ProVation® Medical

Olympus Processor
Cabling and Configuration Guide

Wolters Kluwer
Health

NOTICE

Indications for use:

ProVation MD™ and ProVation MultiCaregiver™ applications are intended for use in the following situations:

- Create procedure documentation
- Code for supplies and medications used
- Report on procedure documentation and other administrative functions

The resulting documentation and associated images are to be used for the purpose of patient education and reference. The information and images are not to be used for diagnostic purposes.

Precautions:

ProVation MD™ and ProVation MultiCaregiver™ applications should be used as designed and documented in their respective user and configuration manuals.

Caution:

United States Federal Law restricts this device to sale by or on the order of a physician (or properly licensed practitioner).

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All information about individuals and cases contained within this documentation is hypothetical and provided for example only and does not relate to any actual case or individual. This information is offered by way of illustration and example only.

Revision Date: 12/18/2013

Olympus CV-100

Olympus CV-100 Cables

The Olympus CV-100 Processor requires 2 cables that are proprietary to Olympus.

1. Photo Cable (for RGB images, connects to video card in computer running ProVation MD)
2. Remote Digital File Cable (for image capture signal, connects to serial port on computer running ProVation MD)

Each cable comes in varying lengths, and may be extended with other non-proprietary cables. Below is a list of the Olympus part numbers and lengths of each cable. Also listed are the extension cables needed, which are purchased from Black Box Corporation, a cable manufacturer. Barrel connectors are used to connect two BNC cables together.

Olympus Photo Cable (Live video)

- 55592L4 length of 4’
- 55592L6 length of 6’
- 55592L25 length of 25’

Olympus Remote Digital File Cable (capture signal)

- 55597L6 length of 6’
- 55597L10 length of 10’
- 55597L25 length of 25’

Extension cables for Photo Cable (Part numbers from Black Box Corporation)

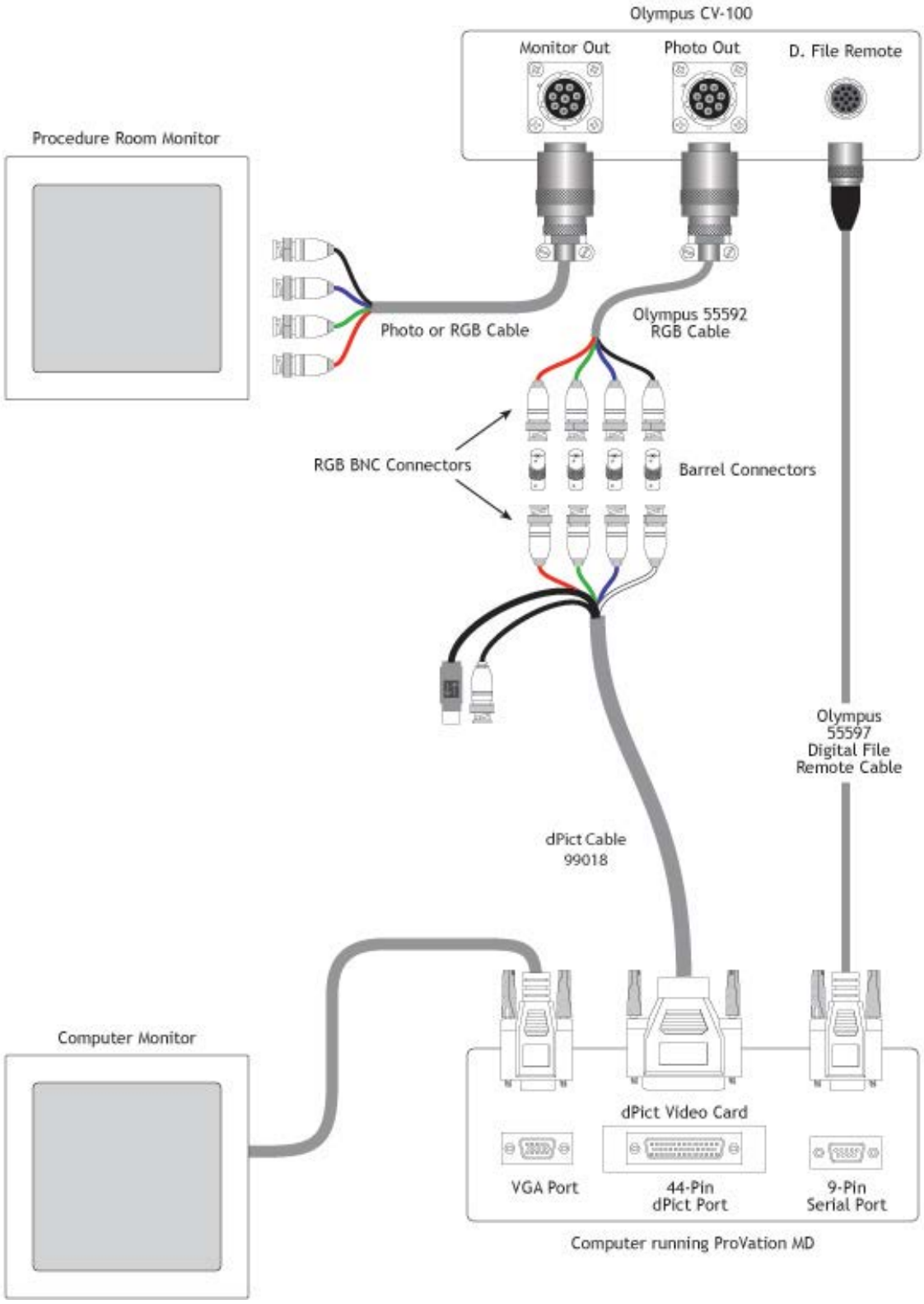
- EYNRGBS2-0010-MM length of 10’
- EYNRGBS2-0025-MM length of 25’
- EYNRGBS2-0050-MM length of 50’
- Custom cable length over 50’

Extension cables for Remote Digital File Cable (Part numbers from Black Box Corporation)

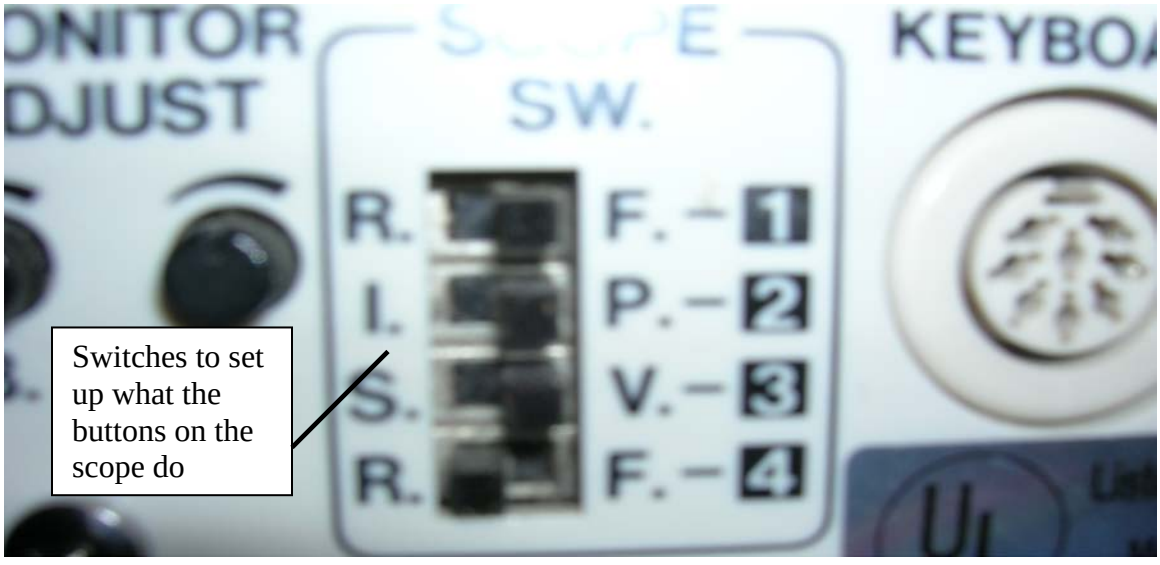
- EDN12H-0005-MF length of 5’
- EDN12H-0010-MF length of 10’
- EDN12H-0025-MF length of 25’
- EDN12H-0050-MF length of 50’
- Custom cable length over 50’

Olympus CV-100 Cabling Diagrams

Olympus CV-100 with dPict Cabling



Olympus CV-100 Pictures



Olympus CV-100 Cabling and Configuration setup

To connect an Olympus CV-100 processor to a computer, each processor will need the following:

1.) Olympus CV-100 Processor
   - ****NOTE**** CV-100 processors having serial numbers starting with 70, 71, 72, 73, or 79 may have problems capturing images due to a problem with the chipset in the CV-100 processor
2.) Olympus Photo Cable
3.) Olympus Digital File Cable
4.) Barrel Connectors (one for each of the RGBS cables – typically 4 per setup)
5.) Image capture card
6.) Image capture card cable(s)

To the cabling, follow the below steps:

1.) Connect the Photo cable:
   a. Connect the Olympus Photo cable to the port labeled Photo Out on the back of the Olympus Processor. **NOTE** If the site is currently using a Mavigraph the photo cable going to the Mavigraph may already be using the photo out port. This cable can be unplugged when hooking up a ProVation MD image capture computer.
   b. The photo cable ends with 4 RGBS BNC connections. Connect a barrel connector to each of the RGBS BNC connectors at the end of the Olympus Photo cable.
   c. Connect the other end of the barrel connector to the image capture card cable (See diagram above for more detail).
   d. Plug the image capture card cable into the image capture card on the computer.
2.) Connect the digital file cable into the digital file remote port on the back of the processor. This cable ends with a female 9 pin connector, which should be plugged into the serial port on the back of the ProVation MD image capture computer.
3.) Ensure that on the front of the processor that the DGTL File light is lit up (this button is located in the lower left of the Olympus Processor near where the scope cable plugs into the processor).
4.) On the back of the processor there are 4 dip switches located near the far left side of the processor. Make sure that either 1 or 4 is set to 'R' for Release.

5.) In ProVation MD, set the following settings to enable image capture mode:
   a. Set Capturecard = True
   b. Set Cardname = The image capture card you are using
   c. Set Computername = A unique name for the room you are in (I.E. ROOM1) –
      Note This name should be in all caps and should not have any spaces in the name.
   d. Set manufacturer to Olympus in the configuration settings screen for the ProVation MD image capture computer.

Olympus CV-140

Olympus CV-140 Cables

The Olympus CV-140 Processor requires 2 cables that are proprietary to Olympus.

1. Photo Cable (for RGB images, connects to video card in computer running ProVation MD. Same photo cable as CV 100)
2. Remote Digital File Cable (for image capture signal, connects to serial port in computer running ProVation MD)

Each cable comes in varying lengths, and may be extended with other non-proprietary cables. Below is a list of the Olympus part numbers and lengths of each cable. Also listed are the extension cables needed, which are purchased from Black Box Corporation, a cable manufacturer. Barrel connectors are used to connect two BNC cables together.

Olympus Photo Cable (Live video)

- 55592L4 length of 4'
- 55592L6 length of 6'
- 5559L25 length of 25'

Olympus Remote Digital File Cable (Capture signal)

- 55645L6-1 length of 6'
- 55645L10-1 length of 10'
- 55645L25-1 length of 25'

Extension cables for Photo Cable (Part numbers from Black Box Corporation)

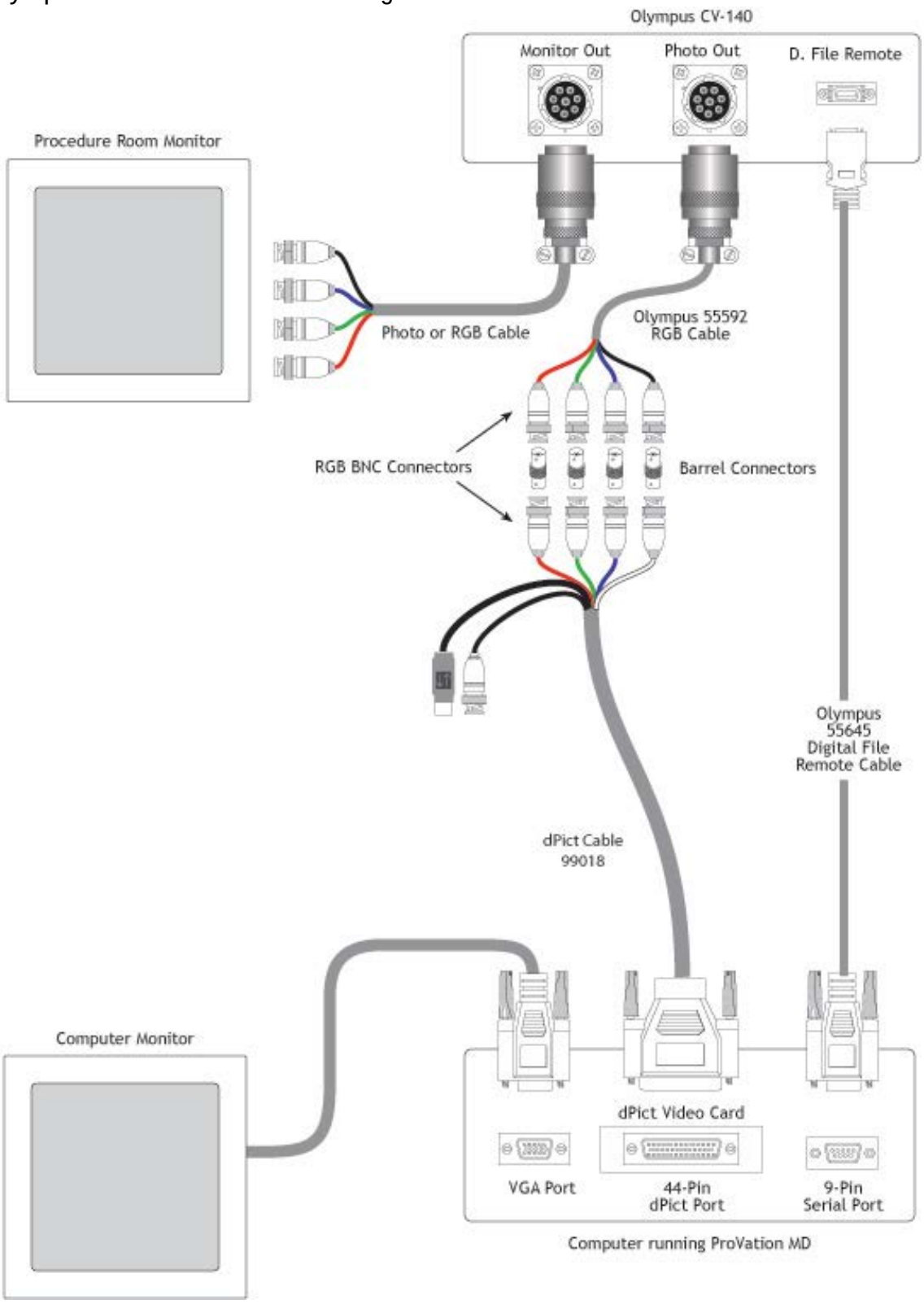
- EYNRGBS2-0010-MM length of 10'
- EYNRGBS2-0025-MM length of 25'
- EYNRGBS2-0050-MM length of 50'
- Custom cable length over 50'

Extension cables for Remote Digital File Cable (Part numbers from Black Box Corporation)

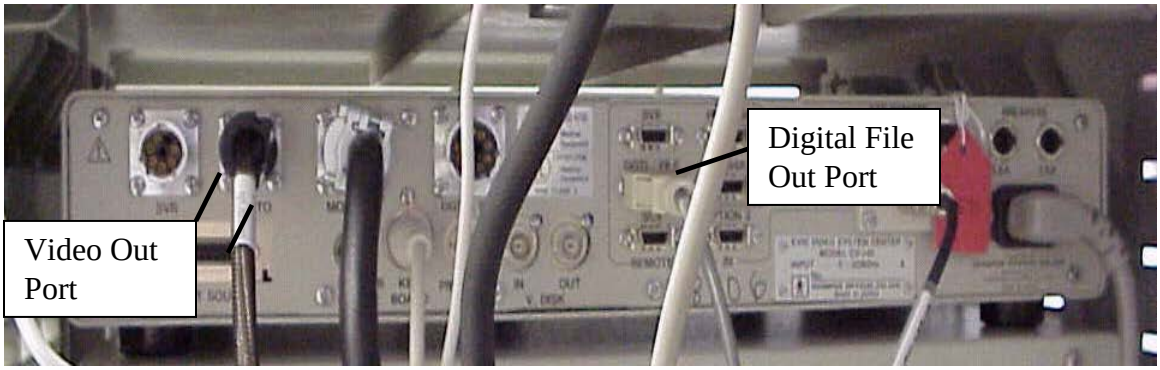
- EDN12H-0005-MF length of 5'
- EDN12H-0010-MF length of 10'
- EDN12H-0025-MF length of 25'
- EDN12H-0050-MF length of 50'
- Custom cable length over 50'

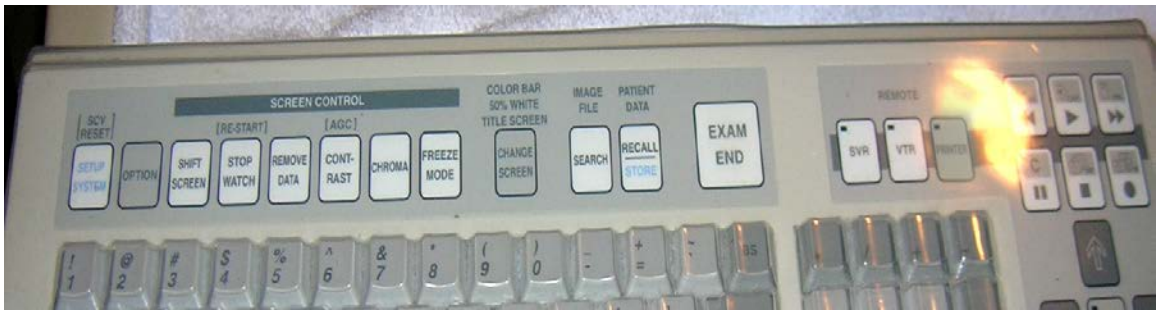
Olympus CV-140 Cabling Diagrams

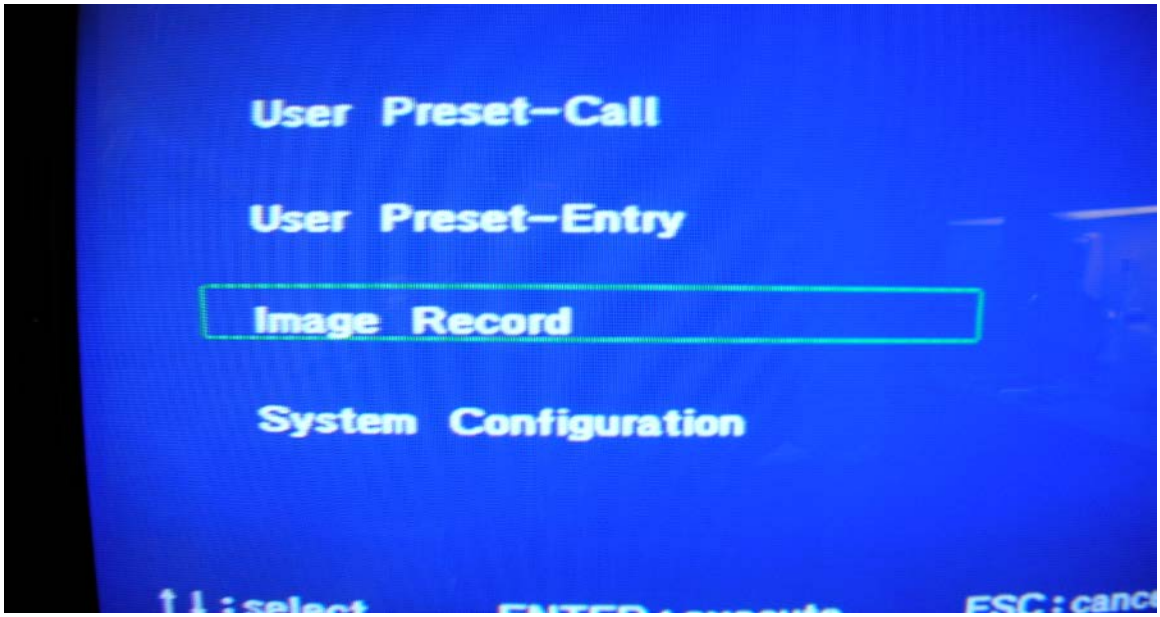
Olympus CV-140 with dPict Cabling



Olympus CV-140 Pictures




SCREEN CONTROL
SCY RESET
SETUP SYSTEM
OPTION
SHIFT SCREEN
[RE-START]
STOP WATCH
REMOVE DATA
[AGC]
CONT-RAST
CHROMA
FREEZE MODE
COLOR BAR 50% WHITE TITLE SCREEN
CHANGE SCREEN
IMAGE FILE
SEARCH
PATIENT DATA
RECALL STORE
EXAM END
REMOTE
SVR
VTR
PRINTER


