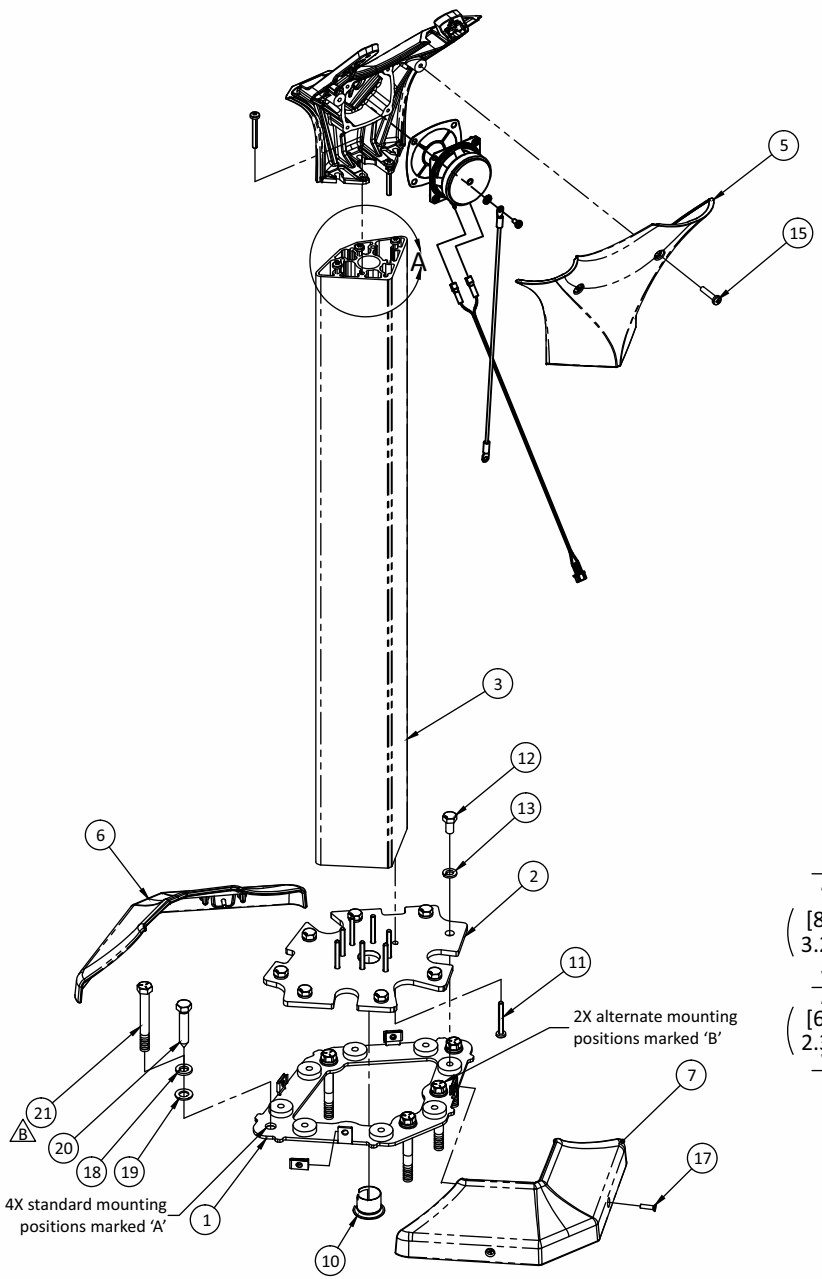
DETAIL A

PARTS LIST			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	286002802	Base sheet metal - Lower
2	1	286002806	Base sheet metal - Higher
3	1	286002814	Console extrusion machined
		286002826	Console extrusion short
4	1	286002820	V-Support single assembly
5	1	286002807	V-Support back
6	1	286002815	Front base cover
7	1	286002816	Rear base cover
8	1	286002824	Speaker wire harness single
9	1	770047105	Speaker
10	1	741510403	3/4" anti-short bushing
11	13	821805407	PHTTS M5-,8 X 40 ZN THFM TRI
12	8	802408167	HHCS M8-1,25 X 16 CL10,9 ZN
13	8	927158127	SWM M8 D-127A ZN
14	4	863040087	PHPMS M4-,7 X 8 ZN
15	2	813005257	PHPMS M5-,8 X 25 ZN
16	4	724511006	CON U 8-32 STD BP
17	4	819304167	FHPMS M4-,7 X 16 ZN
18	5	951164007	SWM 3/8 ANSI ZN
19	9	948767132	FW 0,41 X 0,73 X 0,06 ZN
20	5	810564420	HHLB 3/8 X 2,00 ZN
B 21	5	709007063	ANCR TB 3/8 X 3,00 ZN
22	1	286002873	Speaker plate
23	1	01033	ETLW10 ANSI ZN
24	1	088500224	CBL, ground, wireway cover

T.10.040

286002800 SINGLE AND
286002824 SHORT SINGLE
PEDESTAL ASSEMBLY
PARTS

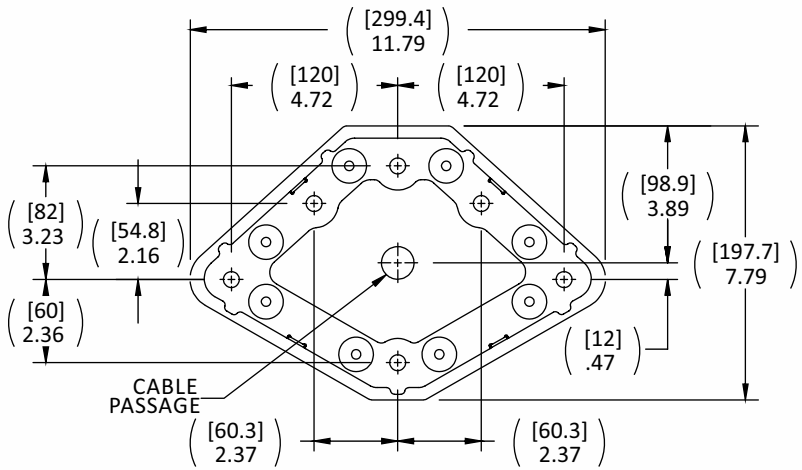
JUN 20th 2018



INSTALLATION INSTRUCTIONS:

1. Un-pack pedestal,
2. Remove mounting hardware stretch wrapped to extrusion (item 3).
3. Remove V-Support back (item 5) secured by 2 PHPMS M5-,8 X 25 SCREWS (item 15).
4. Remove front & rear base covers (items 6 & 7) secured by 4 FHPMS M4-,7 X 16 ZN screws (item 17).
5. Position pedestal on the floor in the desired position and orientation. **NOTE:** Please install the pedestal in a position far enough away from the ball rack to avoid potential damage caused by bowling balls falling from the ball rack.
6. (B) Mark/transfer the mounting holes in base sheet metal - lower (item 1) to the floor. **NOTE**: if the standard mounting hole positions marked 'A' in the plan below interfere with the cable conduit in the floor, use both of the aternate positions marked 'B' in the plan view below for the supplied anchors.
7. Remove base sheet metal - lower (item 1) from base sheet metal - upper (item 2) secured with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
8. (B) Position base sheet metal - lower (item 1) on the floor and install with the appropriate supplied anchors.
   For wood floors drill Ø 1/4 holes and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 19), SWM 3/8 ANSI ZN (item 18), and HHLB 3/8 X 2.00 ZN (item 20).
   For concrete floors drill Ø 3/8 holes to a minimum depth of 3-1/2 inches [89mm], clear the holes of all debris and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 19), SWM 3/8 ANSI ZN (item 18) and ANCR TB 3/8 X 3.00 ZN (item 21). Drive taper bolt into place leaving 3/16 inch [4.8mm] head clearance. Tighten taper bolt to minimum of 40FT-LB [54 N.m].
   NOTE: extra flat washers FW 0.41 X 0.73 X 0.06 ZN are included for leveling purposes; if not needed discard.
9. Install console cables thru the anti-short bushing (item 10) and thru the extrusion (item 3).
10. Re-install pedestal on base sheet metal - lower and secure with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
11. Re-install front & rear base covers (items 6 & 7); secure using 4 FHPMS M4-.7 X 16 screws (item 17).
12. Install keyboard or LCD assembly and connect per instructions provided with keyboard or LCD.
13. Re-install V-Support back (item 5); secure using 2 PHPMS M5-.8 X 25 screws (item 15).
    Take care not to pinch any wires or cables.

PLAN VIEW
(B) **REAR OF PEDESTAL**

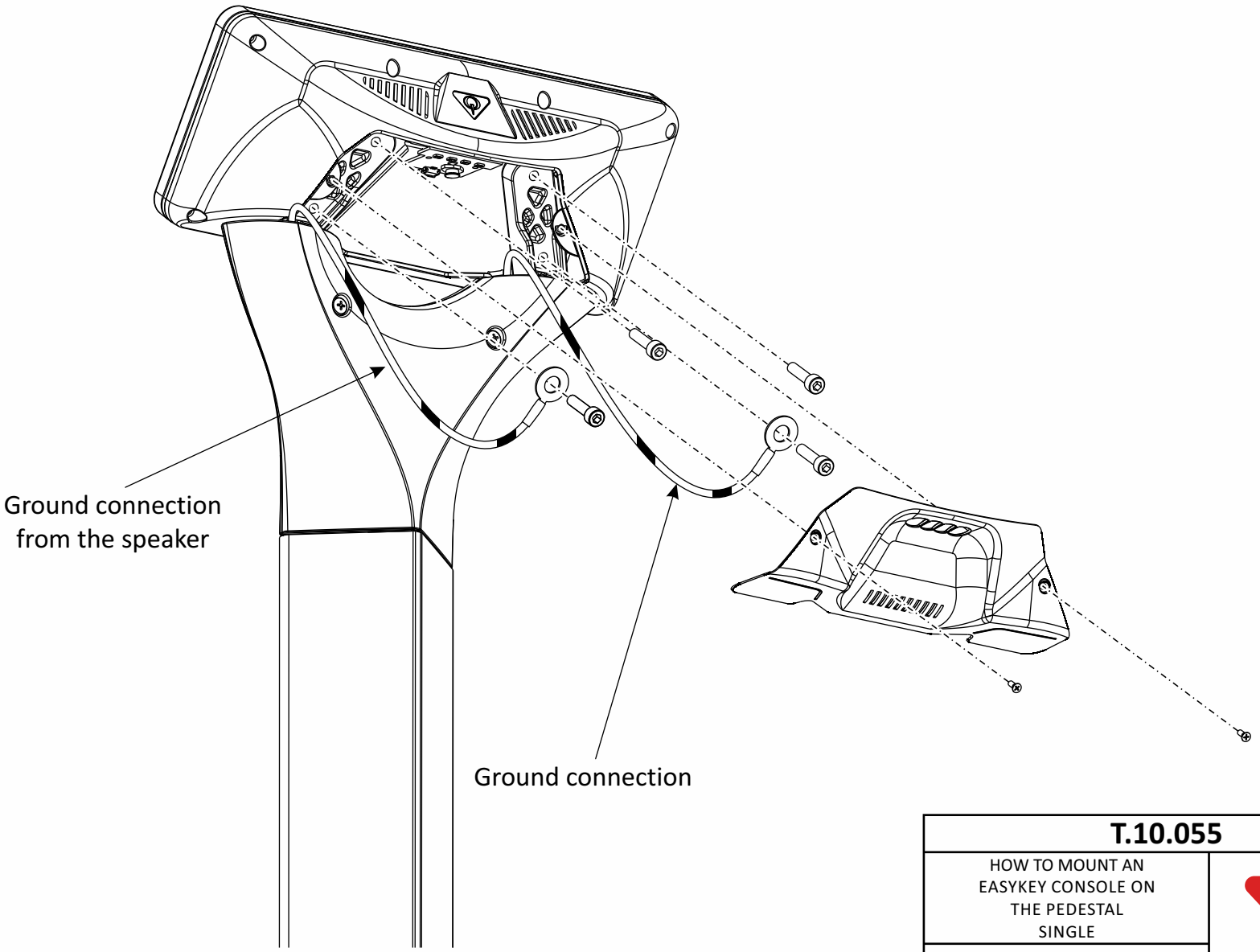


FRONT OF PEDESTAL

T.10.041

286002800 SINGLE AND
286002824 SHORT SINGLE
PEDESTAL ASSEMBLY
INSTRUCTIONS

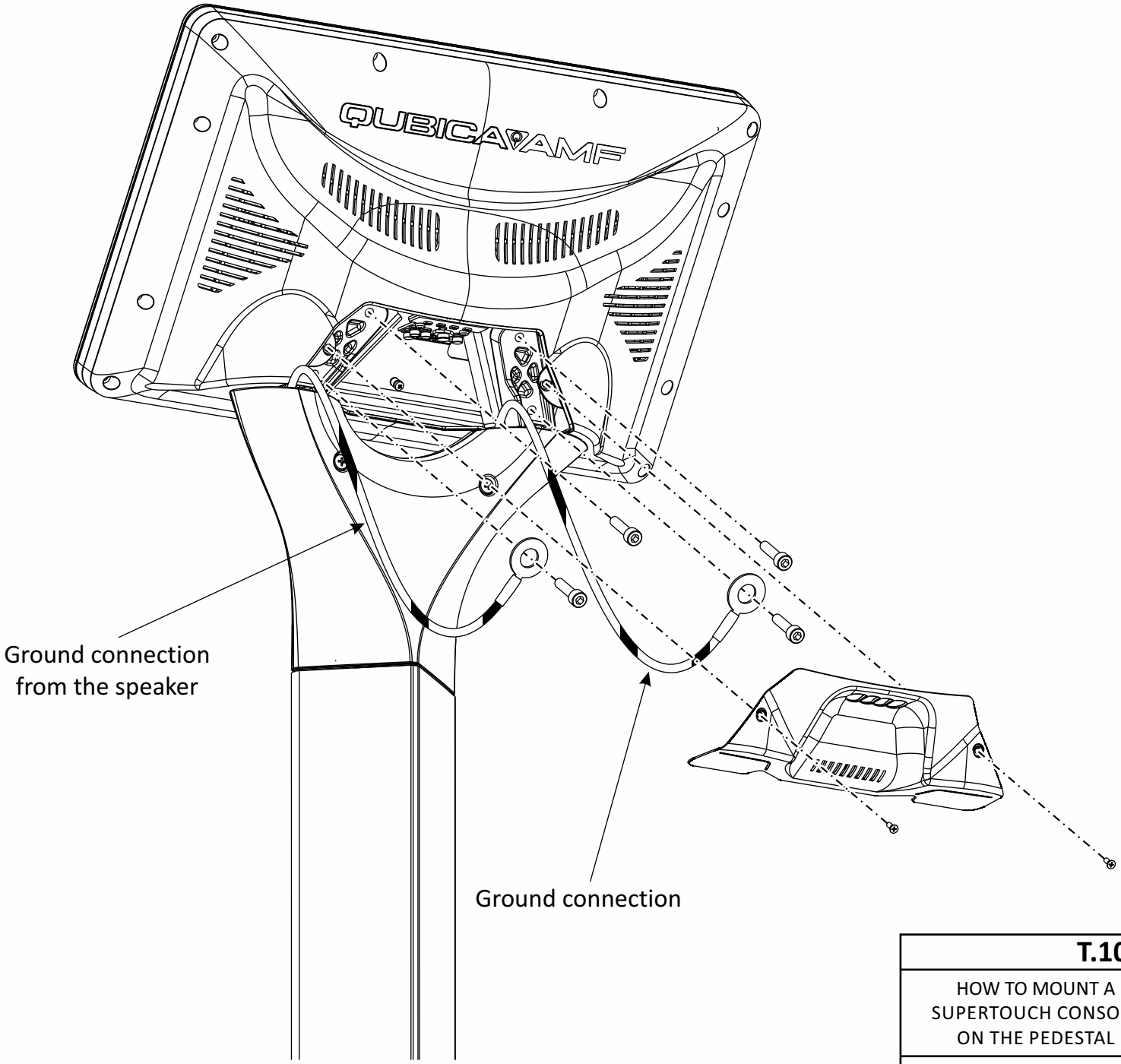
JUN 20th 2018



T.10.055

HOW TO MOUNT AN EASYKEY CONSOLE ON THE PEDESTAL SINGLE

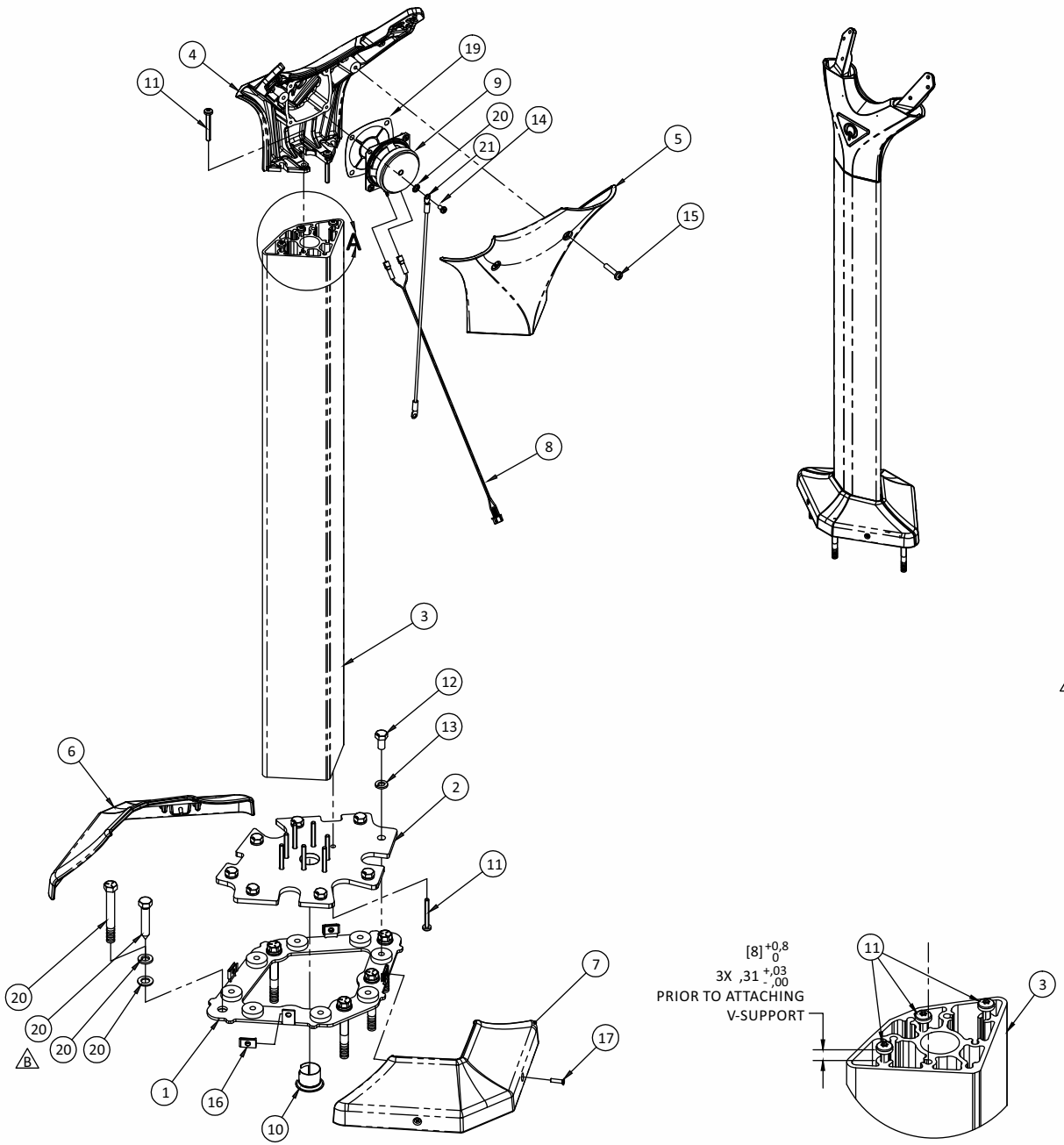
JUN 20th 2018



T.10.056

HOW TO MOUNT A
SUPERTOUCH CONSOLE
ON THE PEDESTAL

JUN 20th 2018

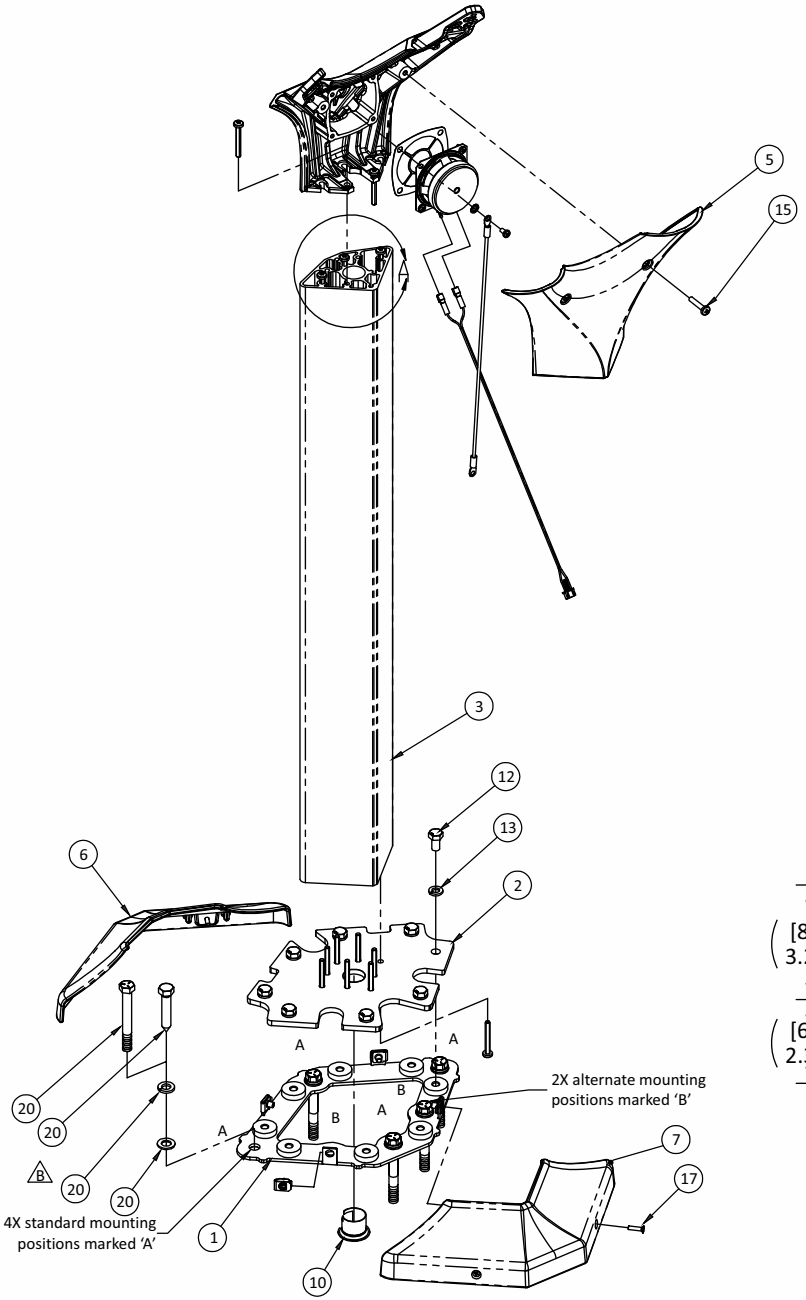


PARTS LIST			
ITEM	QTY	P/N	DESCRIPTION
1	1	286002802	Base sheet metal - Lower
2	1	286002806	Base sheet metal - Higher
3	1	286002857	Console extrusion machined
4	1	286002867	V-Support dual assembly
5	1	286002852	V-Support back
6	1	286002854	Front base cover
7	1	286002855	Rear base cover
8	1	286002819	Speaker wire harness
9	1	770047105	Speaker
10	1	741510403	3/4" anti-short bushing
11	13	821805407	PHTTS M5-,8 X 40 ZN THFM TRI
12	8	802408167	HHCS M8-1,25 X 16 CL10,9 ZN
13	8	927158127	SWM M8 D-127A ZN
14	4	863040087	PHPMS M4-,7 X 8 ZN
15	2	813005257	PHPMS M5-,8 X 25 ZN
16	4	724520001	CON U M4-,7 TPH ZN
17	4	819304167	FHPMS M4-,7 X 16 ZN
B 18	5	286002800HW	Pedestal installation hardware
19	1	286002873	Speaker plate
20	1	01033	ETLW10 ANSI ZN
21	1	088500224	CBL, ground, wireway cover

T.10.062

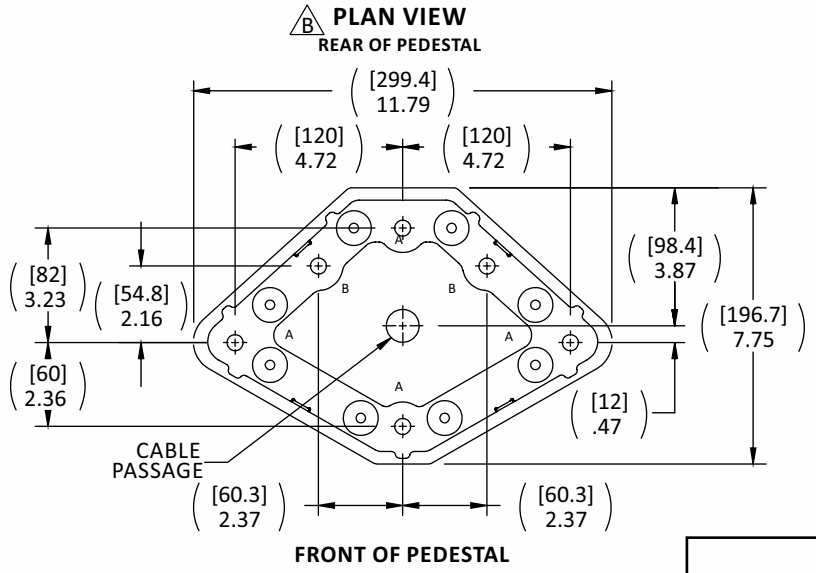
286002862 DUAL PEDESTAL ASSEMBLY PARTS

JUN 20th 2018

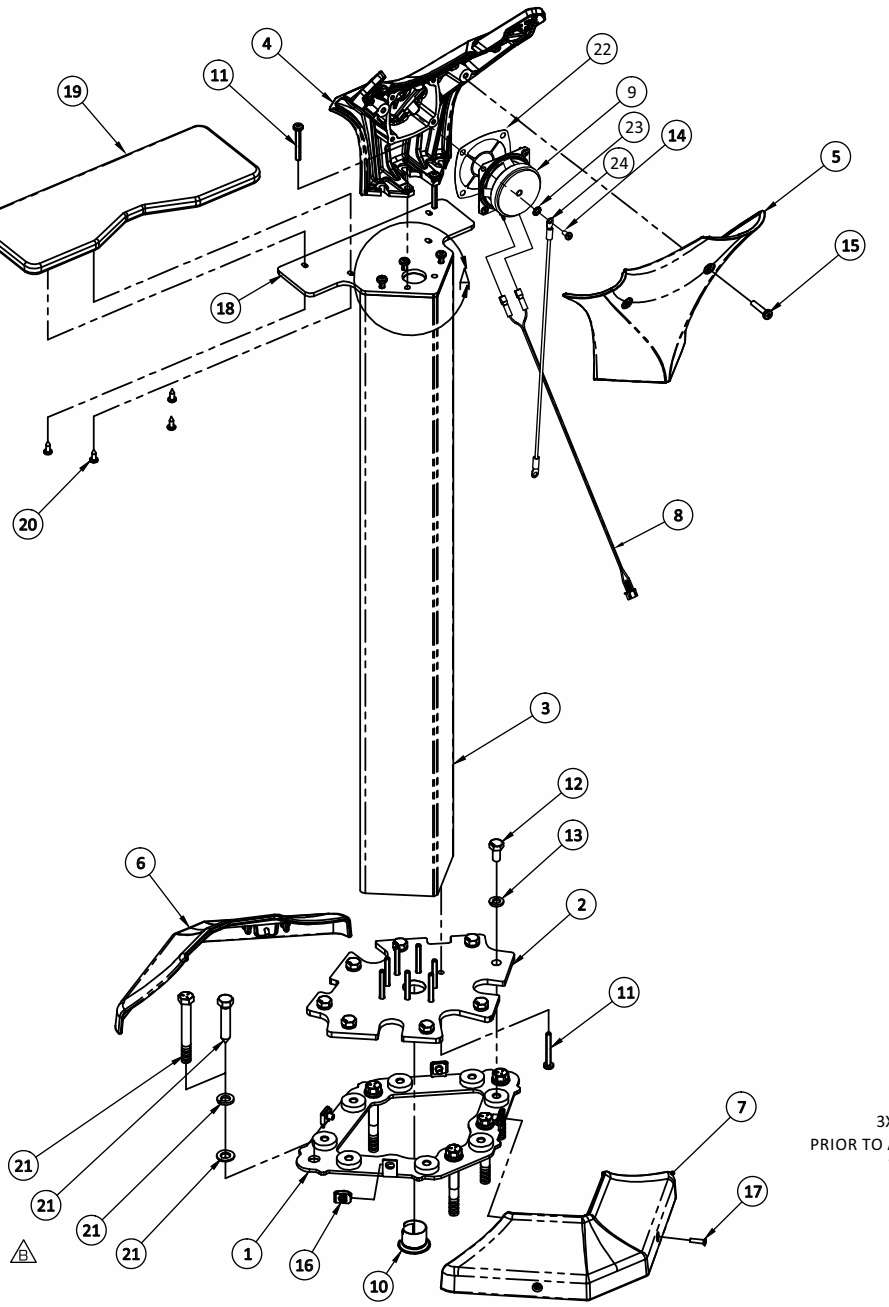


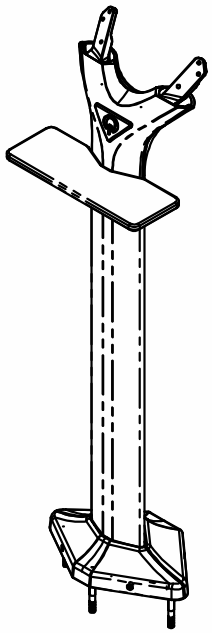
INSTALLATION INSTRUCTIONS:

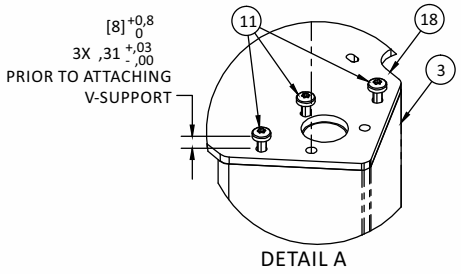
1. Un-pack pedestal,
2. Remove mounting hardware stretch wrapped to extrusion (item 3).
3. Remove V-Support back (item 5) secured by 2 PHPMS M5-,8 X 25 SCREWS (item 15).
4. Remove front & rear base covers (items 6 & 7) secured by 4 FHPMS M4-,7 X 16 ZN screws (item 17).
5. Position pedestal on the floor in the desired position and orientation. **NOTE:** Please install the pedestal in a position far enough away from the ball rack to avoid potential damage caused by bowling balls falling from the ball rack.
6. Mark/transfer the mounting holes in base sheet metal - lower (item 1) to the floor. **NOTE**: if the standard mounting hole positions marked 'A' in the plan below interfere with the cable conduit in the floor, use both of the aternate positions marked 'B' in the plan view below for the supplied anchors.
7. Remove base sheet metal - lower (item 1) from base sheet metal - upper (item 2) secured with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
8. (B) Position base sheet metal - lower (item 1) on the floor and install with the appropriate supplied anchors.
   For wood floors drill Ø 1/4 holes and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 20), SWM 3/8 ANSI ZN (item 20), and HHLB 3/8 X 2.00 ZN (item 20).
   For concrete floors drill Ø 3/8 holes to a minimum depth of 3-1/2 inches [89mm], clear the holes of all debris and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 20), SWM 3/8 ANSI ZN (item 20) and ANCR TB 3/8 X 3.00 ZN (item 20). Drive taper bolt into place leaving 3/16 inch [4.8mm] head clearance. Tighten taper bolt to minimum of 40FT-LB [54 N.m].
   NOTE: extra flat washers FW 0.41 X 0.73 X 0.06 ZN are included for leveling purposes; if not needed discard.
9. Install console cables thru the anti-short bushing (item 10) and thru the extrusion (item 3).
10. Re-install pedestal on base sheet metal - lower and secure with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
11. Re-install front & rear base covers (items 6 & 7); secure using 4 FHPMS M4-.7 X 16 screws (item 17).
12. Install keyboard or LCD assembly and connect per instructions provided with keyboard or LCD.
13. Re-install V-Support back (item 5); secure using 2 PHPMS M5-.8 X 25 screws (item 15).
    Take care not to pinch any wires or cables.



T.10.063	
286002862 DUAL PEDESTAL ASSEMBLY INSTRUCTIONS	
JUN 20th 2018	



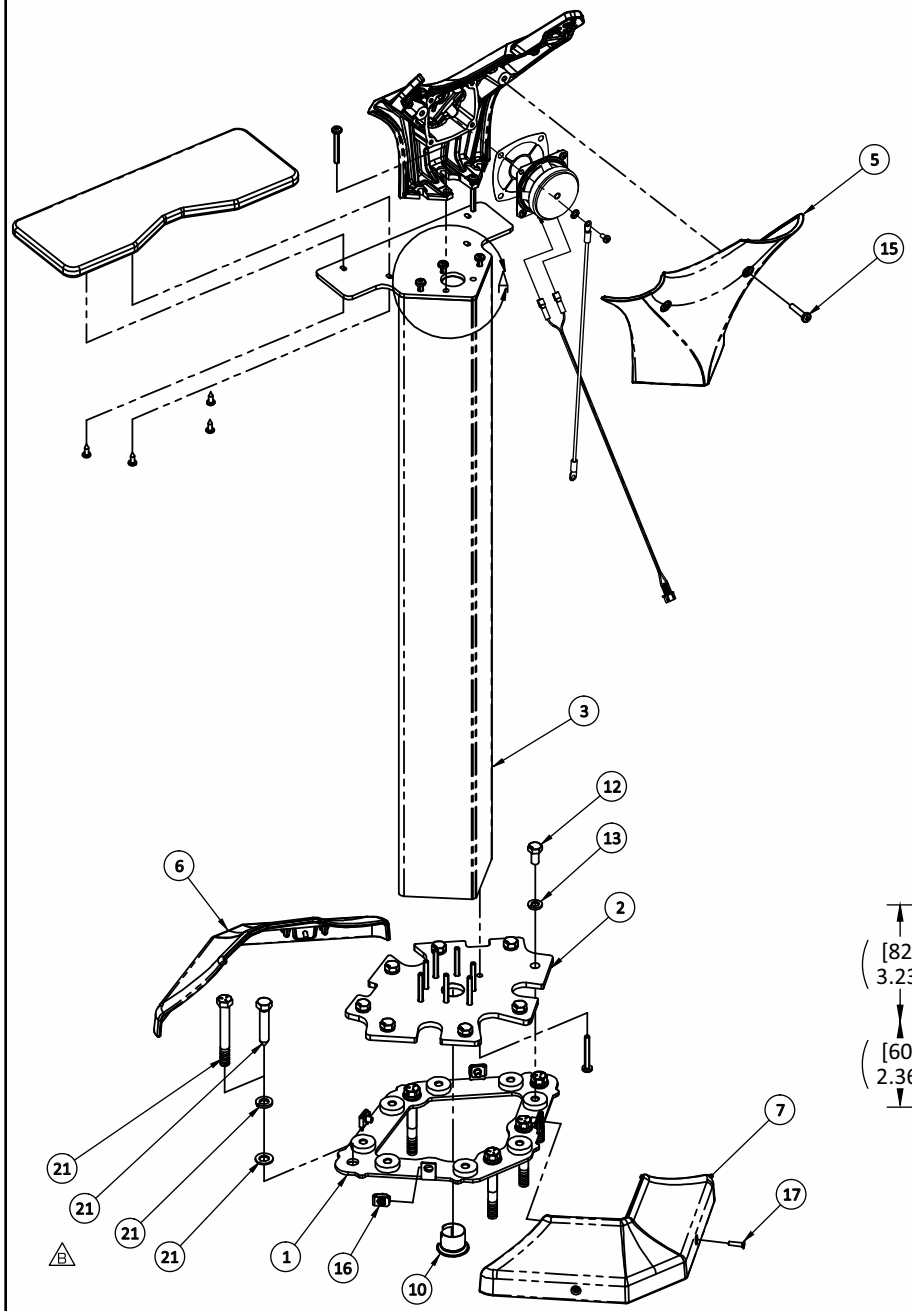




PARTS LIST			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	286002802	Base sheet metal - Lower
2	1	286002806	Base sheet metal - Higher
3	1	286002857	Console extrusion machined
4	1	286002867	V-Support single assembly
5	1	286002852	V-Support back
6	1	286002854	Front base cover
7	1	286002855	Rear base cover
8	1	286002819	Speaker wire harness single
9	1	770047105	Speaker
10	1	741510403	3/4" anti-short bushing
11	13	821805407	PHTTS M5-,8 X 40 ZN THFM TRI
12	8	802408167	HHCS M8-1,25 X 16 CL10,9 ZN
13	8	927158127	SWM M8 D-127A ZN
14	4	863040087	PHPMS M4-,7 X 8 ZN
15	2	813005257	PHPMS M5-,8 X 25 ZN
16	4	724520001	CON U M4-,7 TPH ZN
17	4	819304167	FHPMS M4-,7 X 16 ZN
18	1	286002860	Console table plate
19	1	286002832	Console table top
20	4	822332081	PHPTS 8 X .5 BO TYAB
21	5	286002800HW	Pedestal installation hardware
22	1	286002873	Speaker plate
23	1	01033	ETLW10 ANSI ZN
24	1	088500224	CBL, ground, wireway cover

B

T.10.067	
286002865 DUAL PEDESTAL ASSEMBLY PARTS	
JUN 20th 2018	

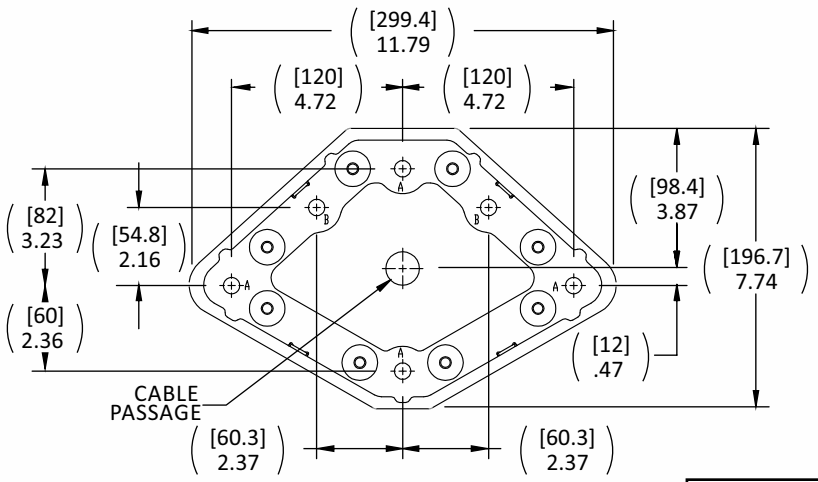


INSTALLATION INSTRUCTIONS:

1. Un-pack pedestal.
2. Remove mounting hardware stretch wrapped to extrusion (item 3).
3. Remove V-Support back (item 5) secured by 2 PHPMS M5-,8 X 25 SCREWS (item 15).
4. Remove front & rear base covers (items 6 & 7) secured by 4 FHPMS M4-,7 X 16 ZN screws (item 17).
5. Position pedestal on the floor in the desired position and orientation. **NOTE:** Please install the pedestal in a position far enough away from the ball rack to avoid potential damage caused by bowling balls falling from the ball rack.
6. Mark/transfer the mounting holes in base sheet metal - lower (item 1) to the floor. **NOTE**: if the standard mounting hole positions marked 'A' in the plan view below interfere with the cable conduit in the floor, use both of the aternate positions marked 'B' in the plan view below for the supplied anchors.
7. Remove base sheet metal - lower (item 1) from base sheet metal - upper (item 2) secured with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
8. Position base sheet metal - lower (item 1) on the floor and install with the appropriate supplied anchors.
   For wood floors drill Ø 1/4 holes and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 21), SWM 3/8 ANSI ZN (item 21), and HHLB 3/8 X 2.00 ZN (item 21).
   For concrete floors drill Ø 3/8 holes to a minimum depth of 3-1/2 inches [89mm], clear the holes of all debris and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 21), SWM 3/8 ANSI ZN (item 21) and ANCR TB 3/8 X 3.00 ZN (item 21). Drive taper bolt into place leaving 3/16 inch [4.8mm] head clearance. Tighten taper bolt to minimum of 40FT-LB [54 N.m].
   NOTE: extra flat washers FW 0.41 X 0.73 X 0.06 ZN are included for leveling purposes; if not needed discard.
9. Install console cables thru the anti-short bushing (item 10) and thru the extrusion (item 3).
10. Re-install pedestal on base sheet metal - lower and secure with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
11. Re-install front & rear base covers (items 6 & 7); secure using 4 FHPMS M4-.7 X 16 screws (item 17).
12. Install keyboard or LCD assembly and connect per instructions provided with keyboard or LCD.
13. Re-install V-Support back (item 5); secure using 2 PHPMS M5-.8 X 25 screws (item 15).
    Take care not to pinch any wires or cables.