User Preset-Call
User Preset-Entry
Image Record
System Configuration

Olympus CV-140 Cabling and Configuration setup

To connect an Olympus CV-140 processor to a computer, each processor will need the following:

1.) Olympus CV-140 Processor
2.) Olympus Photo Cable
3.) Olympus Digital File Cable
4.) Barrel Connectors (one for each of the RGBS cables – typically 4 per setup)
5.) Image capture card
6.) Image capture card cable(s)

To connect the cabling, follow the below steps:

1.) Connect the photo cable:
   a. Connect the Olympus Photo cable to the port labeled Photo Out on the back of the Olympus Processor.
   b. The photo cable ends with 4 RGBS BNC connections. Connect a barrel connector to each of the RGBS BNC connectors at the end of the Olympus Photo cable.
   c. Connect the other end of the barrel connector to the image capture card cable (See diagram above for more detail).
   d. Plug the image capture card cable into the image capture card on the computer.
2.) Connect the digital file cable into the digital file remote port on the back of the processor. This cable ends with a female 9 pin connector, which should be plugged into the serial port on the back of the ProVation MD image capture computer.
3.) Change the settings on the Olympus Processor:
   a. Using the Olympus CV-140 Keyboard and looking at the clinical monitor (not the computer screen) press the system setup key on the keyboard (top left button).
   b. On the first screen use the arrow keys on the Olympus keyboard to scroll down to Image Record, and hit the enter key.
   c. On the next screen scroll down to D.F. Record and set it to On using the side arrow keys.
   d. Then press the Enter key.
   e. At the prompt that reads, "Are you sure? Y/N", press Y.
   f. Hit the Esc Key to exit out of the system setup screen.
4.) Set up the Scope Buttons to capture:
   a. You will also want to ensure that at least one of the scope buttons is set to Release. (The release setting is what actually triggers the computer to capture images.): With the CV-140 keyboard plugged into the CV-140 video processor, while viewing the clinical monitor (not the computer monitor) press the Setup System key.
   b. Using the arrow keys, place the green box around User Preset Entry and press Enter.

c. Arrow down to the first choice (which usually will have some doctor's name, default, or no data next to 1.), press Enter.
d. Arrow down to the appropriate endoscope button (the clinic's preference for picture taking is usually either #1 or #4).
e. Use the side arrow keys to choose Release.
f. Press Enter.
g. At the prompt that reads, "Are you sure? Y/N", press Y.
h. Press Esc to return to the normal viewing screen.

5.) In ProVation MD, set the following settings to enable image capture mode:
   a. Set Capturecard = True
   b. Set Cardname = The image capture card you are using
   c. Set Computername = A unique name for the room you are in (I.E. ROOM1) –
      Note This name should be in all caps and should not have any spaces in the name.
   d. Set manufacturer to Olympus in the configuration settings screen for the ProVation MD image capture computer.

Olympus CV-160

Olympus CV-160 Cables

The Olympus CV-160 Processor requires 2 cables that are proprietary to Olympus.

1. Photo Cable (for RGB images, connects to video card in computer running ProVation MD)
2. Remote Digital File Cable (for image capture signal, connects to serial port in computer running ProVation MD)

Each cable comes in varying lengths, and may be extended with other non-proprietary cables. Below is a list of the Olympus part numbers and lengths of each cable. Also listed are the extension cables needed, which are purchased from Black Box Corporation, a cable manufacturer. Barrel connectors are used to connect two BNC cables together.

Olympus Photo Cable (Live video)

- MH984 length of 6'

Olympus Remote Digital File Cable (Capture signal)

- 55645L6-1 length of 6'
- 55645L10-1 length of 10'
- 55645L25-1 length of 25'

Extension cables for Photo Cable (Part numbers from Black Box Corporation)

- EYNRGBS2-0010-MM length of 10'
- EYNRGBS2-0025-MM length of 25'
- EYNRGBS2-0050-MM length of 50'
- Custom cable length over 50'

Extension cables for Remote Digital File Cable (Part numbers from Black Box Corporation)

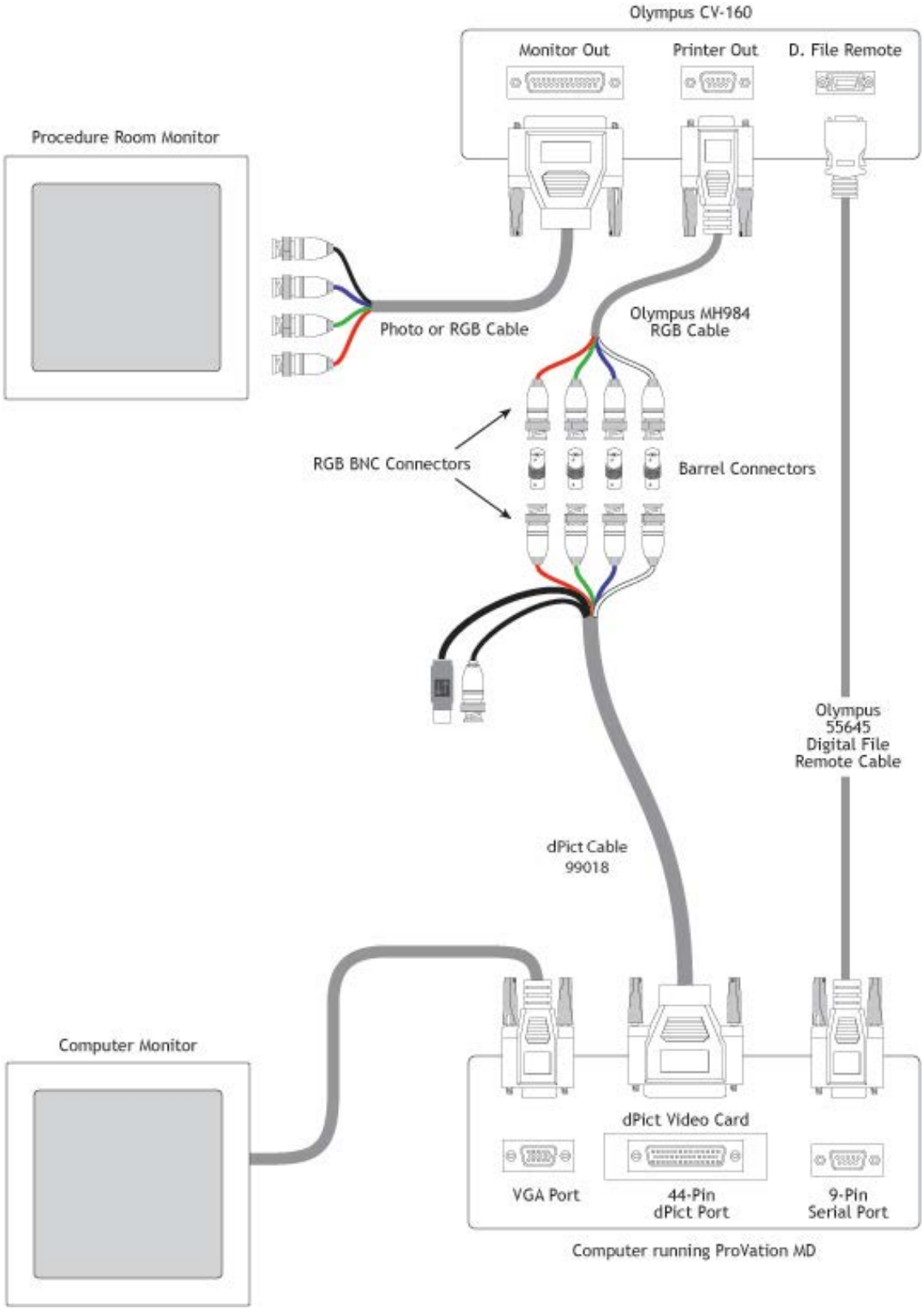
- EDN12H-0005-MF length of 5'
- EDN12H-0010-MF length of 10'
- EDN12H-0025-MF length of 25'
- EDN12H-0050-MF length of 50'
- Custom cable length over 50'

Optional 'Y' cable needed for sites using a Flush pump (splits digital file cable to allow two connections – Purchased from Olympus

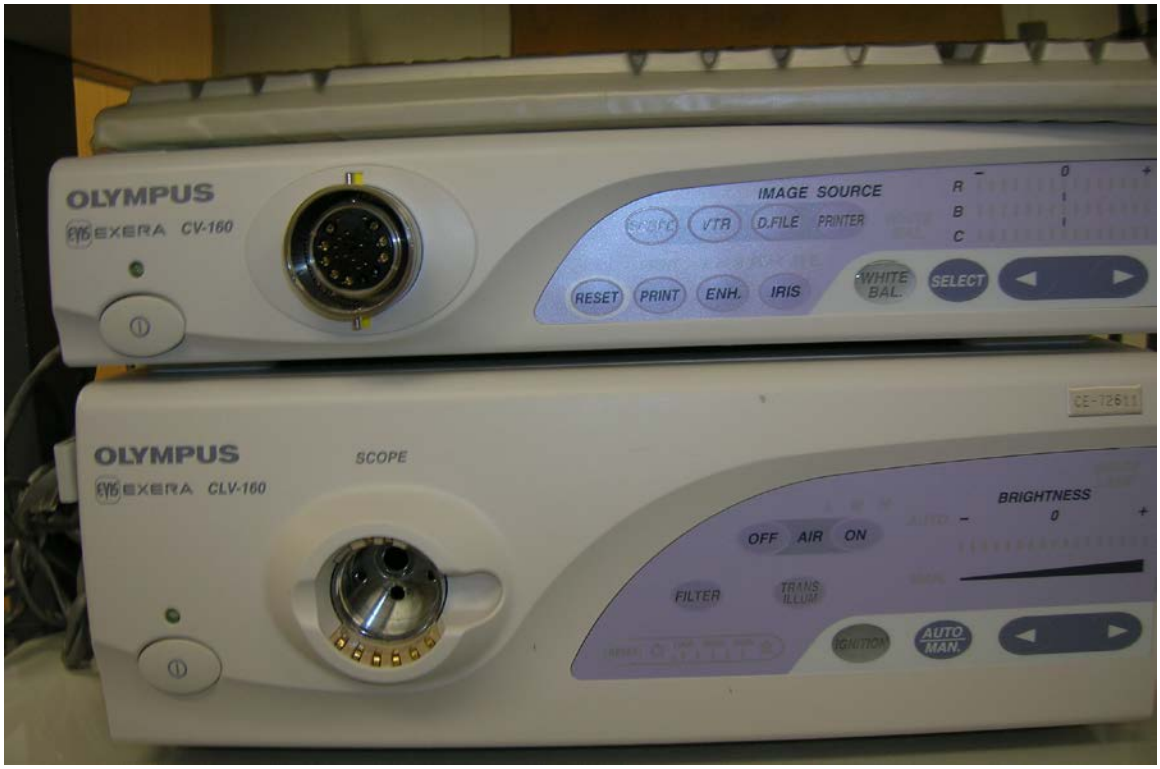
- IS40088

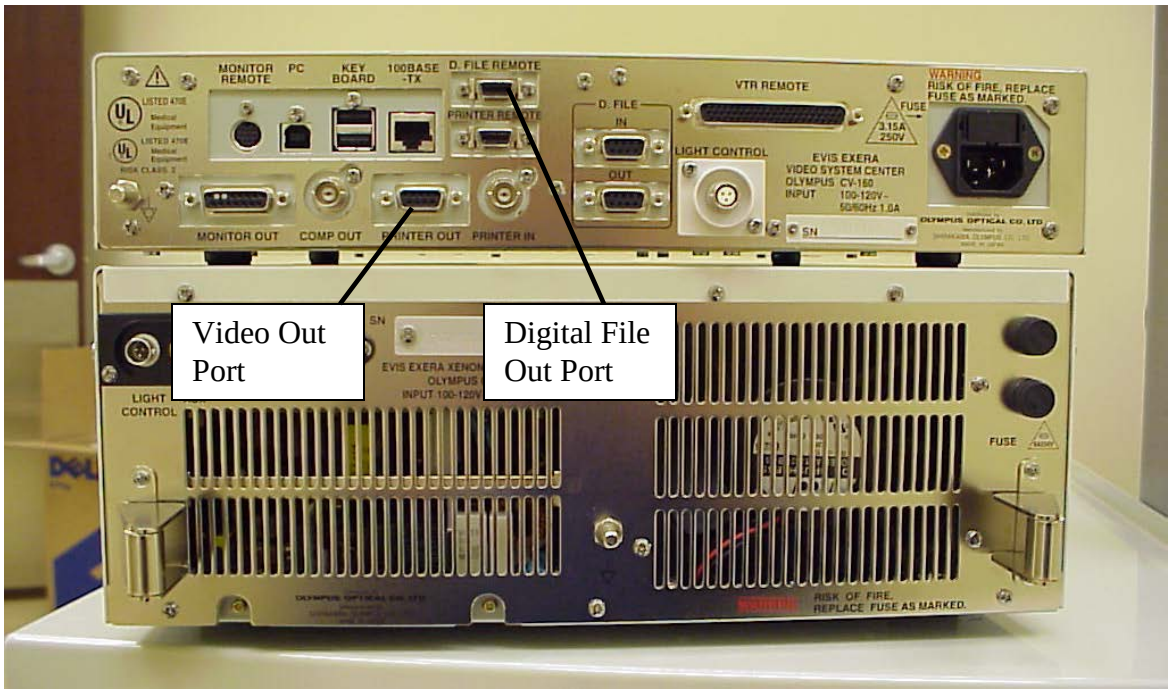
Olympus CV-160 Cabling Diagrams

Olympus CV-160 with dPict Cabling

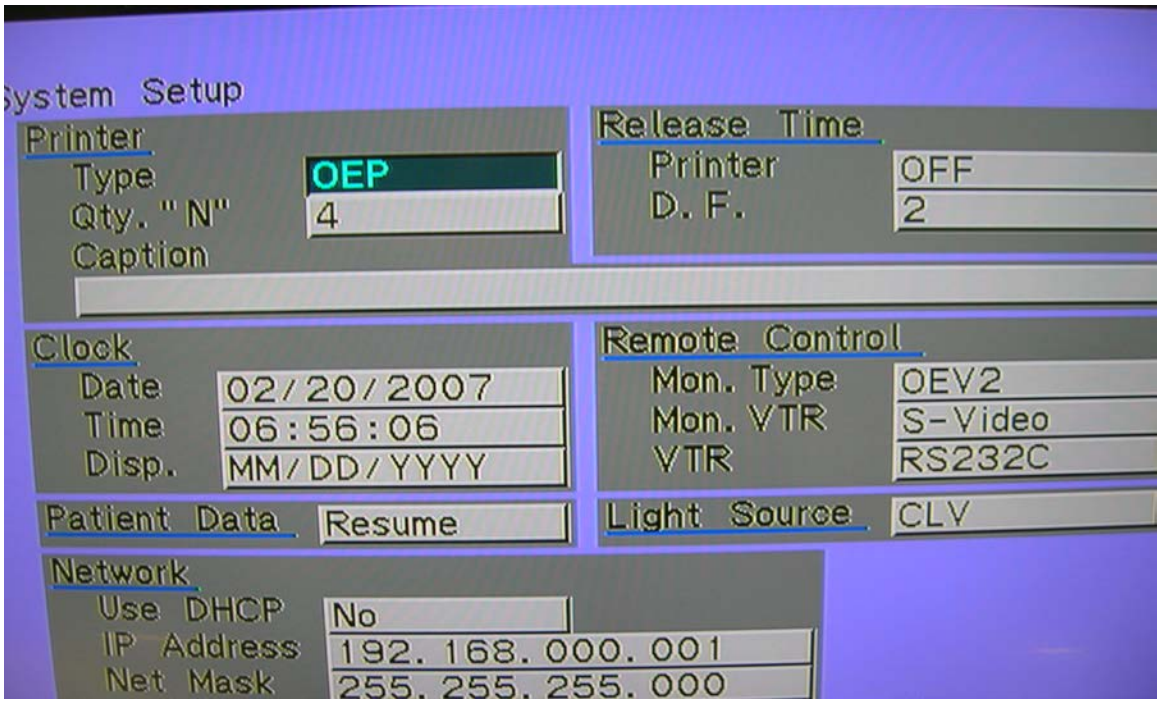


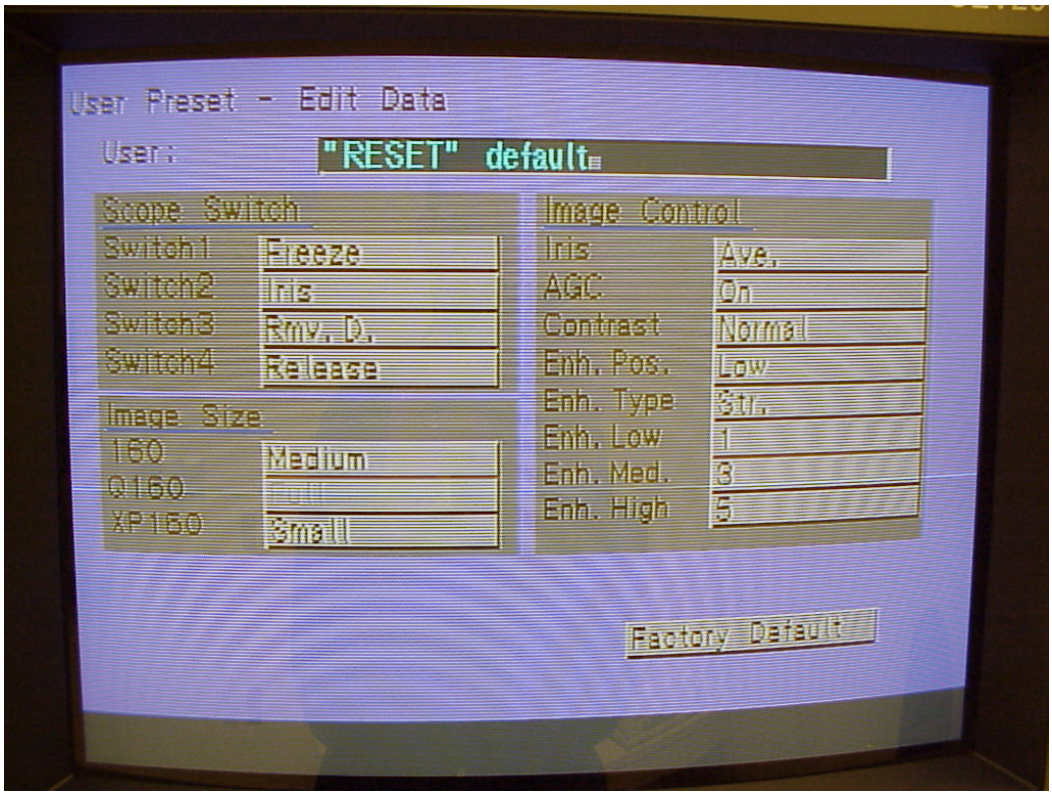
Olympus CV-160 Pictures






System
Setup Key


System Setup
Printer
Type
OEP
Qty. "N"
4
Caption
Release Time
Printer
OFF
D. F.
2
Clock
Date
02/20/2007
Time
06:56:06
Disp.
MM/DD/YYYY
Remote Control
Mon. Type
OEV2
Mon. VTR
S-Video
VTR
RS232C
Patient Data
Resume
Light Source
CLV
Network
Use DHCP
No
IP Address
192. 168. 000. 001
Net Mask
255. 255. 255. 000


User Preset - Edit Data
User:
"RESET" default
Scope Switch
Switch1
Freeze
Switch2
Iris
Switch3
Rmv. D.
Switch4
Release
Image Size
160
Medium
Q160
XP160
Small
Image Control
Iris
Ave.
AGC
On
Contrast
Normal
Enh. Pos.
Low
Enh. Type
Str.
Enh. Low
1
Enh. Med.
3
Enh. High
5
Factory Default

Olympus CV-160 Cabling and Configuration setup

To connect an Olympus CV-160 processor to a computer, each processor will need the following:

1.) Olympus CV-160 Processor
2.) Olympus Photo Cable
3.) Olympus Digital File Cable
4.) Barrel Connectors (one for each of the RGBS cables – typically 4 per setup)
5.) Image capture card
6.) Image capture card cable(s)

To connect the cabling, follow the below steps:

1.) Connect the Photo Cable:
   a. Connect the Olympus Photo cable to the port labeled Printer Out on the back of the Olympus Processor.
   b. The photo cable ends with 4 RGBS BNC connections. Connect a barrel connector to each of the RGBS BNC connectors at the end of the Olympus Photo cable.

   NOTE The Sync cable in the Olympus cable is white in color, so you should make sure that white goes to the black cable on most image capture cables. The dPict sync cable is white in color.
   c. Connect the other end of the barrel connector to the image capture card cable (See diagram above for more detail).
   d. Plug the image capture card cable into the image capture card on the computer.
2.) Connect the digital file cable into the digital file remote port on the back of the processor. This cable ends with a female 9 pin connector, which should be plugged into the serial port on the back of the ProVation MD image capture computer.
3.) Change the settings in the Olympus Processor:
   a. Using the Olympus CV-160 Keyboard and looking at the clinical monitor (not the computer screen) press the system setup key on the keyboard (top left button).
   b. On the screen that appears use the arrow keys on the Olympus keyboard set the printer type to FootSW.
   c. Then use the arrow keys to get to the Release Time box.
   d. Set the printer option to OFF.
   e. Set the D.F. option to anything except OFF (usually set to .5).
   f. Press the Enter key.
4.) Set up the Scope Buttons to Capture:
   a. You will also want to ensure that at least one of the scope buttons is set to Release. (The release setting is what actually triggers the computer to capture images.): With the CV-160 keyboard plugged into the CV-160 video processor, while viewing the clinical monitor (not the computer monitor) press the User Preset key.

b. Using the arrow keys, place the green box around User Preset Entry
c. Press Enter.
d. Highlight the sites entry (usually the first one) and choose to edit the configuration.
e. Arrow down to the appropriate endoscope button (the clinic's preference for picture taking is usually either #1 or #4).
f. Use the side arrow keys to choose Release.
g. Press Enter.
h. At the prompt that reads, "Are you sure? Y/N", press Y.
i. Press Esc to return to the normal viewing screen.

5.) In ProVation MD, set the following settings to enable image capture mode:
   a. Set Capturecard = True
   b. Set Cardname = The image capture card you are using
   c. Set Computername = A unique name for the room you are in (I.E. ROOM1) –
      Note This name should be in all caps and should not have any spaces in the name.
   d. Set manufacturer to Olympus in the configuration settings screen for the ProVation MD image capture computer.

Olympus CV-180

Olympus CV-180 Cables

The Olympus CV-180 Processor requires 2 cables that are proprietary to Olympus.

1. Photo Cable (for RGB images, connects to video card in computer running ProVation MD)
2. Remote Digital File Cable (for image capture signal, connects to serial port in computer running ProVation MD)

Each cable comes in varying lengths, and may be extended with other non-proprietary cables. Below is a list of the Olympus part numbers and lengths of each cable. Also listed are the extension cables needed, which are purchased from Black Box Corporation, a cable manufacturer. Barrel connectors are used to connect two BNC cables together.

Olympus Photo Cable (Live video)

- MH984 length of 6'

Olympus Remote Digital File Cable (Capture signal)

- 55645L6-1 length of 6'
- 55645L10-1 length of 10'
- 55645L25-1 length of 25'

Extension cables for Photo Cable (Part numbers from Black Box Corporation)

- EYNRGBS2-0010-MM length of 10'
- EYNRGBS2-0025-MM length of 25'
- EYNRGBS2-0050-MM length of 50'
- Custom cable length over 50'

Extension cables for Remote Digital File Cable (Part numbers from Black Box Corporation)

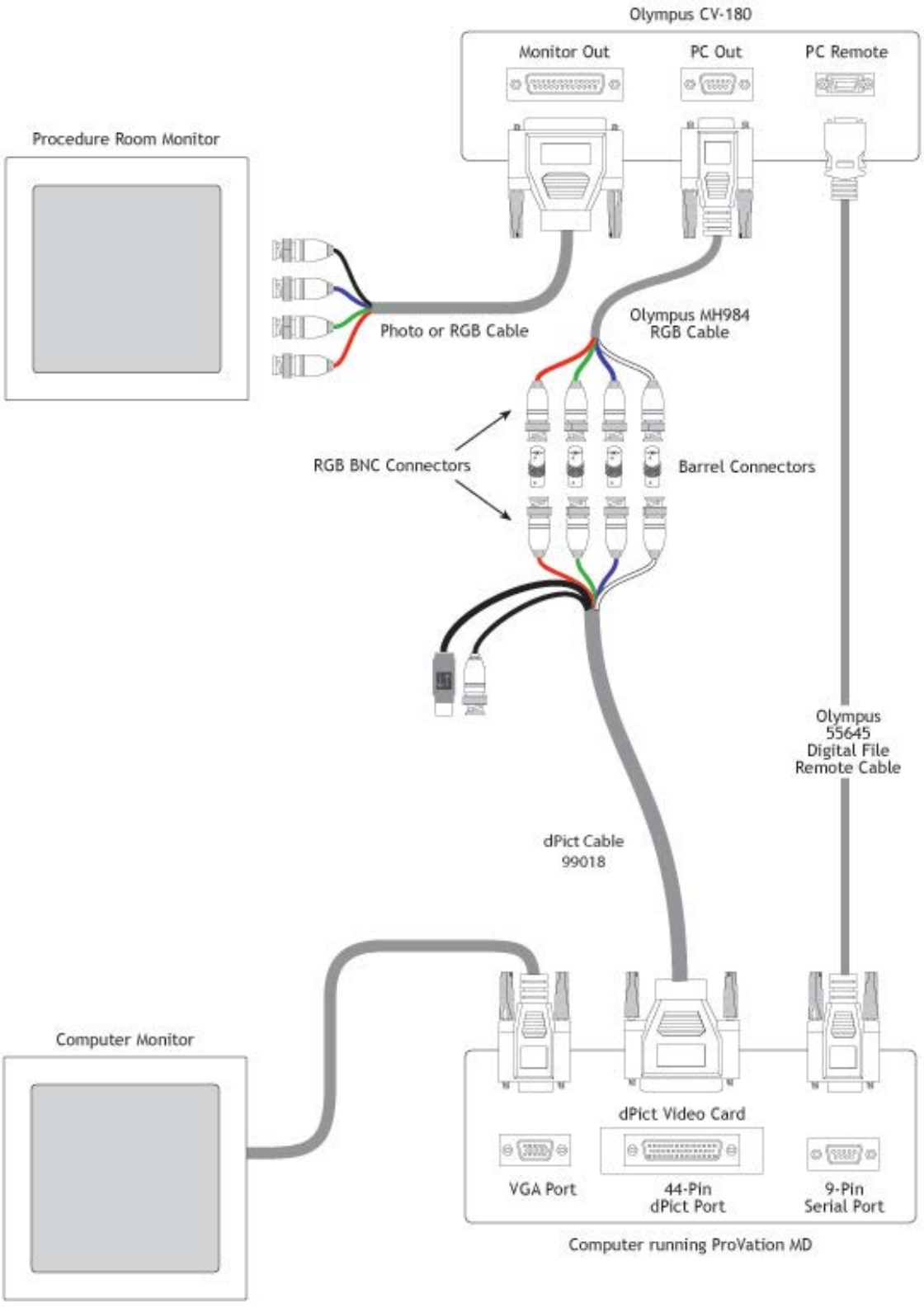
- EDN12H-0005-MF length of 5'
- EDN12H-0010-MF length of 10'
- EDN12H-0025-MF length of 25'
- EDN12H-0050-MF length of 50'
- Custom cable length over 50'

Optional 'Y' cable needed for sites using a Flush pump (splits digital file cable to allow two connections – Purchased from Olympus

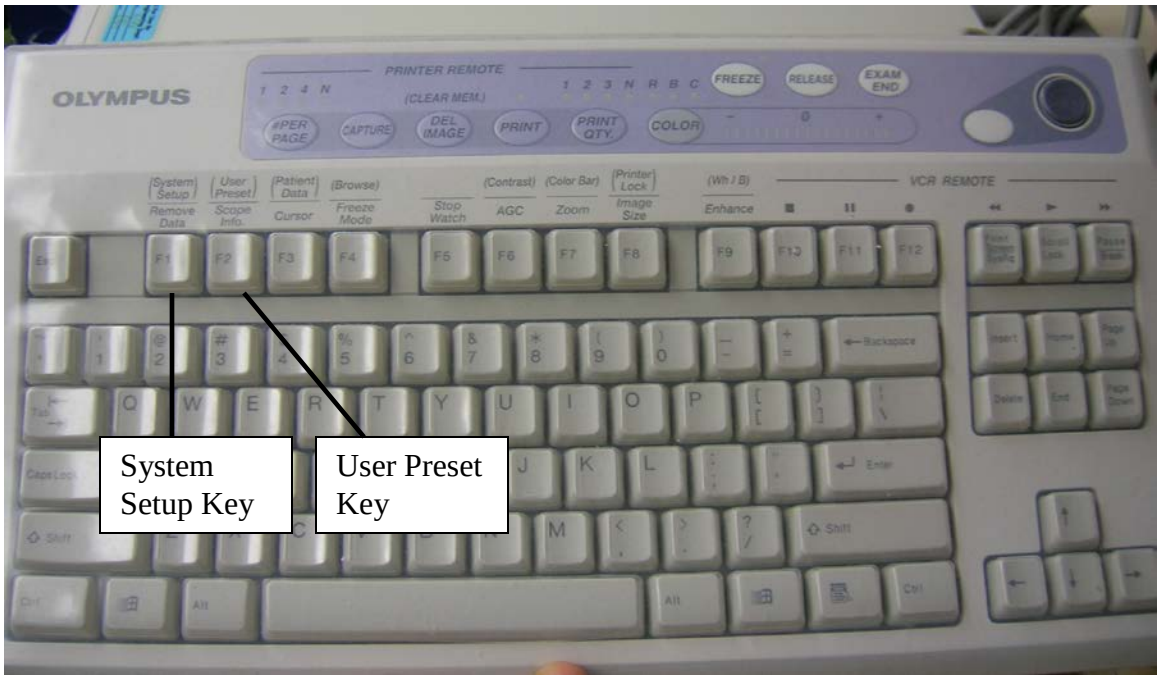
- IS40088

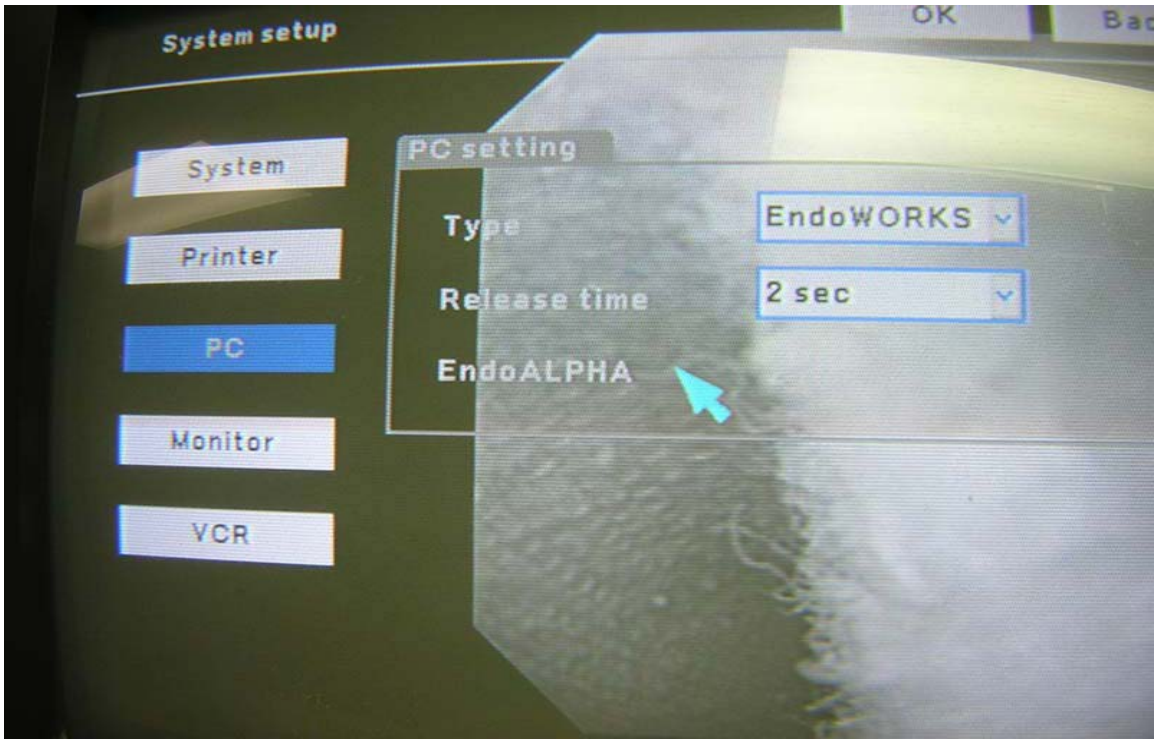
Olympus CV-180 Cabling Diagrams

Olympus CV-180 with dPict Cabling

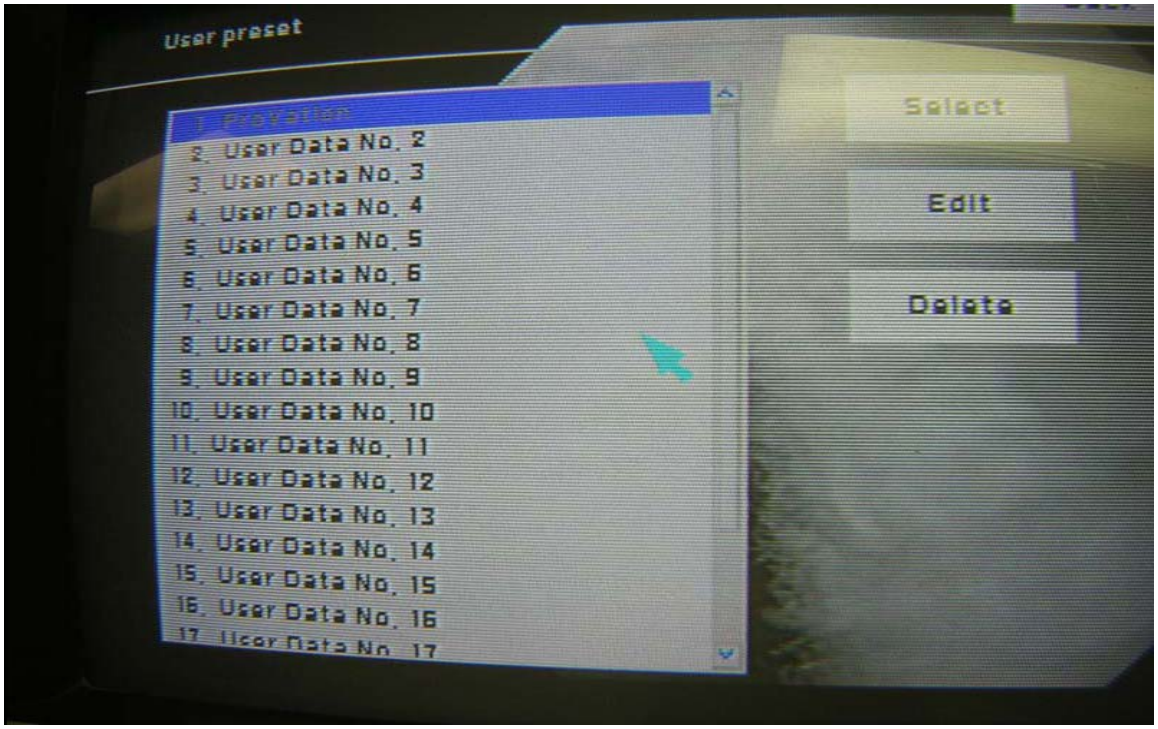


Olympus CV-180 Pictures


OLYMPUS
System Setup Key
User Preset Key


System setup
OK
System
Printer
PC
Monitor
VCR
PC setting
Type
EndoWORKS
Release time
2 sec
EndoALPHA


User name
ProVation
EXERA
VISERA
Release
Adjustment
Image size
Brightness
Display
PinP
Special light
Release setting
Release1
Release2
Picture
SHQ
Freeze mode
Field


User preset
1. ProVation
2. User Data No. 2
3. User Data No. 3
4. User Data No. 4
5. User Data No. 5
6. User Data No. 6
7. User Data No. 7
8. User Data No. 8
9. User Data No. 9
10. User Data No. 10
11. User Data No. 11
12. User Data No. 12
13. User Data No. 13
14. User Data No. 14
15. User Data No. 15
16. User Data No. 16
Select
Edit
Delete


User preset
Default
OK
Back
User name
ProVation
EXERA
VISERA
Release
Adjustment
Image size
Brightness
Display
PinP
Special light
Scope switch
Switch 1
Freeze
Switch 2
Enhance
Switch 3
Iris
Switch 4
Release 1
Foot switch
Switch 1
None
Switch 2
None

Olympus CV-180 Cabling and Configuration setup

To connect an Olympus CV-180 processor to a computer, each processor will need the following:

1.) Olympus CV-180 Processor
2.) Olympus Photo Cable
3.) Olympus Digital File Cable
4.) Barrel Connectors (one for each of the RGBS cables – typically 4 per setup)
5.) Image Capture Card
6.) Image Capture Card Cable(s)

To connect the cabling, follow the below steps:

1.) Connect the Photo Cable:
   a. Connect the Olympus Photo cable to the port labeled Printer Out on the back of the Olympus Processor. For dPict card installations connect this cable to the PC Out port.
   b. The photo cable ends with 4 RGBS BNC connections. Connect a barrel connector to each of the RGBS BNC connectors at the end of the Olympus Photo cable.