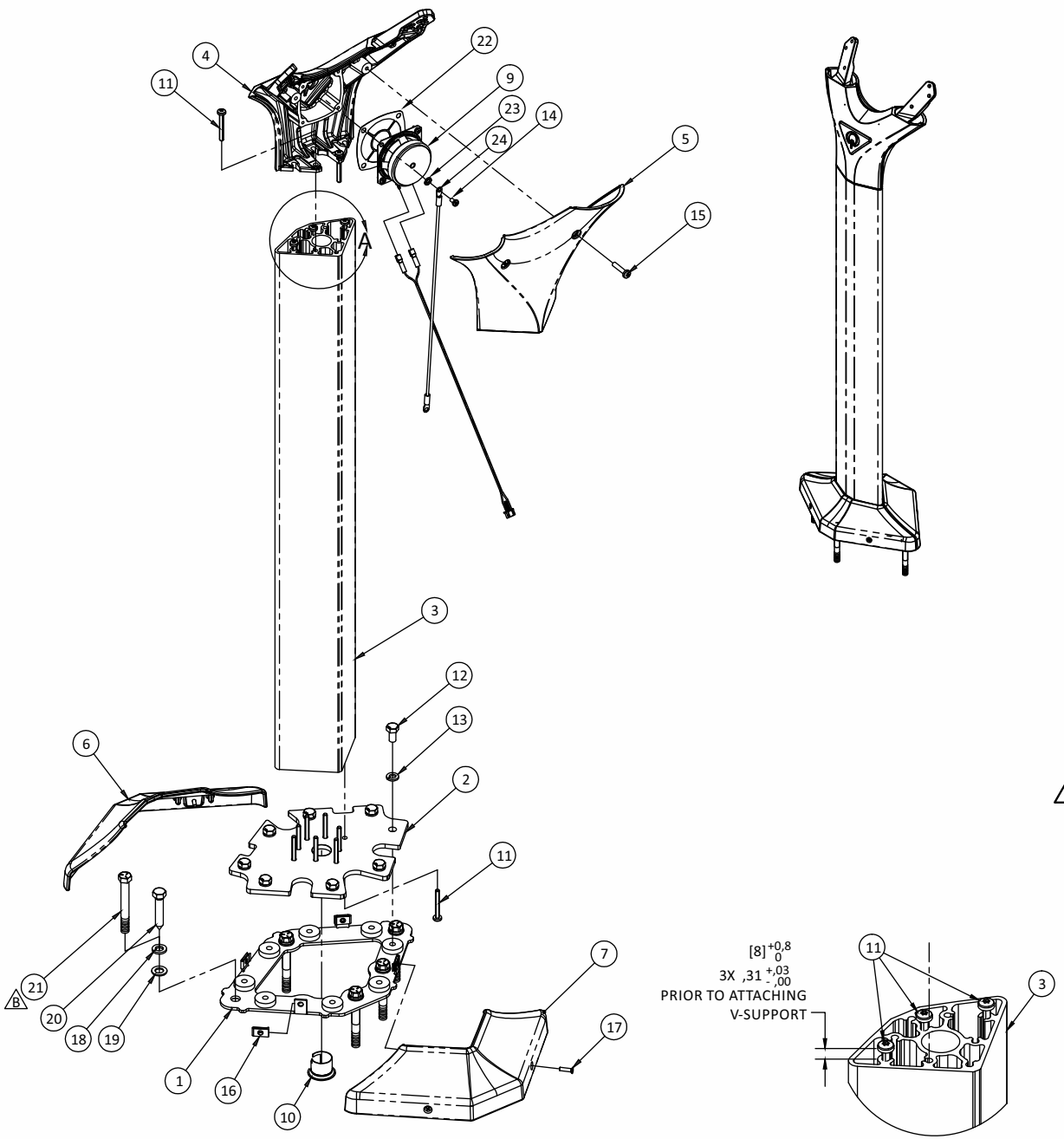
PLAN VIEW

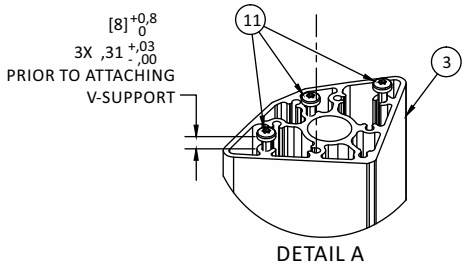
REAR OF PEDESTAL



FRONT OF PEDESTAL

T.10.068	
286002865 DUAL PEDESTAL ASSEMBLY INSTRUCTIONS	
JUN 20th 2018	



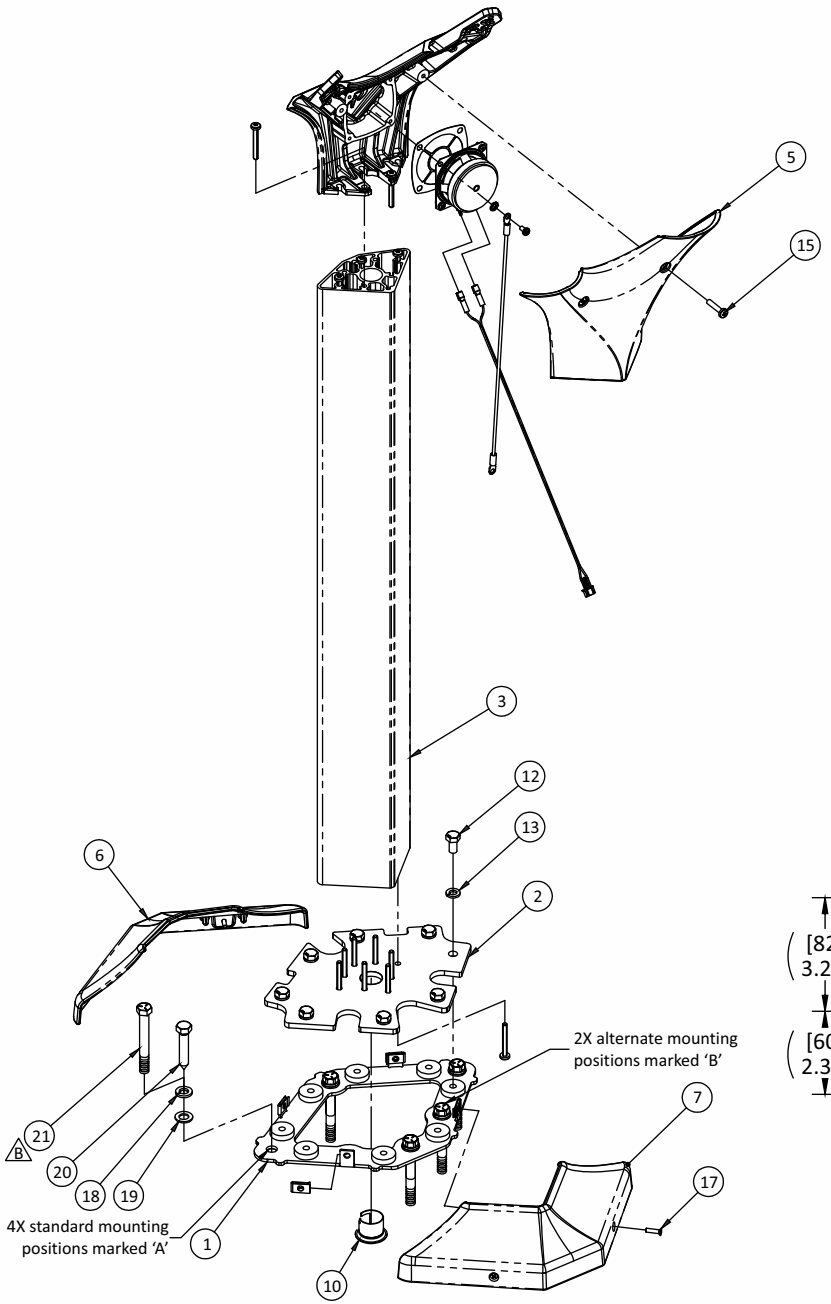


PARTS LIST			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	286002802	Base sheet metal - Lower
2	1	286002806	Base sheet metal - Higher
3	1	286002814	Console extrusion machined
4	1	286002821	V-Support dual assembly
5	1	286002807	V-Support back
6	1	286002815	Front base cover
7	1	286002816	Rear base cover
8	1	286002819	Speaker wire harness
9	1	770047105	Speaker
10	1	741510403	3/4" anti-short bushing
11	13	821805407	PHTTS M5-,8 X 40 ZN THFM TRI
12	8	802408167	HHCS M8-1,25 X 16 CL10,9 ZN
13	8	927158127	SWM M8 D-127A ZN
14	4	863040087	PHPMS M4-,7 X 8 ZN
15	2	813005257	PHPMS M5-,8 X 25 ZN
16	4	724511006	CON U 8-32 STD BP
17	4	819304167	FHPMS M4-,7 X 16 ZN
18	5	951164007	SWM 3/8 ANSI ZN
19	9	948767132	FW 0,41 X 0,73 X 0,06 ZN
20	5	810564420	HHLB 3/8 X 2,00 ZN
21	5	709007063	ANCR TB 3/8 X 3,00 ZN
22	1	286002873	Speaker plate
23	1	01033	ETLW10 ANSI ZN
24	1	088500224	CBL, ground, wireway cover

T.10.042

286002801 DUAL PEDESTAL ASSEMBLY PARTS

JUN 20th 2018

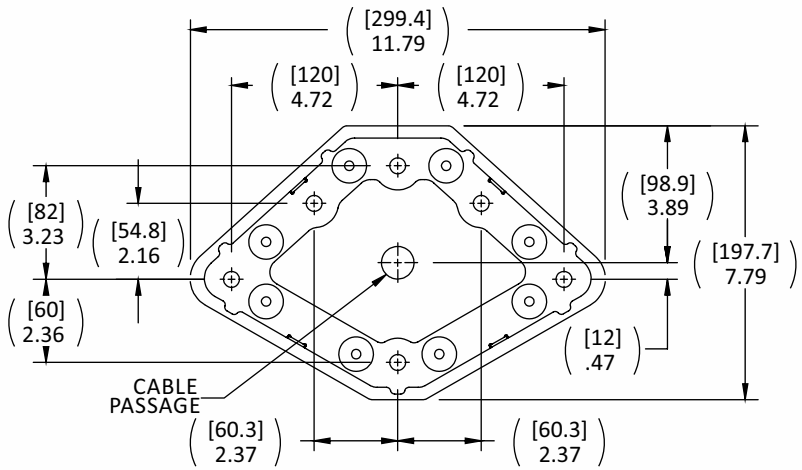


INSTALLATION INSTRUCTIONS:

1. Un-pack pedestal,
2. Remove mounting hardware stretch wrapped to extrusion (item 3).
3. Remove V-Support back (item 5) secured by 2 PHPMS M5-,8 X 25 SCREWS (item 15).
4. Remove front & rear base covers (items 6 & 7) secured by 4 FHPMS M4-,7 X 16 ZN screws (item 17).
5. Position pedestal on the floor in the desired position and orientation. **NOTE:** Please install the pedestal in a position far enough away from the ball rack to avoid potential damage caused by bowling balls falling from the ball rack.
6. Mark/transfer the mounting holes in base sheet metal - lower (item 1) to the floor. **NOTE**: if the standard mounting hole positions marked 'A' in the plan below interfere with the cable conduit in the floor, use both of the aternate positions marked 'B' in the plan view below for the supplied anchors.
7. Remove base sheet metal - lower (item 1) from base sheet metal - upper (item 2) secured with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
8. Position base sheet metal - lower (item 1) on the floor and install with the appropriate supplied anchors.
   For wood floors drill Ø 1/4 holes and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 19), SWM 3/8 ANSI ZN (item 18), and HHLB 3/8 X 2.00 ZN (item 20).
   For concrete floors drill Ø 3/8 holes to a minimum depth of 3-1/2 inches [89mm], clear the holes of all debris and secure using 4 or 5 each of FW 0.41 X 0.73 X 0.06 ZN (item 19), SWM 3/8 ANSI ZN (item 18) and ANCR TB 3/8 X 3.00 ZN (item 21). Drive taper bolt into place leaving 3/16 inch [4.8mm] head clearance. Tighten taper bolt to minimum of 40FT-LB [54 N.m].
   NOTE: extra flat washers FW 0.41 X 0.73 X 0.06 ZN are included for leveling purposes; if not needed discard.
9. Install console cables thru the anti-short bushing (item 10) and thru the extrusion (item 3).
10. Re-install pedestal on base sheet metal - lower and secure with 8 each of HHCS M5-,8 X 16 (item 12) & SWM M8 D-127A ZN (item 13).
11. Re-install front & rear base covers (items 6 & 7); secure using 4 FHPMS M4-.7 X 16 screws (item 17).
12. Install keyboard or LCD assembly and connect per instructions provided with keyboard or LCD.
13. Re-install V-Support back (item 5); secure using 2 PHPMS M5-.8 X 25 screws (item 15).
    Take care not to pinch any wires or cables.

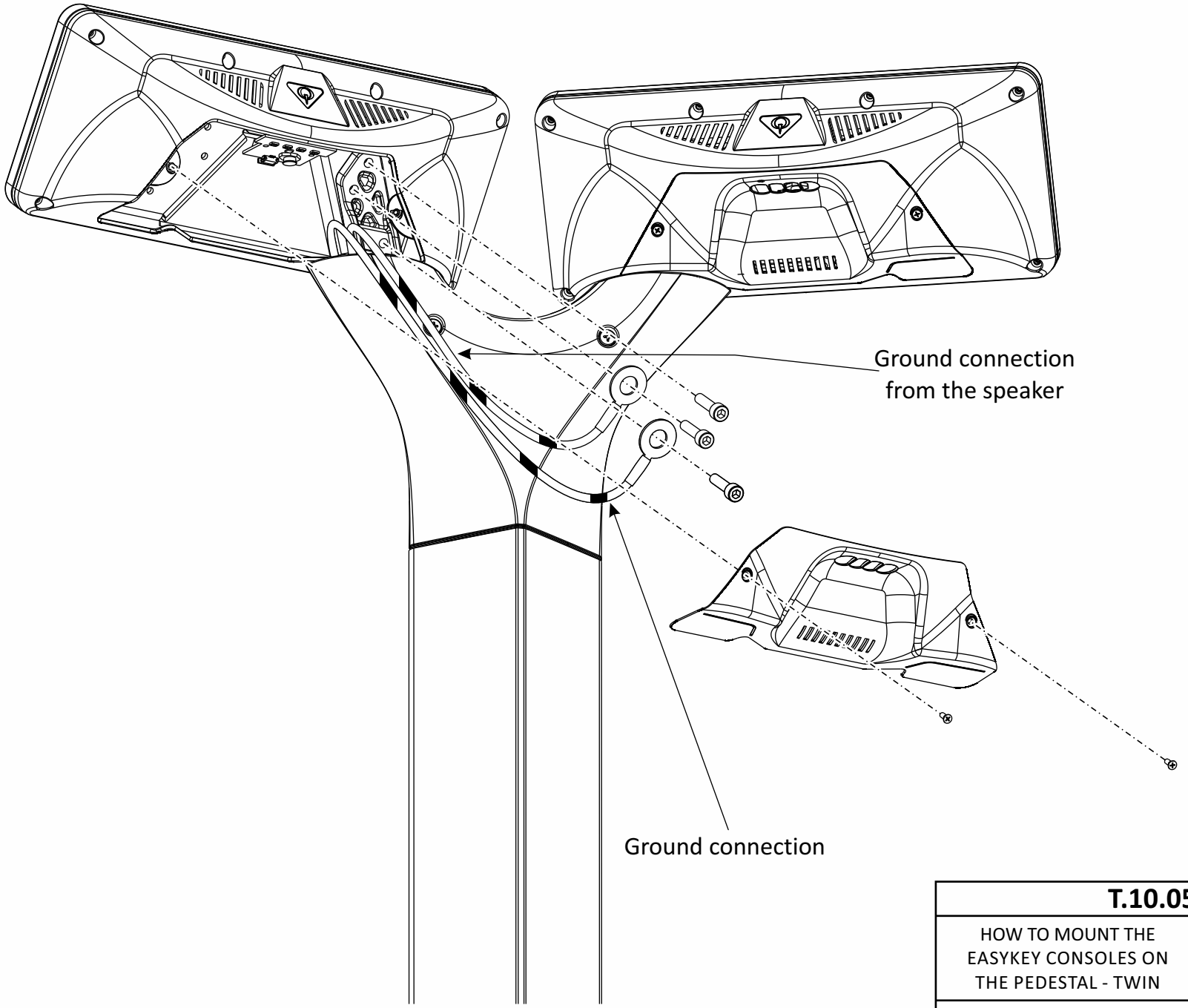
B PLAN VIEW

REAR OF PEDESTAL



FRONT OF PEDESTAL

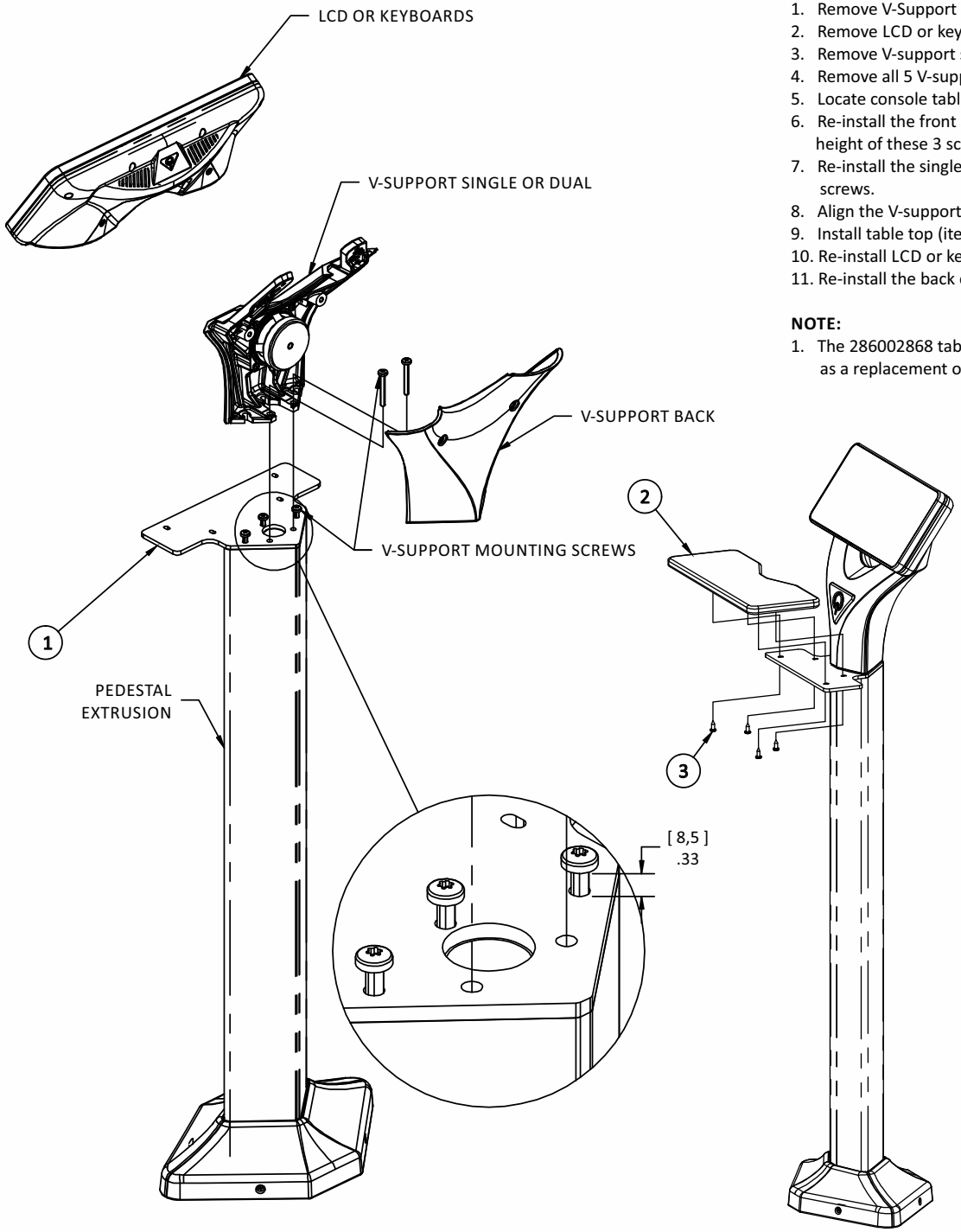
T.10.043	
286002801 DUAL PEDESTAL ASSEMBLY INSTRUCTIONS	
JUN 20th 2018	



T.10.057

HOW TO MOUNT THE EASYKEY CONSOLES ON THE PEDESTAL - TWIN

JUN 20th 2018



INSTALLATION INSTRUCTIONS:

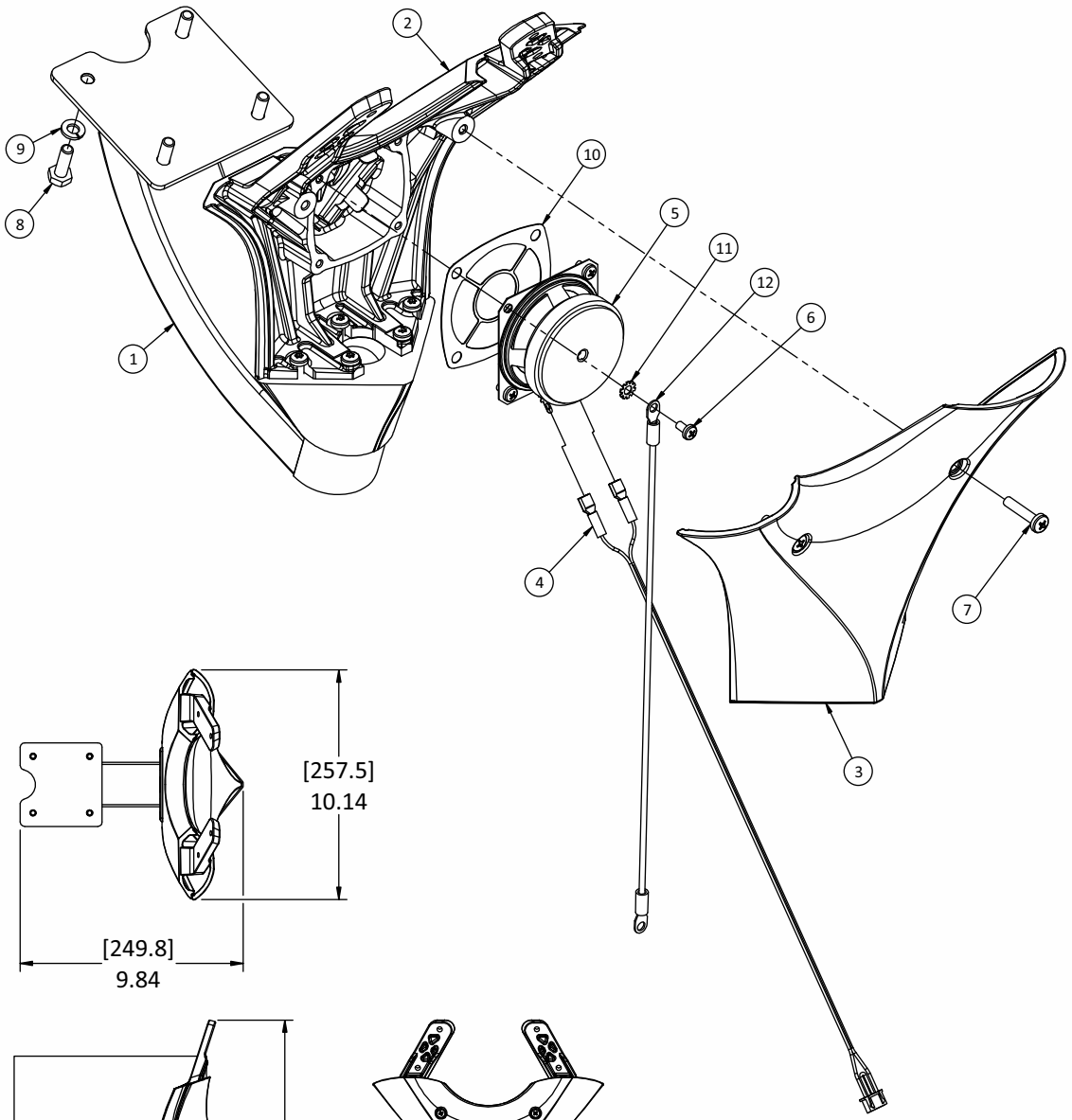
1. Remove V-Support back.
2. Remove LCD or keyboard if already installed.
3. Remove V-support single or dual.
4. Remove all 5 V-support mounting screws.
5. Locate console table plate (item 1) on the pedestal extrusion as shown.
6. Re-install the front 3 of 5 V-support mounting screws thru the table plate into the pedestal extrusion. Set the screw head height of these 3 screws to .33 (8.5mm) above the table plate, as shown.
7. Re-install the single or dual V-support on top of the table plate and secure loosely with the remaining 2 V-support mounting screws.
8. Align the V-support and table plate with the pedestal extrusion and tighten all 5 V-support mounting screws.
9. Install table top (item 2) and secure, using the provided 4 screws (item 3).
10. Re-install LCD or keyboard if previously removed.
11. Re-install the back cover of the pedestal.

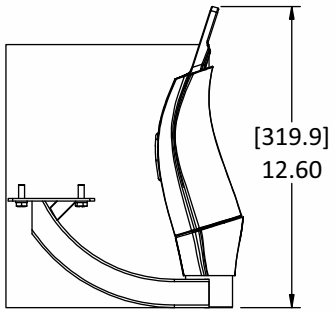
NOTE:

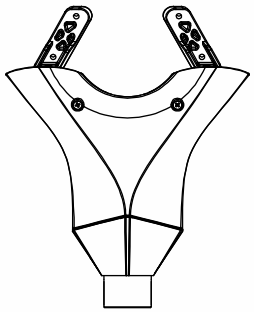
1. The 286002868 table assembly has to be used with 286002861, 286002862, 286002863, or as a replacement on 286002864 or 286002865.

PARTS LIST			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	286002831	Console table plate (included in 286002830)
		286002860	Console table plate (included in 286002868)
2	1	286002832	Console table top
3	1	822332081	PHPTS 8 X ,50 BO TYAP

T.10.069	
286002830 AND 286002868 PARTS AND INSTRUCTIONS	
FEB 16th 2015	





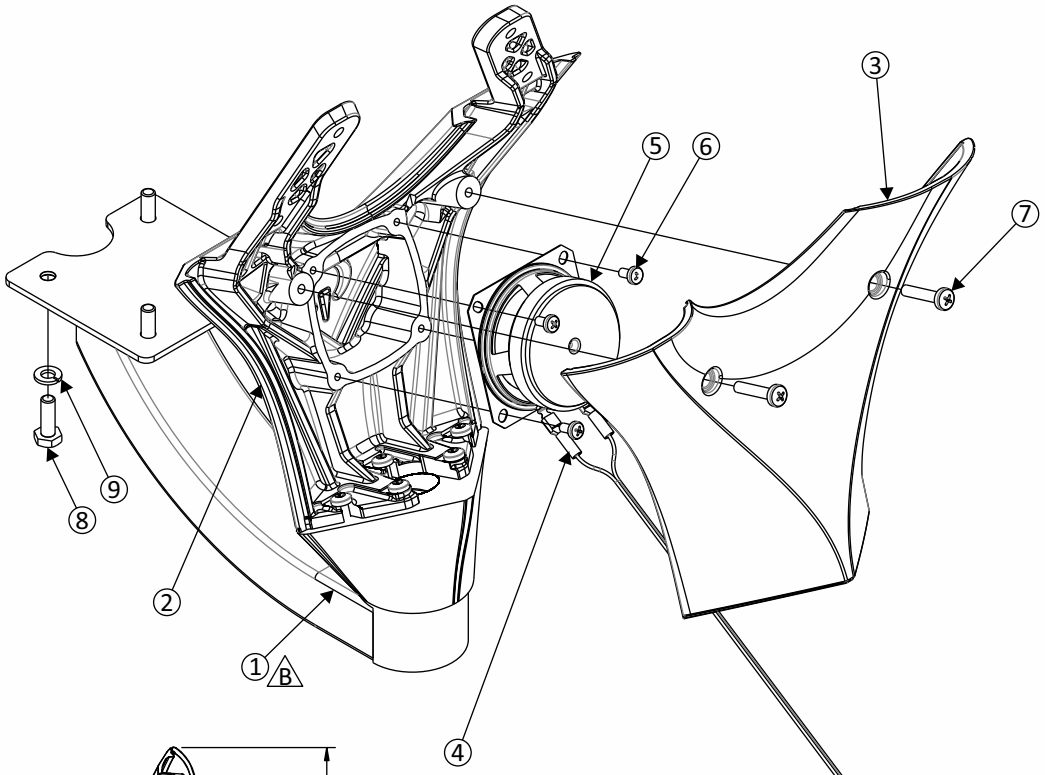


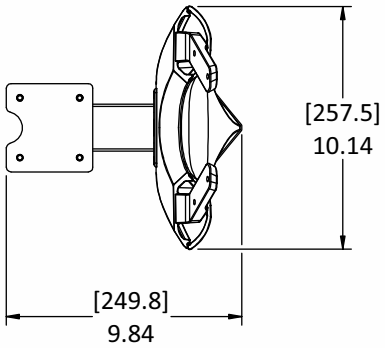
PARTS LIST			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	289100113	Table-mount support arm W/SWVL
2	1	286002866	V-support single assembly
3	1	286002852	V-support back
4	1	286002824	Speaker wire harness single
5	1	770047105	Speaker
6	4	863040087	PHPMS M4-.7 X 8 ZN
7	2	813005257	PHPMS M5-.8 X 25 ZN
8	4	7010-002520-075	HHCS 1/4-20 X 0.75 GR5 ZN
9	4	7060-025046-006	SWM 1/4 ANSI ZN
10	1	286002873	Speaker plate
11	1	01033	ETLW 10 ANSI ZN
12	1	088500224	CBL, ground, wireway cover

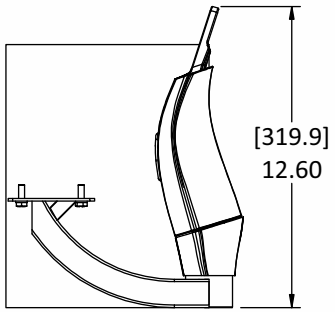
INSTALLATION INSTRUCTIONS:

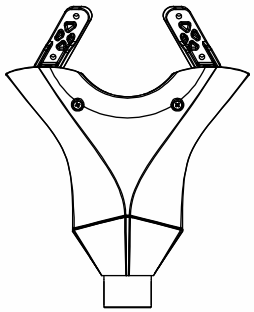
1. Mount V-Support (item 2) to table mount swivel assembly (item 1).
   Secure with the screws provided provided with item 1.
2. Mount speaker (item 5) to V-Support (item 2).
   Secure with four screws (item 6). Include the static protection items: 11, 12, 13.
3. Attach wire harness (item 4) to speaker (item 5).
   Attach black wire harness terminal to speaker «-» terminal and attach red wire harness terminal to speaker «+» terminal.
   Protect wire harness by inserting connector and excess cable into the cable passage hole of the table mount swivel assembly.
4. Assemble V-Support back (item 3) to V-Support (item 2).
   Secure with two screws (item 7).
   Take care not to pinch speaker wire harness.

T.10.064	
286002869 BES X CONSOLE TABLE MOUNT ASSEMBLY	
JUN 20th 2018	









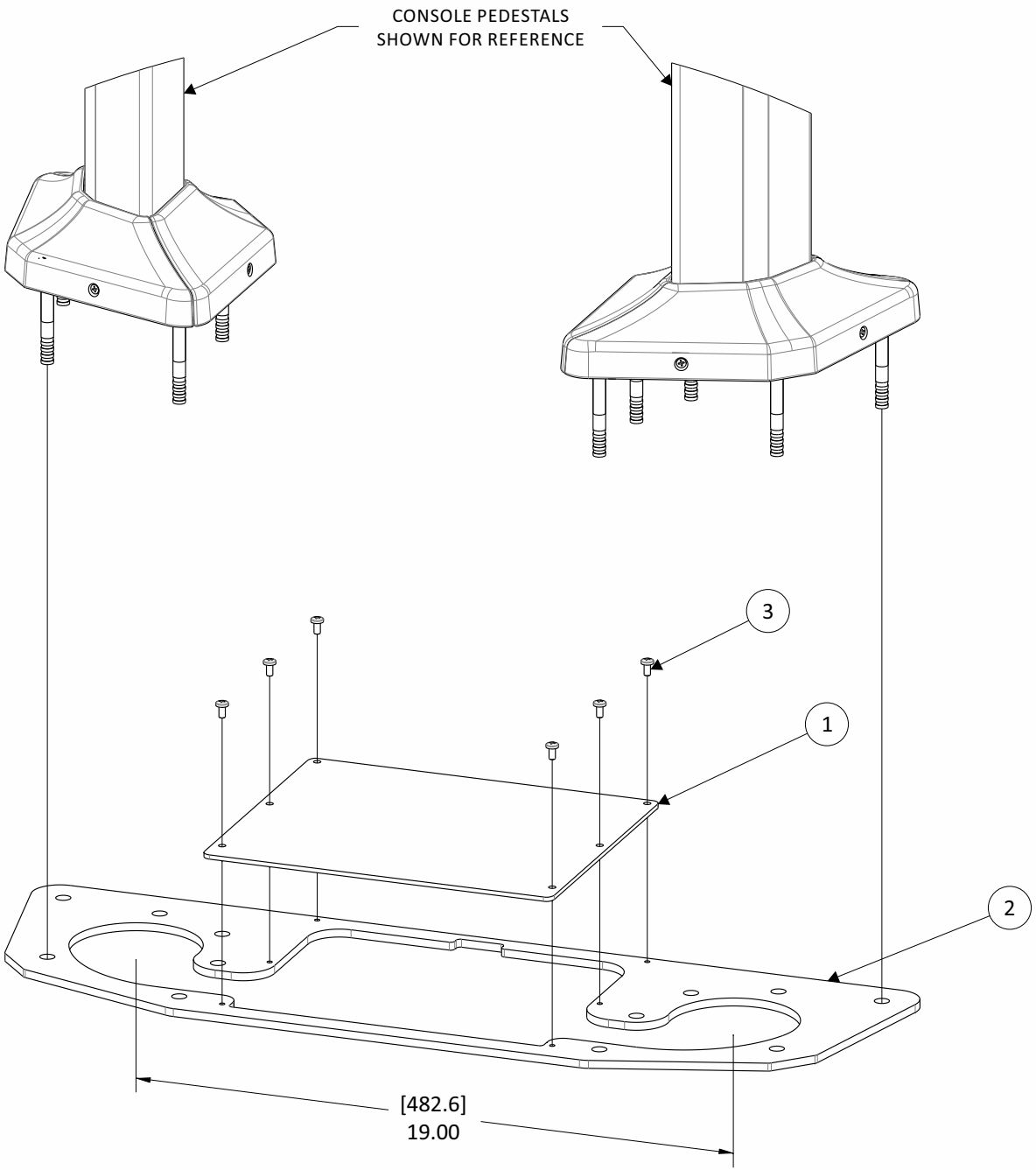
PARTS LIST			
ITEM	QTY	P/N	DESCRIPTION
1	1	289100113	Table-mount support arm W/SWVL
2	1	286002820	V-support single assembly
3	1	286002807	V-support back
4	1	286002824	Speaker wire harness single
5	1	770047105	Speaker
6	4	863040087	PHPMS M4-.7 X 8 ZN
7	2	813005257	PHPMS M5-.8 X 25 ZN
8	4	7010-002520-075	HHCS 1/4-20 X 0.75 GR5 ZN
9	4	7060-025046-006	SWM 1/4 ANSI ZN

B

INSTALLATION INSTRUCTIONS:

1. Mount V-Support (item 2) to table mount swivel assembly (item 1).
   Secure with the screws provided provided with item 1.
2. Mount speaker item 5 to V-Support (item 2).
   Secure with four screws (item 6).
3. Attach wire harness (item 4) to speaker (item 5).
   Attach black wire harness terminal to speaker «-» terminal and attach red wire harness terminal to speaker «+» terminal.
   Protect wire harness by inserting connector and excess cable into the cable passage hole of the table mount swivel assembly.
4. Assemble V-Support back (item 3) to V-Support (item 2).
   Secure with two screws (item 7).
   Take care not to pinch speaker wire harness.

T.10.048	
286002840 BES X CONSOLE TABLE MOUNT ASSEMBLY	
MAY 6th 2013	



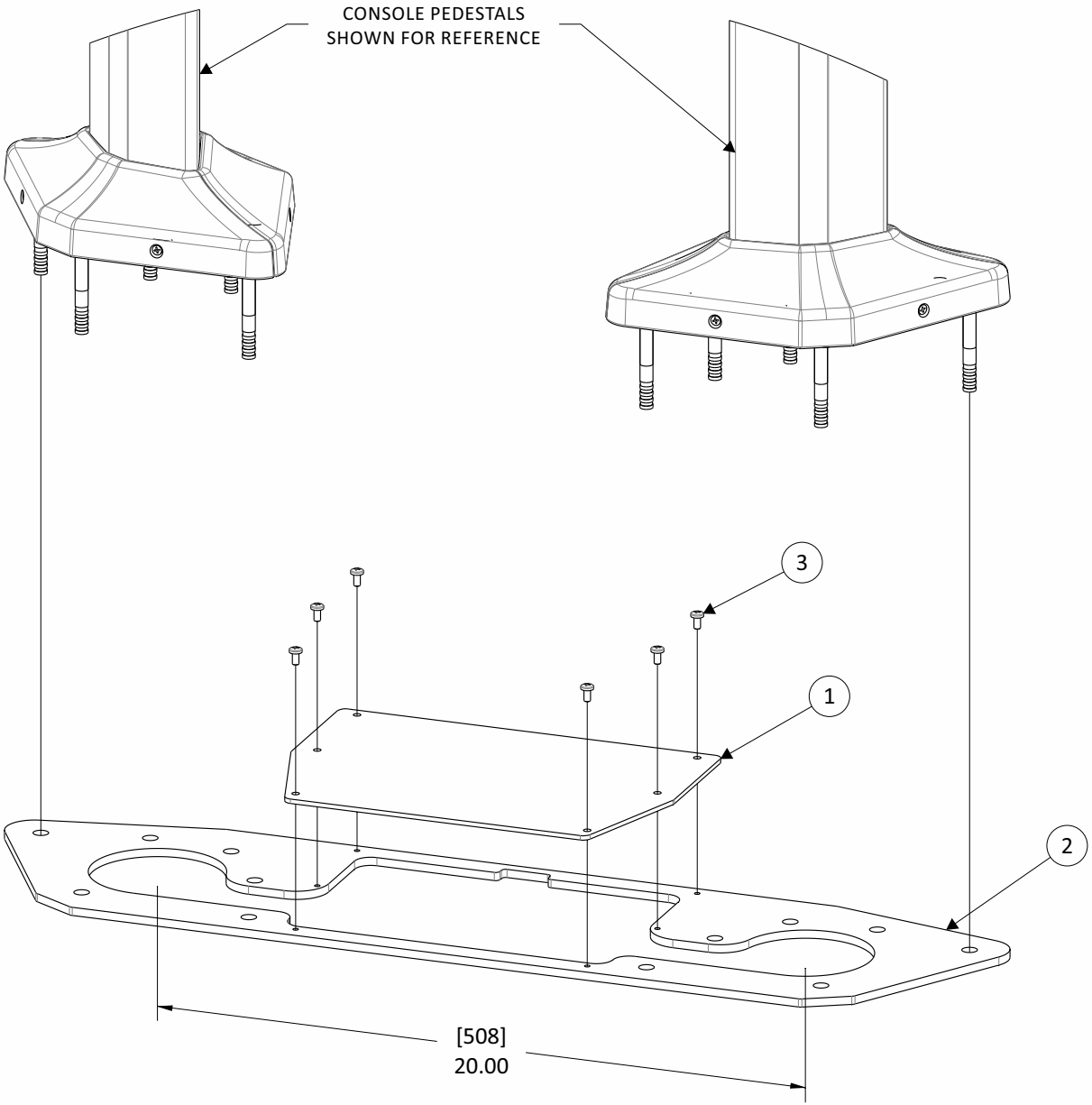
PARTS LIST			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	286002841	CVR plate two pedestals at 96°
2	1	286002842	MTG plate two pedestals 96°
3	6	01-019	PHPMS 10-32 X 0.38 ZN

This kit is for the purpose of mounting two BES X pedestals with a common cable entry. The mounting plate (item 2) provides cable passage to the two BES X pedestals; the cover plate (item 1) is removable to provide access for servicing of the BES X cables.

INSTALLATION INSTRUCTIONS:

1. Use mounting plate (item 2) to transfer and drill mounting holes for two BES X pedestals to floor.
2. Loosely mount base of the BES X pedestals to floor thru the mounting plate.
3. Pass cables for both BES X pedestals beneath bases of the BES X pedestals.
4. Install the cover (item 1) on the mounting plate (item 2) using the screws provided (item 3).
5. Mount the rear base covers of the BES X pedestals to the BES X pedestal bases.
6. Adjust the BES X bases with rear covers so that the BES X base covers do not interfere with the cover (item 1).
7. Secure the BES X base to the floor and mounting plate.
8. Continue with the installation of the BES X pedestals.

T.10.051	
610325104 KIT FOR MOUNTING TWO BES X PEDESTALS AT 96° (286002845)	
MAY 21st 2018	



PARTS LIST			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	286002843	CVR plate two pedestals at 60°
2	1	286002844	MTG plate two pedestals 60°
3	6	01-019	PHPMS 10-32 X 0.38 ZN

This kit is for the purpose of mounting two BES X pedestals with a common cable entry. The mounting plate (item 2) provides cable passage to the two BES X pedestals; the cover plate (item 1) is removable to provide access for servicing of the BES X cables.