   NOTE The Sync cable in the Olympus cable is white in color, so you should make sure that white goes to the black cable on most image capture cables. The dPict sync cable is white in color.

   c. Connect the other end of the barrel connector to the image capture card cable (See diagram above for more detail).
   d. Plug the image capture card cable into the image capture card on the computer.
2.) Connect the digital file cable into the PC remote port on the back of the processor. This cable ends with a female 9 pin connector, which should be plugged into the serial port on the back of the ProVation MD image capture computer.
3.) Change the settings in the Olympus Processor:
   a. Using the Olympus CV-180 Keyboard and looking at the clinical monitor (not the computer screen) press Shift + F1 (system setup key) on the keyboard (top left button).
   b. On the screen that appears use the mouse cursor to get to the PC Entry on the left hand side and select it.
   c. In the screen that comes up make sure that Type is set to Endoworks.
   d. Release time can be set to anything (usually .5).
   e. Then click on OK
   f. At the prompt that reads, "Are you sure? Y/N", Press Y.
   g. Press the Esc. Key to exit out of the screen.
   h. Using the Olympus keyboard, press the Shift + F2 (User Preset Key).
   i. Highlight the default Entry (Usually entry #1) and choose to edit the configuration.

j. In the screen that appears use the mouse to choose the Release menu option on the Left side of the screen.
k. Make sure that ONLY digital file is checked under the Release1 settings – all other options can be unchecked,
l. Click on OK
m. At the prompt that reads, "Are you sure? Y/N", Press Y.

4.) Set up the Scope Buttons to Capture:
   a. You will also want to ensure that at least one of the scope buttons is set to Release1. (The release setting is what actually triggers the computer to capture images).
   b. With the CV-180 keyboard plugged into the CV-180 video processor, while viewing the clinical monitor (not the computer monitor) press the Shift + F2 (User Preset key).
   c. Choose the Default configuration and choose to edit it.
   d. On the screen that appears make sure that at least one of the buttons is set to Release1.
   e. Then hit the OK button and at the prompt that reads, "Are you sure? Y/N", press Y.
   f. Press Esc to return to the normal viewing screen.

5.) In ProVation MD, set the following settings to enable image capture mode:
   a. Set Capturecard = True
   b. Set Cardname = The image capture card you are using
   c. Set Computername = A unique name for the room you are in (I.E. ROOM1) –
      Note This name should be in all caps and should not have any spaces in the name.
   d. Set manufacturer to Olympus in the configuration settings screen for the ProVation MD image capture computer.

Olympus CV-190

Olympus CV-190 Cables

NOTE For sites that have a boom installation or cabling run through the wall, a limitation to the Olympus CV-190 converter box only allows for cable lengths of up to 50' uninterrupted. Adding in extra connections will degrade the signal quicker. For this reason ProVation Medical recommends the following options:

1.) Place the PC next to the CV-190 on the cart or boom
2.) Place the PC at the desk, but make sure that all cable lengths are as short as possible (CV-190 to wall plate, through the wall, wall plate to image capture PC).

The Olympus CV-190 Processor requires the following 4 items that are proprietary to Olympus.

1. Photo Cable (for RGB images, connects to video card in computer running ProVation MD)
2. Remote Digital File Cable (for image capture signal, connects to serial port in computer running ProVation MD)
3. Interface converter box (MAJ-1916)
4. Interface converter cable (MAJ-1918)

Each cable listed above comes in varying lengths, and may be extended with other non-proprietary cables. Below is a list of the Olympus part numbers and lengths of each cable. Also listed are the extension cables needed, which are purchased from Black Box Corporation, a cable manufacturer. Barrel connectors are used to connect two BNC cables together.

<u>Olympus Photo Cable (Live video)</u>

- MH984 length of 6'

<u>Olympus Remote Digital File Cable (Capture signal)</u>

- 55645L6-1 length of 6'
- 55645L10-1 length of 10'
- 55645L25-1 length of 25'

<u>Extension cables for Photo Cable (Part numbers from Black Box Corporation)</u>

- EYNRGBS2-0010-MM length of 10'
- EYNRGBS2-0025-MM length of 25'
- EYNRGBS2-0050-MM length of 50'
- Custom cable length over 50'

Extension cables for Remote Digital File Cable (Part numbers from Black Box Corporation)

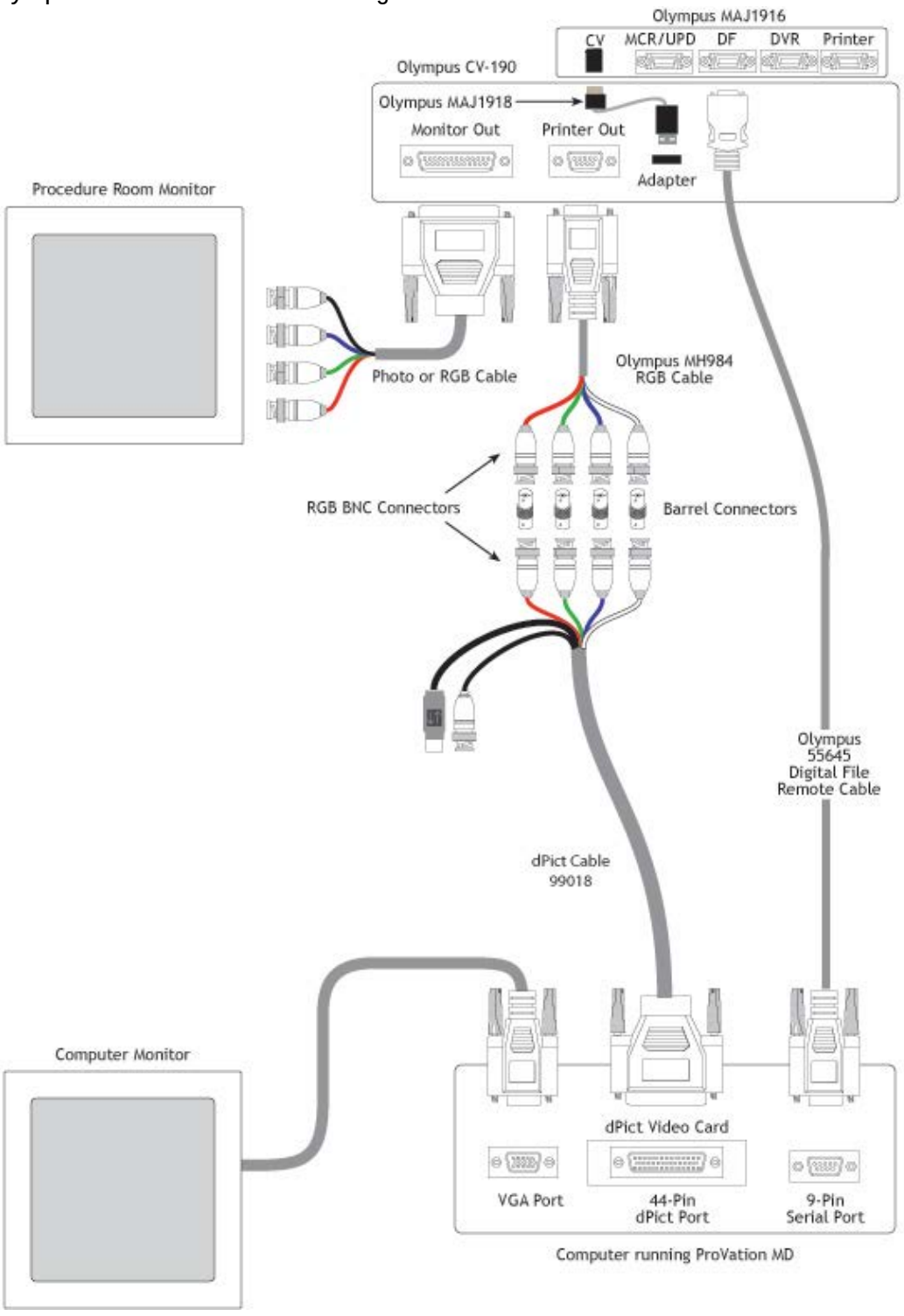
- EDN12H-0005-MF length of 5’
- EDN12H-0010-MF length of 10’
- EDN12H-0025-MF length of 25’
- EDN12H-0050-MF length of 50’
- Custom cable length over 50’

Optional ‘Y’ cable needed for sites using a Flush pump (splits digital file cable to allow two connections – Purchased from Olympus

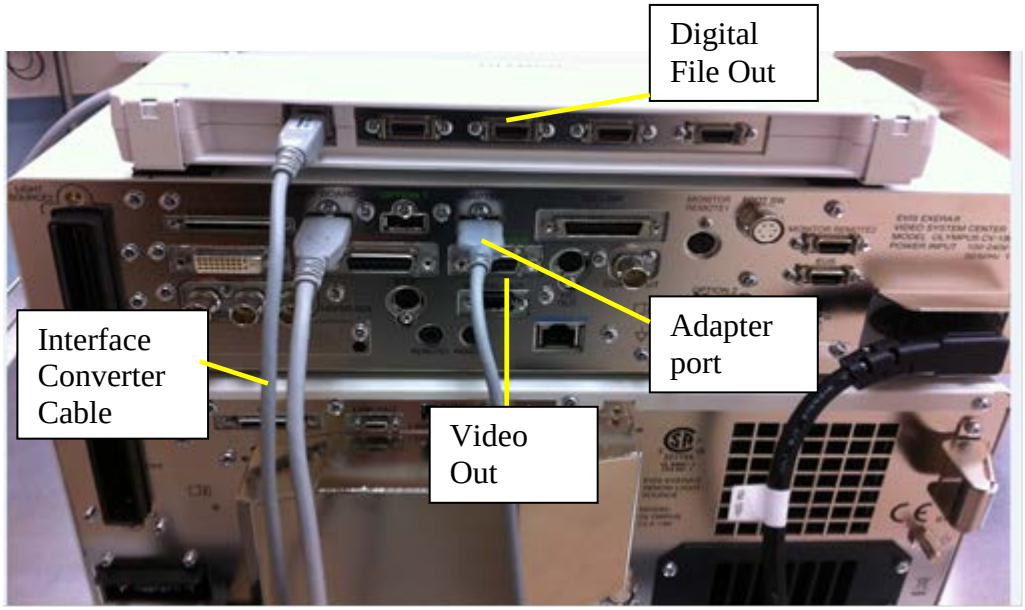
- IS40088

Olympus CV-190 Cabling Diagrams

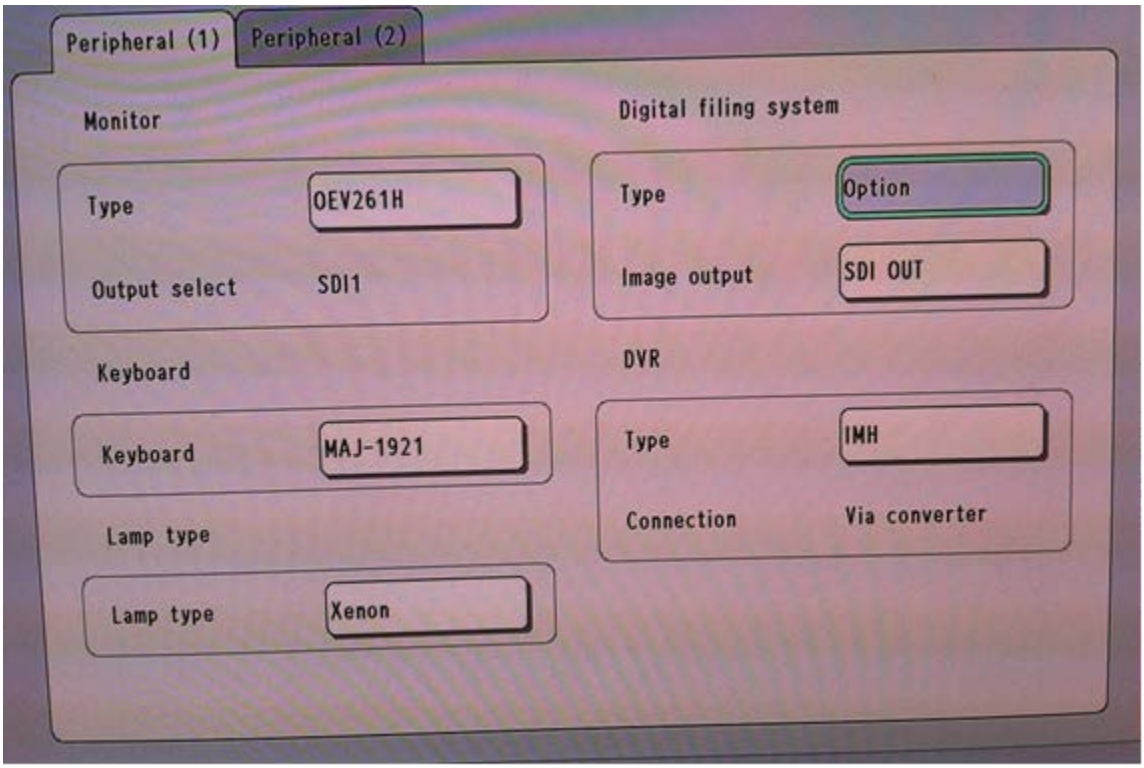
Olympus CV-190 with dPict Cabling

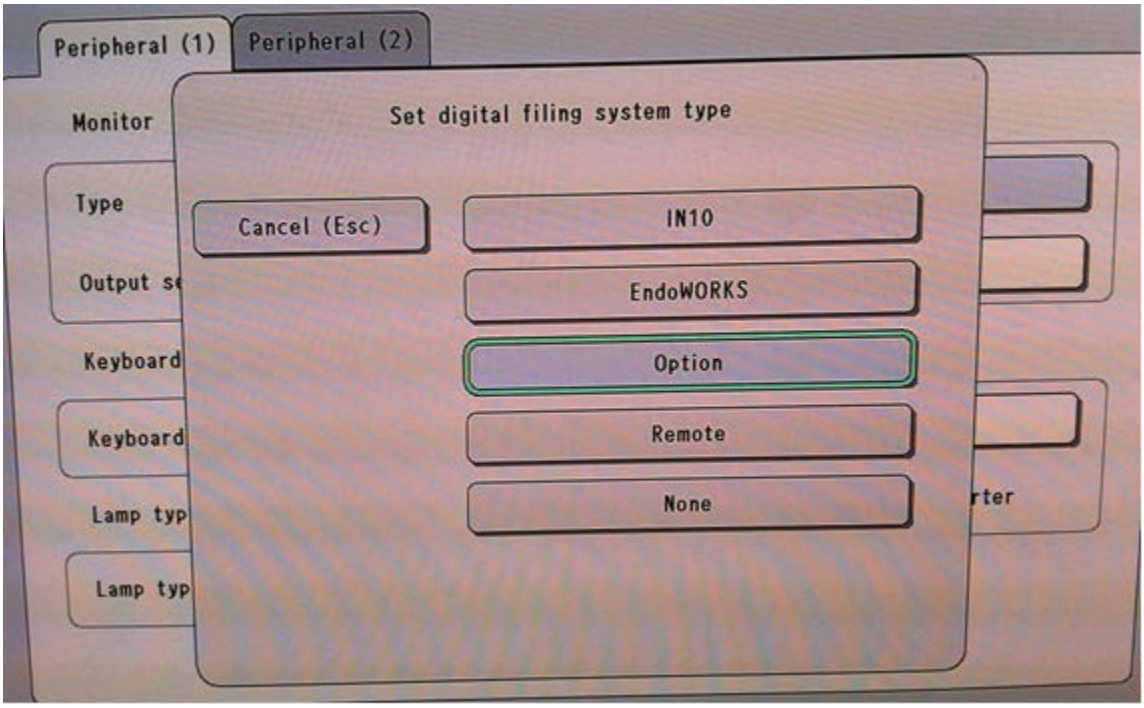


Olympus CV-190 Pictures




OLYMPUS
Menu Key


Peripheral (1)
Peripheral (2)
Monitor
Type
OEV261H
Output select
SDI1
Digital filing system
Type
Option
Image output
SDI OUT
Keyboard
Keyboard
MAJ-1921
DVR
Type
IMH
Connection
Via converter
Lamp type
Lamp type
Xenon


Peripheral (1)
Peripheral (2)
Monitor
Type
Output se
Keyboard
Keyboard
Lamp typ
Lamp typ
Set digital filing system type
Cancel (Esc)
IN10
EndoWORKS
Option
Remote
None
rter

Olympus CV-190 Cabling and Configuration setup

To connect an Olympus CV-190 processor to a computer, each processor will need the following:

1.) Olympus CV-190 Processor
2.) Olympus Photo Cable
3.) Olympus Digital File Cable
4.) Olympus Interface Converter Box (MAJ-1916)
5.) Olympus Interface Converter Cable (MAJ-1918)
6.) Barrel Connectors (one for each of the RGBS cables – typically 4 per setup)
7.) Image Capture Card
8.) Image Capture Card Cable(s)

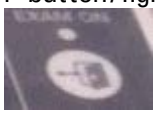
To connect the cabling, follow the below steps:

1.) Connect the Photo Cable:
   a. Connect the Olympus Photo cable to the port labeled Printer Out on the back of the Olympus Processor.
   b. The photo cable ends with 4 RGBS BNC connections. Connect a barrel connector to each of the RGBS BNC connectors at the end of the Olympus Photo cable.

   NOTE The Sync cable in the Olympus cable is white in color, so you should make sure that white goes to the black cable on most image capture cables. The dPict sync cable is white in color.

   c. Connect the other end of the barrel connector to the image capture card cable (See diagram above for more detail).
   d. Plug the image capture card cable into the image capture card on the computer.
2.) Connect the Olympus Interface Converter cable to the USB port on the back of the Olympus CV-190 in the port labeled adapter and the other end to the CV port on the Olympus Interface Converter box.
3.) Connect the digital file cable into the DF remote port on the back of the interface converter box. This cable ends with a female 9 pin connector, which should be plugged into the serial port on the back of the ProVation MD image capture computer.
4.) Change the settings in the Olympus Processor:
   a. Using the Olympus CV-190 Keyboard and looking at the clinical monitor (not the computer screen) press the Menu on the keyboard (top right of the keyboard).
   b. On the main setup screen select Advanced Menu.
   c. Select System Setup from the Advanced Menu options screen.
   d. Select Peripheral Settings from the system setup menu.
   e. From the peripheral settings menu, select the Peripheral (1) tab.
   f. Within the Peripheral (1) tab select the Type dropdown menu in the Digital Filing System Section on the upper right portion of the screen.

Note:

If the 'Exam On' button/light in the upper right portion of the keyboard is on  the 'Type' dropdown menu will be disabled (grayed out). This is by design to prevent changes during a procedure. If the 'Type' dropdown is disabled, simply exit the menu system and press the 'Exam On' button to turn it off and navigate back through the menu selections.

g. Select Option from the Type dropdown menu.
h. Return to the main menu and select User Settings.
i. Select edit from the user settings menu.
j. Select Input from the edit menu.
k. Select Basic from the input menu.
l. Select the Release 1 tab from the Basic menu.
m. Within the Release 1 tab select the DF Device dropdown menu and select On from the menu.
n. Select Back (Esc) and select Save on the "Data has been changed" prompt.
o. Highlight Select (S) button and pick the current user.
p. Select Yes on "Do you want to make a call?" prompt.

5.) Change the Olympus processor settings to send SD images to the printer out port.
   a. Using the Olympus CV-190 Keyboard and looking at the clinical monitor (not the computer screen) press the Menu on the keyboard (top right of the keyboard).
   b. On the main setup screen select Advanced Menu.
   c. Select System Setup from the Advanced Menu options screen.
   d. Select System from the System Setup screen.
   e. Select Output Format from the System screen.
   f. Change the Printer Out setting to SDTV.

6.) Set up the Scope Buttons to Capture:
   a. Push the menu button on the keyboard.
   b. Arrow down to User Settings and press enter on the keyboard.
   c. Arrow down to Edit and press enter on the keyboard.
   d. Arrow to preset and press enter on the keyboard.
   e. Select Basic Setup and press enter on the keyboard.
   f. Select the releast 1 tab and verify that DF Device is set to 'On'.
   g. Return to the preset menu and select the Scope Switch tab. The configured options appear.
   h. Ensure that one of the switches (typically 4) is set to Release 1.

7.) If you need to adjust the release times for the scope buttons follow these steps:
   a. Press menu on the keyboard.
   b. Arrow down to the (+) Advanced Menu and press enter on the keyboard.
   c. Select system setup and press enter on the keyboard.

d. Select System and press enter on the keyboard.
e. Select release time S (Standard Definition Release Time) and set the DF device to the desired release time (Typically 0.5 Sec).
f. Select release time H (High Definition Release Time) and set the DF device to the desired release time (Typically 0.5 Sec).

8.) In ProVation MD, set the following settings to enable image capture mode:
   a. Set Capturecard = True
   b. Set Cardname = The image capture card you are using
   c. Set Computername = A unique name for the room you are in (I.E. ROOM1) –
      Note This name should be in all caps and should not have any spaces in the name.
      Set manufacturer to Olympus in the configuration settings screen for the ProVation MD image capture computer.

Olympus CV-180 for HD Images

Olympus CV-180 Cables for HD Images

The Olympus CV-180 Processor requires 2 cables to connect to the computer.

1. SDI Cable (B-B-15 OR 99021, based on image capture card)
2. Remote Digital File Cable (for image capture signal, connects to serial port in computer running ProVation MD). This cable is proprietary to Olympus.

Each cable comes in varying lengths, and may be extended with other non-proprietary cables. Below is a list of the Olympus part numbers and lengths of each cable. Also listed are the extension cables needed, which are purchased from Black Box Corporation, a cable manufacturer. Barrel connectors are used to connect two BNC cables together.

SDI Cable (Live video) – Premium HD BNC Male to Male Molded Video Cable 15 ft (Part number from Digital Pictures)

- B-B-15 (BlackMagic) length of 15'

SDI Cable (Live video) – RG59 / BNC 10 ft. Cable (Part number from dPict)

- 99021 (dpict HDS) length of 10'

Olympus Remote Digital File Cable (Capture signal)

- 55645L6-1 length of 6'
- 55645L10-1 length of 10'
- 55645L25-1 length of 25'

Extension cables for Remote Digital File Cable (Part numbers from Black Box Corporation)

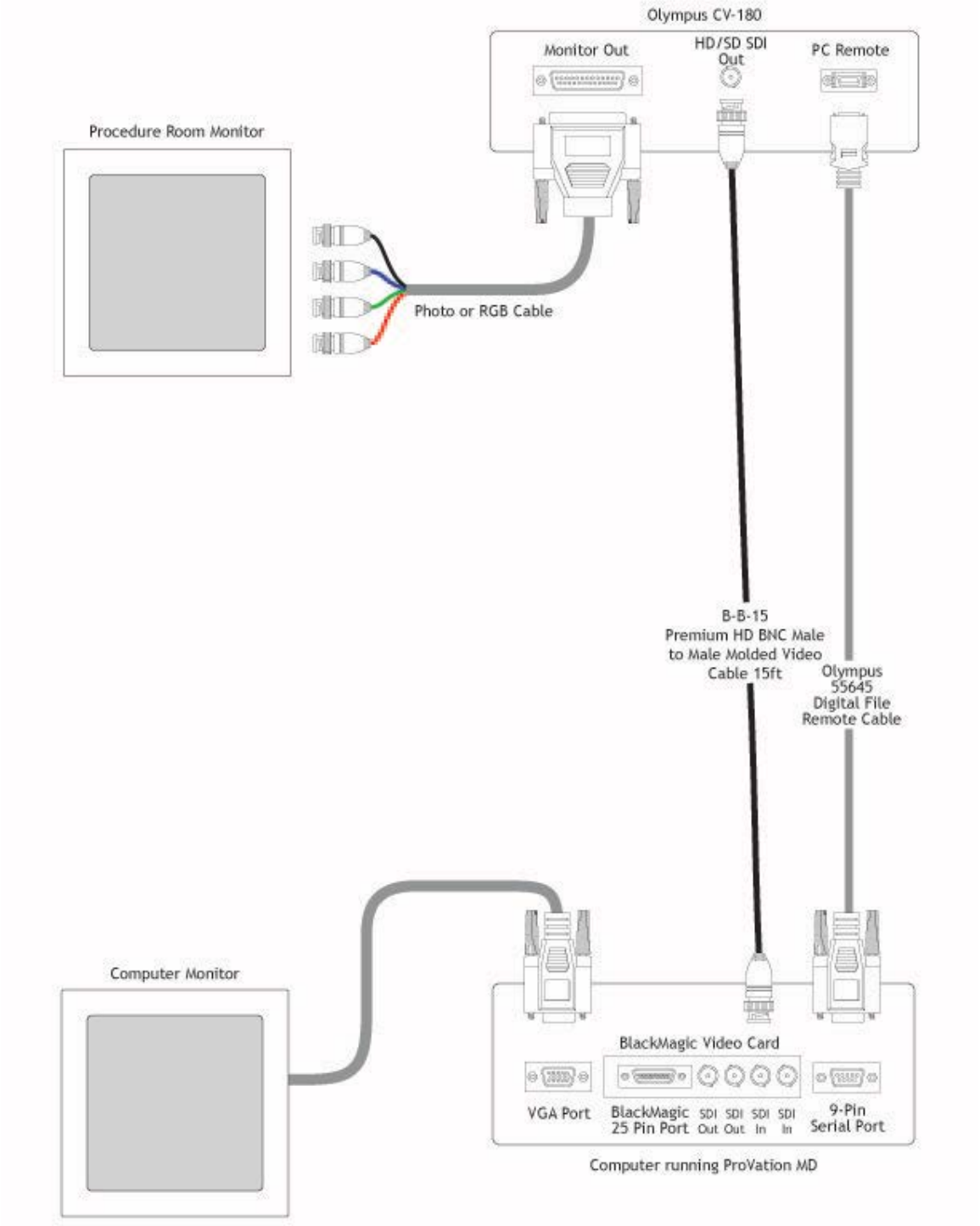
- EDN12H-0005-MF length of 5'
- EDN12H-0010-MF length of 10'
- EDN12H-0025-MF length of 25'
- EDN12H-0050-MF length of 50'
- Custom cable length over 50'

Optional 'Y' cable needed for sites using a Flush pump (splits digital file cable to allow two connections – Purchased from Olympus

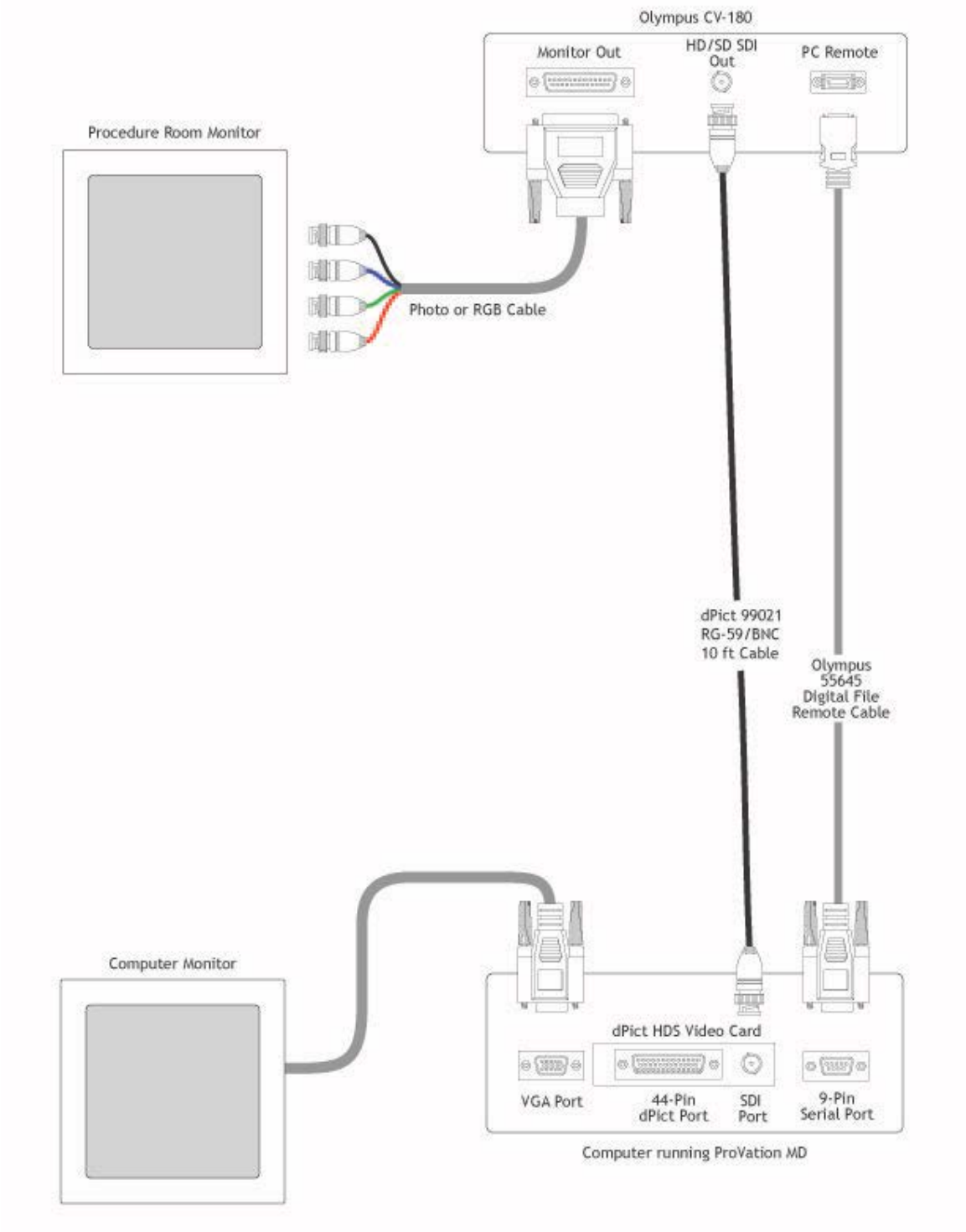
- IS40088

Olympus CV-180 Cabling Diagrams for HD Images

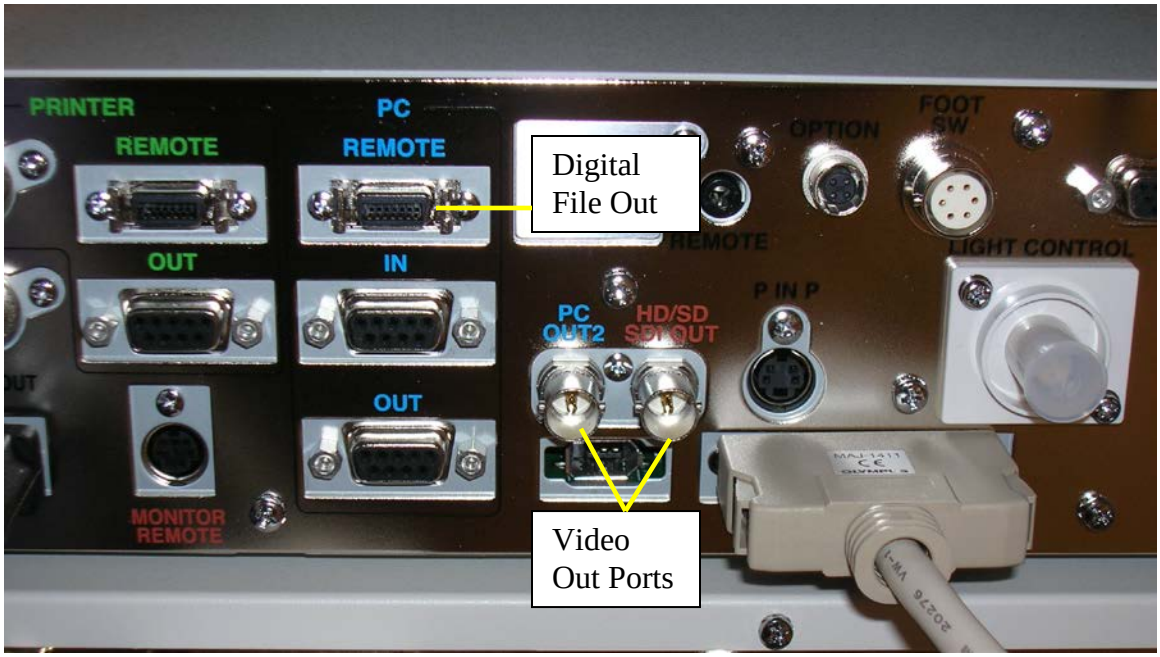
Olympus CV-180 with BlackMagic Cabling for HD

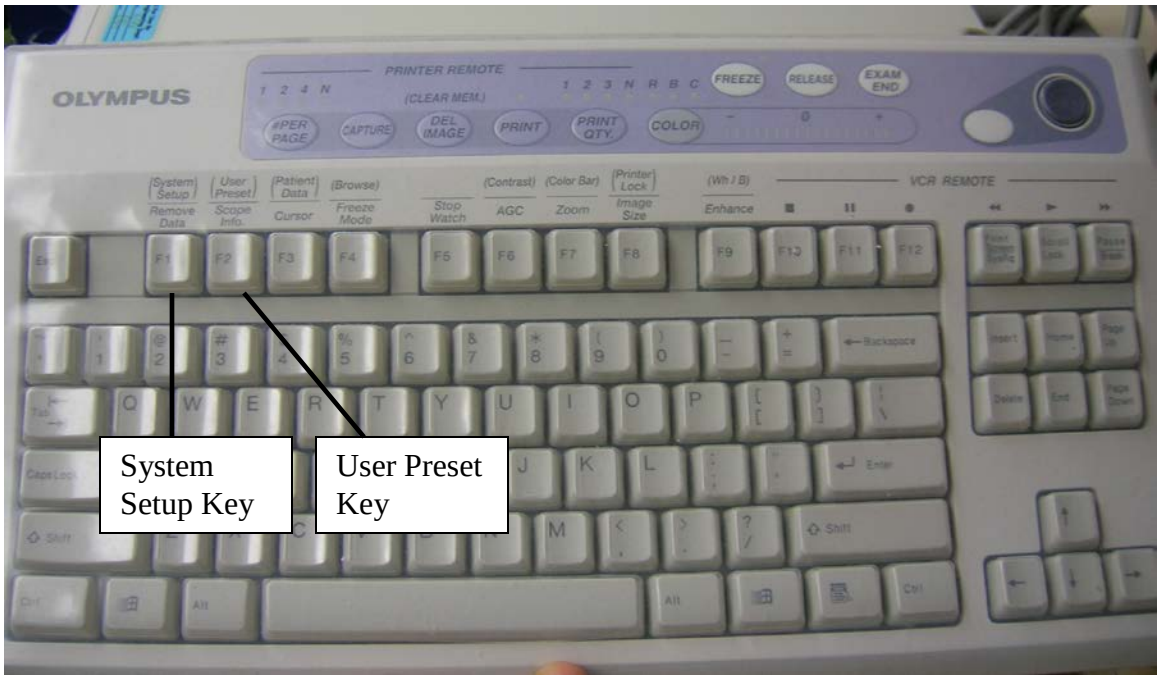


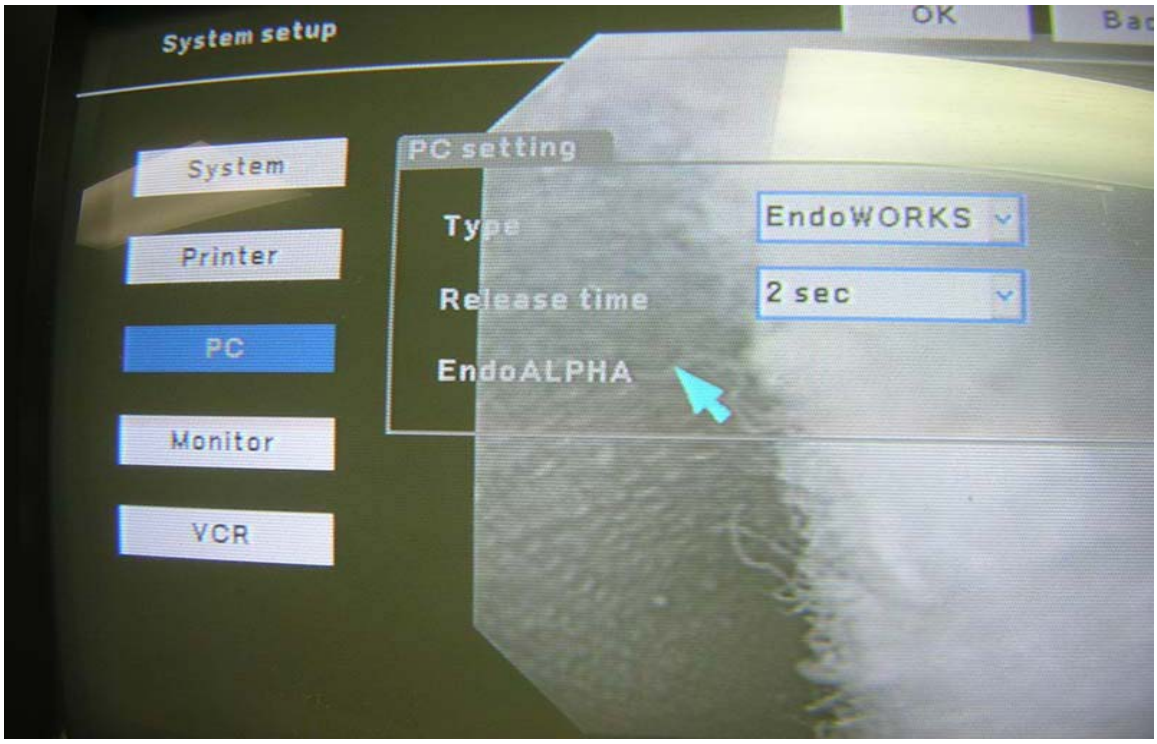
Olympus CV-180 with dPict-HDS Cabling for HD