INSTALLATION INSTRUCTIONS:

1. Use mounting plate (item 2) to transfer and drill mounting holes for two BES X pedestals to floor.
2. Loosely mount base of the BES X pedestals to floor thru the mounting plate.
3. Pass cables for both BES X pedestals beneath bases of the BES X pedestals.
4. Install the cover (item 1) on the mounting plate (item 2) using the screws provided (item 3).
5. Mount the rear base covers of the BES X pedestals to the BES X pedestal bases.
6. Adjust the BES X bases with rear covers so that the BES X base covers do not interfere with the cover (item 1).
7. Secure the BES X base to the floor and mounting plate.
8. Continue with the installation of the BES X pedestals.

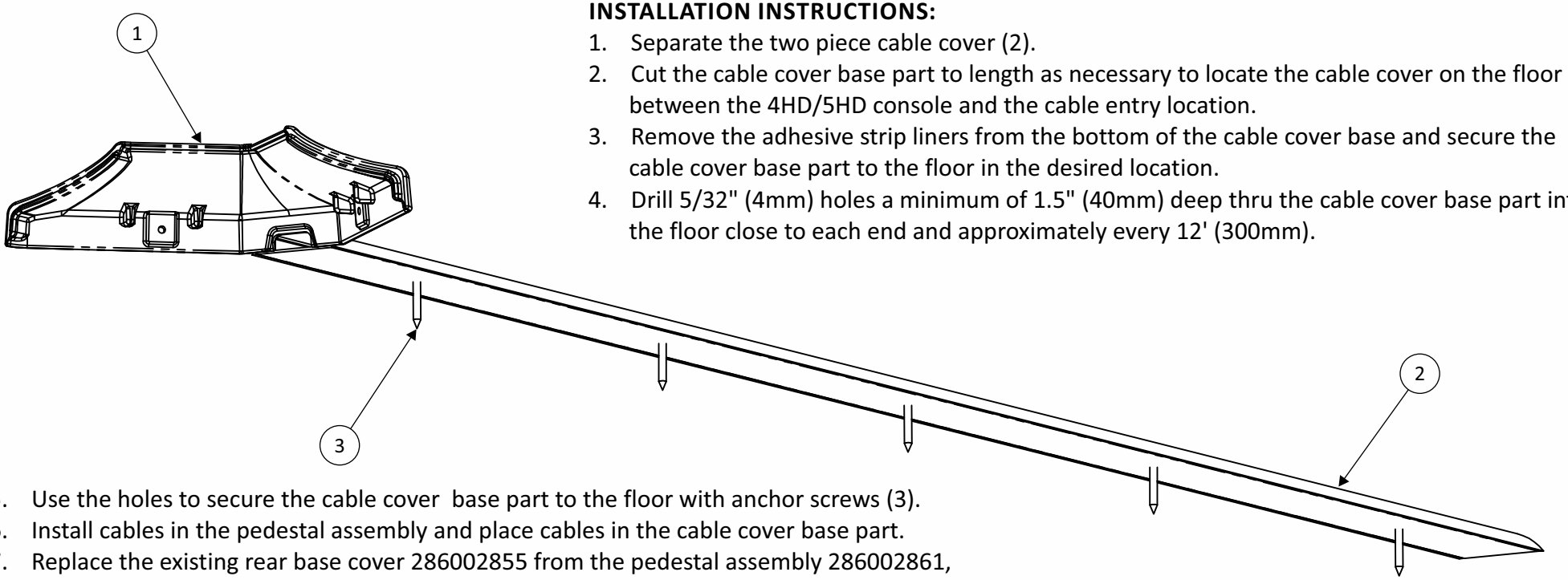
T.10.053	
610325104 KIT FOR MOUNTING TWO BES X PEDESTALS AT 60° (286002846)	
MAY 21st 2018	

PARTS LIST			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	286002848	Rear base cover FMW
2	1	286002849	Cable cover
3	5	862137200	ANCR BL 3/16 x 1.25 BC

Use this kit with pedestal 286002861, 286002862, 286002863, 286002864 or 286002865 secured to floor. This kit is for the purpose of mounting one BES X pedestal, where the cable entry location is not exactly under the pedestal position.

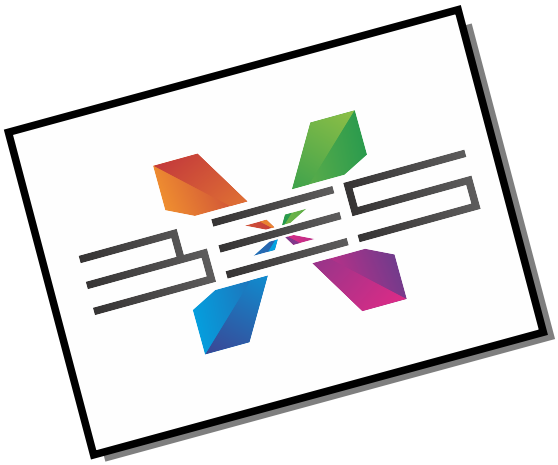
INSTALLATION INSTRUCTIONS:

1. Separate the two piece cable cover (2).
2. Cut the cable cover base part to length as necessary to locate the cable cover on the floor between the 4HD/5HD console and the cable entry location.
3. Remove the adhesive strip liners from the bottom of the cable cover base and secure the cable cover base part to the floor in the desired location.
4. Drill 5/32" (4mm) holes a minimum of 1.5" (40mm) deep thru the cable cover base part into the floor close to each end and approximately every 12' (300mm).



5. Use the holes to secure the cable cover base part to the floor with anchor screws (3).
6. Install cables in the pedestal assembly and place cables in the cable cover base part.
7. Replace the existing rear base cover 286002855 from the pedestal assembly 286002861, 286002862, 286002863, 286002864 or 286002865 with the rear base cover FMW 289002848 (1).
8. Routing the cables thru the opening in the rear base cover FMW.
9. Cut the cable cover top part (2) to fit snugly between the rear base cover FMW (1) and the cable entry.
10. Install the cable cover top part over the cables in the cable cover base part.

T.10.054	
610325104 KIT FOR MOUNTING ONE BES X SINGLE PEDESTAL (286002847)	
MAY 21st 2018	



SECTION 5

SCORING NETWORK

INSTALLATION MANUAL

5.1 - Installation notes

4HD/5HD-HUB units operate on a standard network, made of standard network cables and one or more network switches.

4HD/5HD-HUB units are connected through a main scoring network switch, that links all the 4HD/5HD-HUB units, MMS digital, TCS and Q-COM sub networks together with the second network card of the ConquerorPRO Server.

QubicaAMF supplies scoring network switches with 8 ports. One additional network switch will be supplied for TCS or MMS Digital kits. QubicaAMF also supplies the network cables needed for the installation. Each cable's length is dimensioned according to the distance between each 4HD/5HD-HUB unit and the main (or slave) scoring network switch (refer to table T.20.096 and T.20.079 for standard installations or to table T.20.082 if XLi pinspotters with safety kit are present).

The connection between the main scoring network switch with the Front Desk, between the main scoring network switch with the MMS digital, the TCS and the Q-COM network switches and the single channel video server operates on a Cat.5e solid network cable, that must not exceed 300 feet – 100 m supplied by QubicaAMF.

Please refer to Table T.40.012 for the connection for the Cat. 5e wall mounting boxes.

When a custom length patch cable is needed, make it following the instructions in Table T.40.005.

For a correct installation the network has to be balanced. This means that between each 4HD/5HD-HUB unit and the ConquerorPRO server there will always be the same number of switches and divided in homogenous groups.

Install each scoring network switch in the middle of the lanes area that serves.

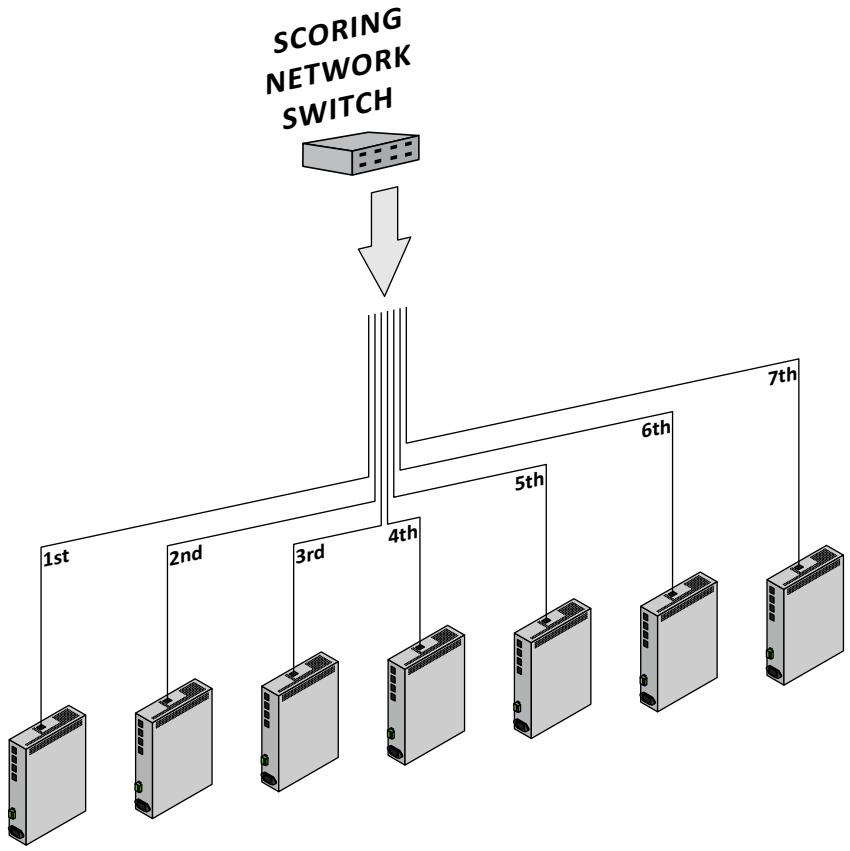
For an ease troubleshooting process fix each network switch with the port side facing downward, in a manner that is easily accessible and connect each 4HD/5HD-HUB to his scoring network switch respecting the correct port numbering.

QubicaAMF suggests the installation of a cable conduit along the whole length of the curtain wall, to accommodate the network and the audio/video cables.

Example: In a 60 lane installation: a total of six network switches will be supplied (one used as main and five as slaves, each slave will serve a group composed by twelve lanes):

- fix the main scoring network switch between lanes 30 and 31;
- fix the first slave scoring network switch between lanes 6 and 7, the second between lanes 18 and 19, the third between lanes 30 and 31, and so on;
- connect the first 4HD/5HD-HUB of each group to port number 1 of his slave scoring network switch, the second to port 2, the third to port 3, and so on.
- Connect the first slave scoring network switch to the port 1 of the main scoring network switch, the second to the port 2 of the main scoring network switch, the third to the port 3 of the main scoring network switch, and so on.

Continue reading this manual for further information.

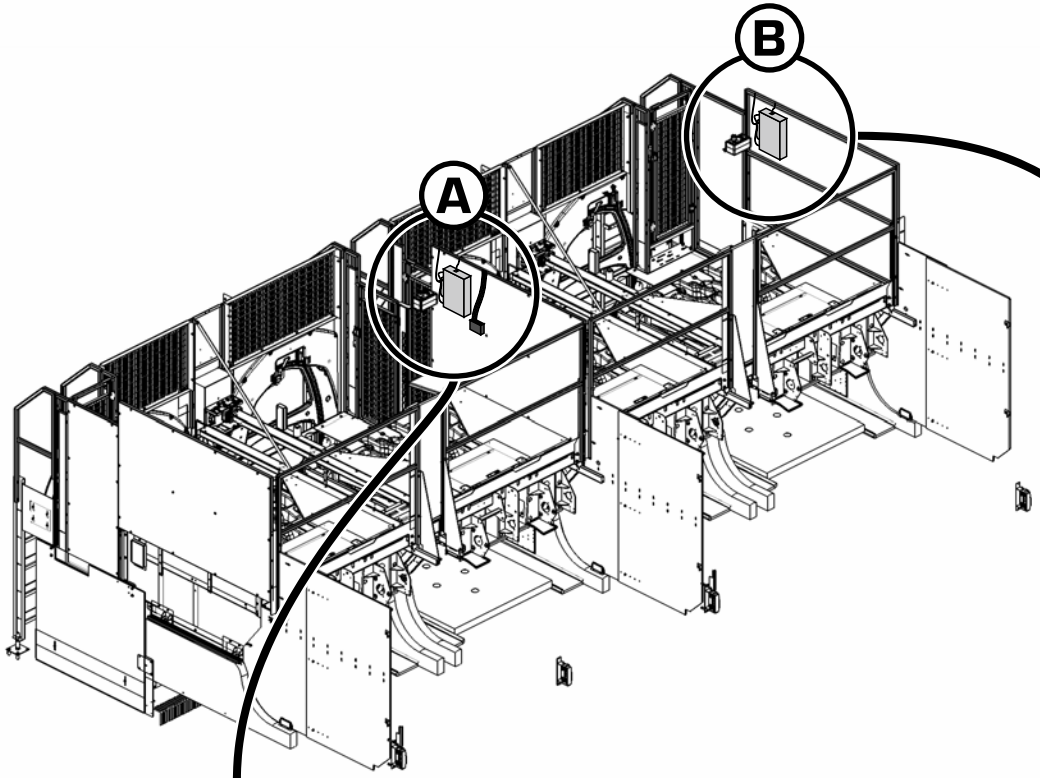


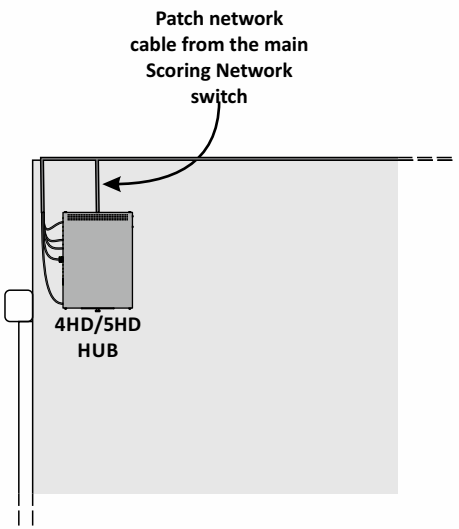
CABLES LENGTH		
#	EMEA (m)	USA (ft.)
1st	15	50
2nd	15	50
3rd	10	25
4th	3	10
5th	10	25
6th	15	50
7th	15	50

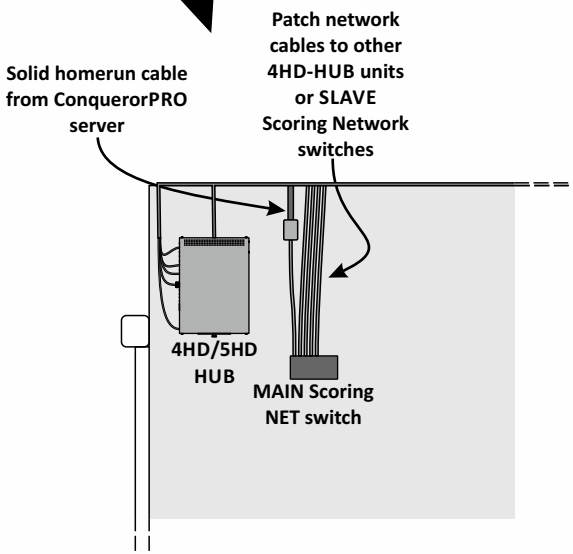
T.20.096

BES X SCORING NETWORK
CABLES LENGTH

FEB 20th 2012







Do **NOT** run any scoring system cable in the pinspotter conduits for any reason. Keep the scoring system cables far away from any power cable.

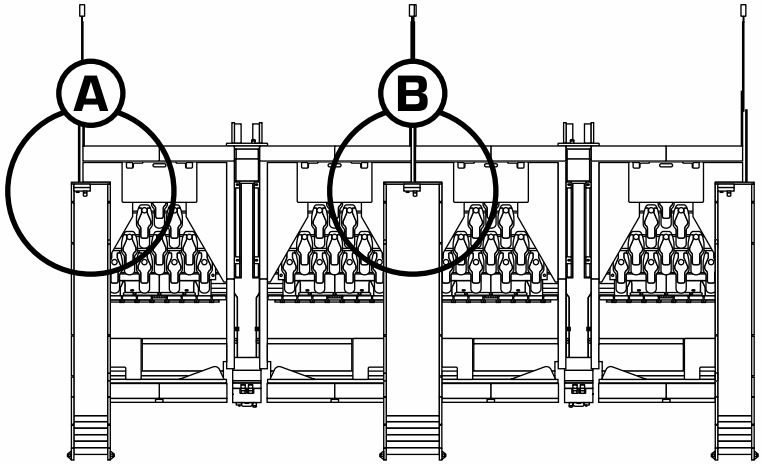
With XLi pinspotters with the low ceiling safety kit, always install the 4HD/5HD-HUB unit and all other devices to the panel located between each pair of pinspotters, as shown in the details A and B.

The MAIN Scoring NET switch has to be installed in the middle of the Scoring Network. For example in a 8 lanes installation the MAIN Scoring NET switch has to be installed between the lane 4 and the lane 5.

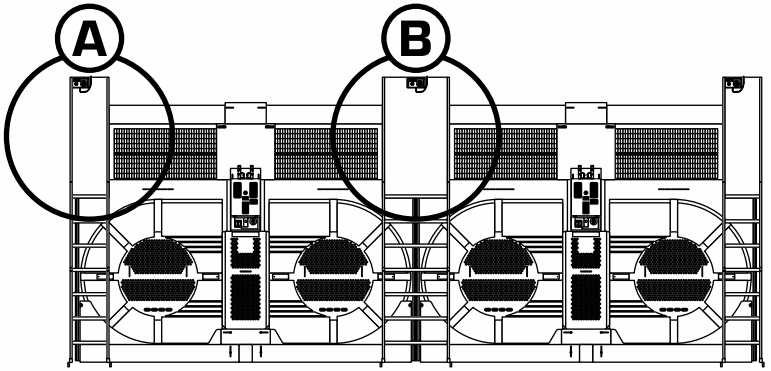
T.20.104

4HD/5HD-HUB INSTALLED ON XLi PINSPOTTERS WITH LOW CEILING SAFETY KIT

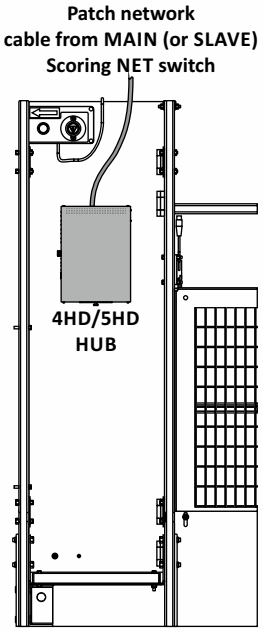
MAY 21st 2018



XLi pinspotters with safety kit
UPPER VIEW

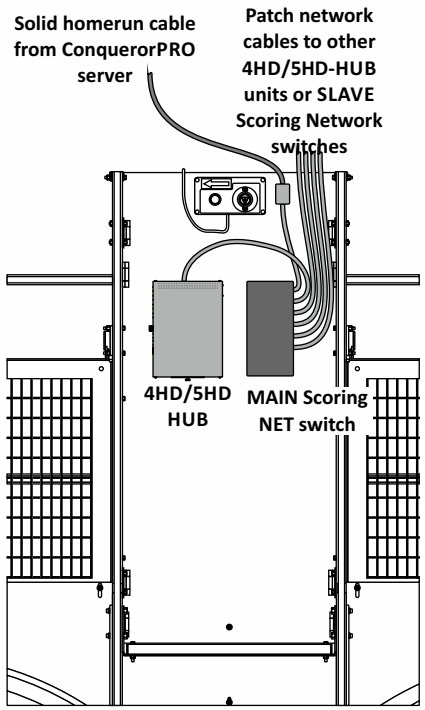


XLi pinspotters with safety kit
REAR VIEW



DETAIL A

Do **NOT** run any scoring system cable in the pinspotter conduits for any reason. Keep the scoring system cables far away from any power cable.



DETAIL B

With XLi pinspotters with the safety kit, always install the 4HD/5HD-HUB unit and all other devices to the panel located at the end of the aisle present between each pair of pinspotters, as shown in the details A and B. In this example the 4HD/5HD HUB units and the other devices has been installed on the left or the pair of XLi pinspotters.

The MAIN Scoring NET switch has to be installed in the middle of the Scoring Network. For example in a 8 lanes installation the MAIN Scoring NET switch has to be installed between the lane 4 and the lane 5.

T.20.083	
4HD/5HD-HUB INSTALLED ON XLi PINSPOTTERS WITH SAFETY KIT	
MAY 21st 2018	

5.2 - Centers with up to 12 lanes

If the bowling center has up to 12 lanes just one network switch for the scoring network is needed.

When MMS digital, TCS or Q-COM systems are purchased, QubicaAMF will supply additional switches and the scoring network will have different configurations.

Please refer to the correct sub section for the desired configuration.

5.2.1 - Centers with up to 12 lanes with single channel video server.

One 8 ports network switch will be supplied by QubicaAMF for this configuration.

The connections for the main scoring network switch are:

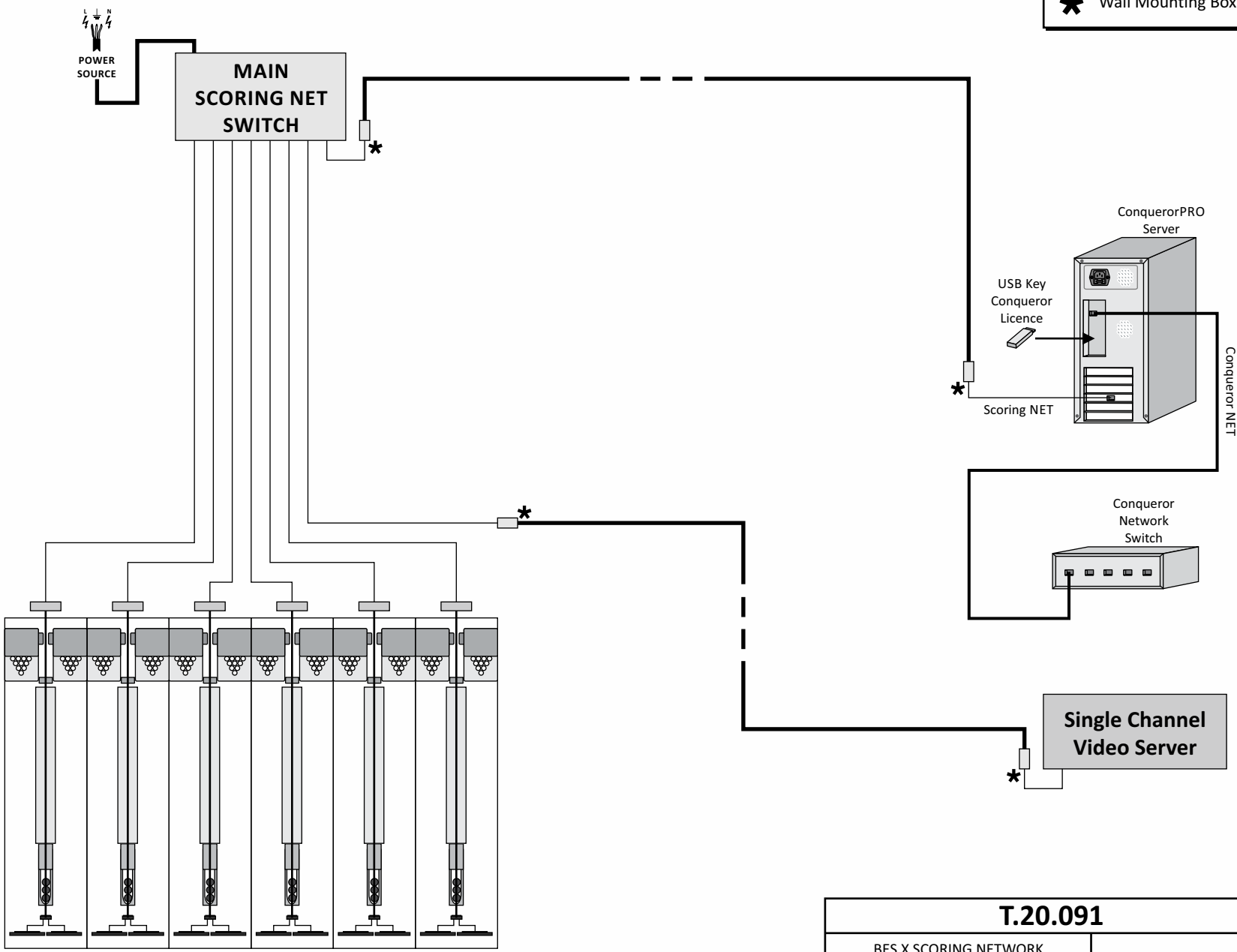
- 1 port for the home-run cable;
- 1 port for the single channel video server;
- 6 ports for the 4HD/5HD-HUB units.

The 4HD/5HD-HUB units have to be connected to the main scoring network switch via standard patch network cables. Refer to tables T.20.079 and T.20.096 for standard installations or to table T.20.082 if XLi pinspotters with safety kit are present for the correct patch cables' length.

The single channel video server, if present, have to be connected to the main scoring network switch using a Cat.5e solid network cable.

The second network card of the ConquerorPRO server have to be connected to the main scoring network switch using a Cat.5e solid network cable.

This configuration is described in the table T.20.091.



T.20.091

BES X SCORING NETWORK WITH: UP TO 12 LANES AND SINGLE CHANNEL VIDEO SERVER

JAN 3rd 2013

5.2.2 - Centers with: up to 12 lanes, MMS or TCS or Q-COM and single channel video server.

Two 8 ports network switches will be supplied by QubicaAMF for this configuration.

The connections for the main scoring network switch are:

- 1 port for the home-run cable;
- 1 port for the slave scoring network switch;
- 6 ports for MMS or Q-DAC units.

The connections for the slave scoring network switch are:

- 1 port for the main scoring network switch;
- 1 port for the single channel video server;
- 6 ports for 4HD/5HD-HUB units.

The 4HD/5HD-HUB units have to be connected to the slave scoring network switch via standard patch network cables. Refer to tables T.20.079 and T.20.096 for standard installations or to table T.20.082 if XLi pinspotters with safety kit are present for the correct patch cables' length.

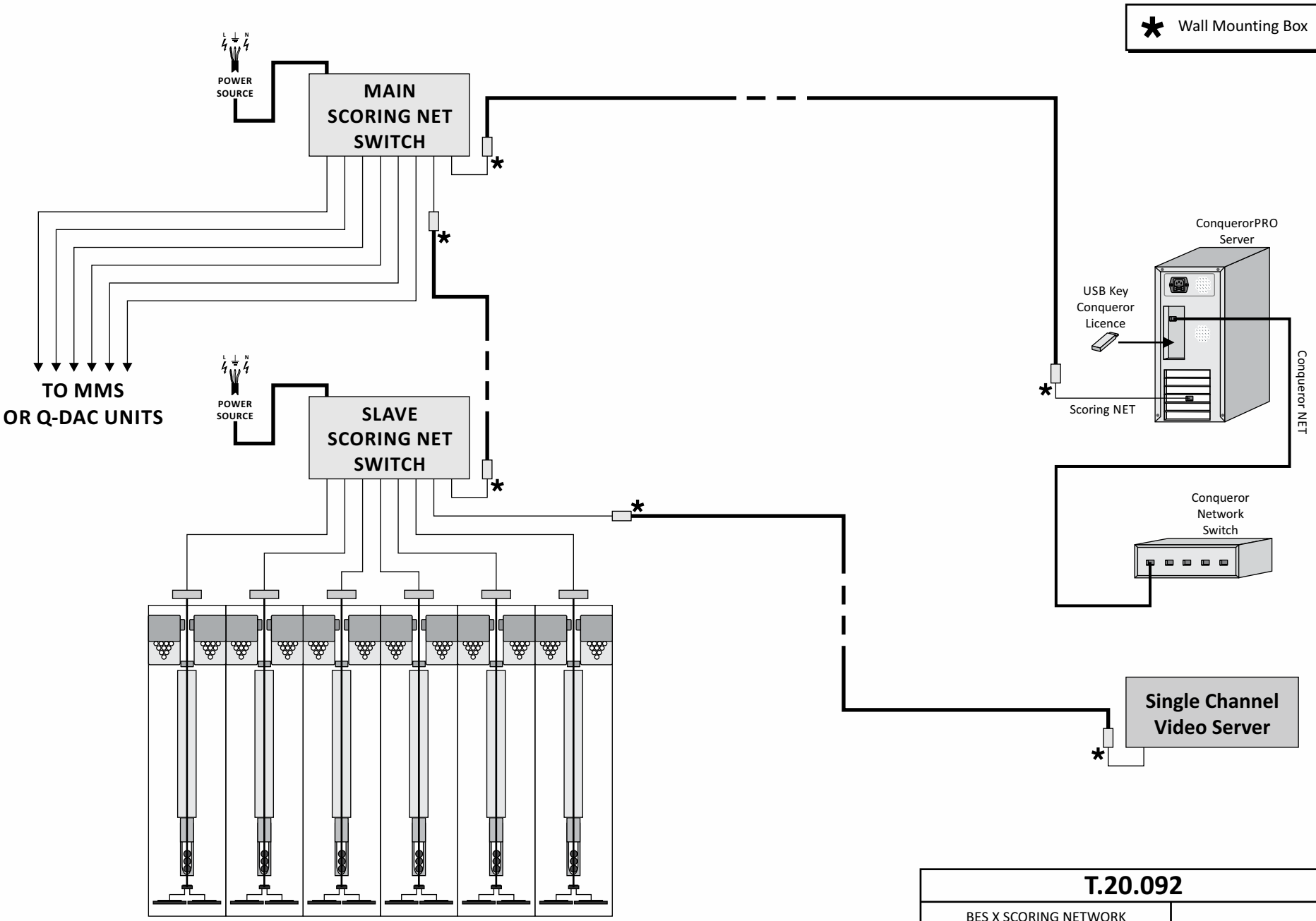
The single channel video server, if present, have to be connected to the slave scoring network switch using a Cat.5e solid network cable.

The slave scoring network switches have to be connected to the main scoring network switch using the provided network cable.

The second network card of the ConquerorPRO server have to be connected to the main scoring network switch using a Cat.5e solid network cable.

The MMS or Q-DAC units have to be connected directly to the main scoring network switch using the provided network cable.

This configuration is described in the table T.20.092.



T.20.092

BES X SCORING NETWORK
WITH: UP TO 12 LANES, MMS OR TCS OR Q-COM AND SINGLE CHANNEL VIDEO SERVER

JAN 3rd 2013

5.2.3 - Centers with: up to 12 lanes, MMS, TCS, Q-COM and single channel video server.

Three 8 ports network switches will be supplied by QubicaAMF for this configuration.

The connections for the main scoring network switch are:

- 1 port for the home-run cable;
- 1 port for the slave scoring network switch;
- 1 port for the MMS and Q-DAC switch.

The connections for the slave scoring network switch are:

- 1 port for the main scoring network switch;
- 1 port for the single channel video server;
- 6 ports for 4HD/5HD-HUB units.

The connections for the MMS and Q-DAC switch are:

- 1 port for the main scoring network switch;
- 7 ports for MMS and Q-DAC units.

The 4HD/5HD-HUB units have to be connected to the slave scoring network switch via standard patch network cables. Refer to tables T.20.079 and T.20.096 for standard installations or to table T.20.082 if XLi pinspotters with safety kit are present for the correct patch cables' length.

The single channel video server, if present, have to be connected to the slave scoring network switch using a Cat.5e solid network cable.

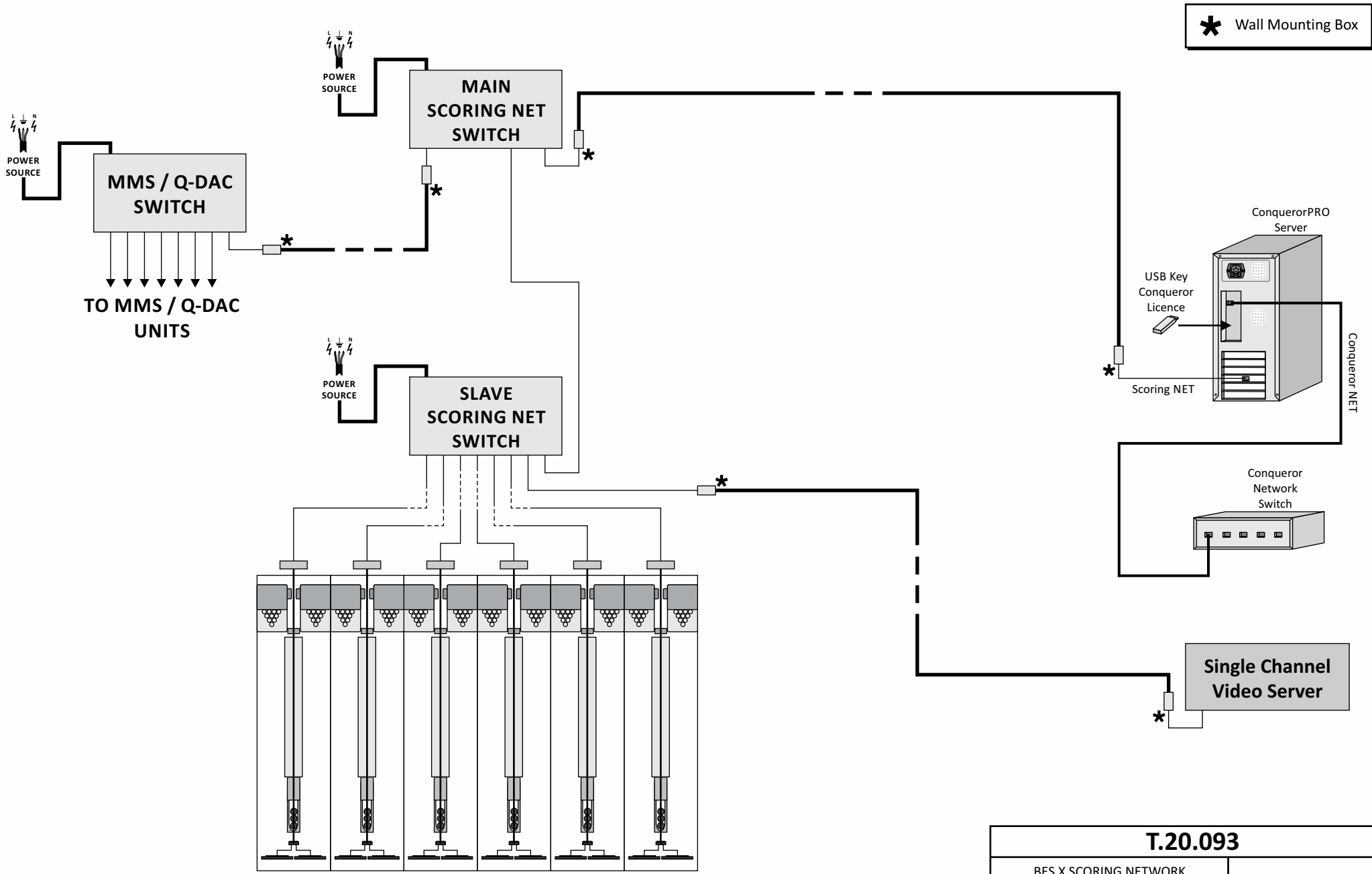
The slave scoring network switch have to be connected to the main scoring network switch using the provided network cable.

The second network card of the ConquerorPRO server have to be connected to the main scoring network switch using a Cat.5e solid network cable.

The MMS and the Q-DAC units have to be connected to the MMS and Q-DAC switch.

The MMS and Q-DAC switch have to be connected to the main scoring network switch using the provided network cable.

This configuration is described in the table T.20.093.



T.20.093

BES X SCORING NETWORK
WITH: UP TO 12 LANES, MMS, TCS,
Q-COM AND SINGLE CHANNEL
VIDEO SERVER

JAN 3rd 2013

5.3 - Centers with more than 12 lanes and up to 68 lanes or split-house

If the bowling center has more than 12 lanes and up to 68 lanes, or if the lanes are divided in two or more groups, additional scoring network switches that act as slaves are needed.

The lanes' groups must be equally balanced in homogeneous groups. QubicaAMF supplies the additional switches and the network cables.

All of the network switches supplied by QubicaAMF for this configurations have 8 network ports.

The connections for the main scoring network switch are:

- 1 port for the home-run cable;
- 1 port for the MMS switch;
- 1 port for the Q-DAC switch;
- 5 ports for the slave scoring network switches.

Always connect the Single channel video server to a slave scoring network switch, so the slave switch where the Single channel video server is connected must never exceed the number of 12 lanes (six 4HD/5HD-HUB units) connected, while the maximum number of lanes for the other four slave switches is 14 (seven 4HD/5HD-HUB units) connected. All of these facts poses the limit to 68 lanes.

When multiple switches are involved it is mandatory not to connect any 4HD/5HD-HUB directly to the main scoring network switch. Between each 4HD/5HD-HUB and the Front Desk PC there must always be the same number of switches, and these switches must never exceed the number of two (refer to table T20.094).

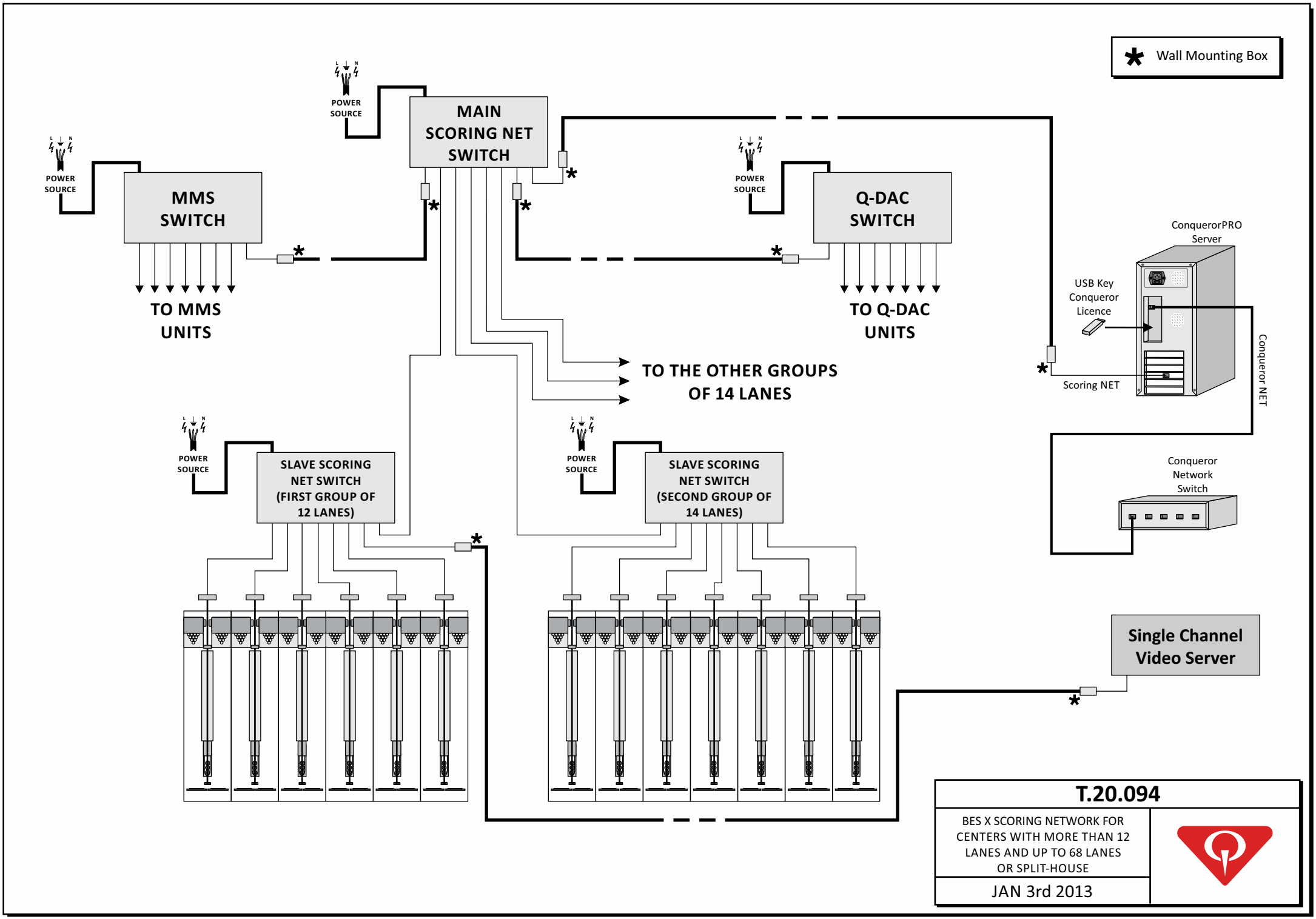
The 4HD/5HD-HUB units have to be connected to the slave scoring network switch via standard patch network cables. Refer to tables T.20.079 and T.20.096 for standard installations or to table T.20.082 if XLi pinspotters with safety kit are present for the correct patch cables' length.

If the customer purchases only the lanes then buy the MMS Digital system, TCS, Q-COM or single channel video server in a later time after that the installation has been made and these rules have not been followed, it will result in a complete rewiring of the scoring network.

Example: a bowling center with 34 lanes is split into three sub-centers, two with 14 lanes and the other with 6 lanes. QubicaAMF supplies the main scoring network switch, the three additional switches, two kits of cables for a 14 lanes center, one kit for a 6 lanes center, three 50 feet – 30m. patch network cable (one each additional network switch), one Cat.5e 300 feet – 100m solid cable coil and two Cat.5e wall mounting boxes.

The slave switches must be connected to the main scoring network switch in UPLINK mode. UPLINK mode is automatically set in switches supplied by QubicaAMF, other switches may need a manual setting.

QubicaAMF suggests the installation of a cable conduit along the whole length of the curtain wall, to accommodate the network cables.