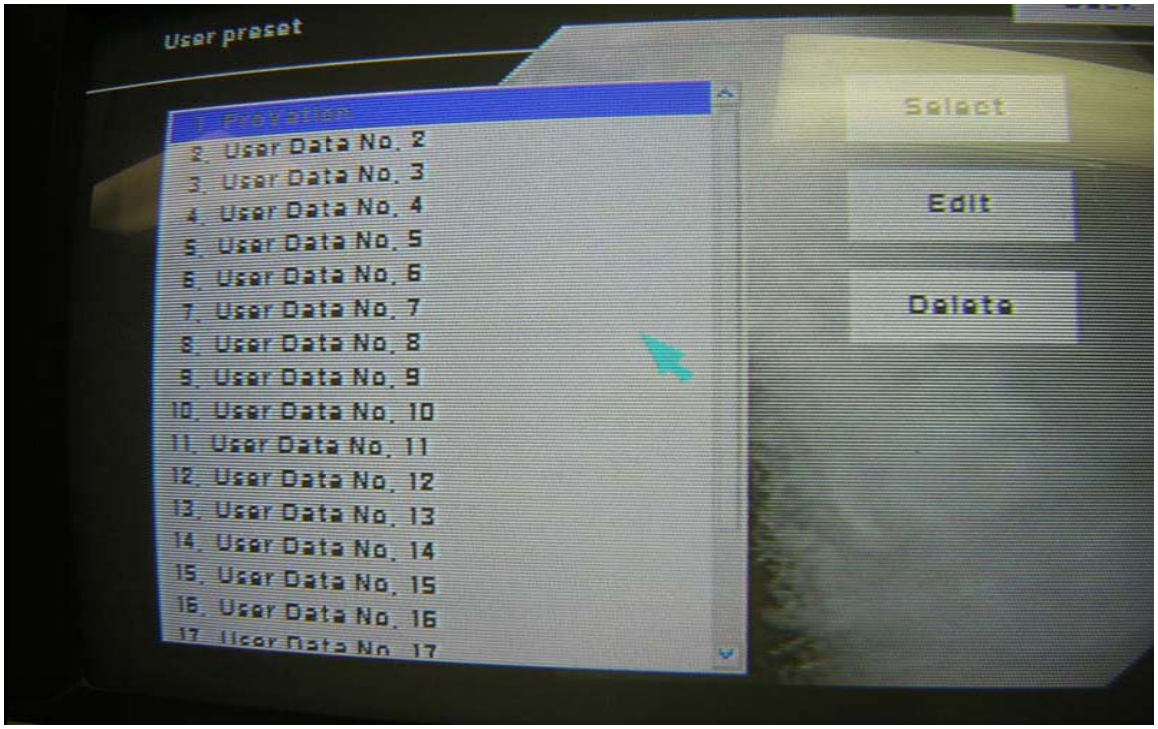
Olympus CV-180 Pictures for HD Images



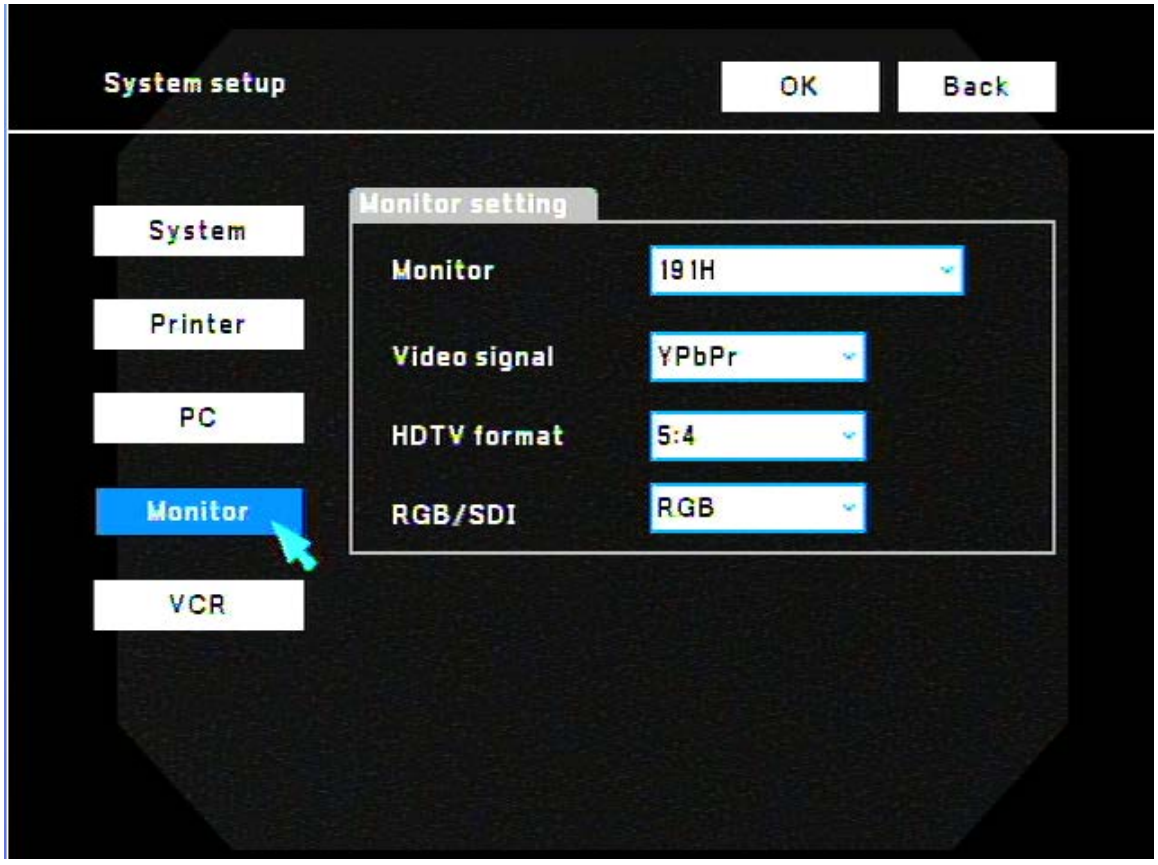

OLYMPUS
System Setup Key
User Preset Key


System setup
OK
System
Printer
PC
Monitor
VCR
PC setting
Type
EndoWORKS
Release time
2 sec
EndoALPHA


User name
ProVation
EXERA
VISERA
Release
Adjustment
Image size
Brightness
Display
PinP
Special light
Release setting
Release1
Release2
Picture
SHQ
Freeze mode
Field


User preset
1. ProVation
2. User Data No. 2
3. User Data No. 3
4. User Data No. 4
5. User Data No. 5
6. User Data No. 6
7. User Data No. 7
8. User Data No. 8
9. User Data No. 9
10. User Data No. 10
11. User Data No. 11
12. User Data No. 12
13. User Data No. 13
14. User Data No. 14
15. User Data No. 15
16. User Data No. 16
Select
Edit
Delete


User preset
Default
OK
Back
User name
ProVation
EXERA
VISERA
Release
Adjustment
Image size
Brightness
Display
PinP
Special light
Scope switch
Switch 1
Freeze
Switch 2
Enhance
Switch 3
Iris
Switch 4
Release1
Foot switch
Switch 1
None
Switch 2
None


System setup
OK
Back
System
Printer
PC
Monitor
VCR
Monitor setting
Monitor
191H
Video signal
YPbPr
HDTV format
5:4
RGB/SDI
RGB

Olympus CV-180 Cabling and Configuration for HD Images setup

To connect an Olympus CV-180 processor to a computer, each processor will need the following:

1.) Olympus CV-180 Processor
2.) SDI Cable
3.) Olympus Digital File Cable
4.) Barrel Connector (if using an extension cable)
5.) Image Capture Card

To connect the cabling, follow the below steps:

1.) Connect the Photo Cable:
   a. Connect one end of the SDI Cable to the port labeled HD/SD SDI Out on the back of the Olympus Processor. The PC Out 2 port can also be used as an HD SDI alternative.
   b. Connect the other end of the composite cable to the HD/SD SDI In port on the image capture card (See diagram above for more detail).
2.) Connect the digital file cable into the PC remote port on the back of the processor. This cable ends with a female 9 pin connector, which should be plugged into the serial port on the back of the ProVation MD image capture computer.
3.) Change the Settings in the Olympus Processor:
   a. Using the Olympus CV-180 Keyboard and looking at the clinical monitor (not the computer screen) press Shift + F1 (system setup key) on the keyboard (top left button).
   b. On the screen that appears use the mouse cursor to get to the PC Entry on the left hand side and select it.
   c. In the screen that comes up make sure that Type is set to Endoworks.
   d. Release time can be set to anything (usually .5).
   e. Then click on OK.
   f. At the prompt that reads, "Are you sure? Y/N", Press Y.
   g. Use the mouse cursor to get to the Monitor Entry on the left hand side and select it.
   h. In the screen that comes up set the following settings to enable the SDI port.
      i. Monitor = 191H
      ii. Video Signal = YPbPr
      iii. HDTV format = 4:3
      iv. RGB/SDI = SDI
   i. Then click on OK
   j. At the prompt that reads, "Are you sure? Y/N", Press Y.
   k. Press the Esc. Key to exit out of the screen.
   l. Using the Olympus keyboard, press the Shift + F2 (User Preset Key).

m. Highlight the default Entry (usually entry #1) and choose to edit it.
n. In the screen that appears use the mouse to choose the Release menu option on the Left side of the screen.
o. Make sure that ONLY digital file is checked under the Release1 settings – all other options can be unchecked.
p. Click on OK.
q. At the prompt that reads, "Are you sure? Y/N", Press Y.

4.) Set up the Scope Buttons to Capture:
   a. You will also want to ensure that at least one of the scope buttons is set to Release1. (The release setting is what actually triggers the computer to capture images.):
   b. With the CV-180 keyboard plugged into the CV-180 video processor, while viewing the clinical monitor (not the computer monitor) press the Shift + F2 (User Preset key).
   c. Choose the Default configuration and choose to edit it.
   d. On the screen that appears make sure that at least one of the buttons is set to Release1.
   e. Then hit the OK button and at the prompt that reads, "Are you sure? Y/N", press Y.
   f. Press Esc to return to the normal viewing screen.

5.) In ProVation MD, set the following settings to enable image capture mode:
   a. Set Capturecard = True
   b. Set Cardname = The image capture card you are using
   c. Set Computername = A unique name for the room you are in (I.E. ROOM1) –
      Note This name should be in all caps and should not have any spaces in the name.
   d. Set InputSignalPrimary = SDI 1080i 59.94 fps
   e. Set InputSignalSecondary = Composite (*only for Black Magic*)
   f. Set manufacturer to Olympus in the configuration settings screen for the ProVation MD image capture computer.

Olympus CV-190 for HD Images

Olympus CV-190 Cables for HD Images

NOTE For sites that have a boom installation or cabling run through the wall, a limitation to the Olympus CV-190 converter box only allows for cable lengths of up to 50' uninterrupted. Adding in extra connections will degrade the signal quicker. For this reason ProVation Medical recommends the following options:

1.) Place the PC next to the CV-190 on the cart or boom
2.) Place the PC at the desk, but make sure that all cable lengths are as short as possible (CV-190 to wall plate, through the wall, wall plate to image capture PC).

The Olympus CV-190 Processor requires the following 4 items that are proprietary to Olympus.

1. SDI Cable (B-B-15 OR 99021, based on image capture card)
2. Remote Digital File Cable (for image capture signal, connects to serial port in computer running ProVation MD)
3. Interface converter box (MAJ-1916)
4. Interface converter cable (MAJ-1918)

Each cable listed above comes in varying lengths, and may be extended with other non-proprietary cables. Below is a list of the Olympus part numbers and lengths of each cable. Also listed are the extension cables needed, which are purchased from Black Box Corporation, a cable manufacturer. Barrel connectors are used to connect two BNC cables together.

<u>SDI Cable (Live video) – Premium HD BNC Male to Male Molded Video Cable 15 ft (Part number from Digital Pictures)</u>

- B-B-15 (BlackMagic) length of 15'

<u>SDI Cable (Live video) – RG59 / BNC 10 ft. Cable (Part number from dPict)</u>

- 99021 (dPict HDS) length of 10'

<u>Olympus Remote Digital File Cable (Capture signal)</u>

- 55645L6-1 length of 6'
- 55645L10-1 length of 10'
- 55645L25-1 length of 25'

Extension cables for Remote Digital File Cable (Part numbers from Black Box Corporation)

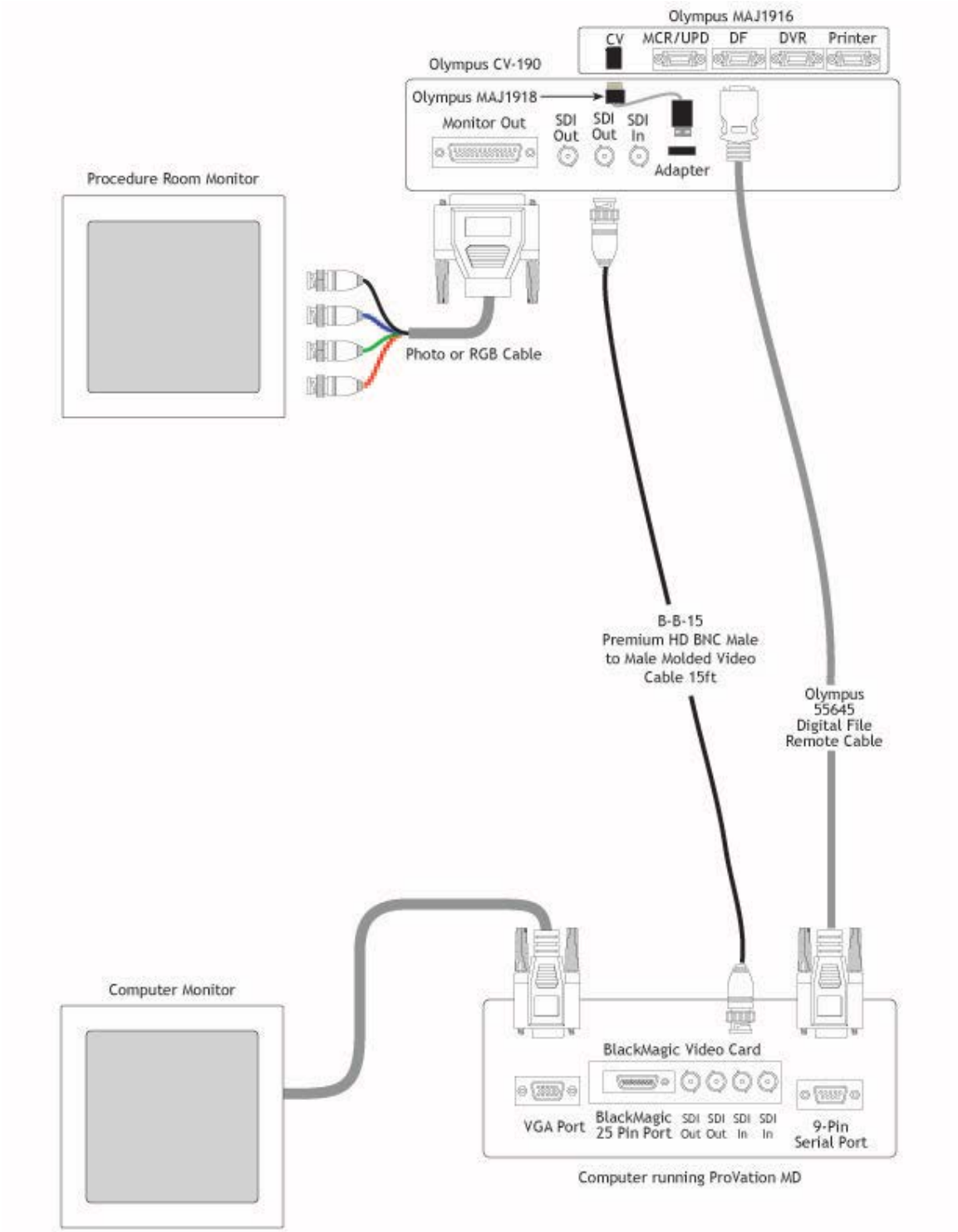
- EDN12H-0005-MF length of 5’
- EDN12H-0010-MF length of 10’
- EDN12H-0025-MF length of 25’
- EDN12H-0050-MF length of 50’
- Custom cable length over 50’

Optional ‘Y’ cable needed for sites using a Flush pump (splits digital file cable to allow two connections – Purchased from Olympus