T.20.094

BES X SCORING NETWORK FOR CENTERS WITH MORE THAN 12 LANES AND UP TO 68 LANES OR SPLIT-HOUSE

JAN 3rd 2013

5.4 - Centers with more than 68 lanes or split-house

If the bowling center has more than 68 lanes additional scoring network switches that act as slaves are needed.

QubicaAMF will supply one 16 port network switch to be used as main scoring network switch in the place of an eight port network switch.

The lanes' groups must be equally balanced in homogeneous groups. QubicaAMF supplies the additional switches and the network cables.

The connections for the main scoring network switch are:

- 1 port for the home-run cable;
- 1 port for the MMS switch;
- 1 port for the Q-DAC switch;
- 13 ports for the slave scoring network switches.

Always connect the Single channel video server to a slave scoring network switch, so the slave switch where the Single channel video server is connected must never exceed the number of 12 lanes (six 4HD/5HD-HUB units) connected, while the maximum number of lanes for the other four slave switches is 14 (seven 4HD/5HD-HUB units) connected.

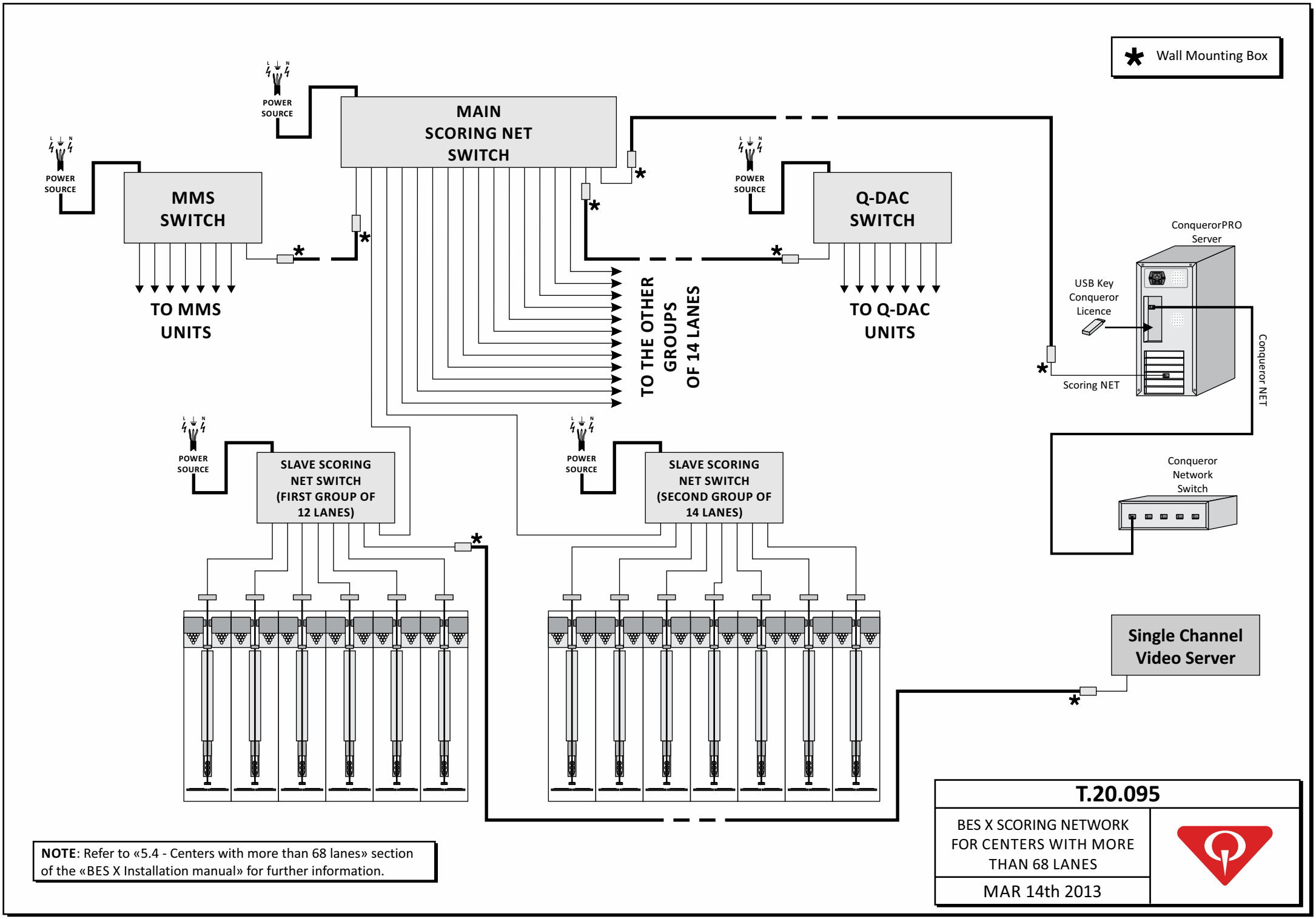
When multiple switches are involved it is mandatory not to connect any 4HD/5HD-HUB directly to the main scoring network switch. Between each 4HD/5HD-HUB and the Front Desk PC there must always be the same number of switches, and these switches must never exceed the number of two (refer to table T.20.095).

The 4HD/5HD-HUB units have to be connected to the slave scoring network switch via standard patch network cables. Refer to tables T.20.079 and T.20.096 for standard installations or to table T.20.082 if XLi pinspotters with safety kit are present for the correct patch cables' length.

Example: a bowling center with 100 lanes. QubicaAMF supplies the main scoring network switch (16 port network switch), the eight additional switches, one kit of cables for a 12 lanes center, six kits of cables for a 14 lanes canter and one kit for a 2 lanes center, the cables needed to connect the slave scoring network switches to the main scoring network switch (one 50 feet – 30m. patch network cable each slave scoring network switch), one Cat.5e 300 feet – 100m solid cable coil and two Cat.5e wall mounting boxes for: the main scoring network, the MMS, the Q-DAC switches and the single channel video server.

The slave switches must be connected to the main scoring network switch in UPLINK mode. UPLINK mode is automatically set in switches supplied by QubicaAMF, other switches may need a manual setting.

QubicaAMF suggests the installation of a cable conduit along the whole length of the curtain wall, to accommodate the network and the audio-video cables.

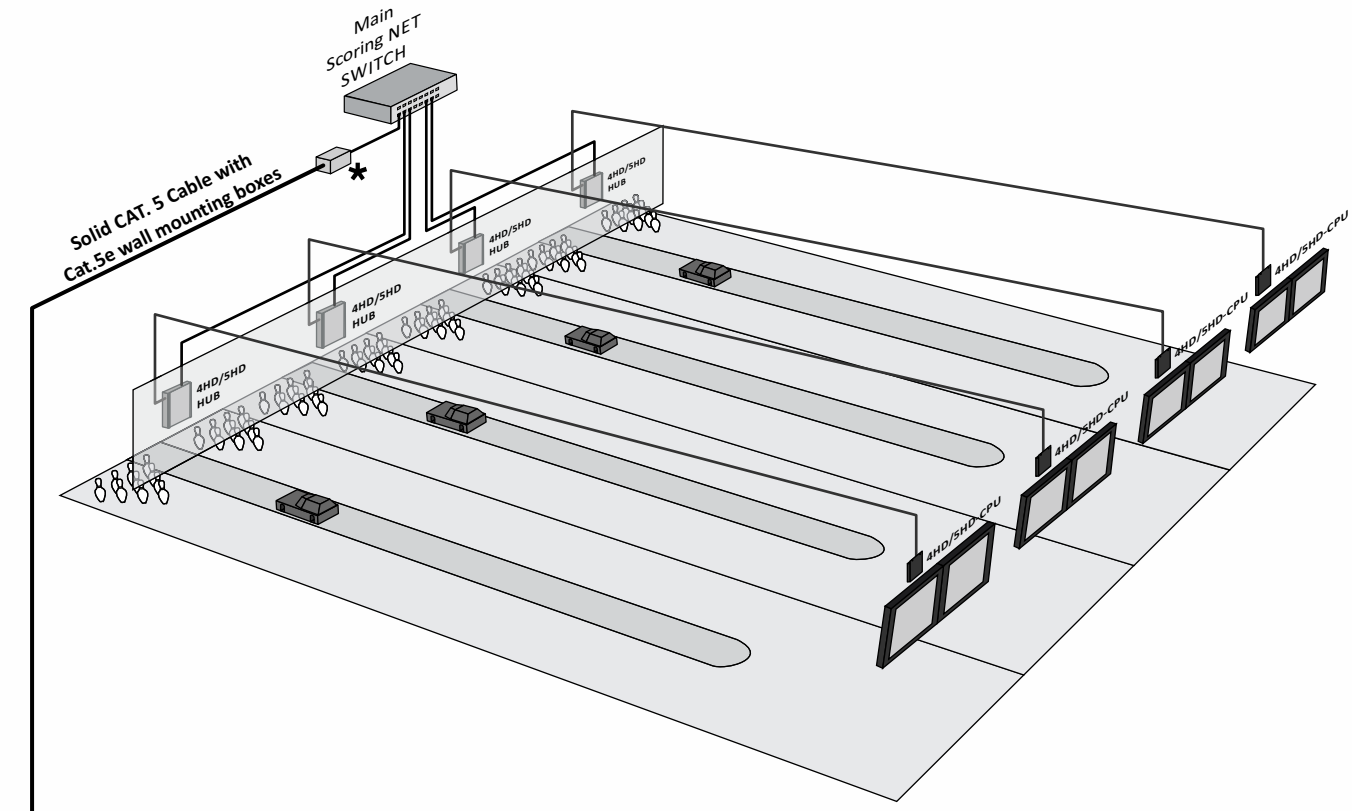


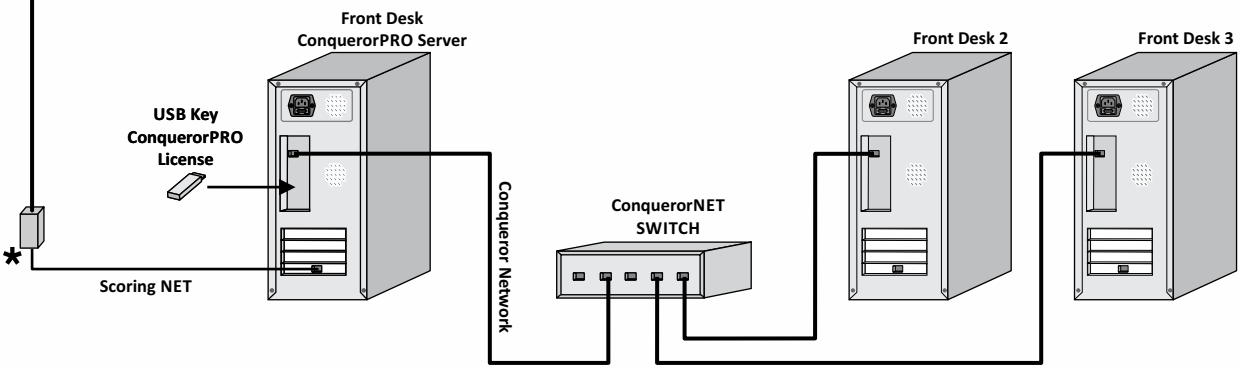
NOTE: Refer to «5.4 - Centers with more than 68 lanes» section of the «BES X Installation manual» for further information.

T.20.095	
BES X SCORING NETWORK FOR CENTERS WITH MORE THAN 68 LANES	
MAR 14th 2013	

5.4.1 - Scoring Network IP addresses

IP ADDRESSES	DESCRIPTION
192.168.216.1 (255.255.248.0)	ConquerorPRO Server (Subnet Mask)
192.168.216.101 – 192.168.216.198	4HD/5HD-CPUs
192.168.216.201	Video Server
192.168.216.230 – 192.168.216.239	MMS
192.168.216.240 - 192.168.216.249	Q-DAC
192.168.217.101 – 192.168.217.198	4HD/5HD-HUB
192.168.219.101 – 192.168.219.198	ODD console
192.168.220.101 – 192.168.219.198	EVEN console



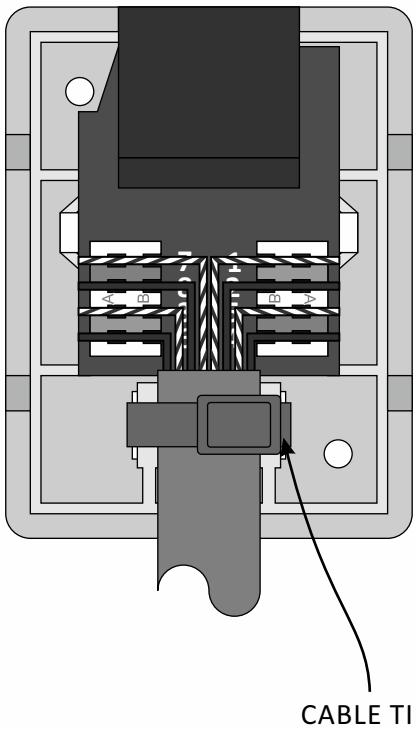


✱ Wall Mounting Box	

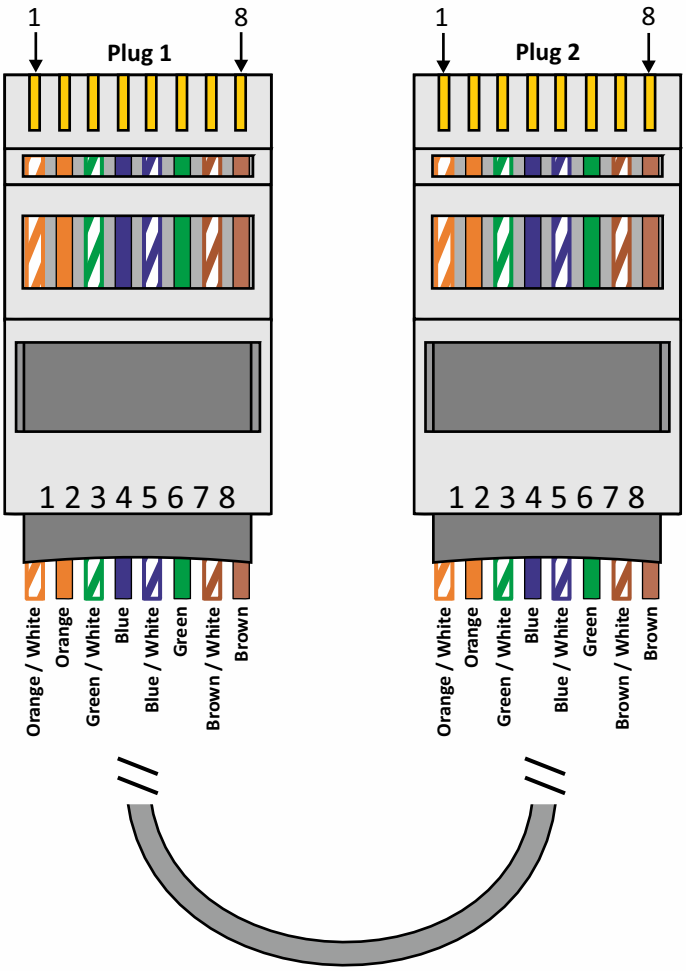
T.20.081	
BES X CONNECTION TO FRONT DESK	
MAY 21st 2018	

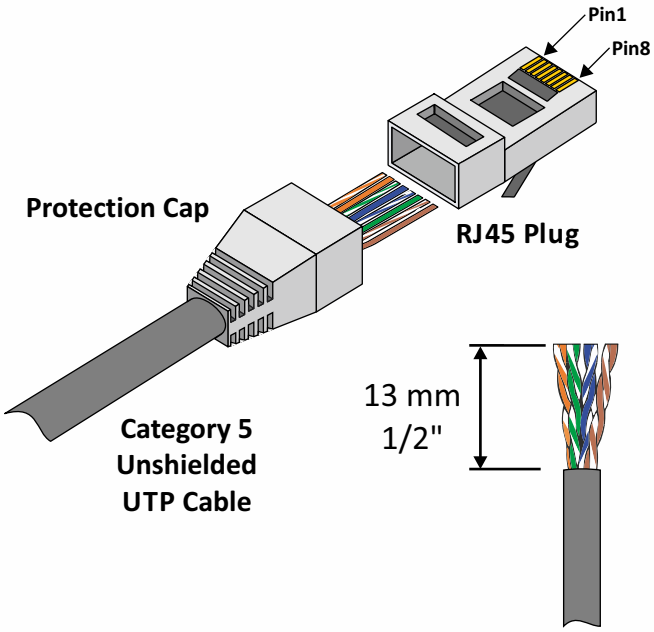
THIS DRAWING IS INDICATIVE.
ALWAYS CHECK THE COLOR SEQUENCE ON THE INSTRUCTIONS ATTACCHED TO THE WALL MOUNTING BOX FOR T568B WIRING.

- Strip approximately 30mm of the cable jacket,and separate to 4 pair each.
- **Follow the direction on the IDC color-coding to position T568B wiring, separate a little space on proper position and insert the wire pair by pair into each slot.**
- Use the impact tool to crimp and connect the wires.
- Hold tightly with cable jacket by cable tie to avoid the cable falling off or pulling away.
- Fix the Cat.5 Wall Mounting Box to the wall.



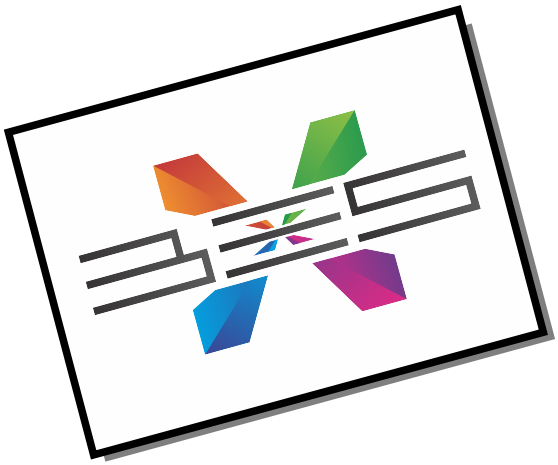
T.40.012	
CAT.5e WALL MOUNTING BOX STANDARD NETWORK CABLE	
MAY 2nd 2017	





- Skin off the cable jacket approximately 25mm (1").
- Untwist each pair and straighten the wires.
- Put the protection caps on the cable
- Place the wires in the right order.
  For a Standard cable wire both ends as **Plug 1**.
- Cut all the wires at a perfect 90 degrees angle,
  at 13mm (1/2") from the cable jacket.
- Insert the wires into the plug.
- Crimp the plug.

T.40.008	
STANDARD NETWORK CABLE	
MAY 2nd 2017	



SECTION 6

LCOM LINE

INSTALLATION MANUAL

LCOM is the network that connects the 4HD/5HD-HUB units to: QubicaAMF pinspotter interfaces, camera assembly, Bumper Control units or other LCOM controlled devices (such as XLMP or EDC).

The LCOM network runs through a four-wire cable, with two wires carrying the power and two wires carrying the communications bi-directional signal.

QubicaAMF supplies 60ft – 20m of LCOM cable for each pair of lanes, enough for a standard installation.

Every LCOM device is exclusively powered through the LCOM line.

The source for the LCOM line on each pair of lanes is the C1 connector on the 4HD/5HD-HUB unit.

The pin out for this connector is:

- **+**: +18 Volts unregulated;
- **B**: Communication –;
- **A**: Communication +;
- **-**: Common.

The recommended size for LCOM wires is AWG 18 - 0.75mm².

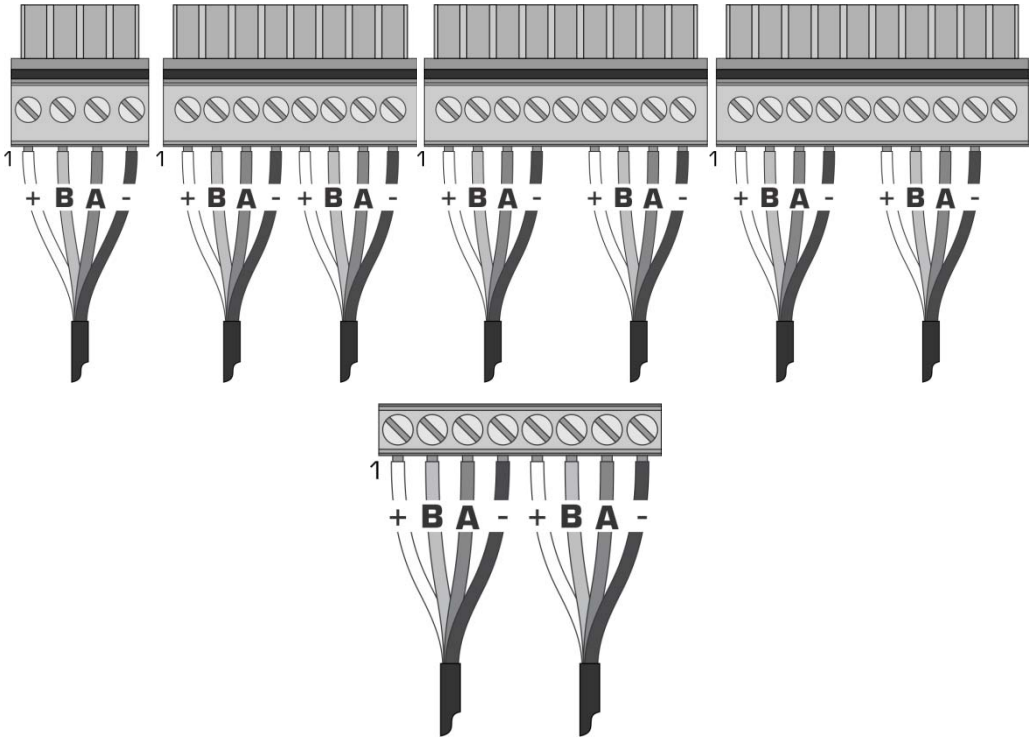
The LCOM power line is protected from a short-circuit by an AUTO-FUSE mounted inside the 4HD/5HD-HUB unit.

The LCOM communication is protected from electrostatic discharge by special devices mounted on all LCOM electronic boards.

A bad wiring during installation may break some protection devices.

6.1 - LCOM wiring

The correct wiring for each LCOM device is made keeping the Phoenix connector in your hand, as shown in the picture below. The pin number 1 is the first starting from the left.



6.2 - Replacement of LCOM devices

The following procedure is to be carried out when disconnecting or replacing LCOM devices.

1. The main power supply to the 4HD/5HD-HUB must first be isolated (turned off) before attempting to make any disconnection in the LCOM line.
   Failure to carry out this action may result in major damages for one or more of the LCOM devices.
2. Care must be taken to make note of the wiring sequence on the four-conductor cable, as it is imperative that these wires are connected to the replacement device in the same way.
   If for any reason you are unsure of how to make a re-connection check the LCOM line starting from the 4HD/5HD-HUB C1 - LCOM connector.
3. Re-connected the main voltage to the 4HD/5HD-HUB only after you are absolutely sure that the correct connections have been made.

6.3 - Solving problems on the LCOM line

Introduction

Since the four wires constituting the LCOM network are shared by all the devices connected to it, a fault in any one of the devices can cause the malfunction of the entire LCOM network. This situation is initially detected by the 4HD/5HD-CPU during the lane boot-up and is displayed with an error code on the monitors of both lanes.

In order to determine the cause of the problem, which could be by: a bad connection, a damaged electronic board, or a damaged cable, the following tests can be done.

Power wires

The 4HD/5HD-HUB C1 - LCOM connector supplies the power to all the LCOM electronic devices. The first wire on top is the positive power, while the fourth wire on the bottom is the negative; this pair of wires is also called LCOM power wires.

LCOM power check

Use a multi-meter to check the LCOM power voltage on all the LCOM connections; its value should be at least 16 VDC but no more than 23 VDC (the optimal voltage is around 18-19 VDC).

Look at the status of the indicators listed below (in the LCOM network you are testing only some of the following boards may be present):

- The camera assembly should have on some segment or dot.
- The Pinsetter Interface with the power on should have some LEDs blinking or on.

The result of the above-mentioned operations should be one of the following:

1. If both the voltage and the status LEDs are all right: the problem is associated with the communication wires of the LCOM network.
2. If the power is present only on certain connectors, it is evident that there is a problem within the cables or connections to the affected device(s) since the power source is the 4HD/5HD-HUB, the problem should be easily detected.
3. If the power voltage is all right everywhere but one of the device indicators is off then in this case the board with the indicator off is probably broken. Switch the 4HD/5HD-HUB off, replace the broken board and switch the 4HD/5HD-HUB on again. If you still have LCOM problems start all the above tests again.
4. If the whole LCOM power fails, the possible causes are:
   - The 4HD/5HD-HUB LCOM power supply section is broken;
   - The LCOM power wires are shorted.

   Since the LCOM power supply is protected by an AUTO-FUSE located inside the 4HD/5HD-HUB a short circuit to the power wires causes the 'blowing' of this AUTO-FUSE and the power supply on the LCOM network is shut down.
   In order to understand if this is the problem you have to unplug the LCOM from the 4HD/5HD-HUB and wait for 1 minute to let the AUTO-FUSE reset thus restoring the LCOM power.
   Now check the voltage directly on the C1 - LCOM male connector being very careful not to short the connector's pins!!!
   If the voltage between the 1st and 4th pin is not around 18-20 VDC, then the failed device is either the 4HD/5HD-HUB or the problem is a short circuit on the LCOM power wires.
   NOTE: A short circuit on the female connector giving power to the camera assembly can cause an overload on the LCOM power supply. In this case, the AUTO-FUSE intervenes after a few seconds (or minutes) depending on the intensity of the overload. In this situation the origin of the failure can be very difficult to find. It must be remembered that the duration of an overload of this kind can cause unrecoverable damage to the AUTO-FUSE.

LCOM communication wires

When the power wires do not originate LCOM problems, first of all it is necessary to check the communication wires in order to verify their being neither shorted nor broken. It is only after this that the following steps must be followed:

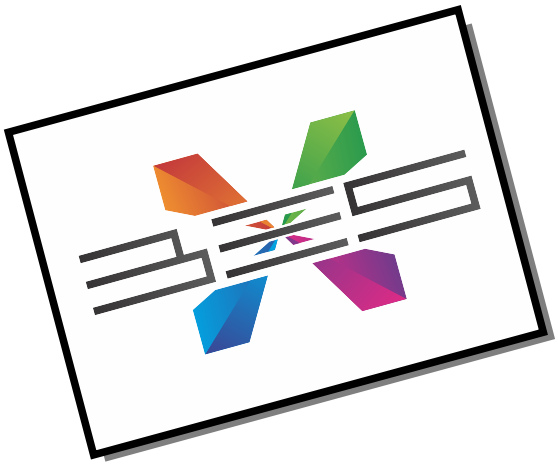
1. Turn the 4HD/5HD-HUB off.
2. Unplug the C1 - LCOM connector from the 4HD/5HD-HUB.
3. Turn the 4HD/5HD-HUB on again and wait for the LCOM error code on screen.
4. Then, being extremely careful to do not cause a short circuit, measure the voltage between the 2nd (-) and 3rd (+) pins of the C1 male connector. The value must be between 0.30 and 0.75 VDC. If not, the problem is in the 4HD/5HD-HUB itself.
5. Measure the voltage between the 2nd(+) and 4th(-) pins. The value must be between 2.0 and 2.3VDC. If not, the problem is in the 4HD/5HD-HUB itself.
6. Measure the voltage between the 3rd(+) and 4th(-) pins. The value must be between 2.7 and 2.9 VDC. If not, the problem is in the 4HD/5HD-HUB itself.
7. Turn the 4HD/5HD-HUB off.
8. Insert the C1 - LCOM connector again. A short discharge normally occurs in this case and it is due to 4HD/5HD-HUB internal capacitors.
9. Turn the 4HD/5HD-HUB on again and wait for the LCOM error code on screen.
10. Measure the voltage between the 2nd(-) and 3rd(+) pins directly on the C1 connector. The value must be between 0.25 and 0.45 VDC. If not, the step 14 must be followed.
11. Measure the voltage between the 2nd(+) and 4th(-) pins directly on the C1 connector. The value must be between 2.2 and 2.4 VDC. If not, the step 14 must be followed.
12. Measure the voltage between the 3rd(+) and 4th(-) pins directly on the C1 connector. The value must be between 2.5 and 2.8 VDC. If not, the step 14 must be followed.
13. At this stage, the only way to find the defective switch is to check each LCOM device by inserting them one by one in another pair of lanes.
14. The following test must be done only if one of the procedures in steps 10, 11 and 12 has not been successful.

    If the wires have already been carefully checked, it is advisable to disconnect one by one the devices connected to the LCOM in order to find the one causing the defect. The suggested order of procedures is the following (in the LCOM you are testing, only some of the subsequent boards are present):

    a. Turn the 4HD/5HD-HUB off and disconnect the camera assembly from the LCOM (it is sufficient to disconnect the 2nd and 3rd wires). Turn the 4HD/5HD-HUB on and wait for the error code on screen. Then, leaving C1 plugged on the 4HD/5HD-HUB, check the voltages as stated in steps 11 and 12. If these voltages are okay, switch off the 4HD/5HD-HUB and retry the whole system by replacing the camera board (or the whole camera assembly).
    b. Turn the 4HD/5HD-HUB off and disconnect the Pinspotter Interface from the LCOM (it is sufficient to disconnect the 2nd and 3rd wires). Turn the 4HD/5HD-HUB on and wait for the error code on screen. Then, leaving C1 plugged on the 4HD/5HD-HUB, check the voltages as stated in steps 11 and 12. If these voltages are okay, switch off the 4HD/5HD-HUB, replace the Pinspotter Interface and repeat previous procedures.

    When after the disconnection of all electronic components from the LCOM line, the voltages on C1 are still not on the range indicated on steps 11 and 12, the problem surely has to be found in the wires.

NOTE: a problem with the LCOM cable (i.e.: short circuit) can affect the entire scoring system causing a reboot of the pair of lanes.



SECTION 7

OVERHEAD MONITORS

INSTALLATION MANUAL

7.1 - Preface

The overhead monitors (or lane monitors) are installed on the Bowl Return area.

The 4HD/5HD-CPU is the graphic engine of the BES X system, that can provide up to two independent video outputs for the scoring system, but can control (monitor ON/OFF, channel change, etc. only on supported monitors) up to three monitors (two for the scoring system and one with an independent video signal). The 4HD/5HD-CPU unit must be fixed to a vertical surface near the overhead monitors (please refer to the "BES X Pre-installation manual for further information). This unit communicates and takes power from the 4HD/5HD-HUB (located on the back of the curtain wall) through the network cable connected to the L1 connector and it is connected to the overhead monitor through the HDMI connectors.

The 4HD/5HD-CPU have to be fixed to the monitor frame, with the L1 connector facing upward. QubicaAMF monitor frames are designed to fix this unit on them. If, for any reason, is not possible to fix the 4HD/5HD-CPU unit to the monitor frame (i.e.: the monitor frame is not supplied by QubicaAMF) the 4HD/5HD-CPU have to be fixed to a vertical surface NEAR the overhead monitors, in an area that ensures the correct air recirculation, always with the L1 connector facing upward. NEVER install for any reason this unit on an horizontal position, it will result in major damages to the 4HD/5HD-CPU unit itself.

7.2 - Monitor requirements

The image resolution provided by the 4HD/5HD-CPU is 1280x720.

In order to correctly visualize the image on the screen we strongly suggest to use monitors with "Just Scan" (or "Screen Fit") option present. The "Just Scan" (or "Screen Fit") picture mode is a function that allows to the image to fit the screen exactly without overlapping the sides of the screen.

If the "Just Scan" (or "Screen Fit") capability is not present on the monitor, QubicaAMF will not assume any responsibility for an incorrect visualization of the image. In this case we strongly recommend to test the QubicaAMF equipment with the chosen monitor before the purchase.

In order to control the monitors from ConquerorPRO if the monitors support commands through the HDMI connector (currently only for AccuVision Gen.3 and Gen.4 monitors) connect only the HDMI cable between the 4HD/5HD-CPU and the monitor.

If the monitors purchased does not support command through the HDMI connector, the HDMI connection between the 4HD/5HD-CPU and the monitor is not enough, so use the 288401007 cable to connect the "CTRL" output of the 4HD/5HD-CPU to the serial control (male DB-9 connector) on the rear of the monitor or the 610325206 cable connected to the "CTRL" output of the 4HD/5HD-CPU and fixed over the infrared receiver of the monitor.

IMPORTANT NOTES:

1. For monitors supplied by QubicaAMF always set the ID of each monitor to 1 in order to control it directly from a ConquerorPRO computer.
2. Not all of the monitors can be controlled. Please contact QubicaAMF Technical Support department for further information.
3. Always disable the power saving or automatic switch-off option on each monitor, to avoid the monitor turning off.

7.3 - How to enable the “Just Scan” (or “Screen Fit”) and “HDMI-CEC” capabilities on monitors supplied by QubicaAMF

With monitors supplied by QubicaAMF follow one of the procedures listed below, according to the brand / model of the monitors, in order to enable the “Just Scan” (or “Screen Fit”) capability.

ACCUVISION MONITORS Gen.3 and Gen.4:

How to enable the control “HDMI-CEC”:

- Enter the main menu of the monitor by pressing once the “Menu” button on the remote control.
- Once the main menu screen has appeared on the monitor, press in a fast sequence the following buttons on the remote control: “Menu”, “9”, “6”, “3”, “2”.
- Navigate to the “TV Control” setting and press “OK” on the remote control.
- Set the control “HDMI-CEC” (this setting lets the control commands to be executed through the HDMI cable).
- Once finished, press many times the “Menu” button on the remote control to exit from the menu.

ACCUVISION MONITORS Gen.2, Gen.3 and Gen.4:

How to enable the “JUST SCAN” option:

If the image displayed on the monitor is larger than the monitor screen, follow this procedure in order to have a correct aspect ratio:

- Press once the “Menu” button on the remote control.
- Enter the main menu of the monitor by pressing once the “Menu” button on the remote control.
- Once the main menu screen has appeared on the monitor, press in a fast sequence the following buttons on the remote control: “Menu”, “9”, “6”, “3”, “2”.
- Navigate to the sub menu “Aspect Ratio”.
- Select “Just Scan” and press “OK” on the remote control.
- Once finished, press many times the “Menu” button on the remote control to exit from the menu.

SAMSUNG MX SERIES MONITORS:

How to enable the “JUST SCAN” (or “Screen Fit”) option:

If the image displayed on the monitor is larger than the monitor screen, follow this procedure in order to have a correct aspect ratio:

- Enter the main menu of the monitor by pressing once the “Menu” () button on the remote control.
- Navigate to the “Picture” menu, using the arrow buttons and press the “Enter” () button on the remote control.
- Navigate to the “Size” sub menu and press the “Enter” () button on the remote control.
- Select the “Just Scan” (or “Screen Fit”) option and press the “Enter” () button on the remote control.
- Once finished, press many times the “Exit” () button on the remote control to exit from the menu.

SAMSUNG MD SERIES MONITORS:

How to enable the “JUST SCAN” (or “Screen Fit”) option:

If the image displayed on the monitor is larger than the monitor screen, follow this procedure in order to have a correct aspect ratio:

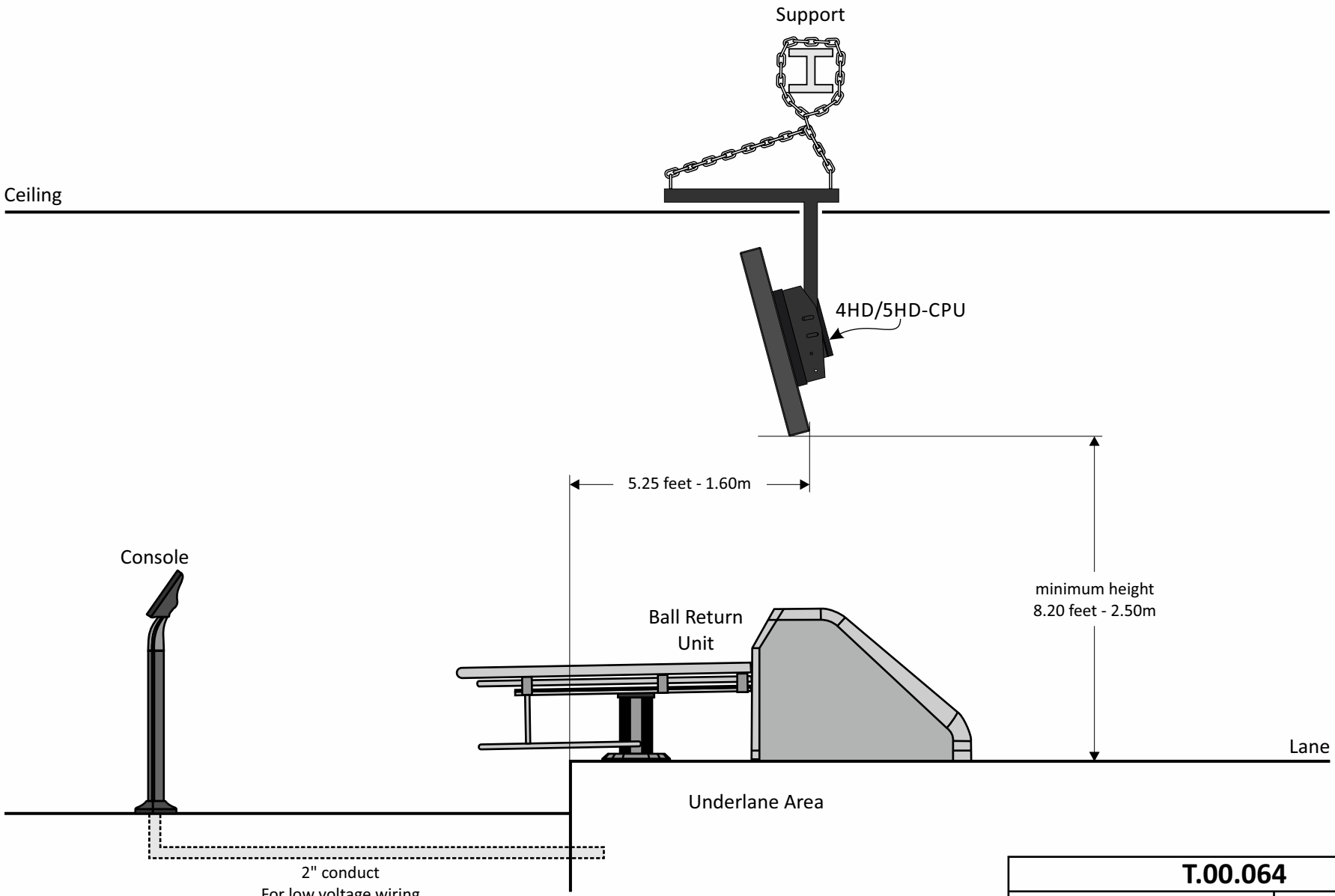
- Enter the main menu of the monitor by pressing once the “Menu” ( ) button on the remote control.
- Navigate to the “Picture” menu, using the arrow buttons and press the “Enter” ( ) button on the remote control.
- Navigate to the “Screen Adjustment” sub menu and press the “Enter” ( ) button on the remote control.
- Navigate to the “Picture Size” sub menu and press the “Enter” ( ) button on the remote control.
- Select the “Just Scan” (or “Screen Fit”) option and press the “Ok” ( ) button on the remote control.
- Once finished, press many times the “Exit” ( ) button on the remote control to exit from the menu.

LG 32LM549C, 32LY330C-ZA, 32LY340C-ZA, 42LY330C-ZA, 47LY330C-ZA MONITORS:

How to enable the “JUST SCAN” (or “Screen Fit”) option:

If the image displayed on the monitor is larger than the monitor screen, follow this procedure in order to have a correct aspect ratio:

- Enter the main menu of the monitor by pressing once the “Settings” button on the remote control.
- Navigate to the “Picture” menu, using the arrow buttons and press the “OK” button on the remote control.
- Navigate to the “Aspect ratio” sub menu and press the “OK” button on the remote control.
- Select the “Just Scan” (or “Screen Fit”) option and press the “OK” button on the remote control.
- Once finished, press many times the “Exit” button on the remote control to exit from the menu.



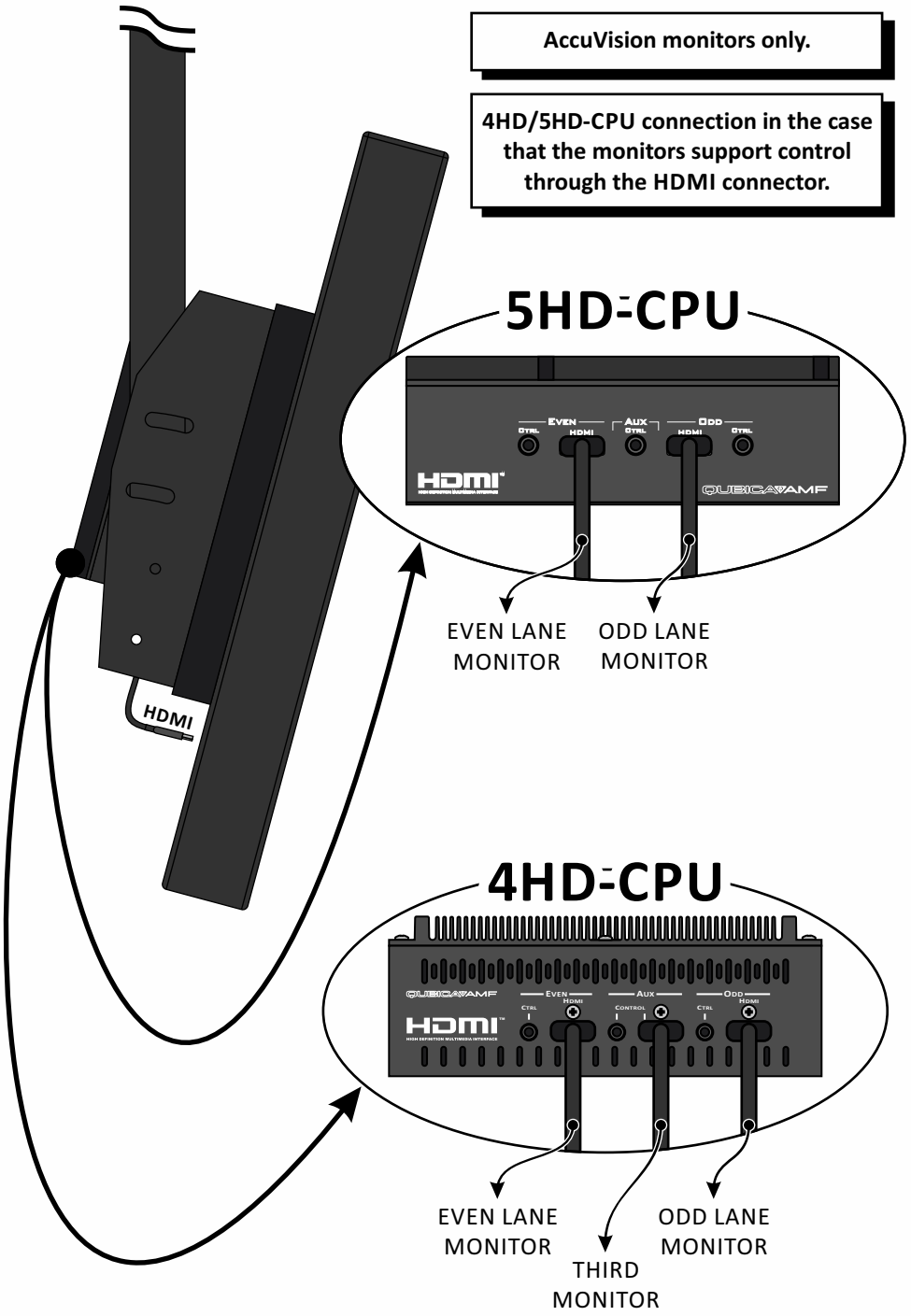
T.00.064

MONITOR POSITION

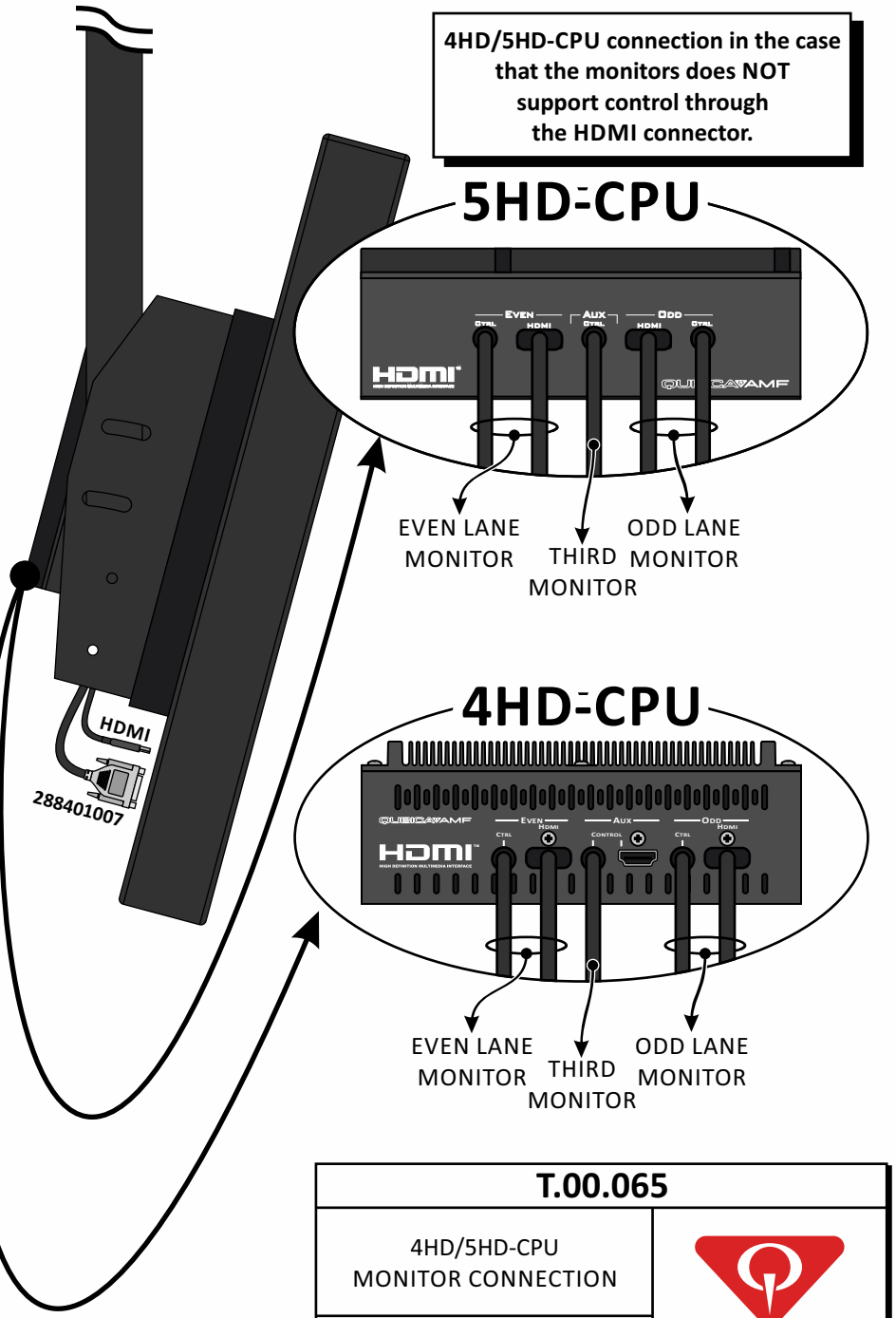
MAY 2nd 2017

AccuVision monitors only.

4HD/5HD-CPU connection in the case that the monitors support control through the HDMI connector.

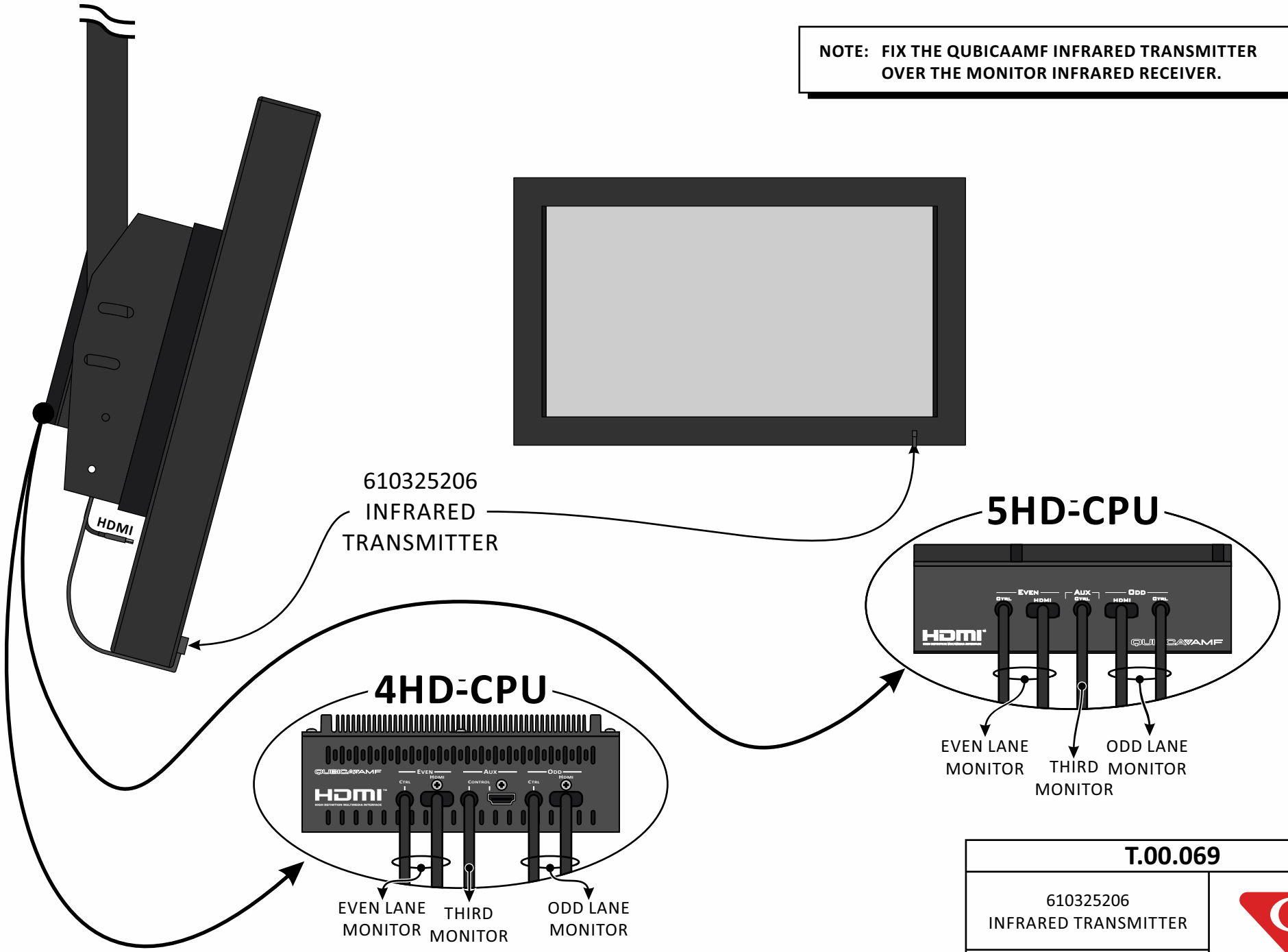


4HD/5HD-CPU connection in the case that the monitors does NOT support control through the HDMI connector.

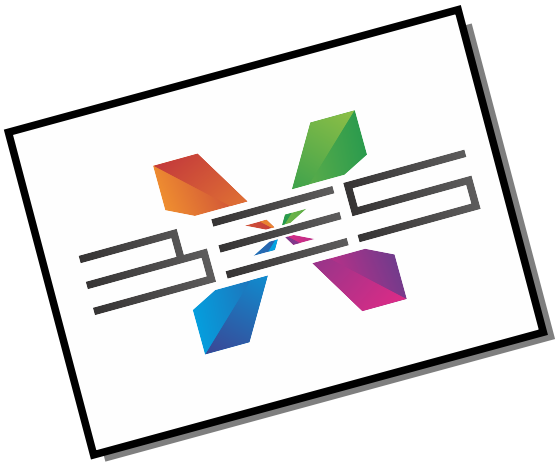


T.00.065	
4HD/5HD-CPU MONITOR CONNECTION	
MAY 2nd 2017	

NOTE: FIX THE QUBICAAMF INFRARED TRANSMITTER OVER THE MONITOR INFRARED RECEIVER.



T.00.069	
610325206 INFRARED TRANSMITTER	
FEB 20th 2013	

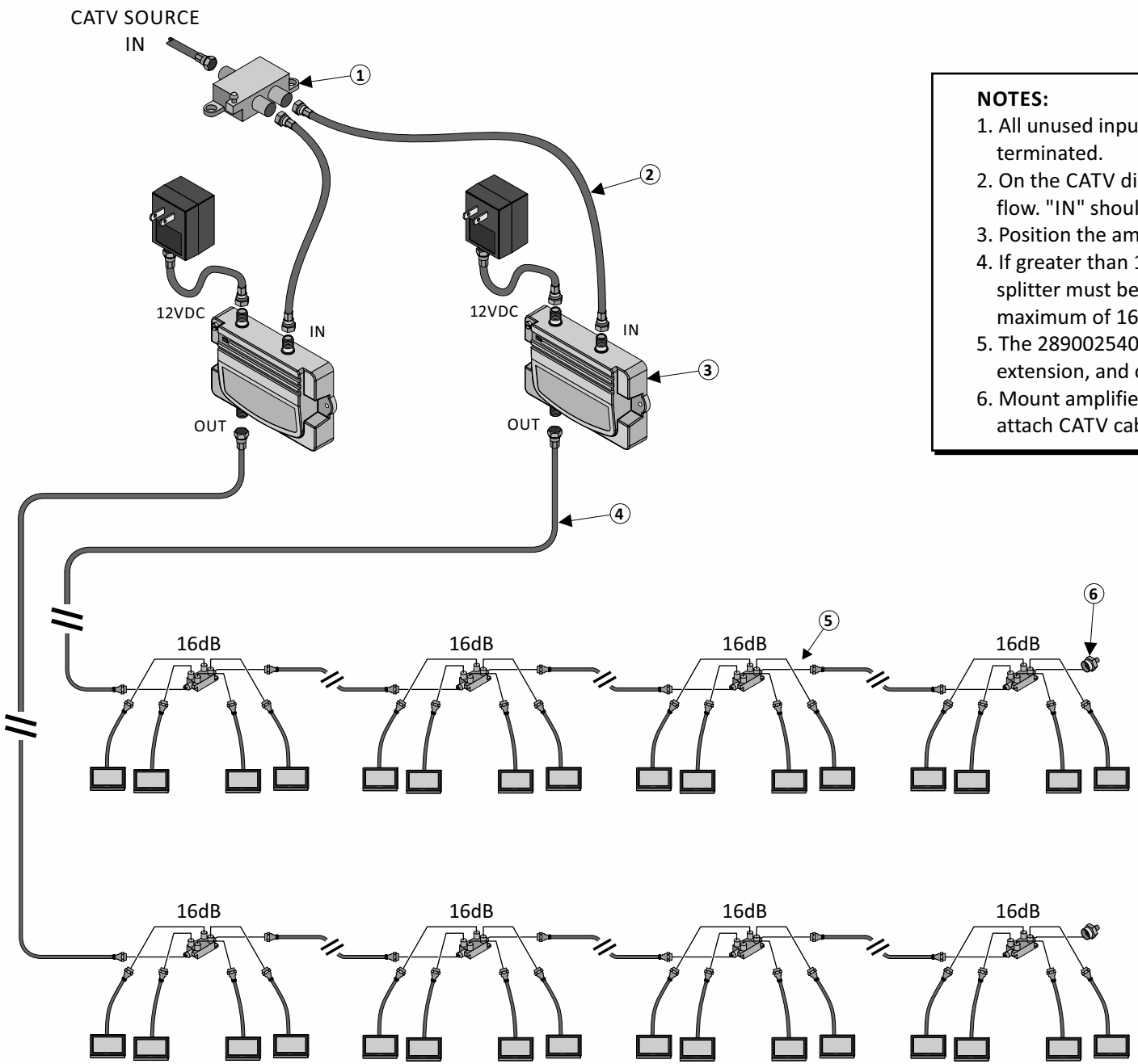


SECTION 8

TV SIGNAL WIRING

INSTALLATION MANUAL

USA ONLY



NOTES:

1. All unused inputs or output of taps, splitters or amplifiers must be terminated.
2. On the CATV directional coupler, observe the direction of the signal flow. "IN" should always "FACE" the amplifier.
3. Position the amplifier in the end of the circuit as drawn.
4. If greater than 16 lanes are ordered, a second amplifier and 2-way splitter must be ordered. This configuration is designed for a maximum of 16 lane pairs.
5. The 289002540 kit comes with four 15 ft. drops, one 30 ft. extension, and one 4-way coupler. One kit is given every 2 lane pairs.
6. Mount amplifier above the overhead monitors, attach CATV cable to TV.

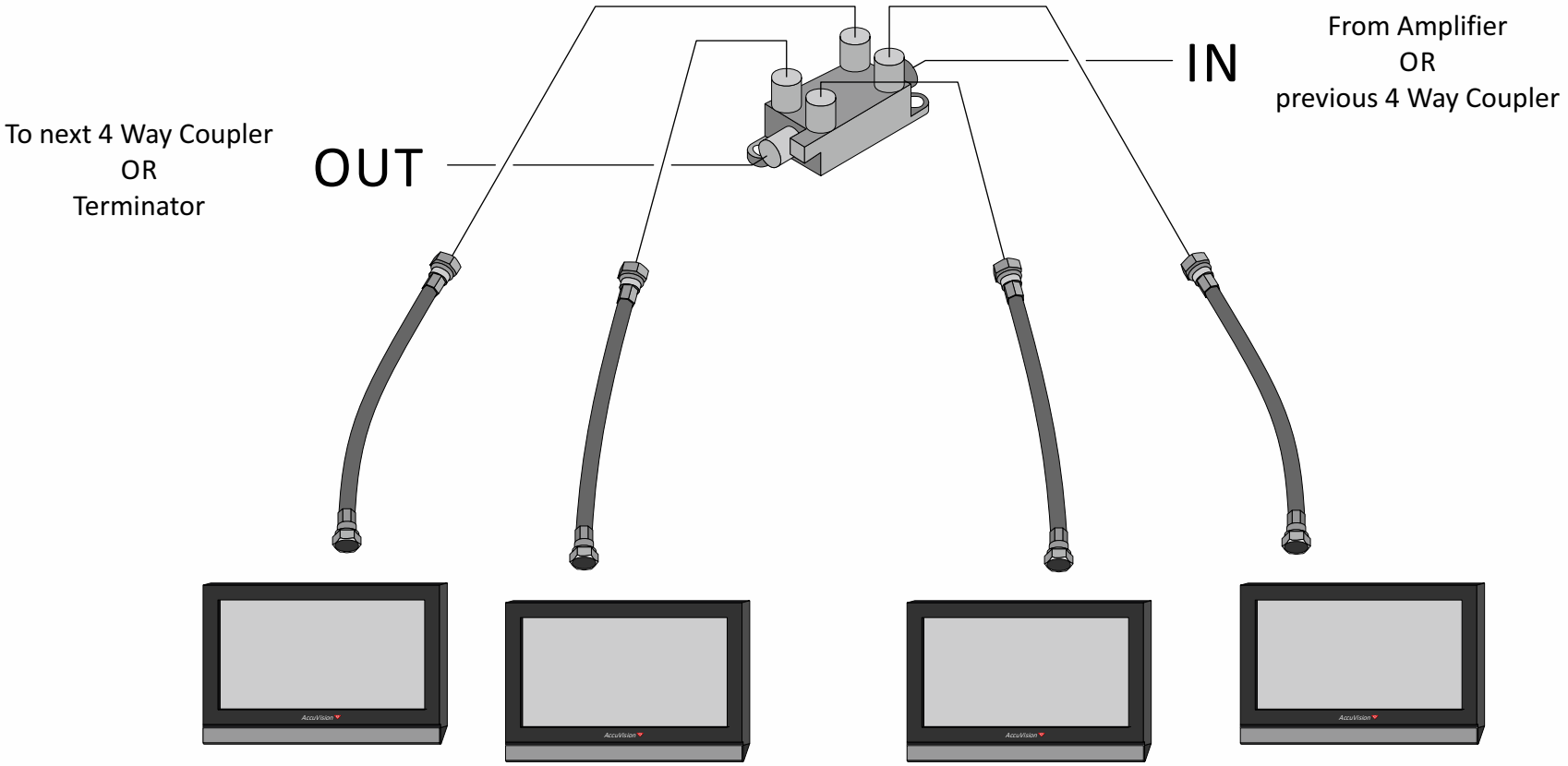
PART NUMBERS		
1	756104006	CATV splitter, 2WAY
2	286002511	Cable assy, CATV 2 ft.
3	756101018	Amplifier, RF broadband
4	286002509	Cable assy, CATV 150 ft.
5	286002542	Cable TV 4 lane cable kit (note 5)
6	756103004	Terminators

T.00.011

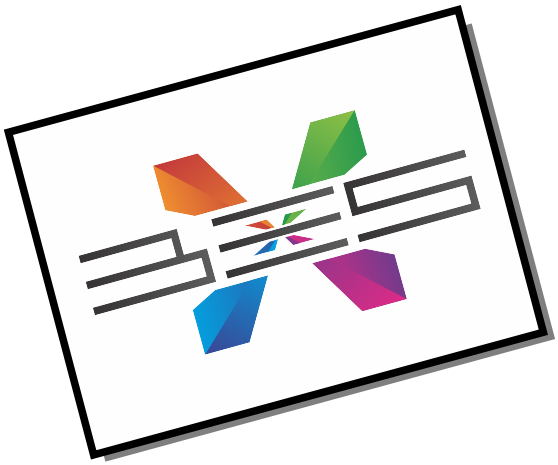
CABLE TELEVISION INSTALLATION, TV DISPLAYS

NOV 28th 2007

16dB



T.00.012	
CABLE TELEVISION INSTALLATION, DETAIL OF FOUR LANES	
NOV 26th 2007	



SECTION 9

FRONT DESK

INSTALLATION MANUAL

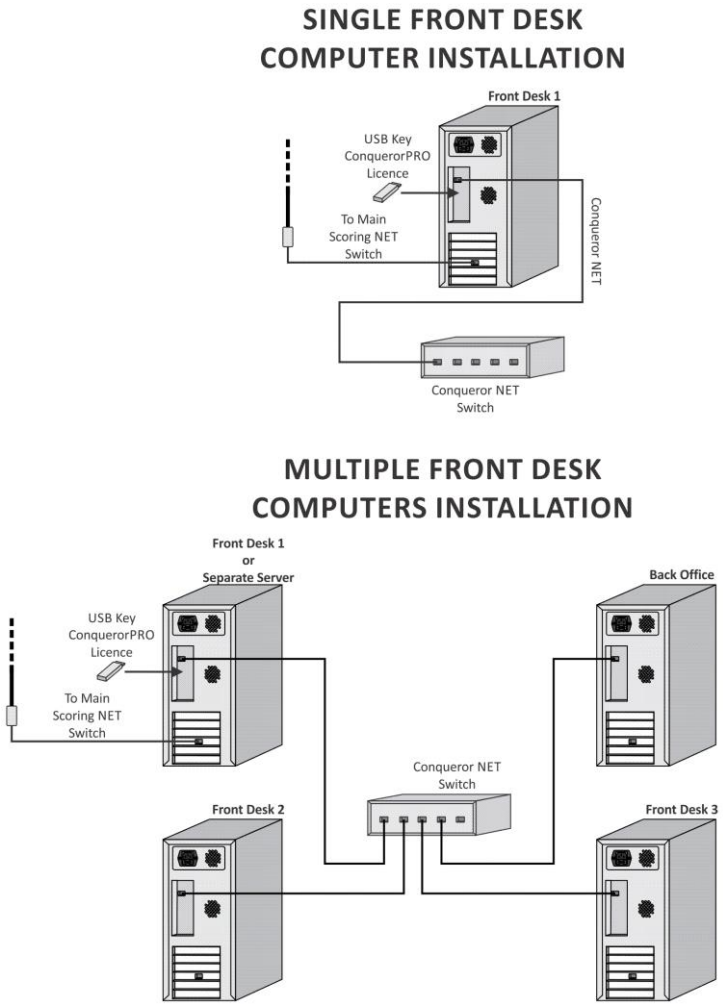
9.1 - Installation Notes

The Front Desk 1 (or Separate Server if present) is the PC where the Scoring Network (Scoring NET) is connected to. During this manual it is called ConquerorPRO server for simplicity.

The ConquerorPRO server is equipped with a second network card, as are all other computers supplied by QubicaAMF. Only the ConquerorPRO server is to be connected to the Scoring Network (Scoring NET).

The Scoring Network (Scoring NET) is kept separated from the PC network (Conqueror NET), and has a different IP address matrix. For standard installations, the PC network (Conqueror NET) standard IP address matrix (starting from ConquerorPRO version 6) is **192.168.71.xxx**, while the address matrix for the Scoring Network (Scoring NET) is **192.168.216.xxx**.

NOTE: The second network card on the computers different from the ConquerorPRO server is to be used only in the case that it is necessary to convert one of these computers into a ConquerorPRO server computer.



9.2 - ConquerorPRO Residential Edition installation

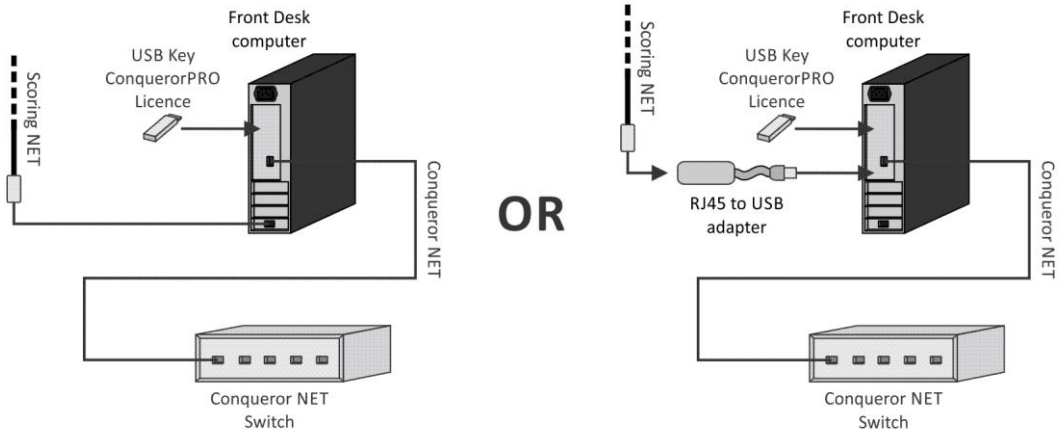
ConquerorPRO Residential Edition is a special ConquerorPRO version targeted to residential installations.

The hardware installation for the on-lane equipment is exactly the same as the installation for a normal BES X installation.

The Scoring Network (Scoring NET) is kept separated from the PC network (Conqueror NET), and has a different IP address matrix. For standard installations, the Conqueror NET standard IP address matrix is **192.168.71.xxx**, while the address matrix for the Scoring NET is **192.168.216.xxx**.

The Front Desk computer can be equipped with a second network card, or QubicaAMF will provide a "RJ45 to USB" adapter in order to connect to a USB port of the Front Desk computer the homerun cable of the Scoring NET.

IMPORTANT NOTE: connect the "RJ45 to USB" adapter ONLY to the USB port specified on the label attached on the computer.



9.3 - Lanes Control Box Service

The Lanes Control Box Service (called also Matrix Configuration service or MxServer) is the program that manages the allocation of IP addresses of the 4HD/5HD-CPU boxes each time they boot up.

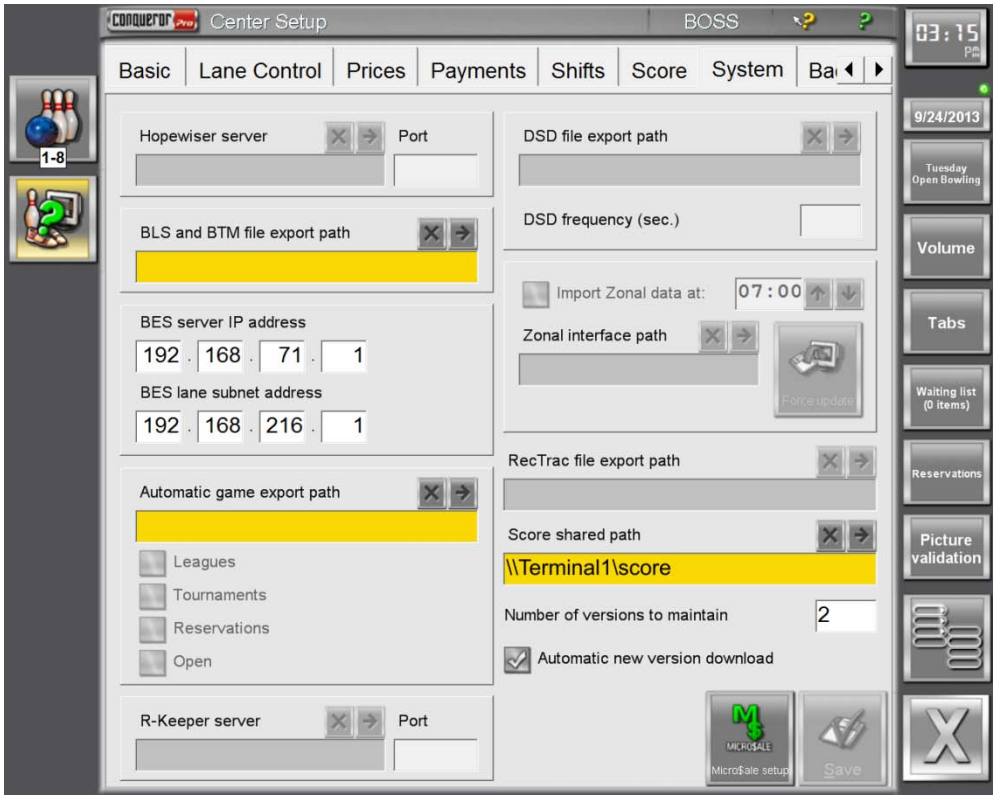
To setup the lane control box service you have to open the SYSTEM tab under the icon SETUP-CENTER SETUP.

In the field under **B.E.S. Server IP** you should insert the IP of the Conqueror Server computer where the Lanes Control Box Service is installed, the IP should be (from Conqueror 6) 192.168.71.1 (in the case of a front desk computer that acts as the Server) or 192.168.71.99 (in the case of a Separate Server), while in the case of early Conqueror versions it should be 192.168.1.1 (in the case of a front desk computer that acts as the Server) or 192.168.1.99 (in the case of a Separate Server).

In the field under **B.E.S. Lane Subnet address** you should insert the IP address of the second network card of the ConquerorPRO computer where the Lanes Control Box Service is installed, the IP should always be 192.168.216.1

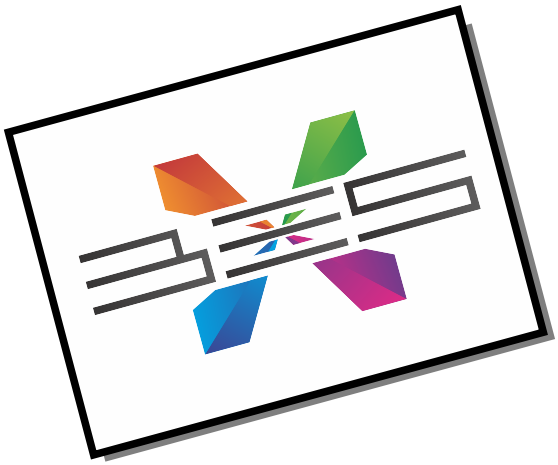
WARNING: You can have only one Lanes Control Box Service running per Bowling Center

If these 2 IP addresses are not set, the Conqueror will give an error each time the system boots up.



In order to be able to properly manage the 4HD/5HD-CPU the **Score Shared Path** field must be pointed towards the score shared folder of the computer where the Lanes Control Box Service is installed.

In order to apply any change on this screen press SAVE, ConquerorPRO will restart.



SECTION 10

SINGLE CHANNEL VIDEO SERVER

INSTALLATION MANUAL

10.1 - 288201089 wiring

The 288201089 single channel video server unit is the hardware needed to broadcast a video signal from a single source to the BES X system. The video signal is broadcasted in 720x576 (Standard Definition) for a PAL video signal and in 720x480 (Standard Definition) for a NTSC video signal.

The 288201089 unit has a Static IP address pre-assigned by QubicaAMF.

The default IP address of the 288201089 unit is:

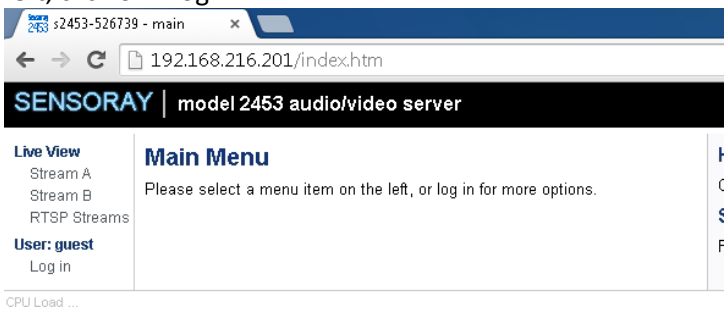
- *IP Address:* 192.168.216.201;
- *Subnet Mask:* 255.255.248.0.

NOTE: the 288201089 unit shall be the only video server unit installed in the center.

10.1.1 -How to change the video standard from NTSC to PAL with 288201089

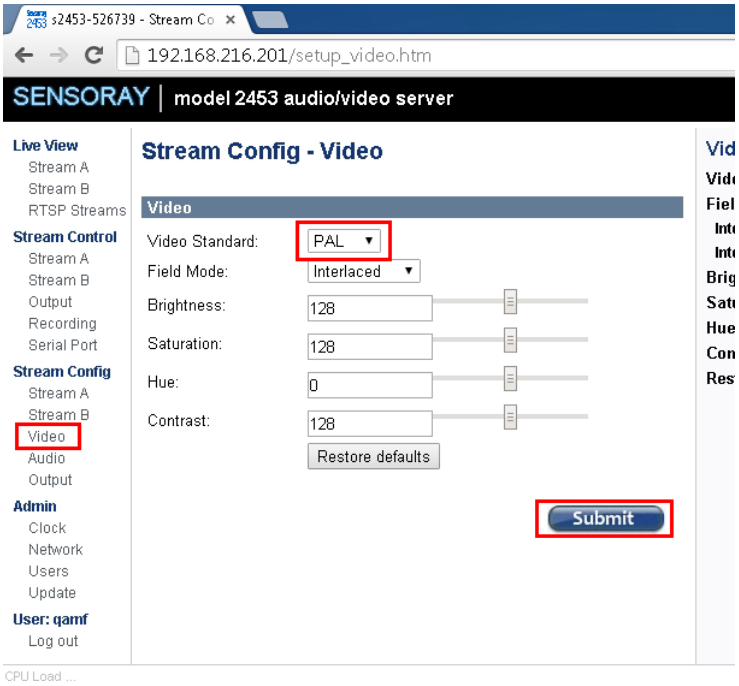
The 288201089 video server is preconfigured to broadcast a NTSC video signal. If there is the needing to change the video standard from NTSC to PAL follow this procedure:

- Once the 288201089 video server has been correctly installed and is up and running, open a web browser (i.e.: internet explorer) page on a ConquerorPRO computer and enter in the address bar the 192.168.216.201 IP address.
- In the menu on the left, click on “Log in”:

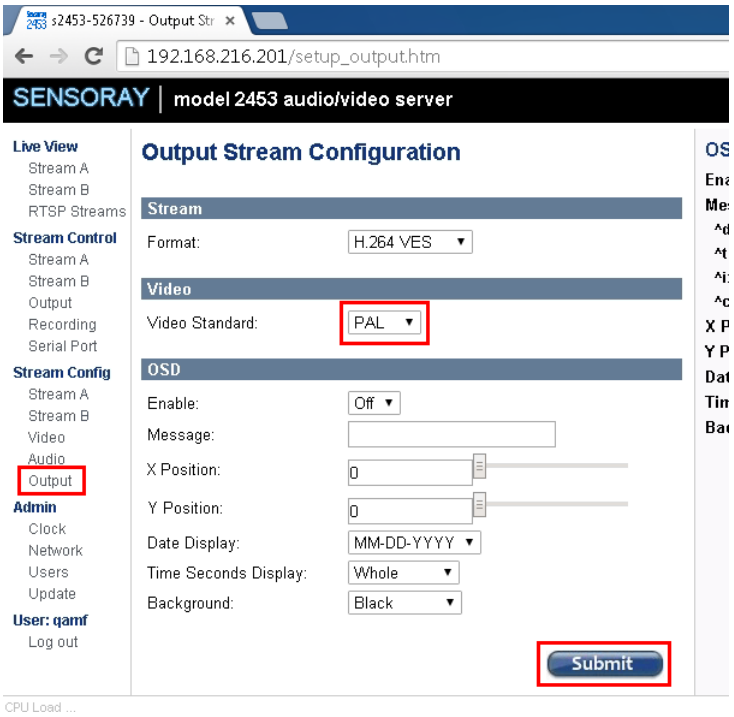


- Enter the following credentials in order to log in:
  - User Name: qamf
  - Password: qamf

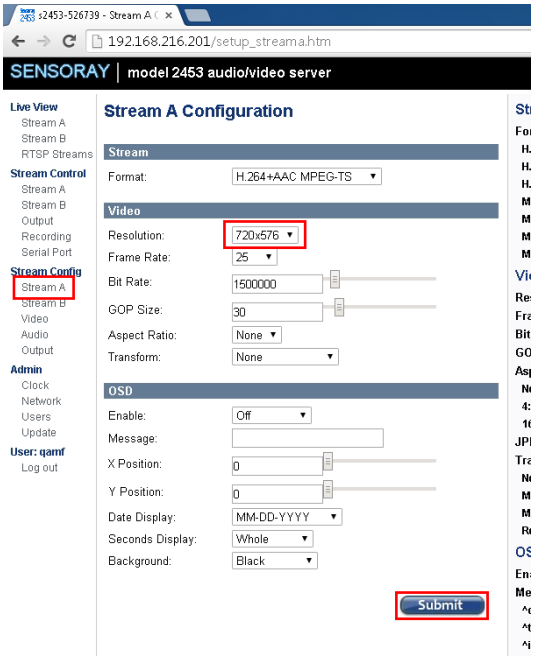
- In the menu on the left click on “Video” under “Stream Config”, select “PAL” as “Video Standard” and click on “Submit”.



- In the menu on the left click on “Output” under “Stream Config”, select “PAL” as “Video Standard” and click on “Submit”.



- In the menu on the left click on “Stream A” under “Stream Config”, select “720x576” as “Resolution” and click on “Submit”.



- Reboot the video server.

10.2 - 288201034 wiring

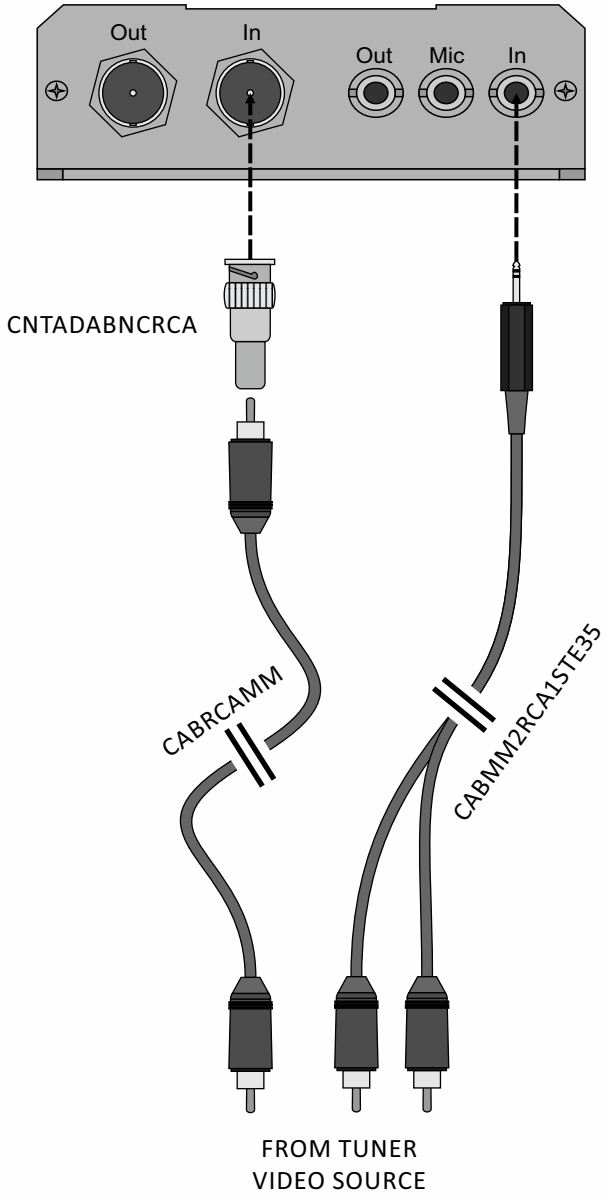
The 288201034 single channel video server unit is the hardware needed to broadcast a video signal from a single source to the 4HD/5HD-HUB units. The video signal is broadcasted in 720x576 (Standard Definition) for a PAL video signal and in 720x480 (Standard Definition) for a NTSC video signal.

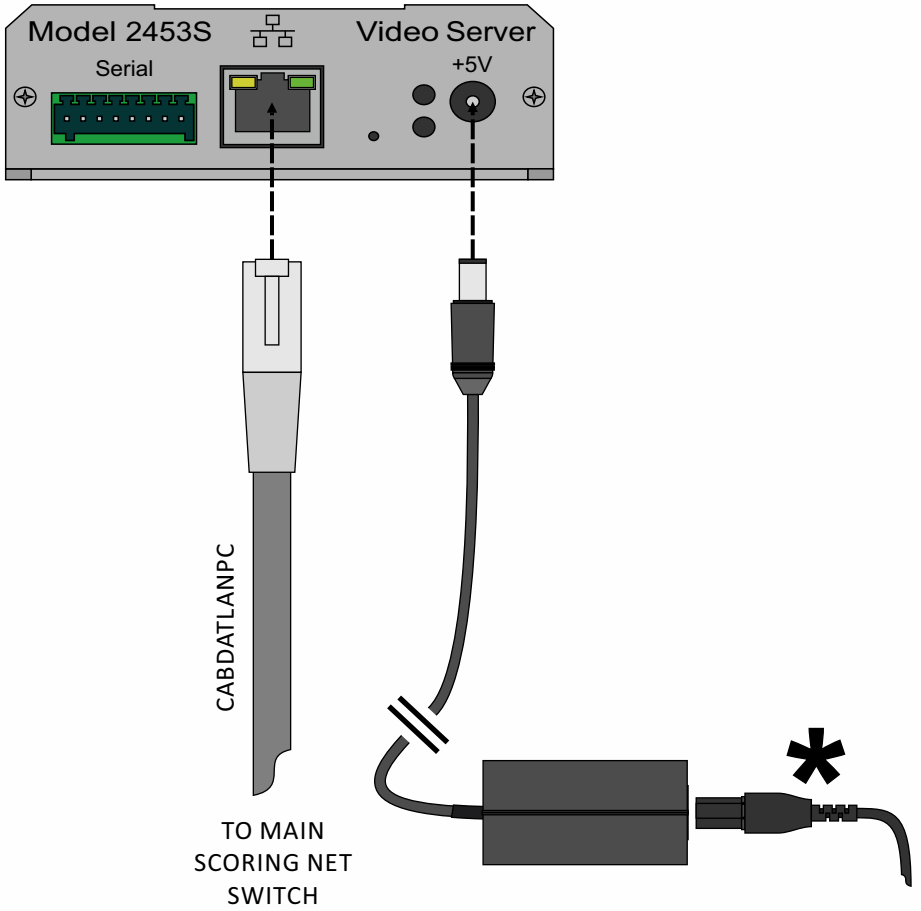
The 288201034 unit has a Static IP address pre-assigned by QubicaAMF.