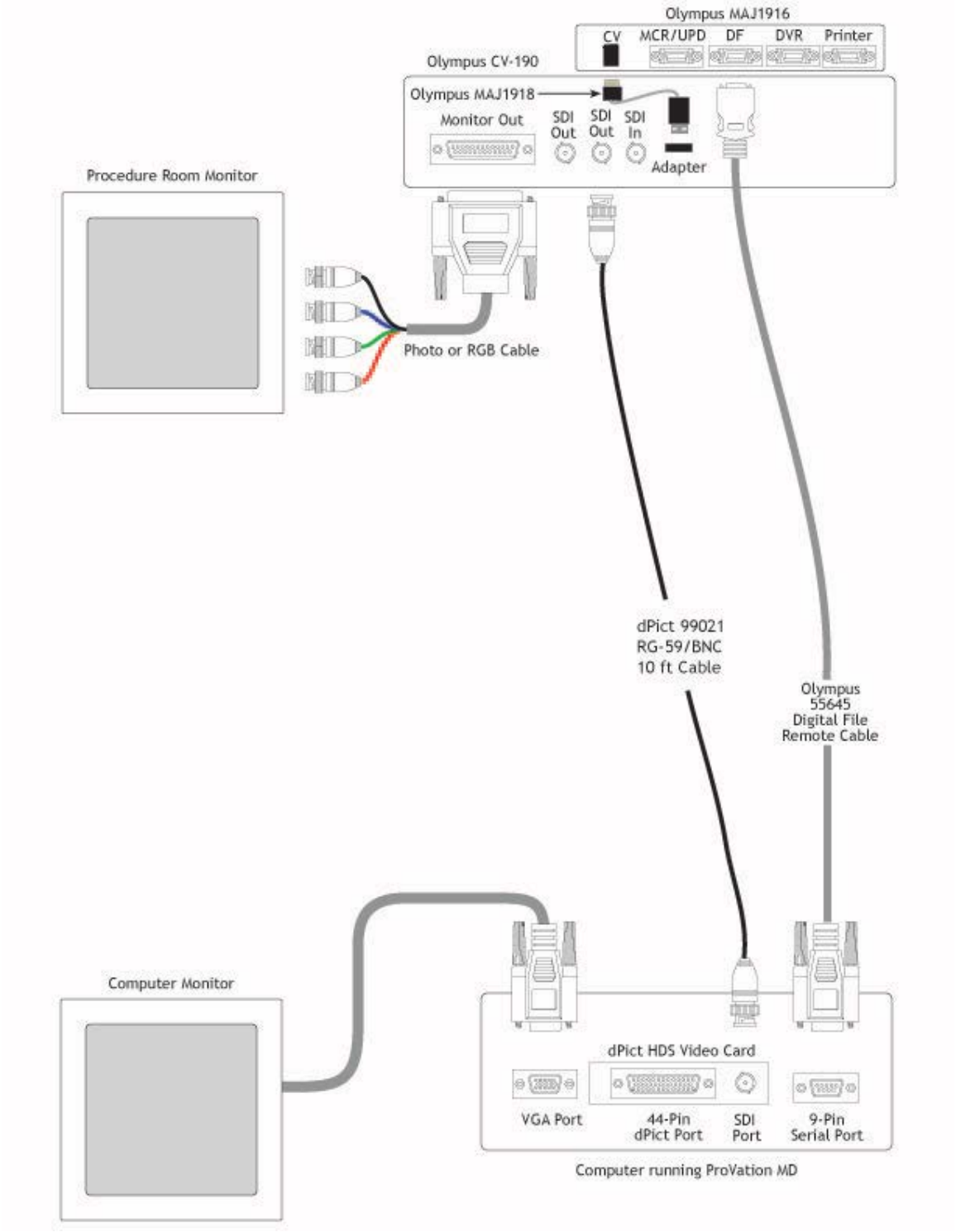
- IS40088

Olympus CV-190 Cabling Diagrams for HD Images

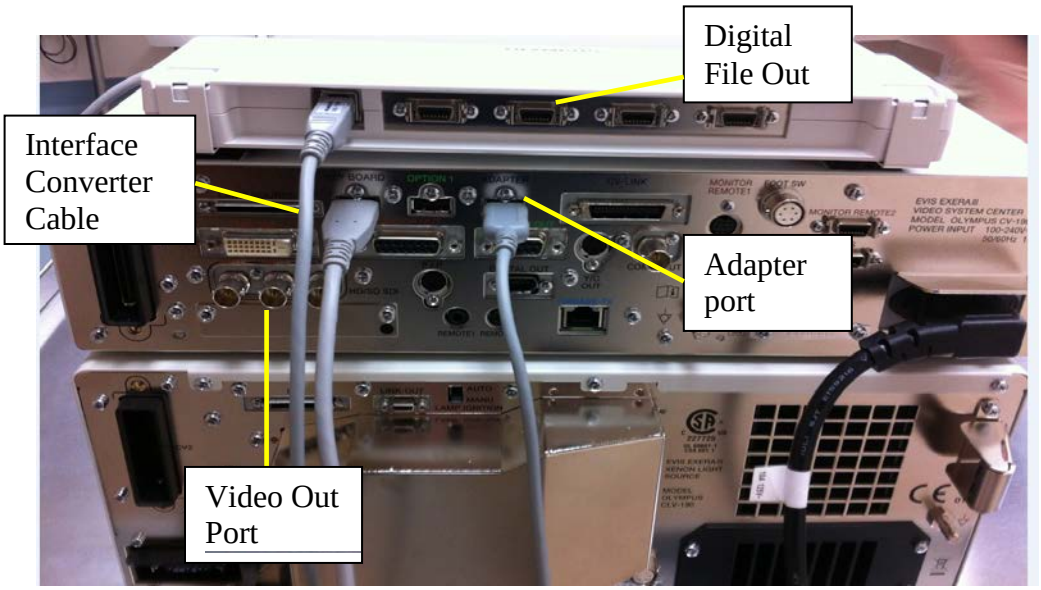
Olympus CV-190 with BlackMagic Cabling



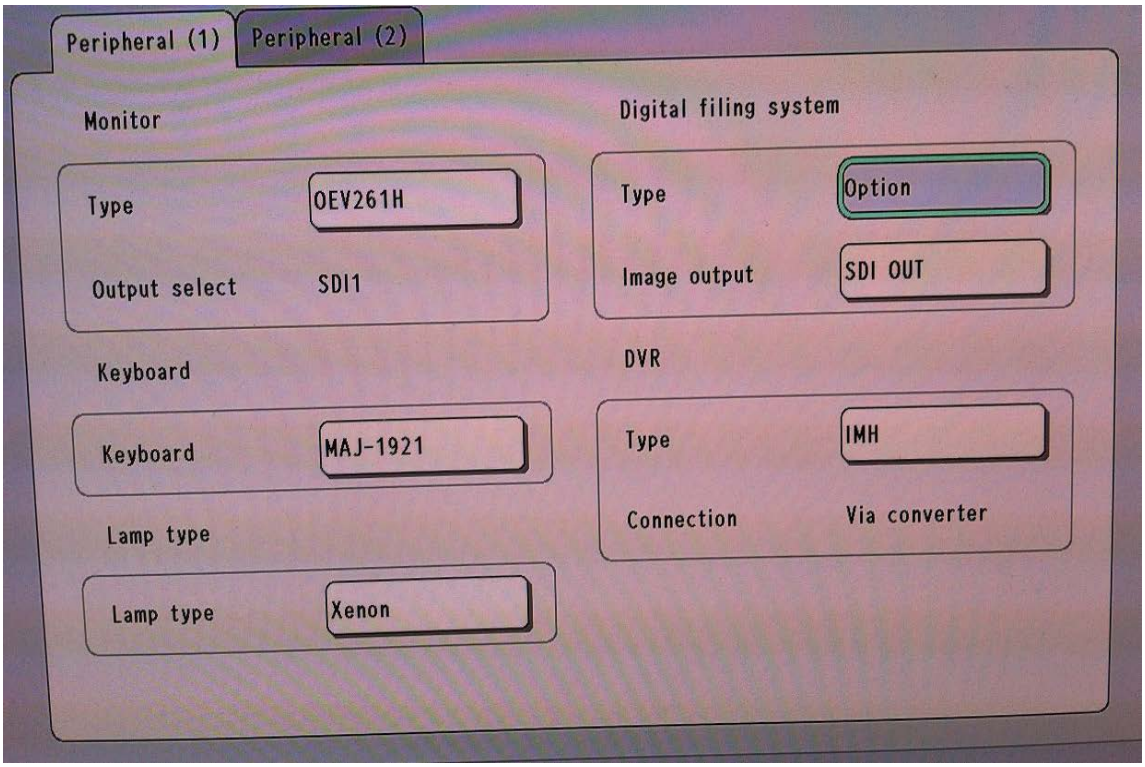
Olympus CV-190 with dPict-HDS Cabling for HD

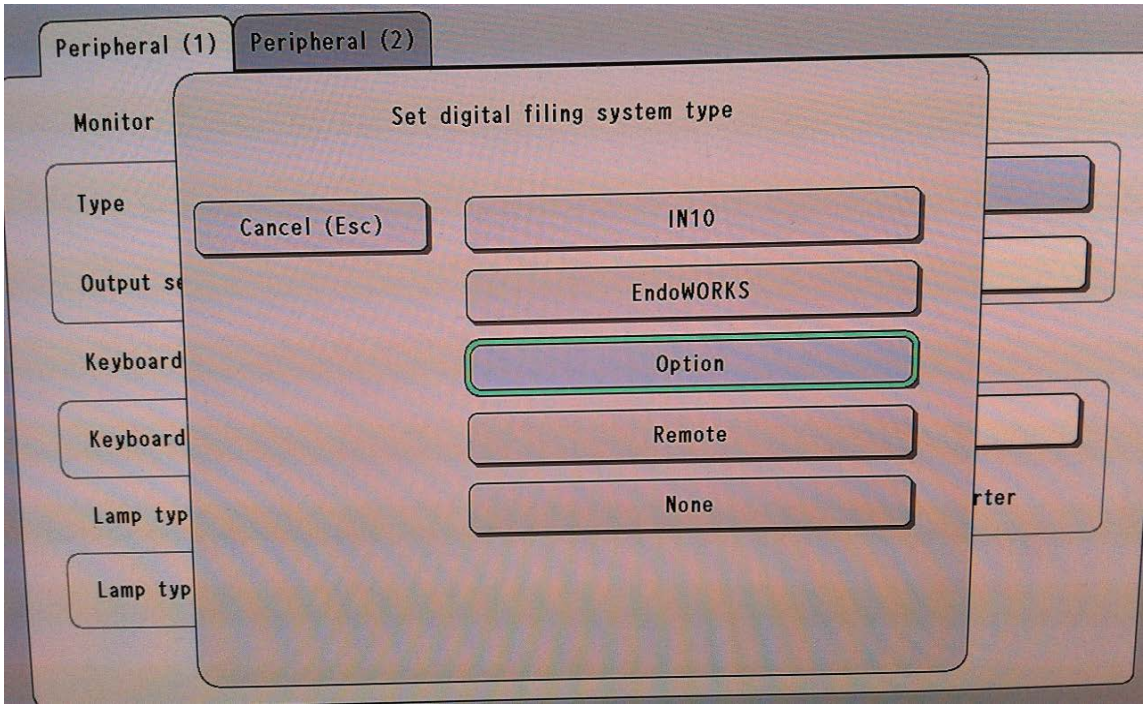


Olympus CV-190 Pictures for HD Images




OLYMPUS
Menu
Key


Peripheral (1)
Peripheral (2)
Monitor
Type
OEV261H
Output select
SDI1
Digital filing system
Type
Option
Image output
SDI OUT
Keyboard
Keyboard
MAJ-1921
Lamp type
Lamp type
Xenon
DVR
Type
IMH
Connection
Via converter


Peripheral (1)
Peripheral (2)
Monitor
Type
Output se
Keyboard
Keyboard
Lamp typ
Lamp typ
Set digital filing system type
Cancel (Esc)
IN10
EndoWORKS
Option
Remote
None
rter

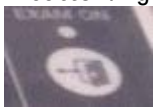
Olympus CV-190 Cabling and Configuration for HD images setup

To connect an Olympus CV-190 processor to a computer, each processor will need the following:

1.) Olympus CV-190 Processor
2.) SDI Cable
3.) Olympus Digital File Cable
4.) Olympus Interface Converter Box (MAJ-1916)
5.) Olympus Interface Converter Cable (MAJ-1918)
6.) Image Capture Card
7.) Image Capture Card Cable(s)

To connect the cabling, follow the below steps:

1.) Connect the Photo Cable:
   a. Connect one end of the SDI cable to the port labeled SDI Out on the back of the Olympus Processor.
   b. Plug the other end of the SDI cable to the SDI In port on the image capture card on the computer.
2.) Connect the Olympus Interface Converter cable to the USB port on the back of the Olympus CV-190 in the port labeled adapter and the other end to the CV port on the Olympus Interface Converter box.
3.) Connect the digital file cable into the DF remote port on the back of the interface converter box. This cable ends with a female 9 pin connector, which should be plugged into the serial port on the back of the ProVation MD image capture computer.
4.) Change the settings in the Olympus Processor:
   a. Using the Olympus CV-190 Keyboard and looking at the clinical monitor (not the computer screen) press the Menu on the keyboard (top right of the keyboard).
   b. On the main setup screen select Advanced Menu.
   c. Select System Setup from the Advanced Menu options screen.
   d. Select Peripheral Settings from the system setup menu.
   e. From the peripheral settings menu, select the Peripheral (1) tab.
   f. Within the Peripheral (1) tab select the Type dropdown menu in the Digital Filing System Section on the upper right portion of the screen.

Note:
If the 'Exam On' button/light in the upper right portion of the keyboard is on 

the 'Type' dropdown menu will be disabled (grayed out). This is by design to prevent changes during a procedure. If the 'Type' dropdown is disabled, simply exit the menu system and press the 'Exam On' button to turn it off and navigate back through the menu selections.

   g. Select Option from the Type dropdown menu.
   h. Return to the main menu and select User Settings.

i. Select edit from the user settings menu.
j. Select Input from the edit menu.
k. Select Basic from the input menu.
l. Select the Release 1 tab from the Basic menu.
m. Within the Release 1 tab select the DF Device dropdown menu and select On from the menu.
n. Select Back (Esc) and select Save on the "Data has been changed" prompt.
o. Highlight Select (S) button and pick the current user.
p. Select Yes on "Do you want to make a call?" prompt.

5.) Set up the Scope Buttons to Capture:
a. Push the menu button on the keyboard.
b. Arrow down to User Settings and press enter on the keyboard.
c. Arrow down to Edit and press enter on the keyboard.
d. Arrow to preset and press enter on the keyboard.
e. Select Basic Setup and press enter on the keyboard.
f. Select the release 1 tab and verify that DF Device is set to 'On'.
g. Return to the preset menu and select the Scope Switch tab. The configured options appear.
h. Ensure that one of the switches (typically 4) is set to Release 1.

6.) If you need to adjust the release times for the scope buttons follow these steps:
a. Press menu on the keyboard.
b. Arrow down to the (+) Advanced Menu and press enter on the keyboard.
c. Select system setup and press enter on the keyboard.
d. Select System and press enter on the keyboard.
e. Select release time S (Standard Definition Release Time) and set the DF device to the desired release time (Typically 0.5 Sec).
f. Select release time H (High Definition Release Time) and set the DF device to the desired release time (Typically 0.5 Sec).

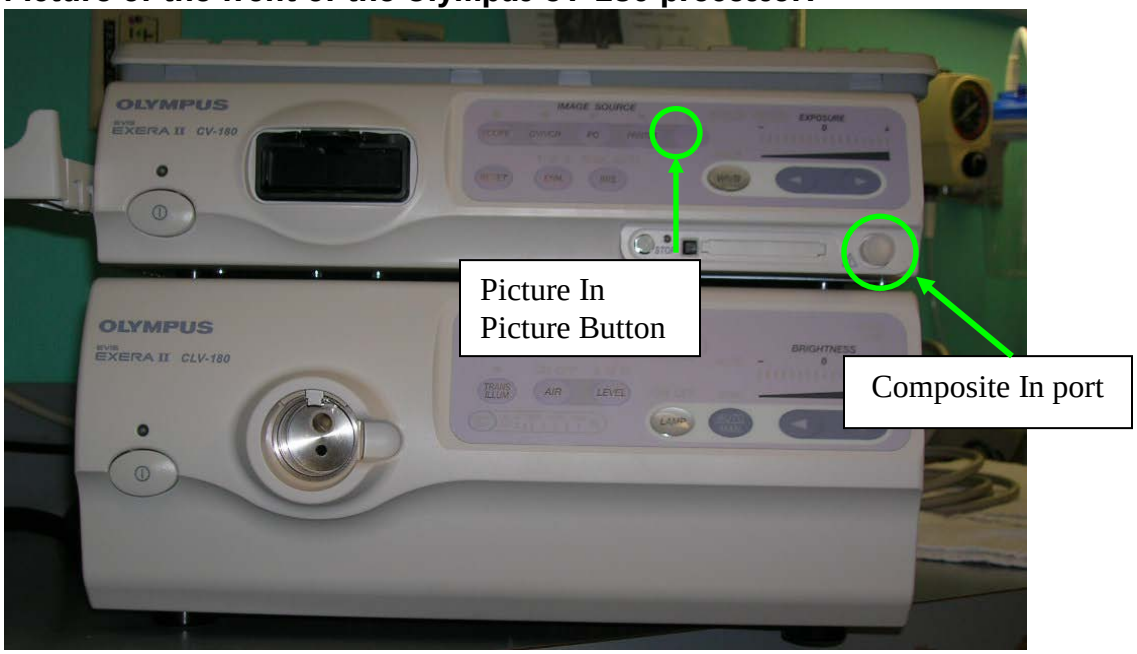
7.) In ProVation MD, set the following settings to enable image capture mode:
a. Set Capturecard = True
b. Set Cardname = The image capture card you are using
c. Set Computername = A unique name for the room you are in (I.E. ROOM1) –
Note This name should be in all caps and should not have any spaces in the name.
d. Set manufacturer to Olympus in the configuration settings screen for the ProVation MD image capture computer.

Picture in Picture Support

Olympus CV-180 Picture In Picture Connection Options

We can also connect a composite signal to the front of the CV-180 processor and use the scope to switch between the signals going into ProVation. This will help us to eliminate using the switchbox for clients that are using the CV-180 as well as eliminating a need for the foot switch in the room because all connections are going through the Olympus processor.

Picture of the front of the Olympus CV-180 processor:



Setup:

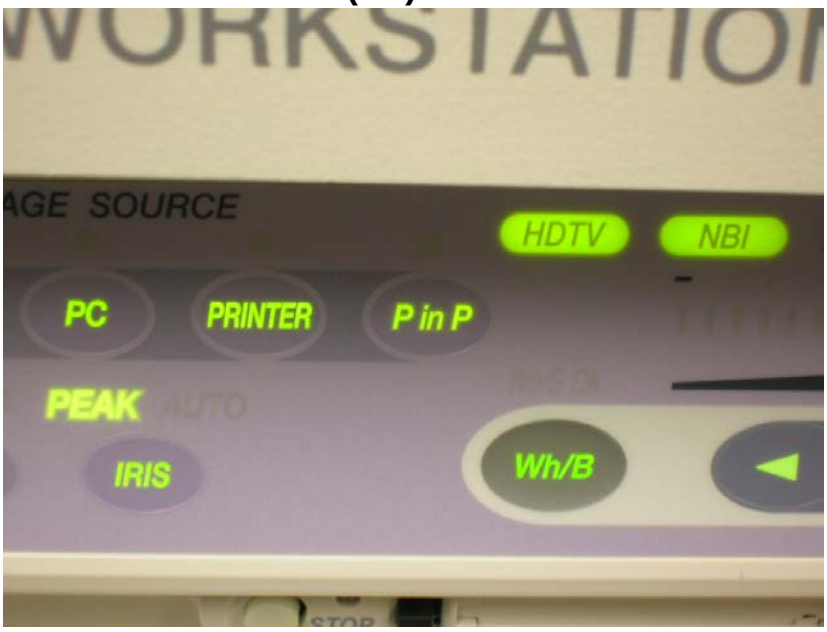
1.) To set this scenario up, connect a composite signal to the port on the front of the CV-180 Processor, or an S-video cable to the port on the back (See Pictures).
2.) To switch between the signals, press the Picture In Picture (PIP) button until your desired image is on the procedure monitor.
3.) What you see on the procedure monitor you should also see in the ProVation image capture screen.
4.) The doctor can still use the scope to capture this image like normal.
5.) To return to the scope image simply press the Picture In Picture button until your desired image is on the procedure monitor.
6.) A scope button can be configured to do the Picture In Picture switching if desired.