The default IP address of the 288201034 unit is:

- *IP Address:* 192.168.216.201;
- *Subnet Mask:* 255.255.248.0.

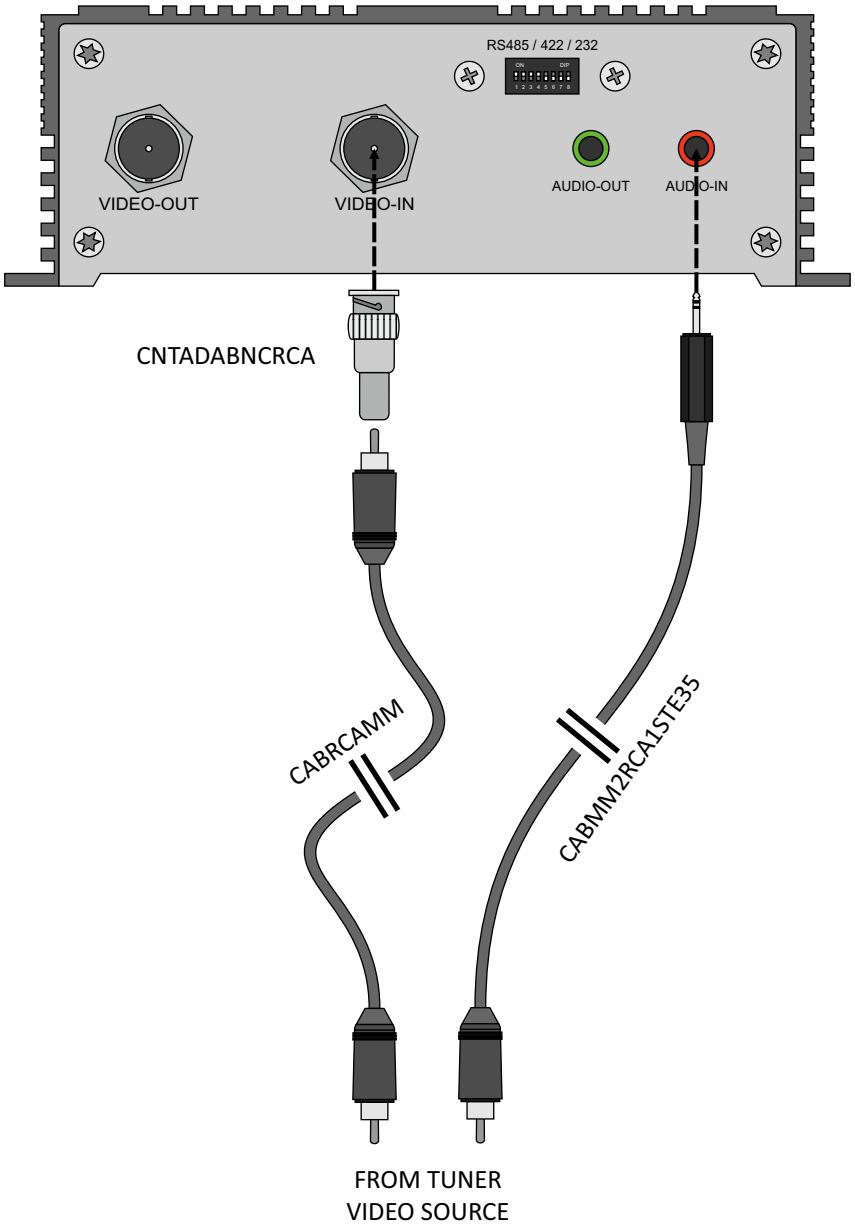
* Power cord **NOT** supplied by QubicaAMF

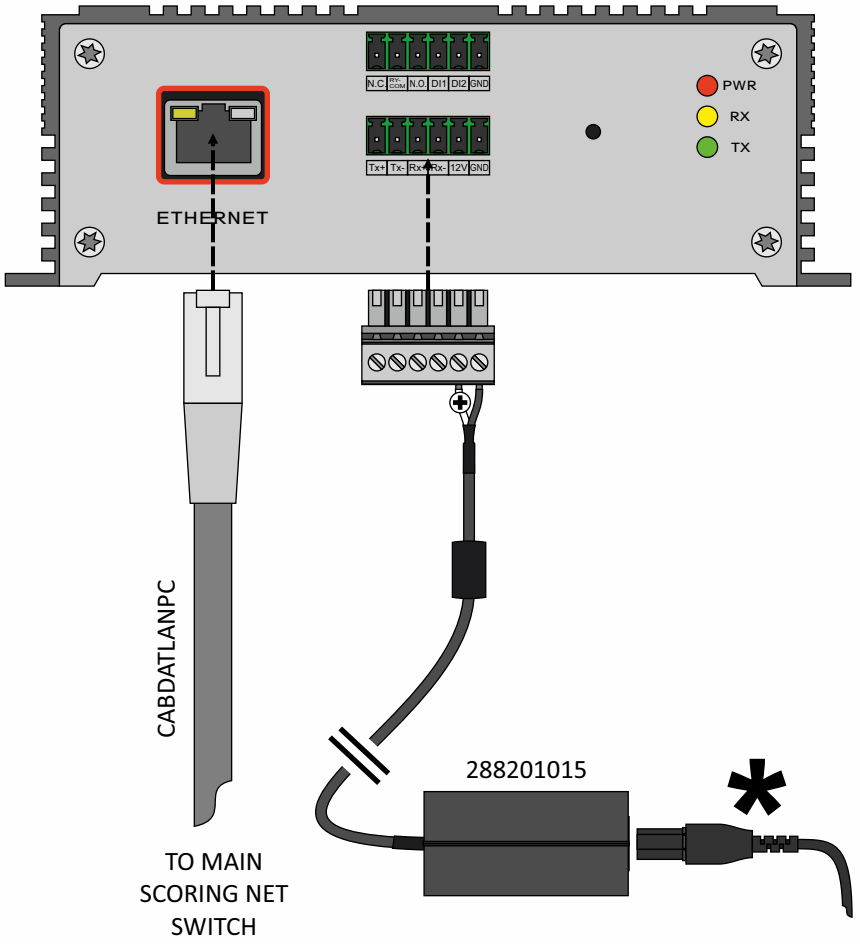




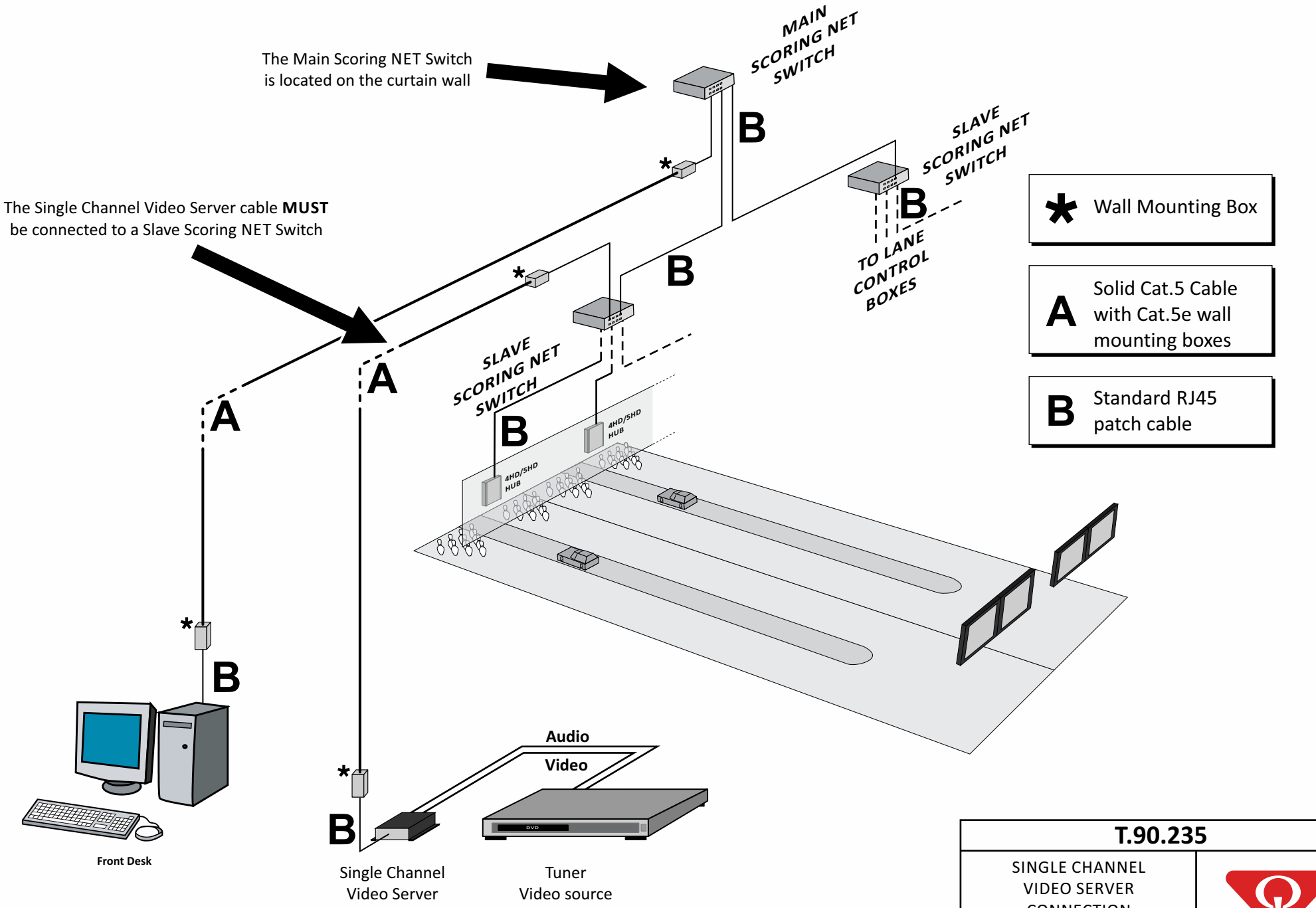
T.90.247	
288201089 SINGLE CHANNEL VIDEO SERVER WIRING	
APR 25th 2015	

* Power cord **NOT** supplied by QubicaAMF





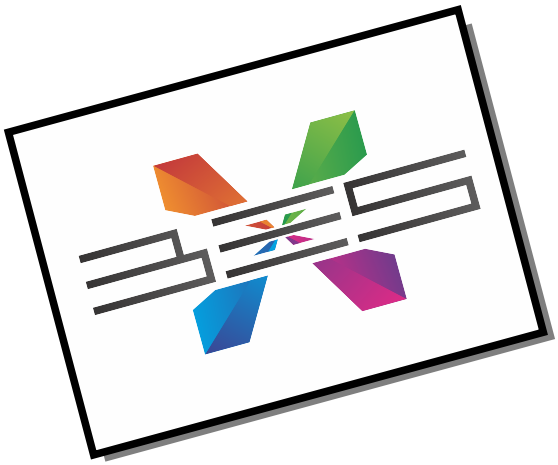
T.90.211	
288201034 SINGLE CHANNEL VIDEO SERVER WIRING	
MAR 22nd 2013	



T.90.235

SINGLE CHANNEL VIDEO SERVER CONNECTION

MAY 21st 2018



SECTION 11

COMPATIBILITY WITH MICRO AND FLY CONSOLES DIAGRAMS

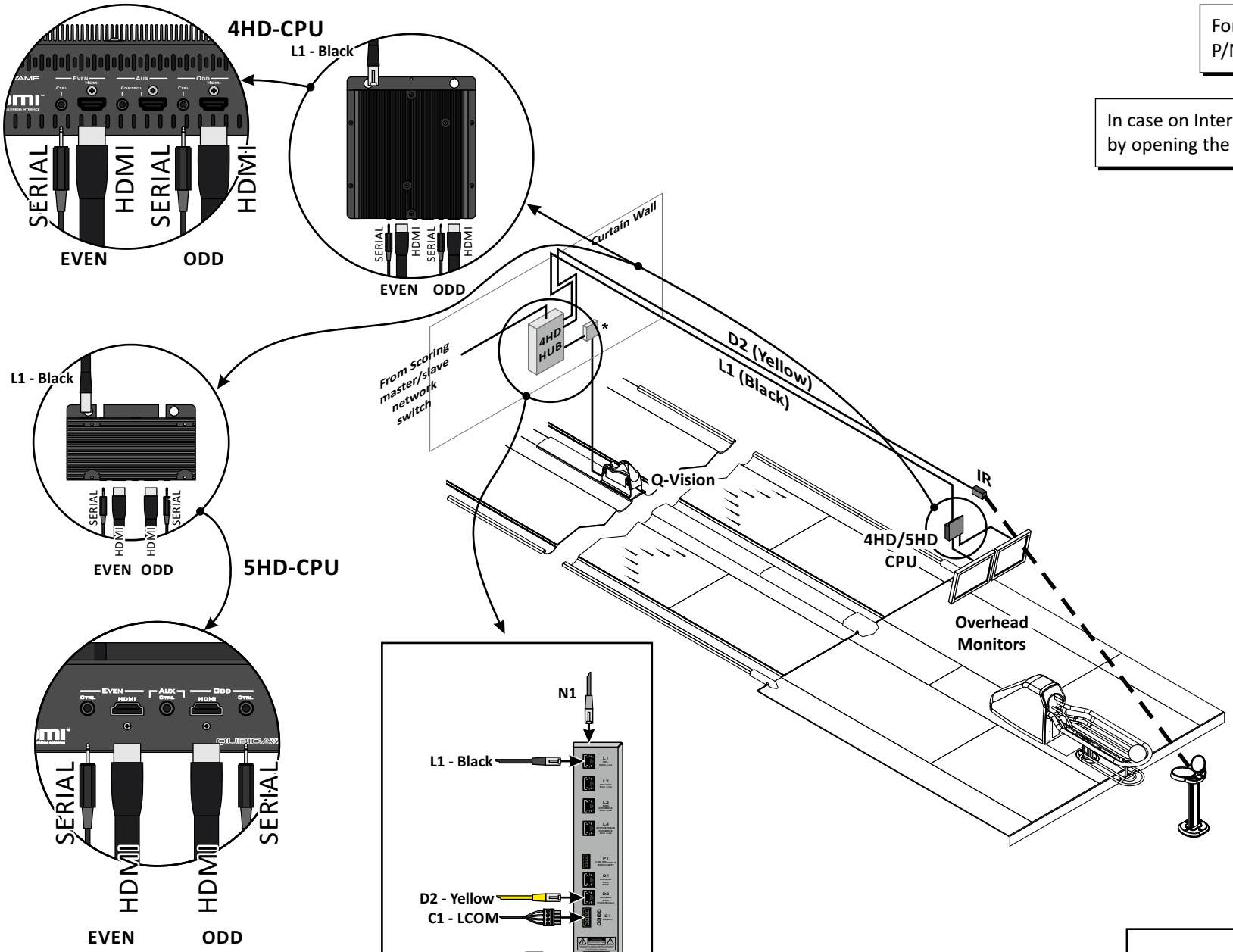
INSTALLATION MANUAL

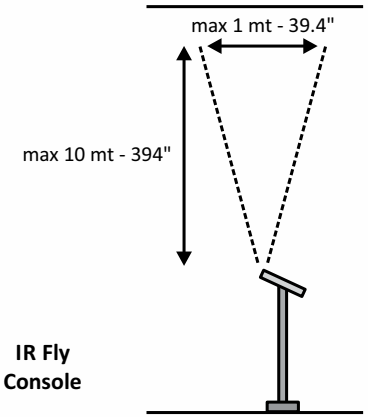
For this installation the 4HD-HUB Rev.2
P/N: 288250018 is **REQUIRED**.

In case on InterCom set the Sensitivity to **LOW** level by opening the Microphone Sensitivity Jumper (JP6)

QIT-RDB
DIP-switch settings

	ON	OFF	
1	ON	OFF	Power
2	EVEN	ODD	Lane Pair
3	1 KEYB	2 KEYB	Micro/Fly
4	LEFT	RIGHT	Lane





* = Pinspotter Interface

T.10.031

2 OVERHEAD MONITORS WITH IR FLY CONSOLE

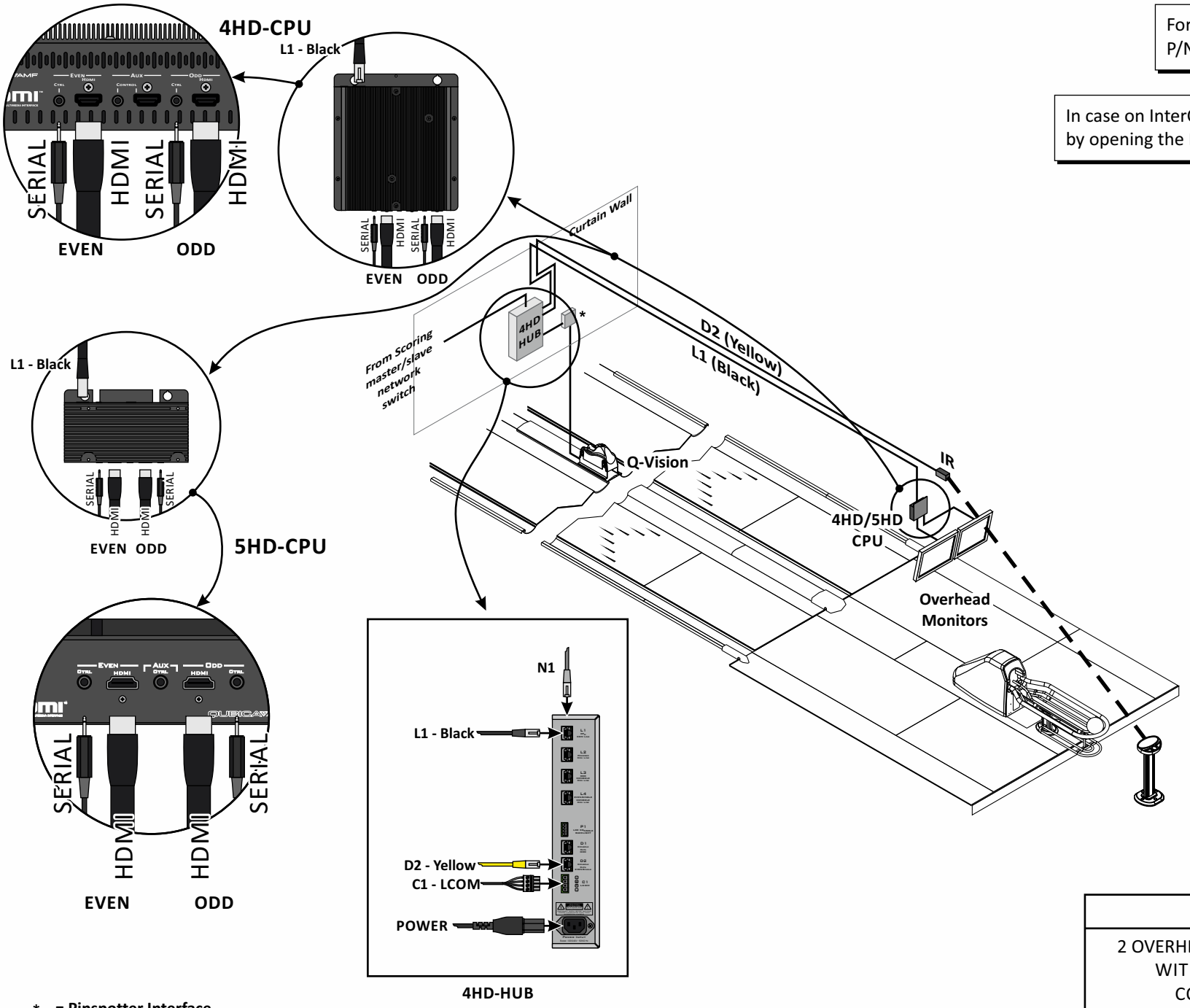
APR 28th 2017

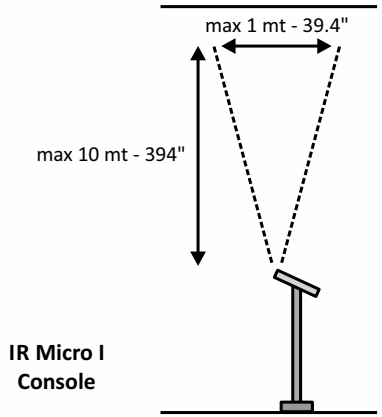
For this installation the 4HD-HUB Rev.2
P/N: 288250018 is **REQUIRED**.

In case on InterCom set the Sensitivity to **LOW** level by opening the Microphone Sensitivity Jumper (JP6)

QIT-RDB
DIP-switch settings

	ON	OFF	
1	ON	OFF	Power
2	EVEN	ODD	Lane Pair
3	1 KEYB	2 KEYB	Micro/Fly
4	LEFT	RIGHT	Lane





IR Micro I Console

* = Pinspotter Interface

T.10.032

2 OVERHEAD MONITORS WITH MICRO I CONSOLE

APR 28th 2017

For this installation the 4HD-HUB Rev.2 P/N: 288250018 is **REQUIRED**.

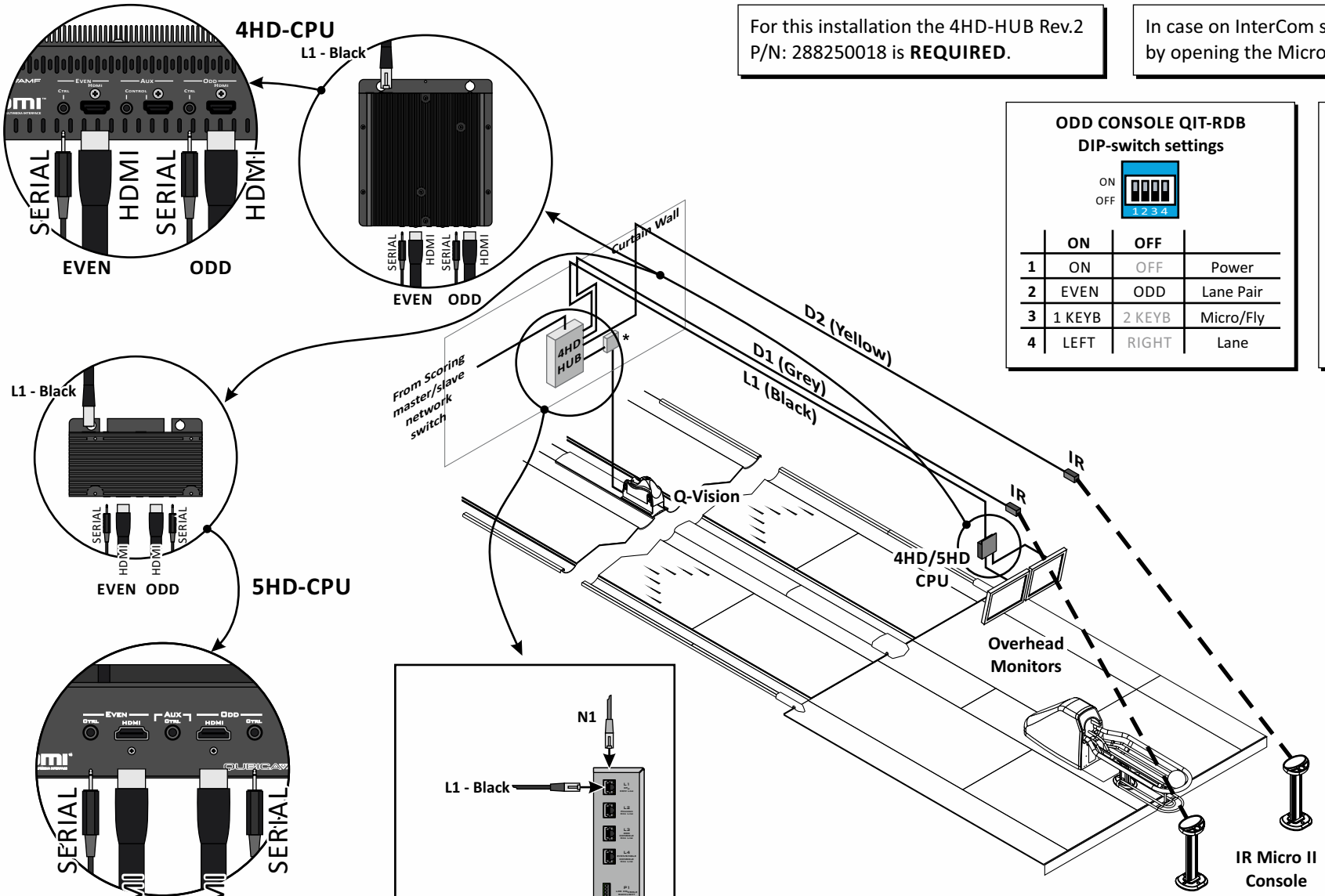
In case on InterCom set the Sensitivity to **LOW** level by opening the Microphone Sensitivity Jumper (JP6)

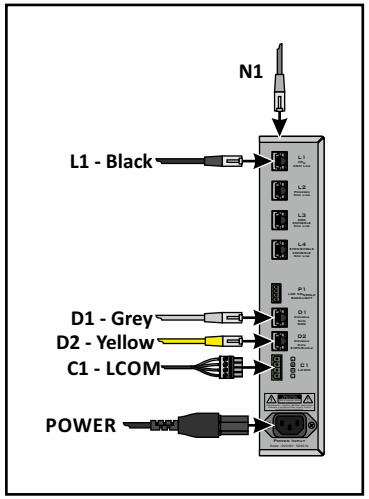
ODD CONSOLE QIT-RDB
DIP-switch settings

	ON	OFF	
1	ON	OFF	Power
2	EVEN	ODD	Lane Pair
3	1 KEYB	2 KEYB	Micro/Fly
4	LEFT	RIGHT	Lane

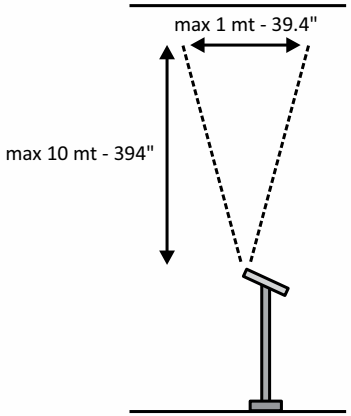
EVEN CONSOLE QIT-RDB
DIP-switch settings

	ON	OFF	
1	ON	OFF	Power
2	EVEN	ODD	Lane Pair
3	1 KEYB	2 KEYB	Micro/Fly
4	LEFT	RIGHT	Lane





4HD-HUB



* = Pinspotter Interface

T.10.033

2 OVERHEAD MONITORS WITH MICRO II CONSOLE

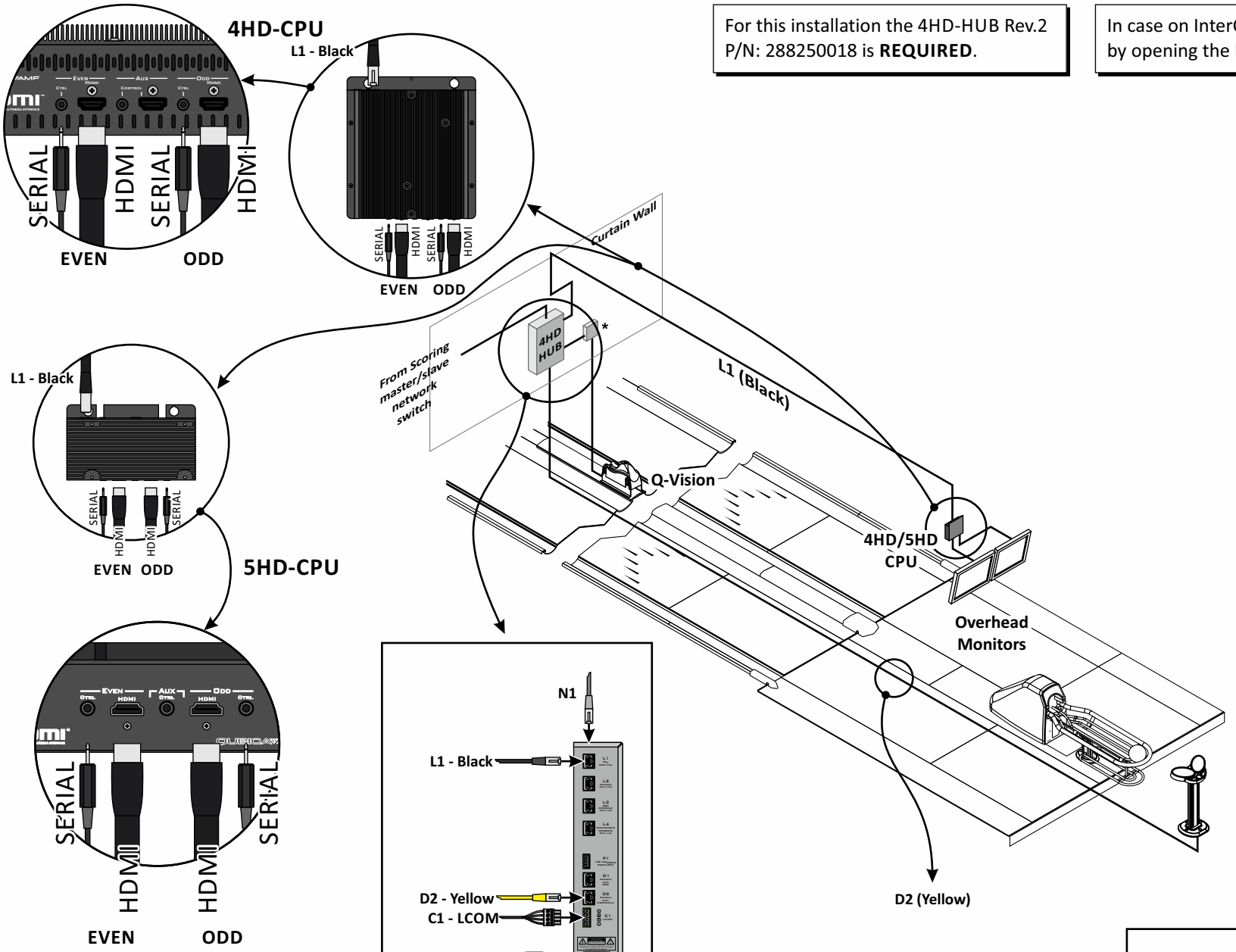
APR 28th 2017

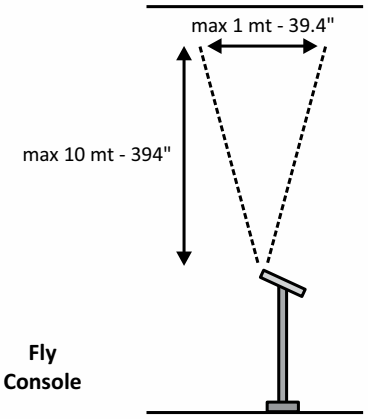
For this installation the 4HD-HUB Rev.2 P/N: 288250018 is **REQUIRED**.

In case on InterCom set the Sensitivity to LOW level by opening the Microphone Sensitivity Jumper (JP6)

QIT-RDB
DIP-switch settings

	ON	OFF	
1	ON	OFF	Power
2	EVEN	ODD	Lane Pair
3	1 KEYB	2 KEYB	Micro/Fly
4	LEFT	RIGHT	Lane

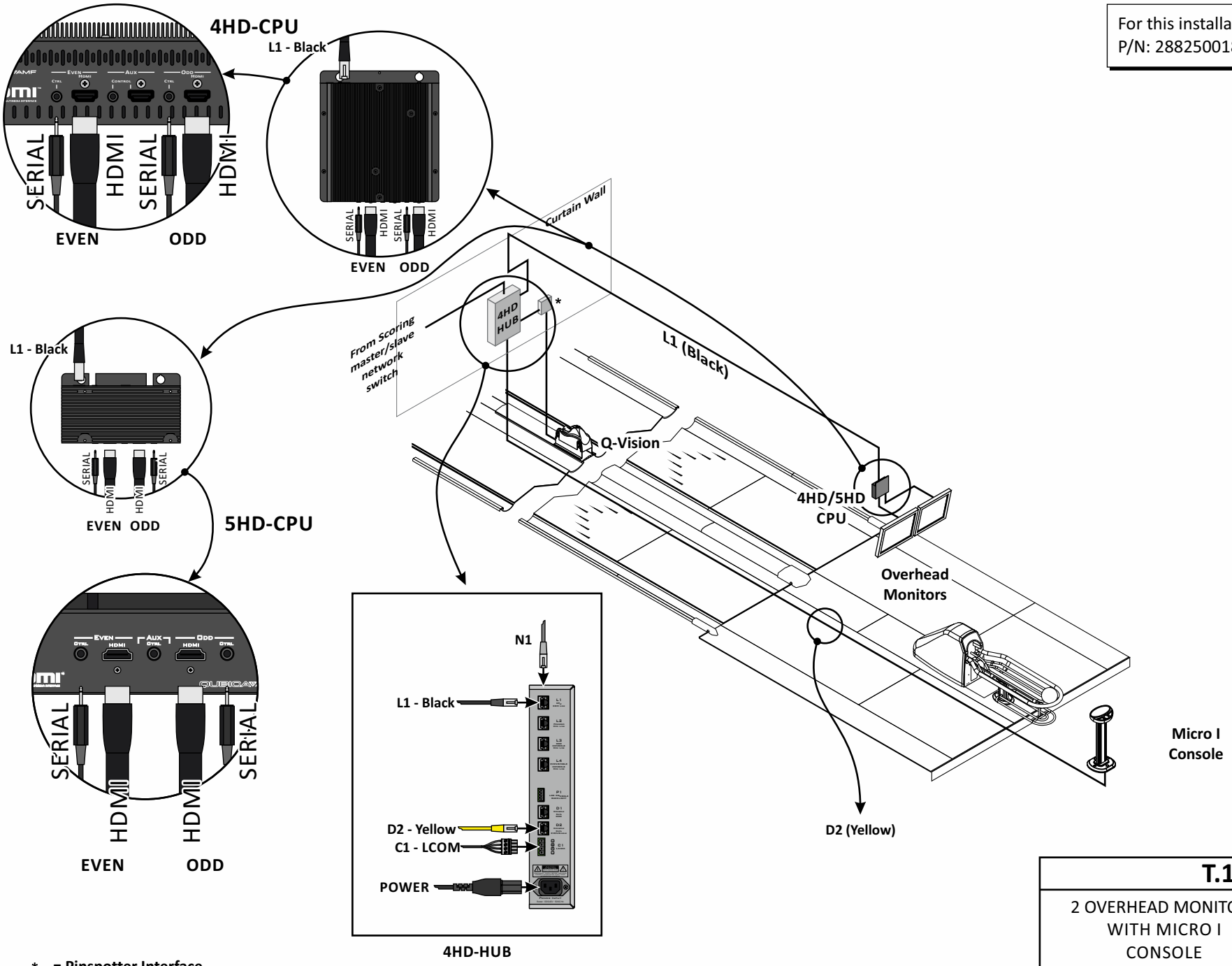




* = Pinspotter Interface

T.10.034	
2 OVERHEAD MONITORS WITH FLY CONSOLE	
APR 28th 2017	

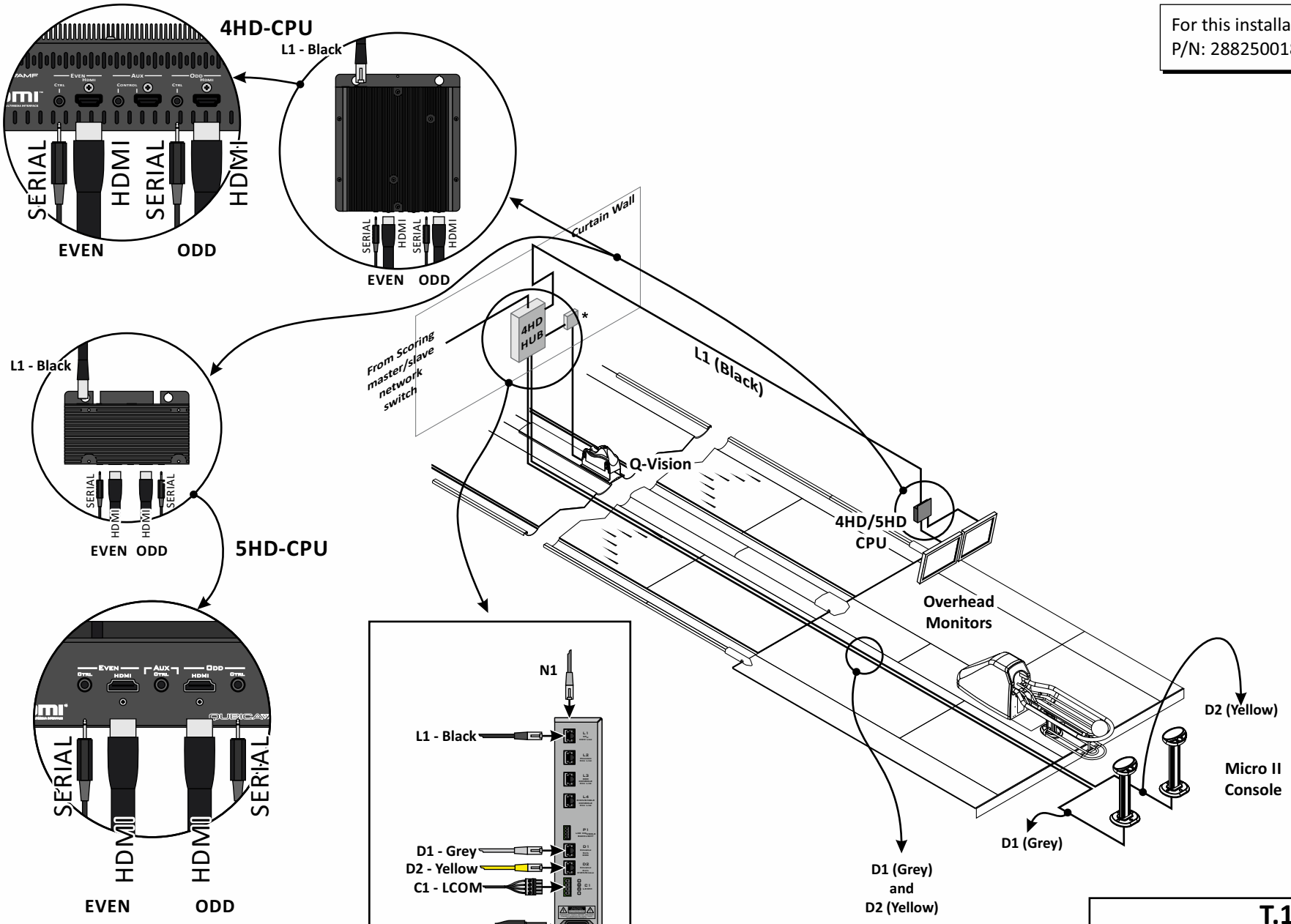
For this installation the 4HD-HUB Rev.2
P/N: 288250018 is **REQUIRED**.



* = Pinspotter Interface

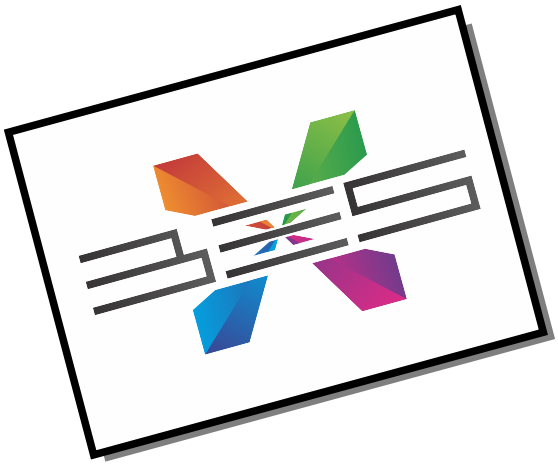
T.10.035	
2 OVERHEAD MONITORS WITH MICRO I CONSOLE	
APR 28th 2017	

For this installation the 4HD-HUB Rev.2
P/N: 288250018 is **REQUIRED**.



* = Pinspotter Interface

T.10.036	
2 OVERHEAD MONITORS WITH MICRO II CONSOLE	
APR 28th 2017	



SECTION 12

SYSTEM FIRST START-UP

INSTALLATION MANUAL

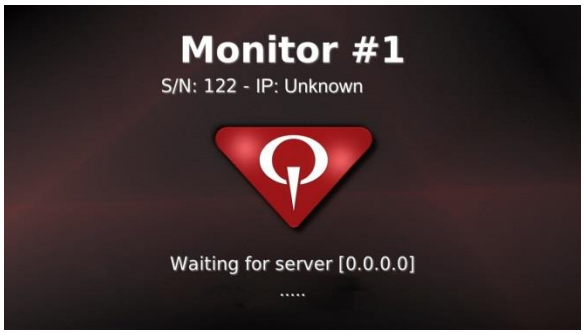
12.1 - System first start-up procedure

The 4HD/5HD-CPU unit is addressed form the ConquerorPRO LANE SETUP section. Enter the serial number of every single 4HD/5HD-CPU into the ConquerorPRO LANE SETUP section (serial numbers can be read on the lane monitors during the booting of the lane).

Once the hardware of the BES X system has been correctly installed, as described above in this manual, follow these steps in order to configure ConquerorPRO with the new scoring system.

For a new installation follow this procedure:

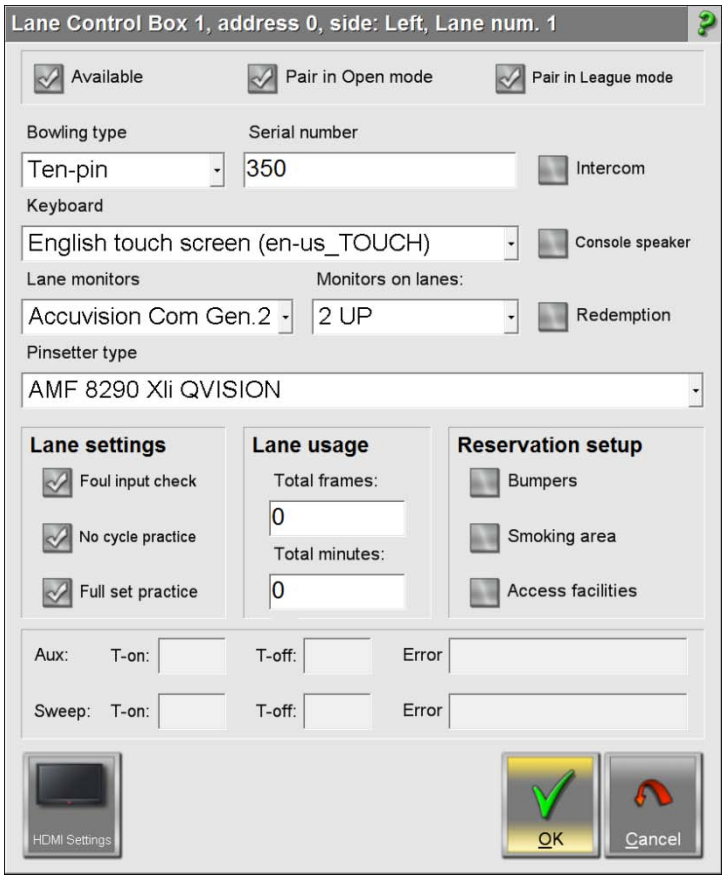
1. Turn on the 4HD/5HD-HUB units, plugging the power cord to the power source;
2. On the monitor will appear the following picture, please take note of the SERIAL NUMBER (S/N).



3. Now on the front desk computer go to the ConquerorPRO main menu: **Setup / Technical Setup / Lane Setup**

4. In the Lane Setup screen select the lane where the serial number of the 4HD/5HD-CPU unit have to be set up and click on "**Modify**"

5. Enter the serial number of the 4HD/5HD-CPU. Set also the number of the monitors, the pinsetter interface, the keyboards type and all other desired options (refer to the "**12.2 – Lane setup parameters screen brief description**" paragraph for a brief description of each parameter); click on the "Ok" button when finished.



6. Repeat the procedure from the step 4 for each pair of lanes installed.
7. On the LANE SETUP screen click on the "Save" button. Now ConquerorPRO will restart.
8. Now each lane will restart within five minutes.
9. Wait until the following picture appear on the lane monitors.
   NOTE: Depending on which version of ConquerorPRO has been installed in the center, the picture visualized on the lane monitors could be one between the two following pictures:

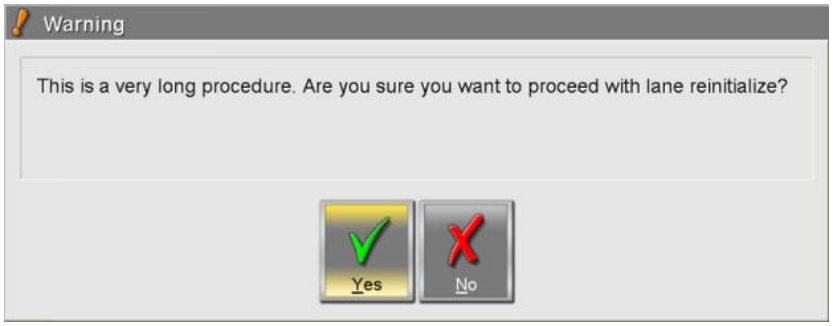
10. In ConquerorPRO go to the ConquerorPRO main menu: **Setup / Technical Setup / Upload to lanes**

11. Click on the “Lanes selected” box.

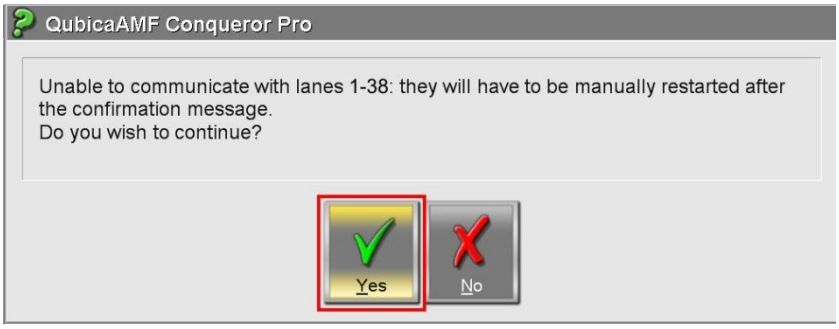
12. In the screen that appears select all the lanes that have to be reinitialized.
13. Click on the “OK” button.

14. On the “Upload to Lanes” screen click on the “Reinitialize” button.

15. Click on the “Yes” button on the Warning message that appears.



16. Click on “Yes” on the confirmation message that appears.



17. The Reinitialize procedure will now start. **NOTE:** This procedure will take more than an hour to finish. DO NOT switch off the BES X system during the Reinitialization process.
18. Now the ODD overhead monitor will turn off (or will display a black screen, or will display the message “no signal”, depending on the model of the monitor) while the monitor on the EVEN lane will display different text rows. The last text row on the even lane monitor will be “system halted”.

19. Within five minutes (from the “system halted” message) each pair of lanes will restart automatically, or each pair of lanes can be restarted manually by unplugging and plug back the power cord of the 4HD/5HD-HUB.
20. After this restart the Reinizialization process will continue.
21. When the Reinizialization process will finish, the system will boot up.
22. If on the lane monitors appear the error number 203, the problem could be the wrong pinsetter parameters.
23. In any case (whether if the lane stops in error 203 or if the lane boot correctly) set up the correct pinsetter parameter in ConquerorPRO.
24. In ConquerorPRO go to the ConquerorPRO main menu: **Setup / Technical Setup / Pinsetter and Camera**

25. In the window “select the destination lane” choose the first lane where you must load the parameters and press OK.

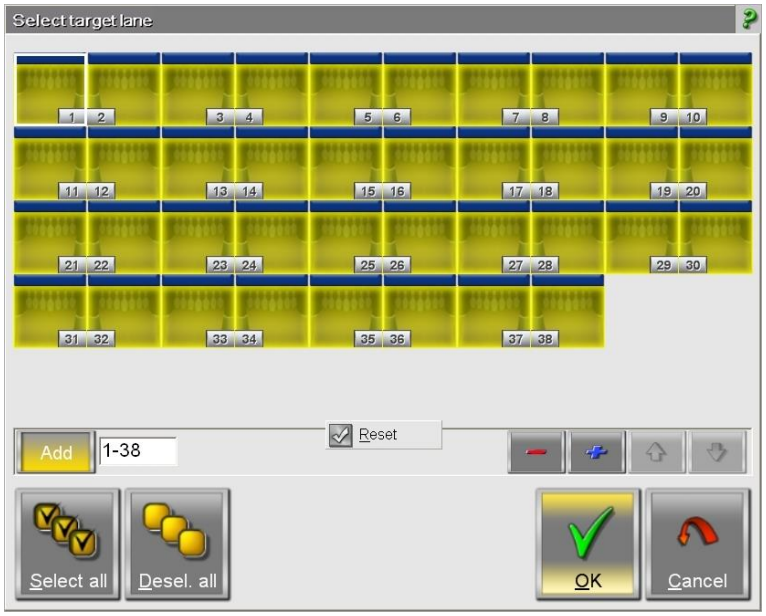
26. Press the Defaults button in order to load the standard values.

27. Once the default values have been loaded, press the Send button to load them on to the 4HD/5HD-CPU.

28. When prompted to Reset the Lane Control Box press NO.

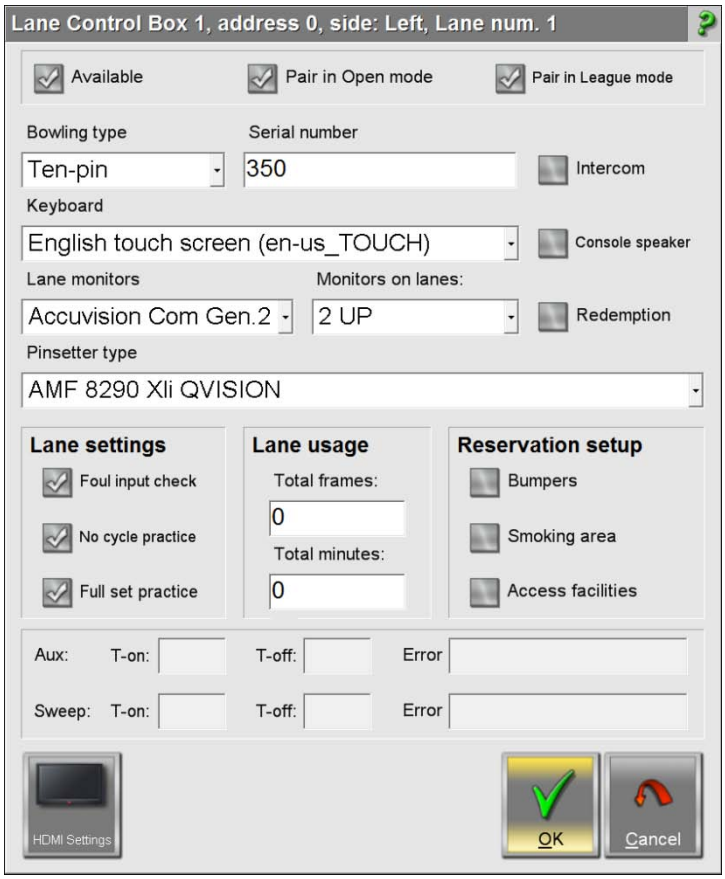
29. Now press the Copy to button in order to load the values on all the lanes that have the same pinsetter and interface type.

30. Select the target lanes, enable the Reset option and press OK.



31. When the parameters have been uploaded the system will reboot.
32. In the case of SuperTouch LCD monitors have been installed, they will start to load the programs.
33. During the load programs procedure on the SuperTouch screens will be displayed an image with a blue background. This means that the procedure is in progress. If an error occurs an image with a red background will be displayed and the procedure will stop. If the procedure ends correctly on the SuperTouch monitors will be displayed an image with a green background, then after a few seconds the system will reboot.
34. Once all the lanes are up and running, upload the animations to the lanes. Please refer to the section "**12.3 – How to Upload animations to the 4HD/5HD-CPU units**".

12.2 - Lane setup parameters screen brief description



Available: Uncheck this option if the lane is not available (when the 4HD/5HD-CPU serves a single lane instead of a pair of lanes).

Pair in Open mode: allow to open the lane in pair mode in the all lane screen.

Pair in league mode: allow to open the lane in pair mode from the league software.

Bowling type: specify the bowling type for the lane (Ten-pin, five-pin, duckpin, Candlepin, Highway 66).

Serial number: Insert here the serial number of the 4HD/5HD-CPU operating on this pair of lanes (or lane).

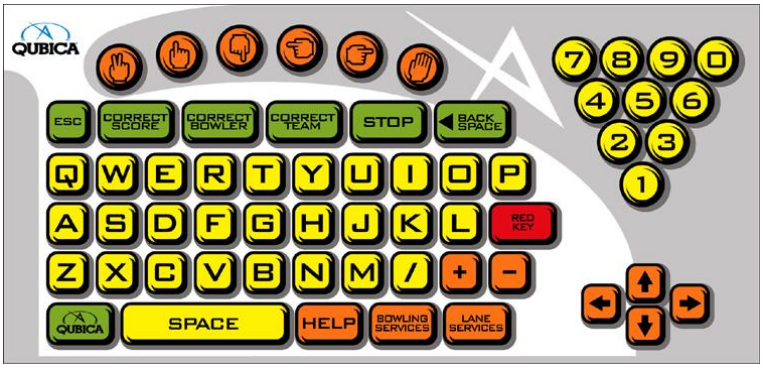
Intercom: enables the intercom on this lane. **NOTE:** Check (enable) this option **ONLY** if has been purchased and installed a Q-COM system.

Keyboard: select the specific model of keyboard console installed on this lane.

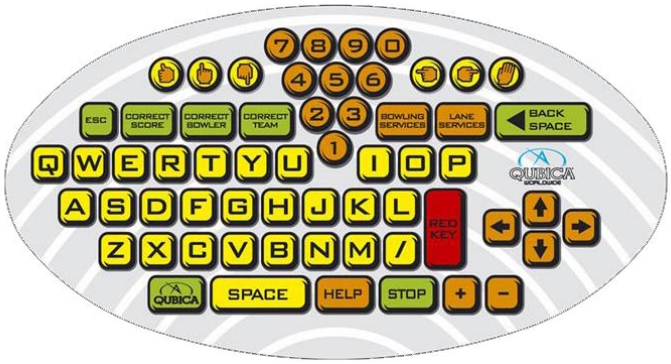
The available selection are:

- NONE: no consoles are installed on the lanes;

- English rectangular (en-us_001_001):

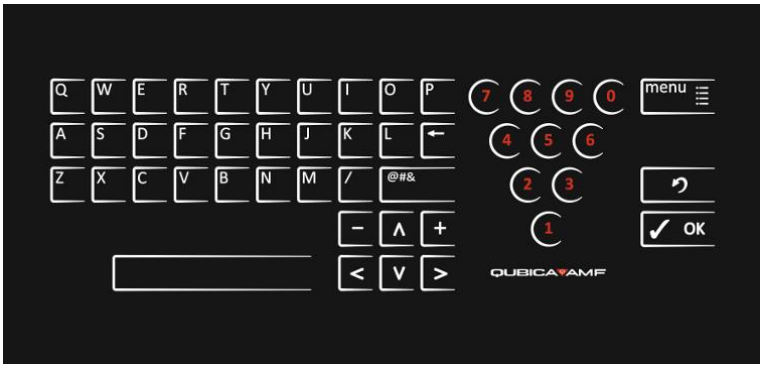


- English oval (en-us_004_001):



- Universal 2008 (en-us_008_001):

- Universal 2012 (en-us_009_001), Chinese 2012 Backlight (en-us_009_001) and Eastern Europe 2012 Backlight (en-us_009_001):

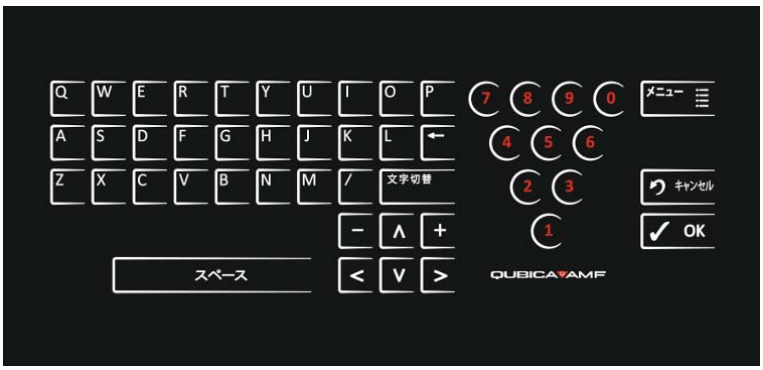


- Japanese rectangular (ja_002_001):

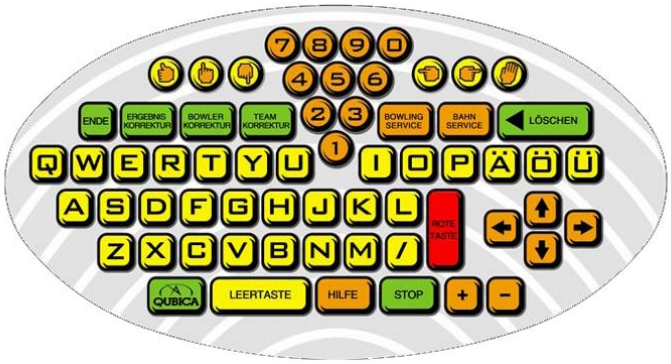
- Japanese oval (ja_005_001):

- Japanese 2008 (ja_008_003):

- Japanese 2012 Backlight (ja_009_003):



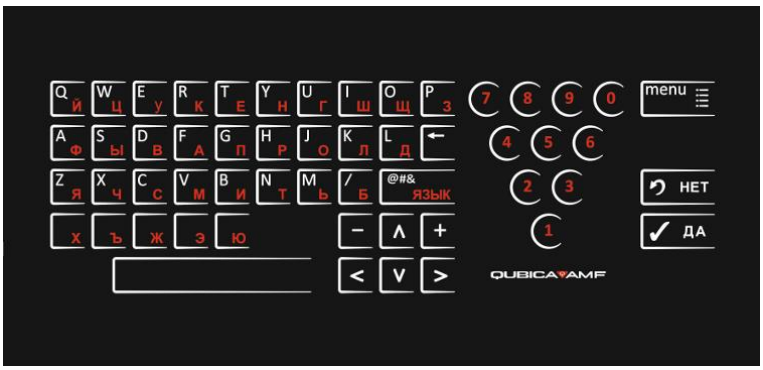
- German oval (de-de_006_001):



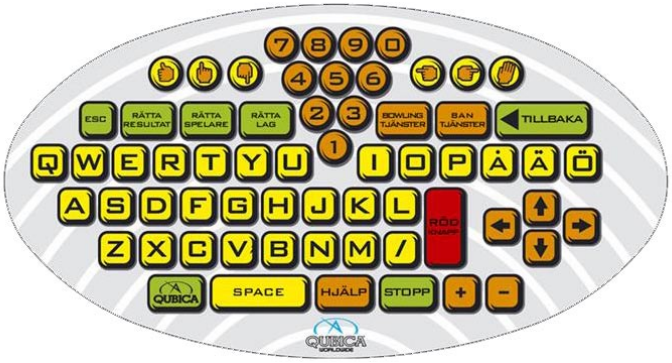
- Russian oval (ru_007_001):

- Russian 2008 (ru_008_002):

- Russian 2012 Backlight (ru_009_002):



- Swedish oval (sv-se_006_001):



- English touch screen (en-us_TOUCH) and Chinese touch screen (en-us_TOUCH): SuperTouch console with English language.
- Japanese touch screen (ja_TOUCH): SuperTouch console with Japanese language.
- German touch screen (de-de_TOUCH): SuperTouch console with German language.
- Russian touch screen (ru_TOUCH): SuperTouch console with Russian language.
- Eastern Europe touch screen (ru_TOUCH): SuperTouch console with Russian language.

Console speaker: Not used.

Lane monitors: Specify the model of the overhead monitors connected to the serial control cable or IR control cable to the 4HD/5HD-CPU. If the monitor is not supported select QUBICA STANDARD.

Monitors on lanes: Specify how many overhead monitors ("UP" monitors) and how many touch screen monitors ("DOWN" monitors) are present in the pair of lanes:

- 2 UP: two overhead monitors and no SuperTouch console.
- 2 UP – 1 DOWN: two overhead monitors and one SuperTouch console per pair of lanes.
- 2 UP – 2 DOWN: two overhead monitors and one SuperTouch console per lane.
- 3 UP: three overhead monitors and no SuperTouch console.
- 3 UP – 1 DOWN: three overhead monitors and one SuperTouch console per pair of lanes.
- 3 UP – 2 DOWN: three overhead monitors and one SuperTouch console per lane.
- 2 DOWN: no overhead monitors present and one SuperTouch console per lane.

Redemption: Enables the Redemption.

Pinsetter type: Specify the pinsetter model and the pinsetter interface installed on this lane.

Lane settings: these selections enables the option in the lane options.

Lane usage: these are counters for the lane usage.

Reservation setup: specific information for the reservation module.

Aux and Sweep: TCS setup parameter.

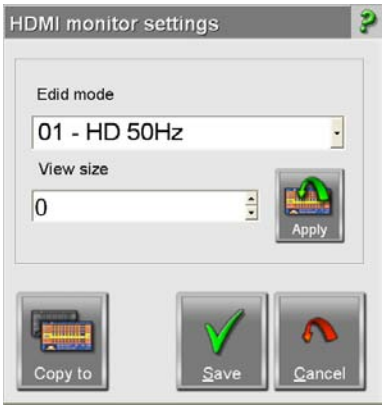
HDMI Settings button:

This button have to be used in two cases:

1. the monitor connected to the 4HD/5HD-CPU will not show at all the image, experiencing a monitor message saying "NOT SUPPORTED" or " NOT AVAILABLE" or a similar message, as not all the monitors support all the HDMI video resolutions. In order to fix this issue you can use the EDID mode option explained below.

2. the monitor connected to the 4HD/5HD-CPU will show an image but it does not properly fit on the screen and on the monitor there is no option to adjust the image. In order to fix this issue you can use the “View size” option explained below.

Once you click on the HDMI Settings button you will see the following window where you have two options:



EDID MODE

The “EDID mode” will give you the possibility to select four different mode for the HDMI video output, these are:

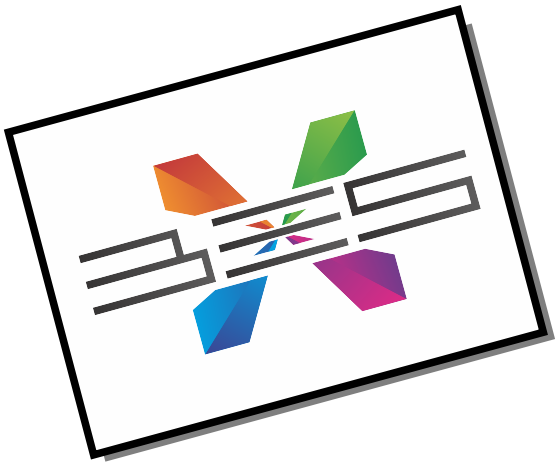
1. HD 50 Hz;
2. HD 60 Hz;
3. HD Scaled 50 Hz;
4. HD Scaled 60 Hz.

By default the mode is set to 1. HD 50Hz, but as explained above in case the monitor give you the message “not supported” you can try to change it to another mode, save it and restart the pair of lanes to see if you get the image displayed. THE SUGGESTED RESOLUTION ARE “HD – 50Hz” or “HD 60Hz”.

Every time you make a change you have to restart the lanes to see the change applied. You can restart the lane from the upload to lanes screen by clicking on the “Reset” button.

VIEW SIZE

The “View size” option give you the possibility to resize the image in case the monitor doesn’t have any option of auto resize (that we require for compliance with our system, normally called “just scan” or “screen fit” but this name change in case of different monitor brand). The view size value must be in a range from 0 to 200, after any chance of this value click on the Apply button to apply the changes in real time. This functionality does not require a restart of the lanes.



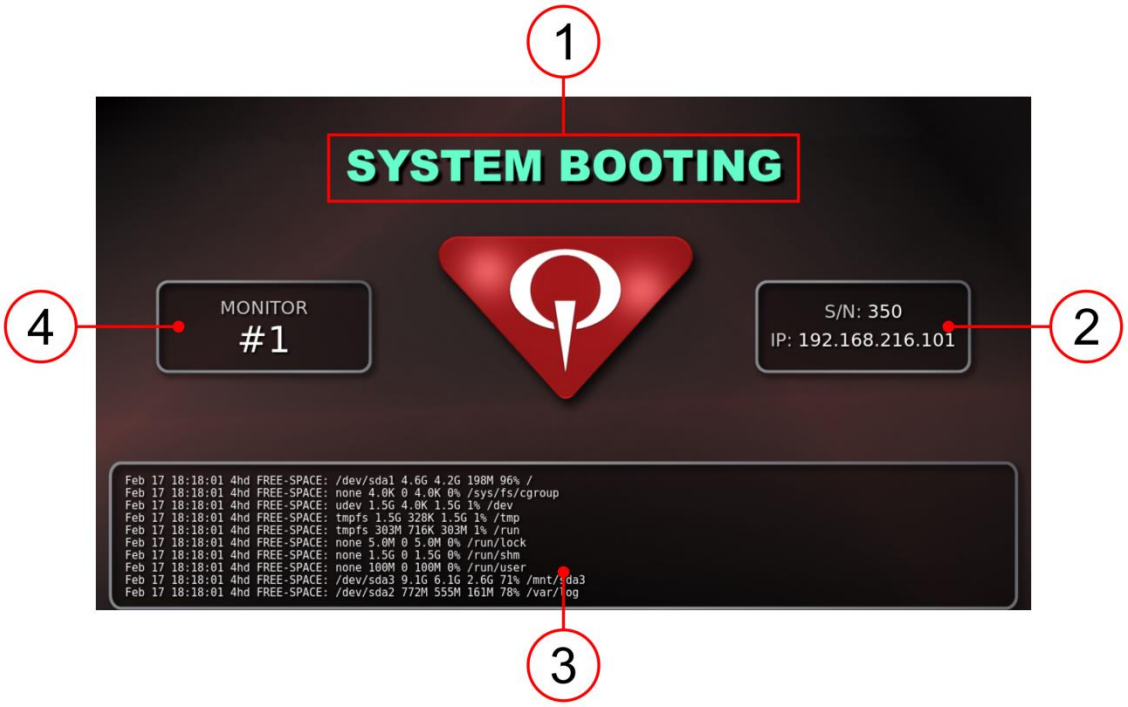
SECTION 13

SYSTEM BOOT UP SEQUENCE

INSTALLATION MANUAL

13.1 - Boot-up screen description

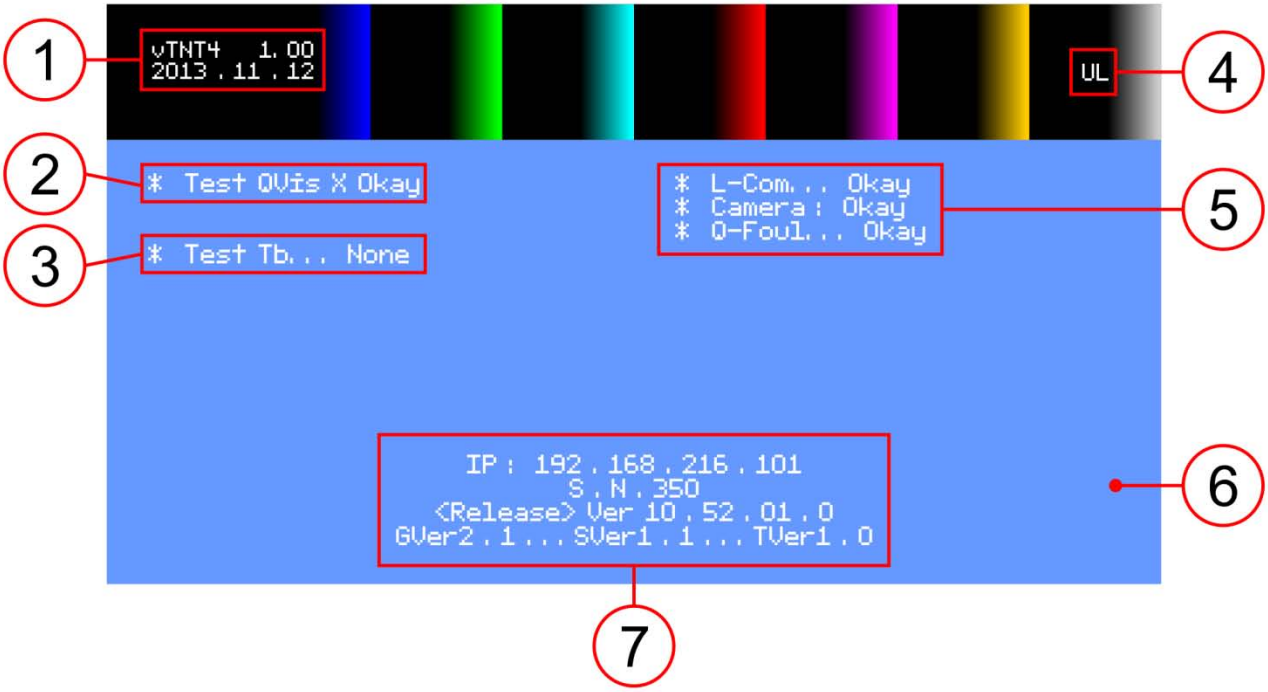
During the boot-up of the system, it will be displayed the following picture (note that this picture is only an example):



This is an example of the boot-up screen that is displayed on the lane monitors during the boot-up sequence of the BES X system.

1. In this part of the screen there will be written the boot-up process information (“system booting”, “please reinitialize the system”, etc.);
2. In this square there will be written the serial number (S/N) of the 4HD/5HD-CPU and the IP address assigned to that unit.
3. In this area there will be displayed the operations performed by the system during the boot-up process.
4. In this area there will be displayed the monitor number. **NOTE:** this is NOT the lane number, but the number for the monitor of that pair of lane, so the monitor on the odd lane is always 1 and the monitor on the even lane is always 2.

After this process, the boot-up of the system is not completed and, if the system is not requesting for a reinitialize or a program upload, the screen changes as in the following picture:



1. vTNT software version/date.
2. L-COM main device test. The L-COM main device test result will be displayed in this row. If the particular device works properly, the result of this test will be "*Okay*", alternatively an error code will be displayed and the entire boot of the 4HD/5HD-CPU will stop. Each main device will be displayed with a different code:
   - *Test QVis-X*: QVision camera connected to an AMF XL/XLi series pinspotter.
   - *Test QVis-Q*: QVision camera connected to an AMF non XL/XLi series pinspotter.
     - *Test FBox*: this test will be displayed under the *Test QVis-Q* row only if an FBox pinspotter interface has been installed and configured.
   - *Test QAll-X*: this test will be displayed if an MVision camera with an ALL/XL pinspotter interface has been installed with AMF XL/XLi series pinspotters.
     - *Test TV*: This test will be displayed under the *Test QAll-X* row to test the presence of the MVision camera.
   - *Test TV*: This test will be displayed if a TVision camera with FBox or Six pinspotter interface has been installed.
     - *Test FBox*: this test will be displayed under the *Test TV* row only if a TVision camera with an FBox pinspotter interface has been installed and configured.
   - *Test QAll-o*: QBK-Corde pinspotter interface (string machine interface).
   - *Test QAll-m*: ALL pinspotter interface, for Mendes MM2001, ME90 or Qubica MAG3IT, TMS pinspotters.
   - *Test QAll-s*: ALL-GS pinspotter interface, for Brunswick GS series pinsetters (not NEXGEN).
   - *Test QAll-g*: ALL pinspotter interface, for Brunswick GS X NEXGEN series pinsetters.
3. Terminal board test: the test result of the terminal board connected to the 4HD/5HD-CPU unit will be displayed in this area. If there are no terminal boards installed, the result of this test will be "*None*" and the boot-up of the 4HD/5HD-CPU unit will continue as usual. If the particular device works properly, the result of its test will be "*Okay*", alternatively an error code will be displayed and the entire boot of the 4HD/5HD-CPU will stop. Every different type of terminal board is displayed with a different code:

- *Test 4HD-TB on L4*: 1 wired console with keypad is connected to the L4 port of the 4HD/5HD-HUB unit (one per pair).
- **ONLY WITH 4HD-HUB REV.2:** *Test Tb on D2*: 1 wired console with keypad is connected to the D2 port of the 3QT unit (one per pair).
- **ONLY WITH 4HD-HUB REV.2:** *Test TbQir on D2*: 1 infrared receiver is connected on the D2 port of the 3QT unit.
- **ONLY WITH 4HD-HUB REV.2:** *Test TbQir on D1 & on D2*: 2 infrared receivers are connected to the D1 and to the D2 port of the 3QT unit.

4. Monitor video output:
   - *UL*: Upper Left (odd lane).
   - *UR*: Upper Right (even lane).
5. If the particular device works properly, the result of its test will be "*Okay*", alternatively an error code is displayed, and the entire boot of the 4HD/5HD-CPU will stop.
   - *L-COM*: test of the entire L-COM line integrity.
   - *Camera*: test of the connection between the camera and the camera board.
   - *Q-Foul*: the Q-Foul (or Radaray on AMF XL/XLi series pinspotters) device is connected to the system.
   - *M-I/O*: an EDC unit is connected to the L-COM.
6. The background color of this part of the screen indicates if the 4HD/5HD-CPU unit is able to communicate with the front desk. The background color can be as follows:
   - *Red*: The 4HD/5HD-CPU unit does not have a valid IP address, so it is not able to communicate with the front desk.
   - *Blue*: The 4HD/5HD-CPU unit is able to communicate with the front desk.
7. In this area additional information regarding the 4HD/5HD-CPU software is displayed:
   - First row: IP address assigned to the 4HD/5HD-CPU unit.
   - Second row: Serial number of the 4HD/5HD-CPU unit.
   - Third row: Version of the scoring software.
   - Fourth row:
     - *GVer*: Grids version.
     - *Sver*: Spare finder version
     - *TVer*: TNC (animations) versions

13.2 - Error list

All of these errors are displayed on the interested pair of lanes icons as **BOOT XXX** (where "XXX" indicate the error number).

4HD-HUB initialization error:

Error 160	VTNT does not communicate with the 4HD-HUB unit (1)
Error 161	VTNT does not communicate with the 4HD-HUB unit (1)
Error 162	VTNT does not communicate with the 4HD-HUB unit (1)
Error 163	VTNT does not communicate with the 4HD-HUB unit (1)
Error 164	4HD-CPU for "MMS only" used for scoring system (2)
Error 65535	Missing file in the CPU internal memory (1)

Consoles:

Error 151	One EasyKey console has been installed with the 286-002-819 speaker cable, while the other EasyKey console has been installed with the 286-002-824 speaker cable.
Error 190	No communication with the Console (3)
Error 191	Console program check Fail (4)
Error 192	Console program check Fail (4)
Error 193	Console program check Fail (4)
Error 194	Console program check Fail (4)
Error 195	Console program check Fail (4)
Error 196	Console program check Fail (4)
Error 197	Console program check Fail (4)
Error 198	Console program check Fail (4)
Error 199	Console detected but not entering in Run mode (5)

Test TV / Q-Vis / Q-All Error Number:

Error 200	No communication with the master LCOM device (6)
Error 200/1	Unexpected communication character (6)
Error 200/2	Wrong character communicating with the master LCOM device (6)
Error 200/3	The master LCOM device seems okay (6)
Error 200/4	Six seems okay (6)
Error 200/5	Six communication fail (6)
Error 201	Wrong char on master LCOM device Bin file (6)
Error 202	Master LCOM device communication failure (6)
Error 203	Camera Fail Check. If there is a camera on each lane, the problem is with the camera of the Left lane (7)
Error 204	Check Camera Lane Right Fail (7)
Error 205	Master LCOM device communication failure (6)
Error 205/XX	Master LCOM device may not be properly programmed (6)
Error 206	Wrong header on master LCOM device Bin file (6)
Error 208	Impossible to communicate with F-Box (8)
Error 209	Old F-Box version (Version 1.0) (9)
Error 210	T-Vision hardware not compatible (10)
Error 211	F-Box strike time not valid (11)

LCOM Test:

Error 212 The 4HD/5HD-CPU is not able to get a reply from the main L-COM device (1)

Runtime error:

All the following errors are scoring software errors and have to be reported to QubicaAMF

Error 900 Internal Error (1)

Error 901 NexOS Version Error (1)

Error 902 Internal Error on score initialize (1)

Error 903 Internal Error (1)

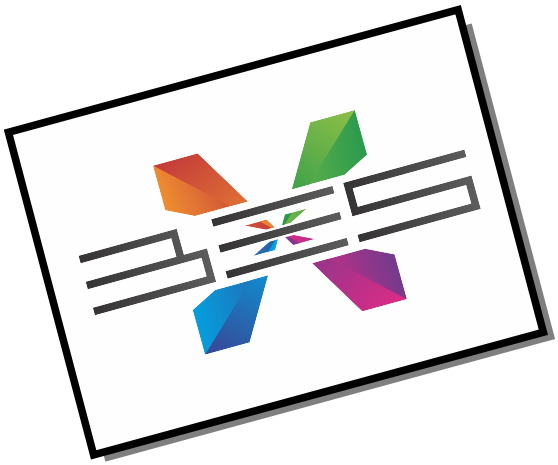
Error 904 Internal Error on video initialize (1)

Error 905 Internal Error on score initialize (1)

Error 906 Internal Error on score malloc (1)

Error 907 Internal Error on score exception (1)

(1) Manually restart the 4HD/5HD-HUB.
(2) The 4HD-CPU is either a wrong unit (for MMS only) or it is faulty. The unit has to be replaced.
(3) The SuperTouch console has not been detected during the startup of the VTNT.
(4) Upload programs to the lanes.
(5) This error can appear when the SuperTouch has been replaced or when the console has been detected but it did not enter in Run state. Reinitialize to the lanes.
(6) Manually restart the 4HD/5HD-HUB. If the problem persist try to upload programs to the lanes. In the case that the problem has not been solved please refer to the "**6.3 – Solving problems on the LCOM line**" procedure in the "**BES X installation manual**".
(7) The T-Vision / Q-Vision board is not able to work with the camera. Usually the problem is in the wiring between the board and the camera. If the problem persist contact QubicaAMF authorized support.
(8) The lane configuration needs an F-Box (enhanced pinsetter interface) but it is impossible to communicate with it. In the case that the F-Box is not present, check the Pinsetter Parameters.
(9) The microprocessor on the F-Box as an old version loaded on it and the lane cannot be configured to handle the strike signal.
(10) Internal errors that should be reported to QubicaAMF. To restart the program manually restart the 4HD/5HD-HUB.
(11) Check pinsetter and camera parameters of both the lanes of the pair.



SECTION 14

HOW TO

INSTALLATION MANUAL

14.1 - How to turn on/off the pair of lanes

QubicaAMF suggest to turn off the scoring system every night to save power.

14.1.1 -Turning ON the system.

This is the procedure to follow in order to turn on the system in the mornings for BES X Scoring systems:

- Turn on Front-desk 1 / Terminal 1;
  If a separate server is present it should already be ON;
- Turn on overhead monitors;
- Wait until the Front-desk1 / Terminal1 boot up completely (note that in the case of ConquerorPRO backup you should wait until the end of it) then turn on the 4HD/5HD-HUB units;
- Turn on all other ConquerorPRO Front desks / Terminals.
- In case of LCD monitors controlled from the Front Desk (AccuVision, etc…) turn on the monitors from the Special Functions of the Front Desk.

14.1.2 -Turning OFF the system.

This is the procedure to follow in order to turn off the system in the nights for BES X Scoring systems:

- In case of LCD monitors controlled from the Front Desk (AccuVision, etc…) turn off the monitors from the Special Functions of the Front Desk.
- Close ConquerorPRO in all the stations;
- Turn off Front-desk1 / Terminal1;
- Accept “Execute daily task”;
  NOTE: if a separate server is present, or in the case you purchase a web-booking system the ConquerorPRO server computer should be kept on at all times;
- Turn off all the other Front desks / Terminals;
- Turn off the 4HD/5HD-HUB units from the Electronic sub-panel breakers;
- Turn off Overhead Monitors from the Electronic sub-panel breakers.

14.2 - How to boot the BES X system in emergency (in the case of a ConquerorPRO server PC crash)

If the ConquerorPRO server is down and there are either no other ConquerorPRO licensed computers available (it is not possible to convert a Front Desk 2, 3, etc…, or convert the Back Office into a ConquerorPRO server) it is possible to reboot lanes in emergency.

To boot the BES X system in emergency:

- Keep the ConquerorPRO server turned off, or disconnect the network cable from the Scoring NET network card (the secondary network card).
- Reset (turn off and on) all the 4HD/5HD-HUB units by unplugging the power units;
- The 4HD/5HD-CPU units boot without IP address, displaying a RED background on the lane monitors.

In emergency the lanes can be opened using either the lane consoles keypads (EasyKey) or LCD touch screens (SuperTouch).

14.2.1 -How to open a lane from an EasyKey bowler terminal.

To open a lane in emergency from an EasyKey bowler terminal, press the ✓ OK button and follow the sign-in procedure, explained in the "**BES X user interface Manual – EasyKey**".

14.2.2 -How to open a lane from a SuperTouch bowler terminal.

To open a lane in emergency from an SuperTouch bowler terminal, touch the screen and follow the sign-in procedure, explained in the "**BES X user interface Manual – SuperTouch**".

14.3 - How to upload programs or reinitialize the system

The program loading process requires a variable amount of time. The time is dependent on the changes being made to the current lane software.

When sending the programs to the 4HD/5HD-CPU, the ConquerorPRO program displays the status of the loading of the programs process divided into several steps. At the end of the process the ConquerorPRO program displays the success or the failure of the program upload process.

The utility can be accessed from ConquerorPRO by selecting the icon : **Setup / Technical Setup / Upload to lanes**

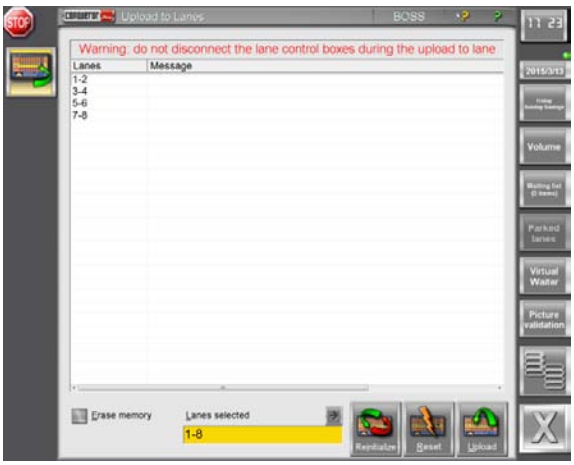
ERASE MEMORY: If this option it is selected the game will be erased and all the software into the internal memory will be recharged, so if this option it is selected the uploading programs process will be longer.

REINITIALIZE: Clicking on this field will perform a Reinitialize procedure. This process will reload the whole system on the selected lane pair. This procedure will take more than an hour to finish. DO NOT switch off the BES X system during this process.

LANES SELECTED: Clicking on this field will open a window where it is possible to select the lanes

RESET: The selected lanes will be reset.

UPLOAD: Upload programs to the selected lanes.



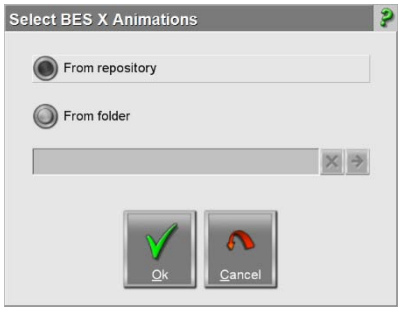
14.4 - How to upload animations to the 4HD/5HD-CPU units

- In order to upload the animations to a 4HD/5HD-CPU unit on the main menu of ConquerorPRO select: **Setup / Technical Setup / Upload Animation**.

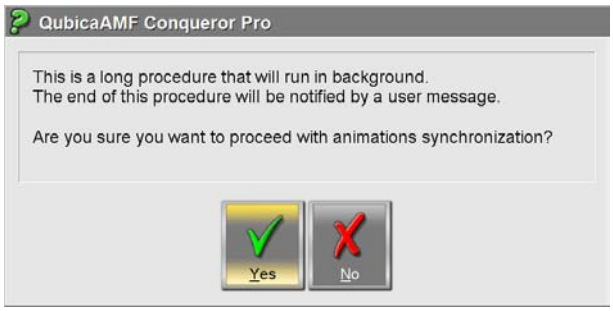
- On the UPLOAD ANIMATION screen press the Lanes Selected field.

- Select the destination lanes of the 4HD/5HD-CPU and press OK
- Click on the “Select” button.

- In the window “Select BES X Animations” select “From repository” and click on the “Ok” button.

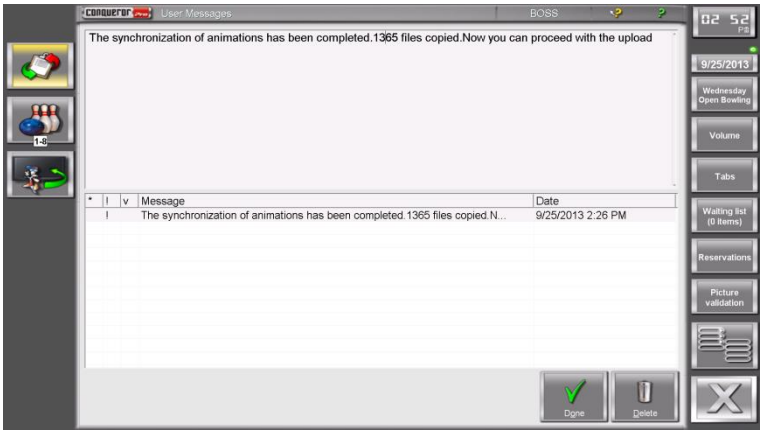


- Click on the “Ok” button on the window that appears.

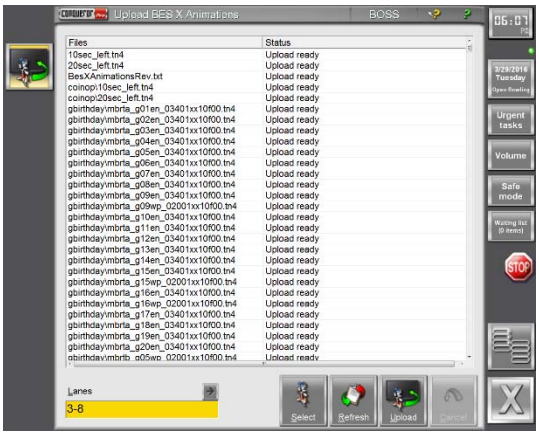


- Now the download of the animations will start.

- Once the download process is finished will appear a user message reporting the completion of the process. Click on the “Done” button.

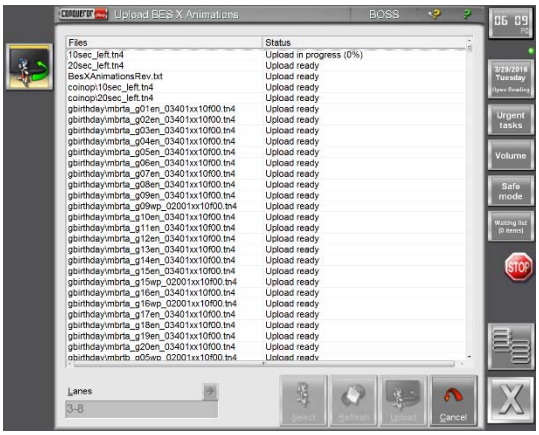


- Open the “Upload animations” screen by clicking on the icon on the left of the screen (or by selecting **Setup / Technical Setup / Upload Animation** from the ConquerorPRO main menu, if the upload animations screen has been previously closed).



- Click on the “Upload” button.

- Now the Upload animations process will start.



14.4.1 -Upload Animations buttons brief description

	**Select Button**: This function will open a selection screen named "Select BES X Animations" giving the user two choices: - **From repository**: this process will synchronize the animations present in the "Internet Update" system with the animations present on the QubicaAMF servers. When this operations finishes, or if for any reason it is not possible to connect to the QubicaAMF servers, the animations present in the "Internet Update" system will be copied to a temporary folder of the ConquerorPRO server, ready to be uploaded on the lanes. - **From folder**: This function allow to import into the temporary folder on the ConquerorPRO server the animations from any path from any ConquerorPRO client. Select the path by clicking on the yellow field. Click on the "Ok" button once the desired choice has been made.
	**Refresh Button**: this function refreshes the Upload Animations screen showing only the files present in the temporary folder of the ConquerorPRO server.
	**Upload Button**: This function sends the animations present in the temporary folder on the ConquerorPRO server to the lanes. Once an animation file is uploaded successfully, it will be automatically deleted from the ConquerorPRO server.

14.5 - How to configure the speaker and microphone for the Virtual Waiter in Windows

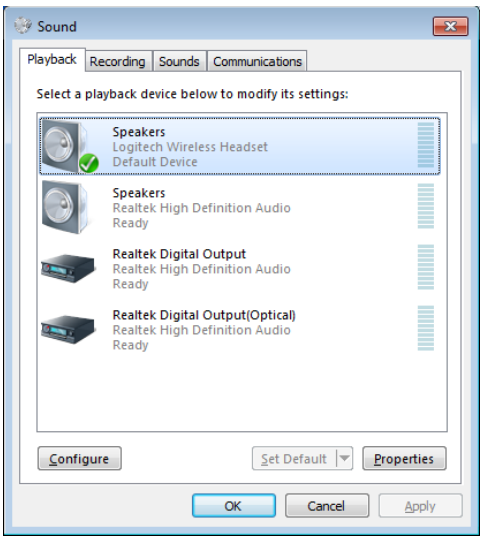
The Virtual Waiter feature to function properly needs that the hardware device used for the playback of the sound is set as the Default device and the desired audio input device is the only audio input device enabled and has to be set as the Default audio input device. All of these configurations have to be performed in "Sound" application, in the Control Panel of Windows.

Example:

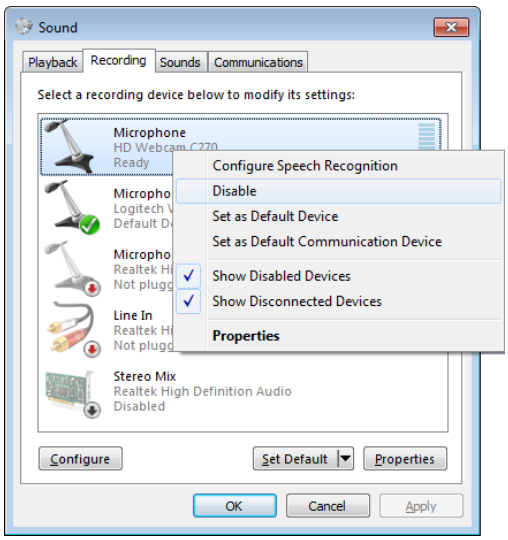
Connect and install the wireless headset on the computer as specified by the manufacturer instructions.

Once the headset is correctly installed follow this procedure:

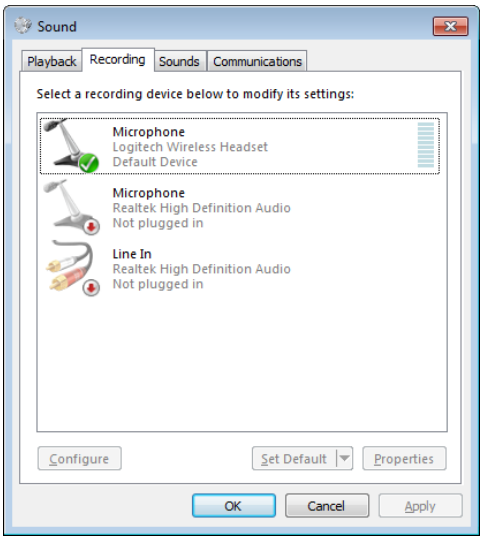
- Open Sound by clicking the Start button, clicking Control Panel and then click Sound;
- In the Playback tab select the Speakers of the installed headset (in this example we used the Logitech Wireless Headset) and click on the "Set Default" button.



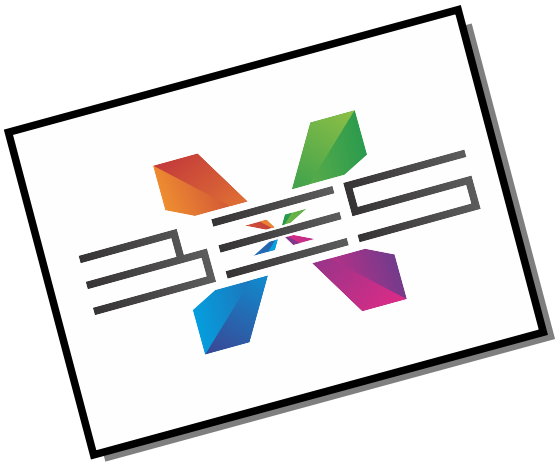
- In the Recording tab select the Microphone of the webcam (in this example we used the Logitech HD Webcam C270), right-click on it then select "Disable".



- Select the Microphone of the installed headset (in this example we used the Logitech Wireless Headset) and click on the “Set Default” button



- Click on “OK” once finished to close the Sound window.



SECTION 15

BES X DUAL MODE

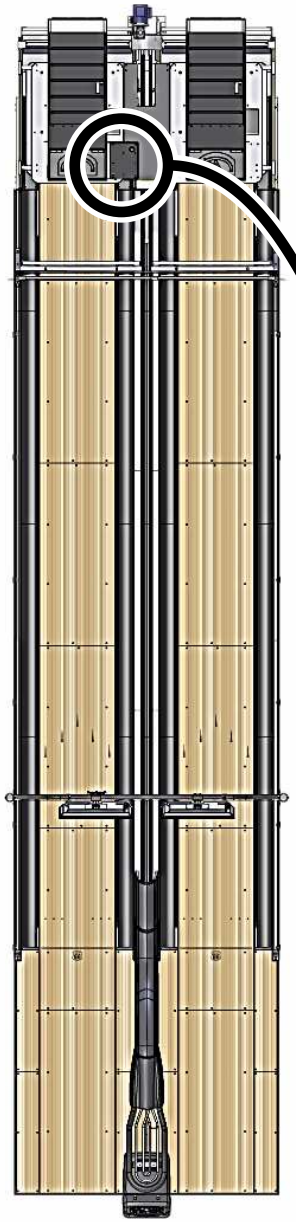
INSTALLATION MANUAL

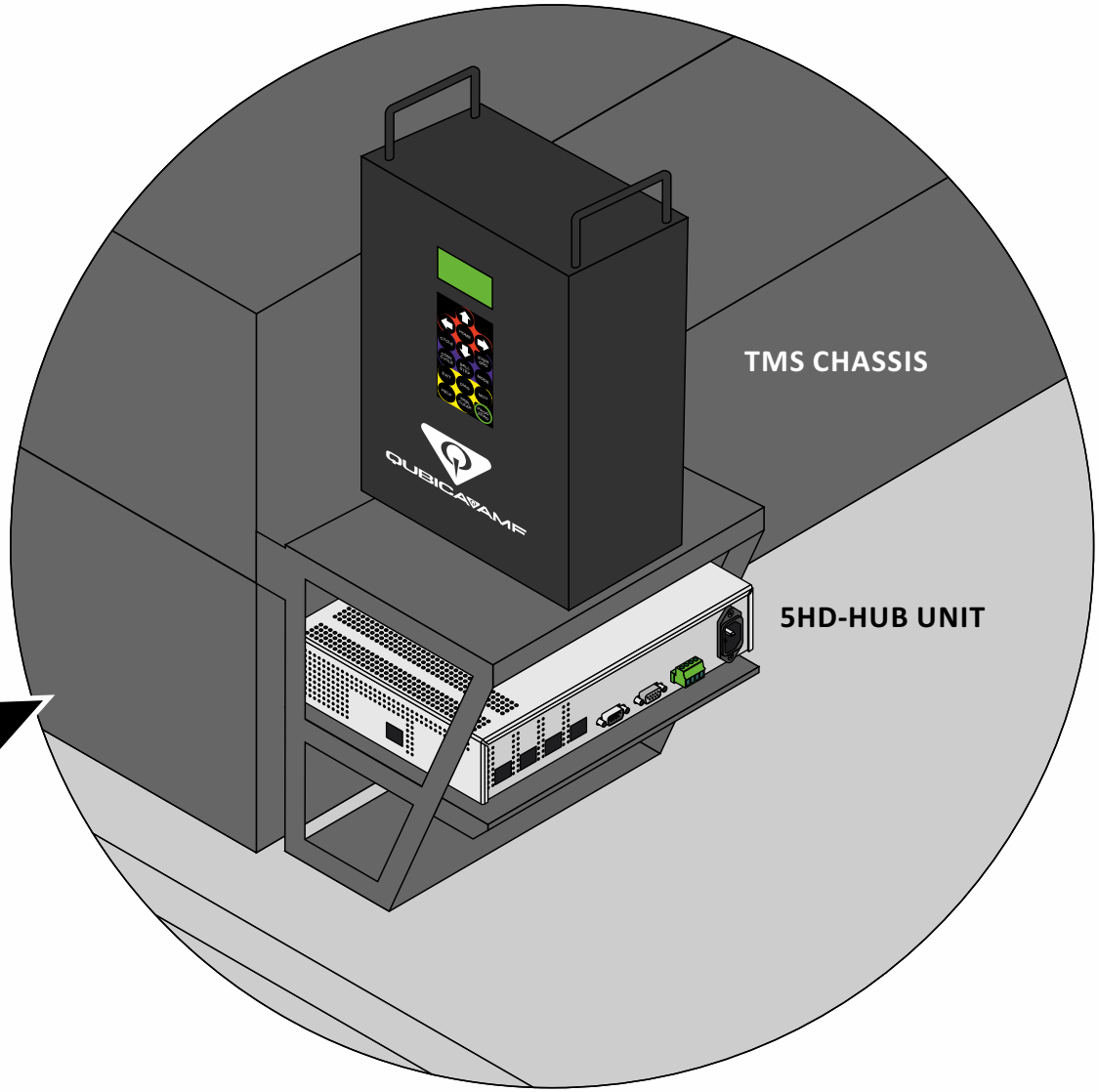
15.1 - Introduction

In this section, we will describe only the installation for the extra devices needed to interface the BES X system with a Highway66, as the installation of the BES X units is similar to a standard scoring installation and the connections between the different units are the same.

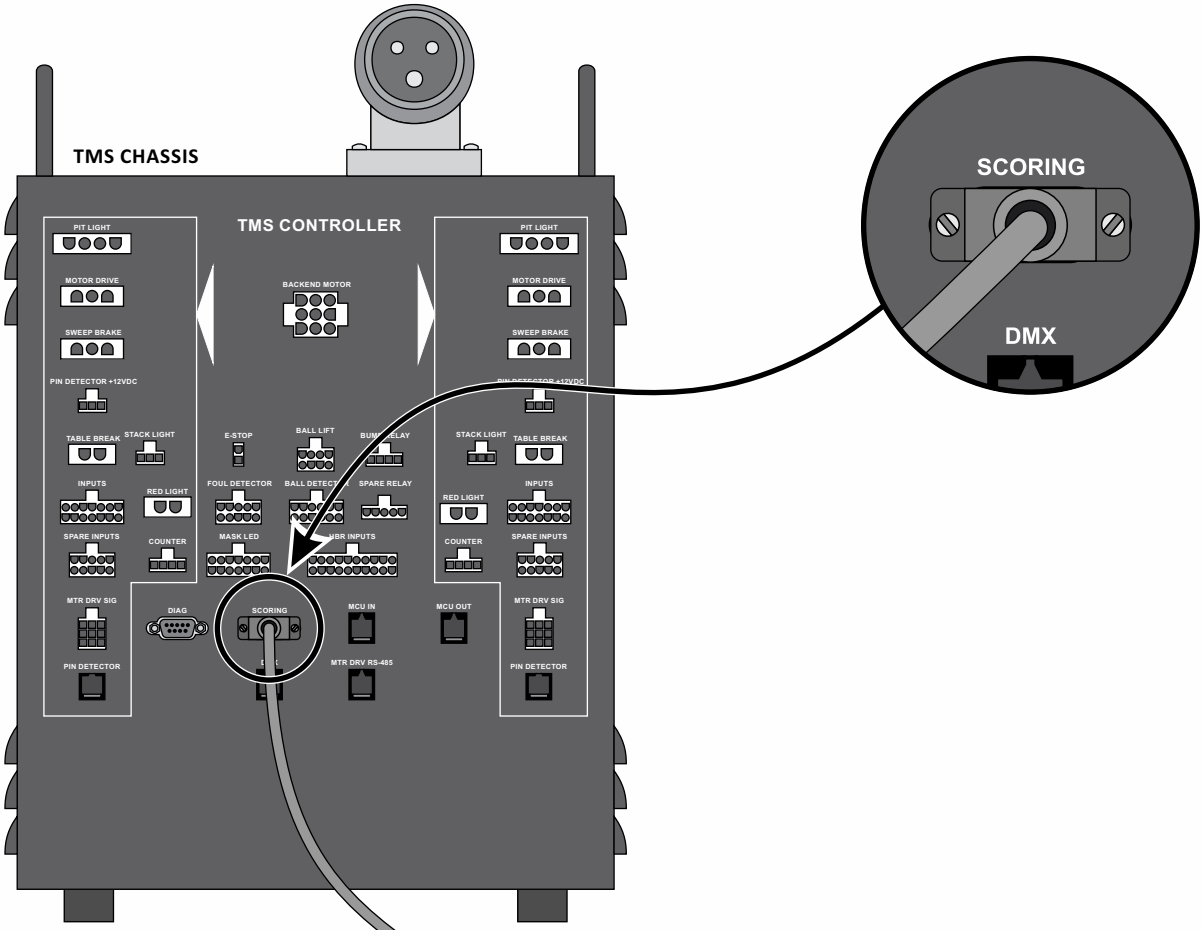
15.2 - Installation Layout

The 4HD/5HD-HUB unit has to be installed under the TMS chassis, in the support used for the chassis and the 4HD-2COM unit has to be installed under the 4HD/5HD-HUB unit, as specified in the tables "**T.90.262**" or "**T.90.250**". Please refer to the table "**T.90.251 – 4HD-2COM unit connections**" for the connections for the 4HD-2COM unit.

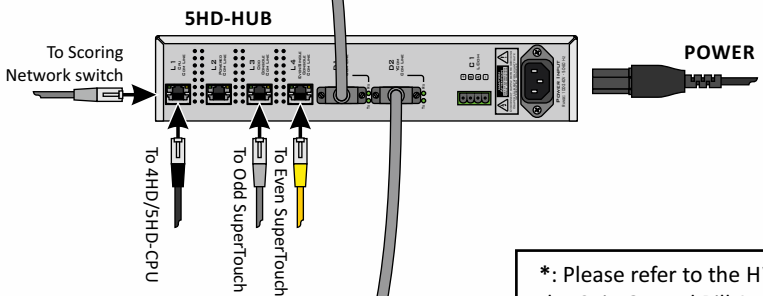




T.90.262	
TYPICAL LAYOUT WITH 5HD-HUB FOR HIGHWAY66	
MAY 21st 2018	



P/N: EC-2003-64
FROM 5HD-HUB '**D1**' CONNECTOR
TO TMS CHASSIS **'SCORING'**
CONNECTOR



*****: Please refer to the HW66 installation manual for the Coin Op and Bill Acceptor connection.

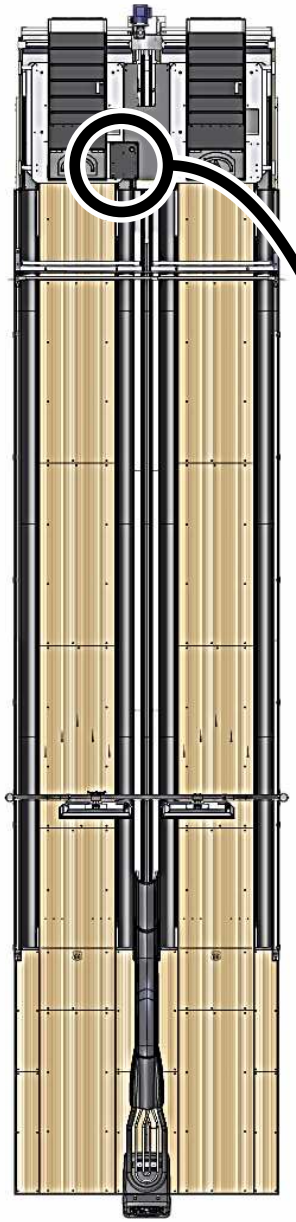
P/N: EC-2003-65
FROM 5HD-HUB '**D2**' CONNECTOR
TO I/O CONTROLLER '**D4 YCOM**'
CONNECTOR

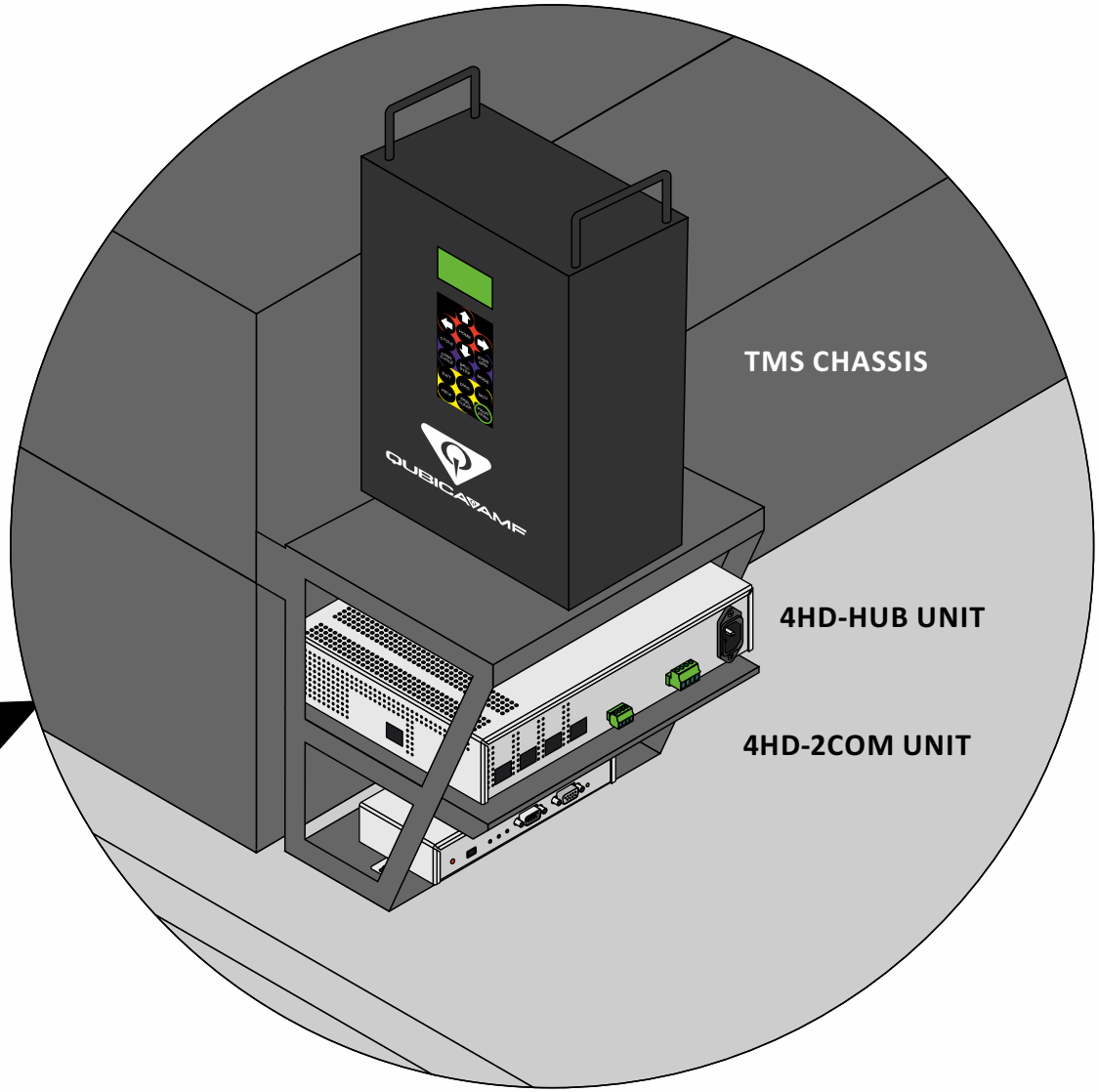
COIN OP*
BILL ACCEPTOR*
TICKET DISPENSER

T.90.263

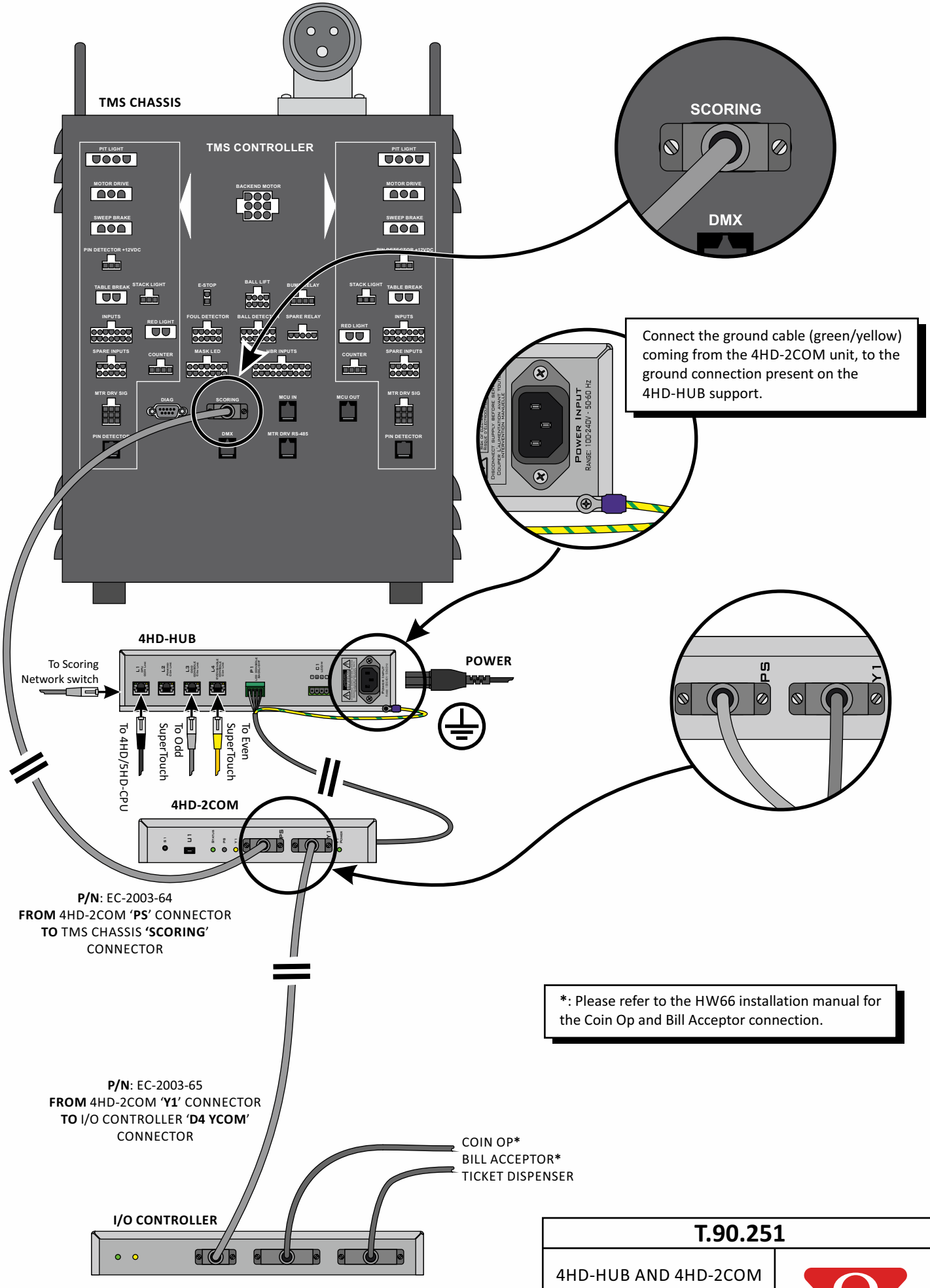
5HD-HUB CONNECTION
WITH HIGHWAY66

MAY 21st 2018





T.90.250	
TYPICAL LAYOUT WITH 4HD-HUB AND 4HD-2COM FOR HIGHWAY66	
MAY 21st 2018	



T.90.251	
4HD-HUB AND 4HD-2COM UNITS CONNECTIONS	
JAN 26th 2016	

15.3 - Software setup

Follow the procedure described in the section "**12 – System first startup**" of this manual, but apply the following modifications to the Lane Setup parameters (in ConquerorPRO):

15.3.1 - Dual Mode ConquerorPRO Lane Setup

In this sub-section we will explain only the parameters used for a correct setup for a Dual Mode installation. Refer to the section "**12.2 - Lane setup parameters screen brief description**" for further information.

Bowling type: select Highway 66.

Serial number: Insert here the serial number of the 4HD/5HD-CPU operating on this pair of lanes (or lane).

Keyboard: Select one of the following:

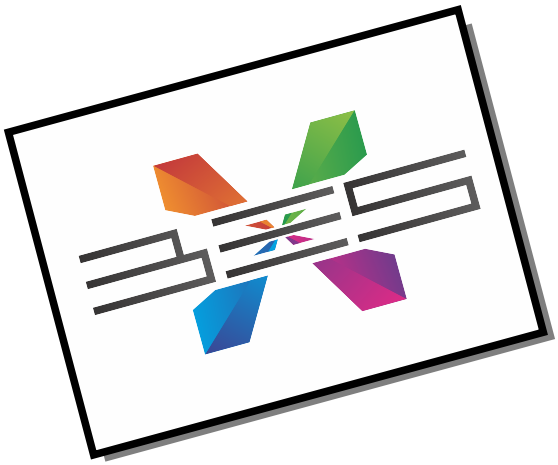
- English touch screen (en-us_TOUCH) and Chinese touch screen (en-us_TOUCH): SuperTouch console with English language.
- Japanese touch screen (ja_TOUCH): SuperTouch console with Japanese language.
- German touch screen (de-de_TOUCH): SuperTouch console with German language.
- Russian touch screen (ru_TOUCH): SuperTouch console with Russian language.
- Eastern Europe touch screen (ru_TOUCH): SuperTouch console with Russian language.

Lane monitors: Specify the model of the overhead monitors connected to the serial control cable or IR control cable to the 4HD/5HD-CPU. If the monitor is not supported select QUBICA STANDARD.

Monitors on lanes: Always select "2 UP – 2 DOWN (two overhead monitors and one SuperTouch console per lane).

Redemption: Enables the Redemption.

Pinsetter type: this field cannot be modified and is pre-set to "QAMF TMS HW66 DIRECT COM".



SECTION 16

REPLACEMENTS

INSTALLATION MANUAL

16.1 - How to replace the 4HD/5HD-HUB unit

This is the procedure to follow in order to replace a faulty 4HD/5HD-HUB:

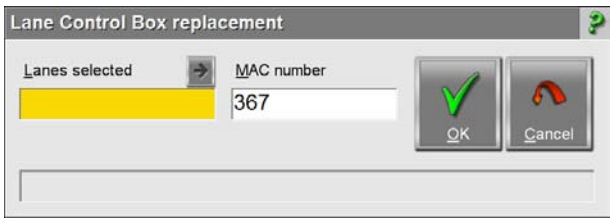
- Turn off the faulty 4HD/5HD-HUB by unplugging the power cord from the 4HD/5HD-HUB unit itself;
- Disconnect and remove the faulty 4HD/5HD-HUB unit from the wall support;
- Position and connect the new 4HD/5HD-HUB in the same way as the old one.
  Check that all the cables are connected;
- Turn on the new 4HD/5HD-HUB.

16.2 - How to replace the 4HD/5HD-CPU unit

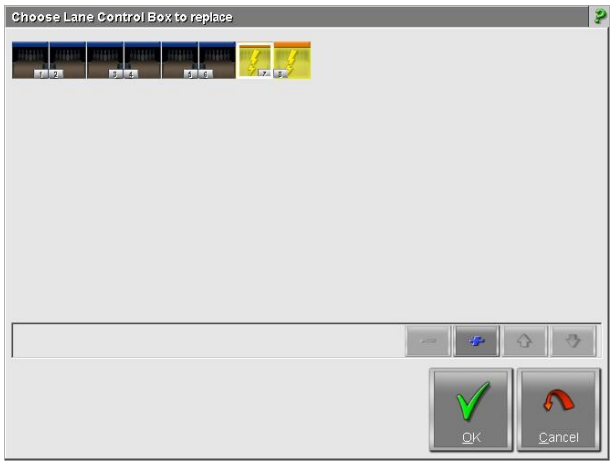
This is the procedure to follow in order to replace a faulty 4HD/5HD-CPU

- Turn off the pair of lanes where the faulty 4HD/5HD-CPU is installed by unplugging the power cord from the **4HD/5HD-HUB** unit.
- Disconnect and remove the faulty 4HD/5HD-CPU;
- Connect the new 4HD/5HD-CPU in the same way as the old one. Check that all the cables are connected;
- Turn on the pair of lanes by plugging the power cord to the **4HD/5HD-HUB** unit;
- Wait until the boot up image is displayed on the lane monitor;
- Read the serial number written on the lane monitor;
- Enter ConquerorPRO with a user allowed to operate the LANE CONTROL BOX REPLACEMENT;
- Select Setup / Technical Setup / Lane Control Box Replacement.

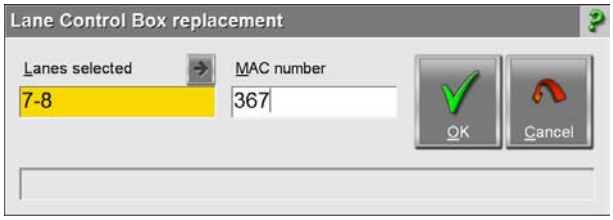
- Enter the serial number, retrieved from the lanes monitor, inside the LANE CONTROL BOX REPLACEMENT window and if necessary press the Lanes Selected field;



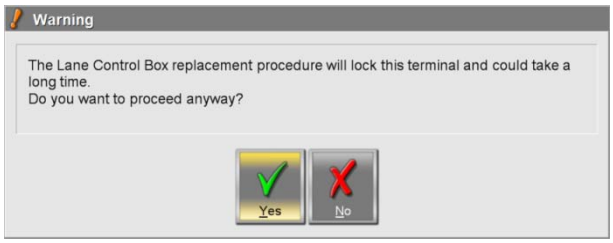
- Select the destination lanes of the 4HD/5HD-CPU and press OK;



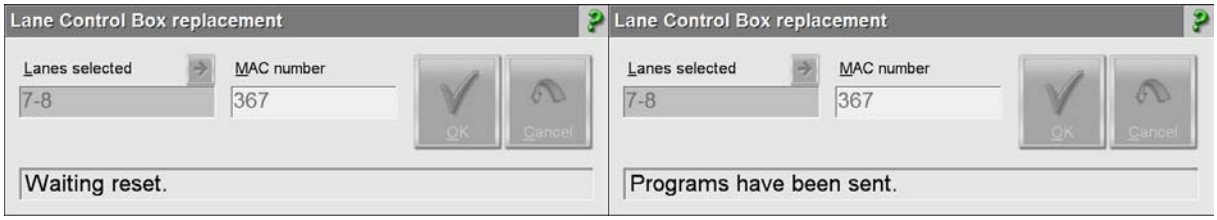
- Press OK in the LANE CONTROL BOX REPLACEMENT window;

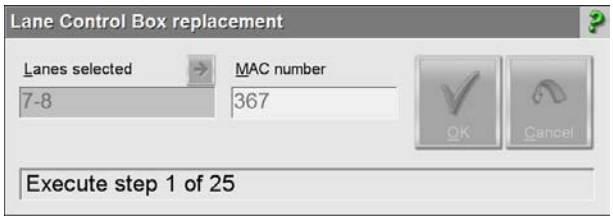


- Press YES in the Warning window that asks if you are sure you want to replace the LANE CONTROL BOX;



- Wait for the ConquerorPRO to process the request;
  NOTE: This procedure will take almost an hour to finish. DO NOT switch off the BES X system during this process.





- When the whole process is completed, a confirmation message (LANE CONTROL BOX REPLACED) will appear. Press ok to close the message box.

- Refer to the paragraph "**12.3 – How to upload animations to the 4HD/5HD-CPU units**" in order to correctly upload the animations to the new 4HD/5HD-CPU.

16.3 - How to replace an EasyKey console

This is the procedure to follow in order to replace a faulty EasyKey console:

- Turn off the 4HD/5HD-HUB by unplugging the power cord from the 4HD/5HD-HUB unit, in order to turn off the couple of lanes where the faulty EasyKey console is installed;
- Disconnect and remove the faulty EasyKey console from the pedestal;
- Fix and connect the new EasyKey console in the same way as the old one.
  Check that all the cables are connected;
- Turn on the new 4HD/5HD-HUB.

16.4 - How to replace a SuperTouch console

This is the procedure to follow in order to replace a faulty SuperTouch console:

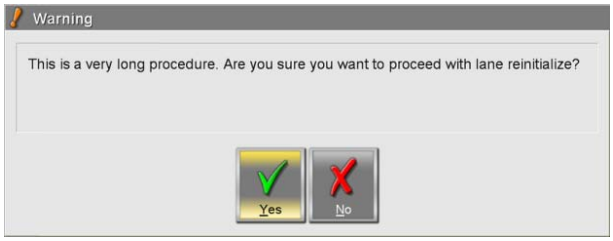
- Turn off the 4HD/5HD-HUB by unplugging the power cord from the 4HD/5HD-HUB unit, in order to turn off the couple of lanes where the faulty SuperTouch console is installed;
- Disconnect and remove the faulty SuperTouch console from the pedestal;
- Fix and connect the new SuperTouch console in the same way as the old one.
  Check that all the cables are connected;
- Turn on the new 4HD/5HD-HUB.
- Wait until on the overhead monitors will be displayed “Test LCD R Error 199” or “Test LCD L Error 199” or when the lane boot up properly.
- In ConquerorPRO go to the ConquerorPRO main menu: **Setup / Technical Setup / Upload to Lanes**

- Click on the “Lanes selected” box.

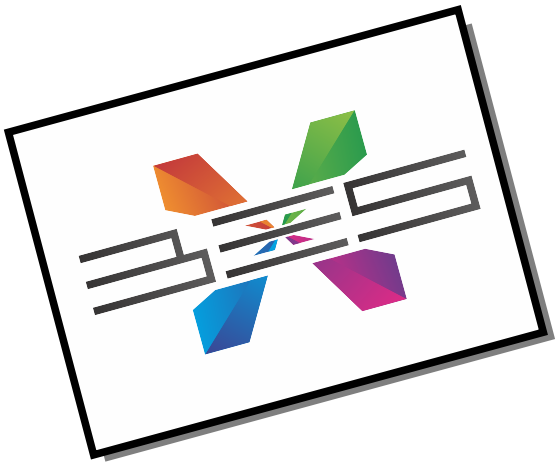
- In the screen that appears select ONLY the couple of lanes where the SuperTouch console has been replaced.
- Click on the “OK” button.

- On the “Upload to Lanes” screen click on the “Reinitialize” button.

- Click on the "Yes" button on the Warning message that appears.



- The Reinitialize procedure will now start. **NOTE:** This procedure will take almost an hour to finish. DO NOT switch off the BES X system during the Reinitialization process.
- When the Reinizialization process will finish, the system will boot up.



SECTION 17

PARTS

INSTALLATION MANUAL

5HD - HUB
PN: 288250025

4HD - HUB Rev.3
PN: 288250021

4HD - HUB Rev.2
PN: 288250018

4HD - CPU **PN: 288250017**
4HD - CPU Rev.3 **PN: 288250020**

EasyKey International **PN: 288150021**
EasyKey Russian **PN: 288150022**
EasyKey Japanese **PN: 288150023**

SuperTouch **PN: 288150024**
SuperTouch Ver.2 **PN: 288150026**

5HD - CPU **PN: 288250023**

Please visit
http://eshop.qubicaamf.com
for further information

T.90.237	
BES X PARTS	
MAY 21st 2018	