You may also need to make the following setting changes on the Olympus Processor for this functionality to work:

1.) Attach s-video cable from EUS to PinP on the back of Olympus CV-180.
2.) Using the Olympus Keyboard enter the user presets by pressing Shift F2.
3.) Arrow down to PinP and press enter.
4.) Arrow over to Movement, change the field value from On/Off to Mode Change. Exit User Presets and save changes.

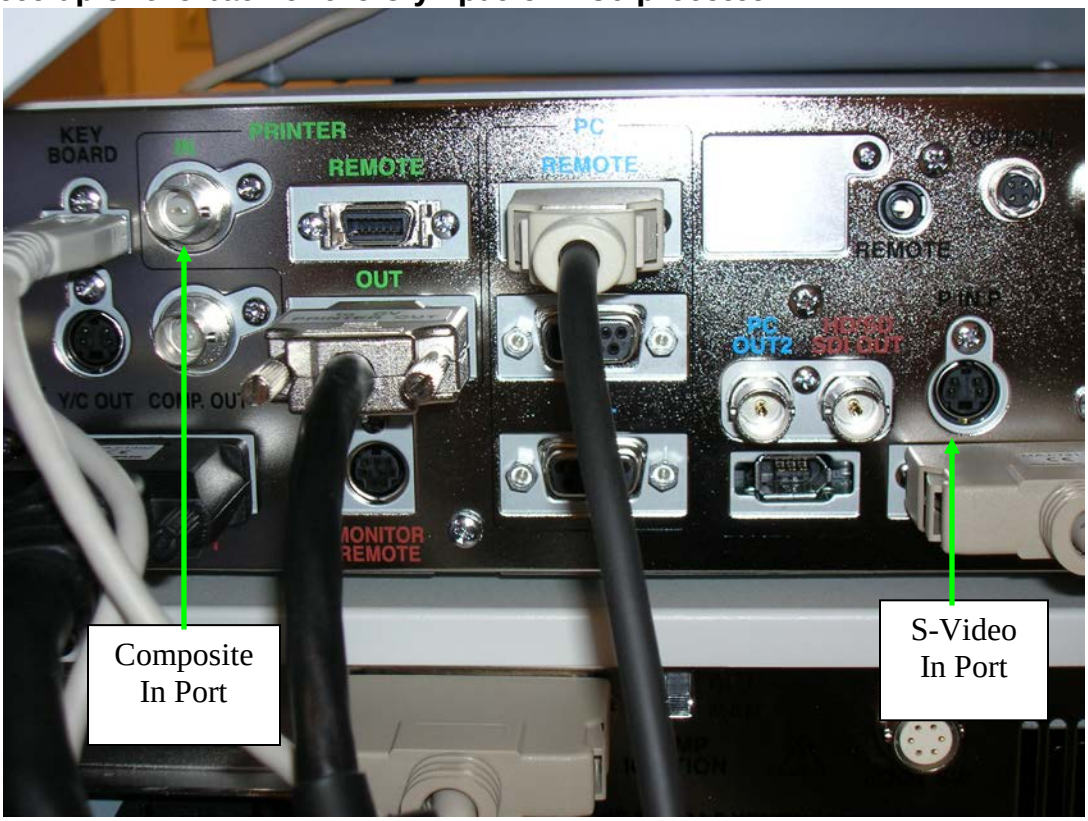
Close up of the Composite in port on the front of the processor:

Close up of the Picture in Picture (PIP) button:



You can also connect the composite, or s-video connections on the back of the Olympus processor and still use the same picture in picture button to switch signals.

Close up of the back of the Olympus CV-180 processor:



Olympus CV-190 Picture in Picture Connection Options

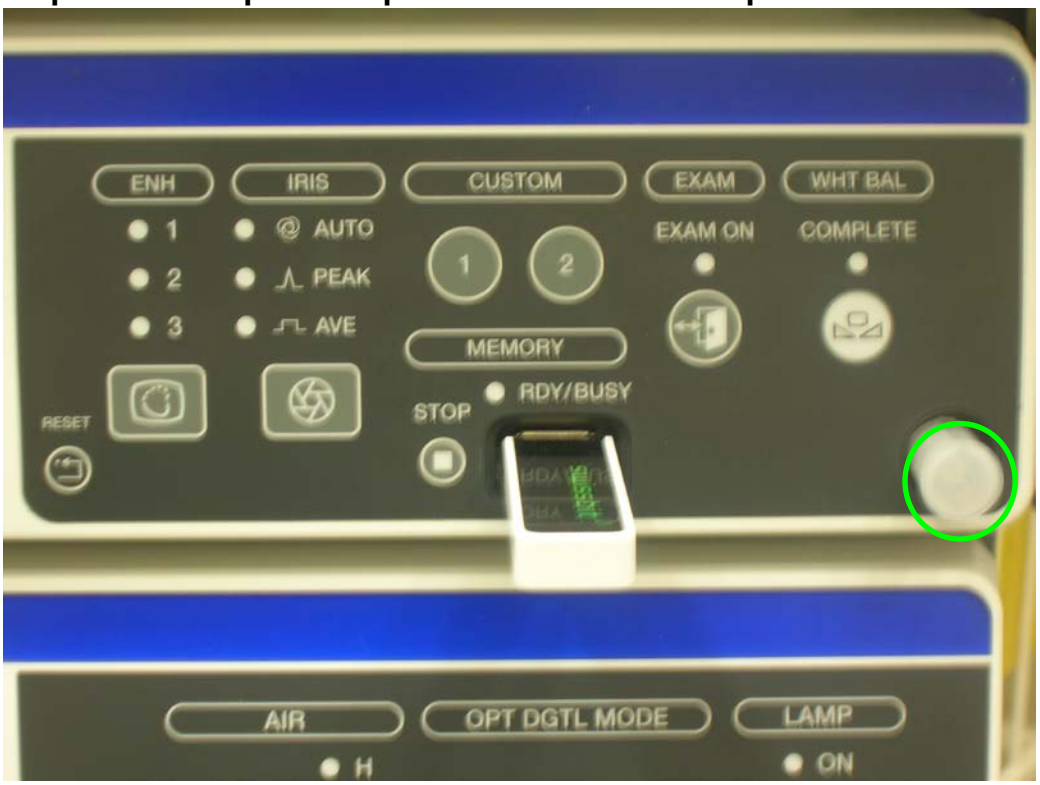
We can also connect a composite signal to the front of the CV-190 processor and use the scope to switch between the signals going into ProVation. This will help us to eliminate using the switchbox for clients that are using the CV-190 as well as eliminating a need for the foot switch in the room because all connections are going through the Olympus processor.

Picture of the front of the Olympus CV-190 processor:

Setup:

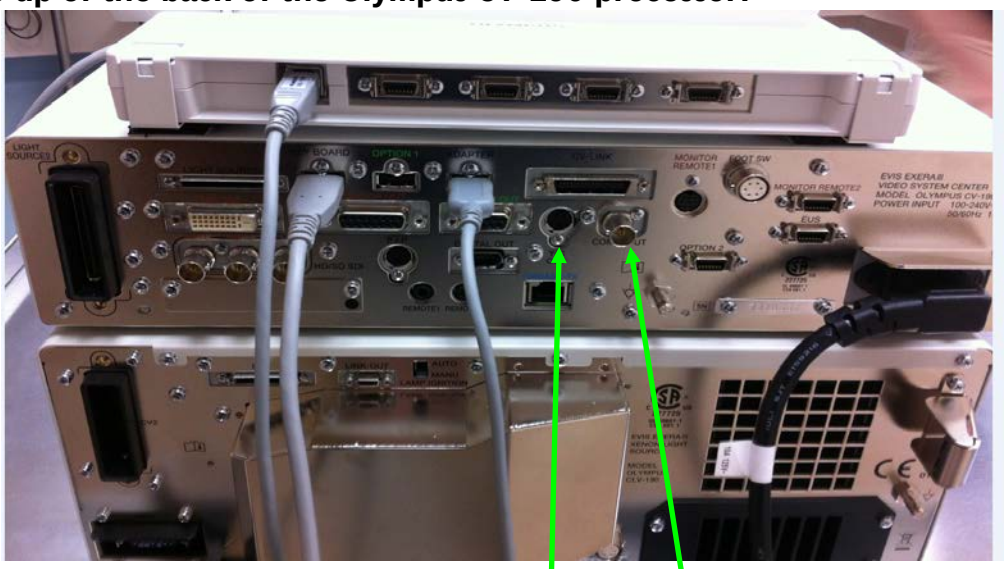
1.) To set this scenario up, connect a composite signal to the port on the front of the CV-190 Processor, or an S-video cable to the port on the back (See Pictures).
2.) To switch between the signals, press the Picture In Picture (PIP) button on the Olympus Keyboard until your desired image is on the procedure monitor.
3.) What you see on the procedure monitor you should also see in the ProVation image capture screen.
4.) The doctor can still use the scope to capture this image like normal.
5.) To return to the scope image simply press the Picture In Picture button until your desired image is on the procedure monitor.
6.) A scope button can be configured to do the Picture In Picture switching if desired.
7.) You can also connect the composite, or s-video connections on the back of the Olympus processor and still use the same picture in picture button to switch signals.

Close up of the Composite in port on the front of the processor:



Close up of the Picture in Picture (PIP) button on the keyboard:

Close up of the back of the Olympus CV-190 processor:

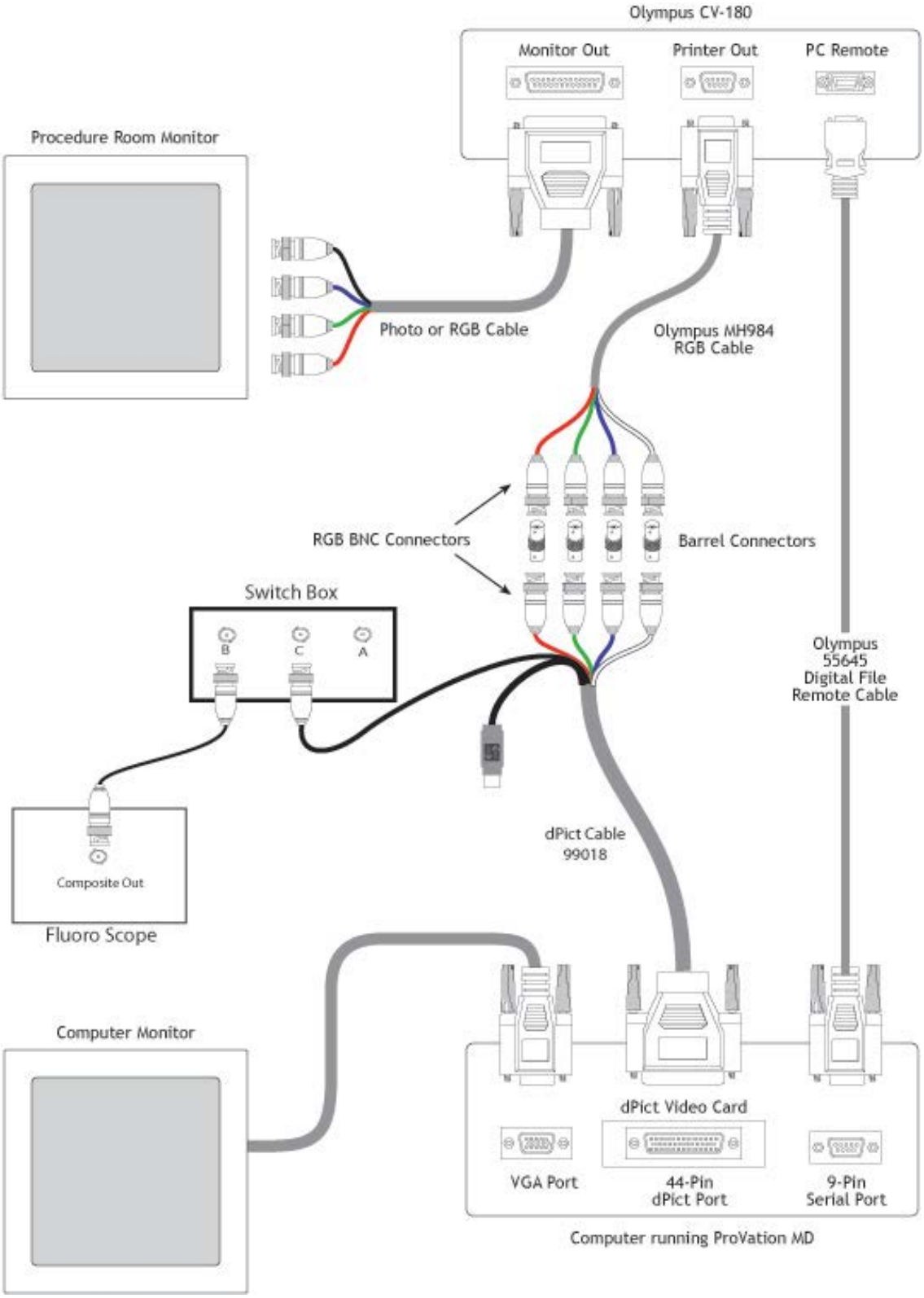


Cabling Diagrams for Switchbox Configurations

Many sites, especially hospitals, will connect more than the scope processor to the image capture computer. Some extra devices that may be hooked up could be an EUS machine or a C-Arm. In these cases we need to set up a switchbox to change the input signal that comes into the image capture computer.

Below are some generic cabling diagrams to show how a switchbox can be incorporated into the cabling scheme. In some cases the digital file cable can be replaced with a foot pedal to allow capturing to happen without the scope.

Olympus Processor with switchbox configuration for dPict cards



Cabling Recommendations for Behind the Wall Cabling

For the image capture capability of the ProVation MD Application to function, the ProVation MD image capture workstation must be connected to the client's video processor (i.e. Olympus CV-160, Pentax EPK-700, etc.). This connection is made via two cables, which in most cases are proprietary to the video processor vendor:

- **Photo Cable** (Video Cable)- The Photo Cable passes the image from the video processor to the ProVation MD workstation. In some instances, prior to the installation of the ProVation MD workstation, this cable may already exist, and connects the video processor to the mavigraph printer.
- **Remote Digital File Cable** (Trigger Cable)– The Remote Digital File Cable passes the image capture signal from the video processor to the ProVation MD workstation.

Recommended Cabling Configuration

In most scenarios, it is recommended to have the ProVation MD workstation reside on the same cart as the video processor, or in close proximity to the video processor. This would allow for an easier cabling configuration, less cables lying on the procedure room floor, and decrease costs for other cabling configuration scenarios. Ideally, the Photo Cable and the Remote Digital File Cable (RDFC) would connect directly from the video processor to the ProVation MD workstation.

Sometimes, room layout and work process flows do not allow the ProVation MD workstation to reside on the same cart or in close proximity to the video processor. In these cases, the ProVation MD workstation may reside on the opposite side of the room from the video processor. This room configuration lends itself to an alternative cabling configuration. Since it is less than desirable to run the cables across the floor, or dropped through ceiling panels, the cabling configuration outlined below may be desired.

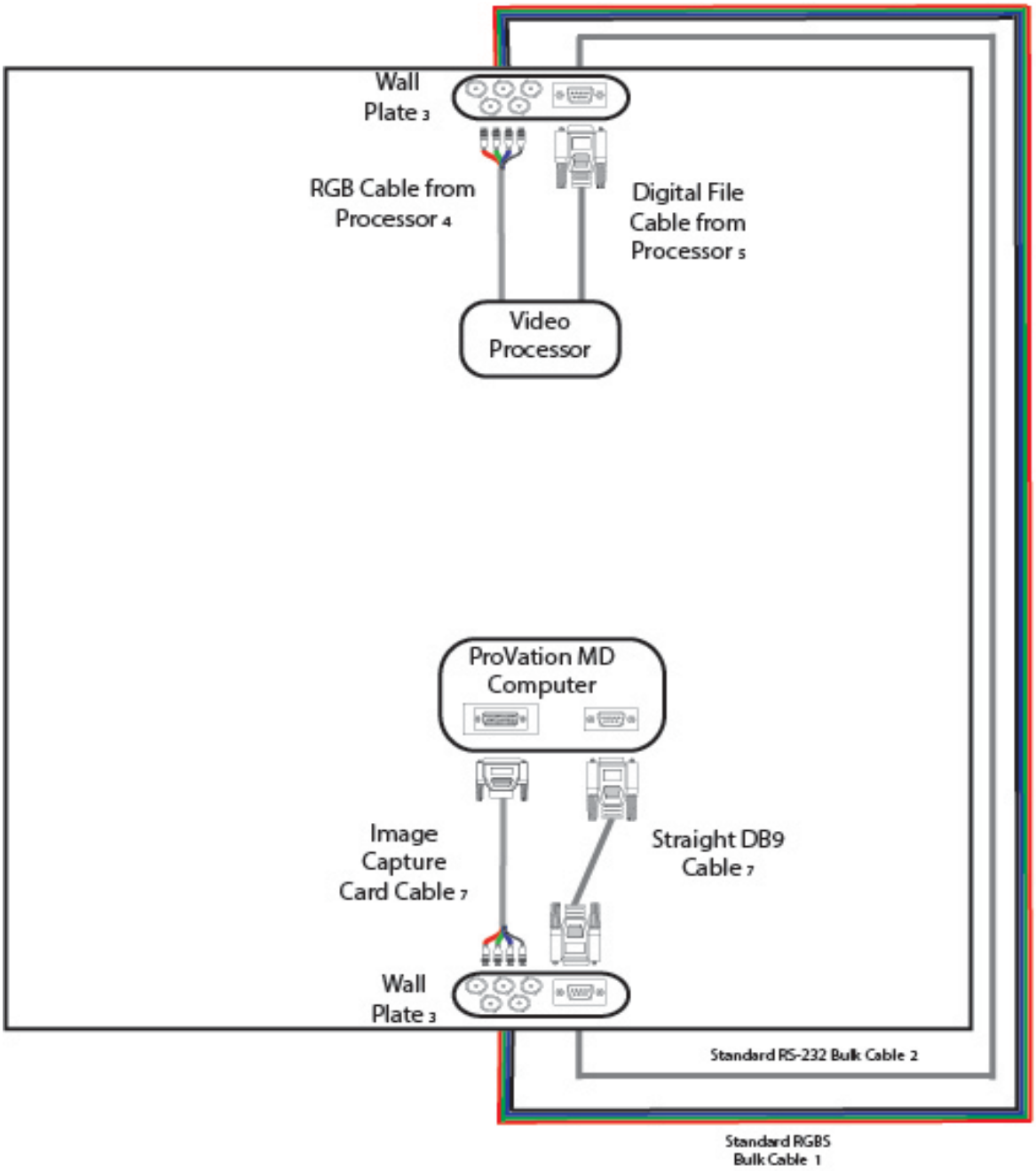
Alternative Cabling Configuration

This alternative cabling configuration involves running extensions of the Photo and Remote Digital File Cables from the video processor through the walls to reach their desired destination near the ProVation MD workstation. This cabling configuration would still require the client to purchase proprietary cables from the video processor vendor (i.e. Olympus, Pentax, etc.), along with additional standard cables and wall plates from cabling vendors.

1. The video processor cables would run directly from the video processor and connect to a wall plate, located on the wall in close proximity to the video processor.
2. The wall plate would require five Female BNC connectors (for SD Images) or 1 Female BNC connector (for HD Images) and one Male DB9 connector.

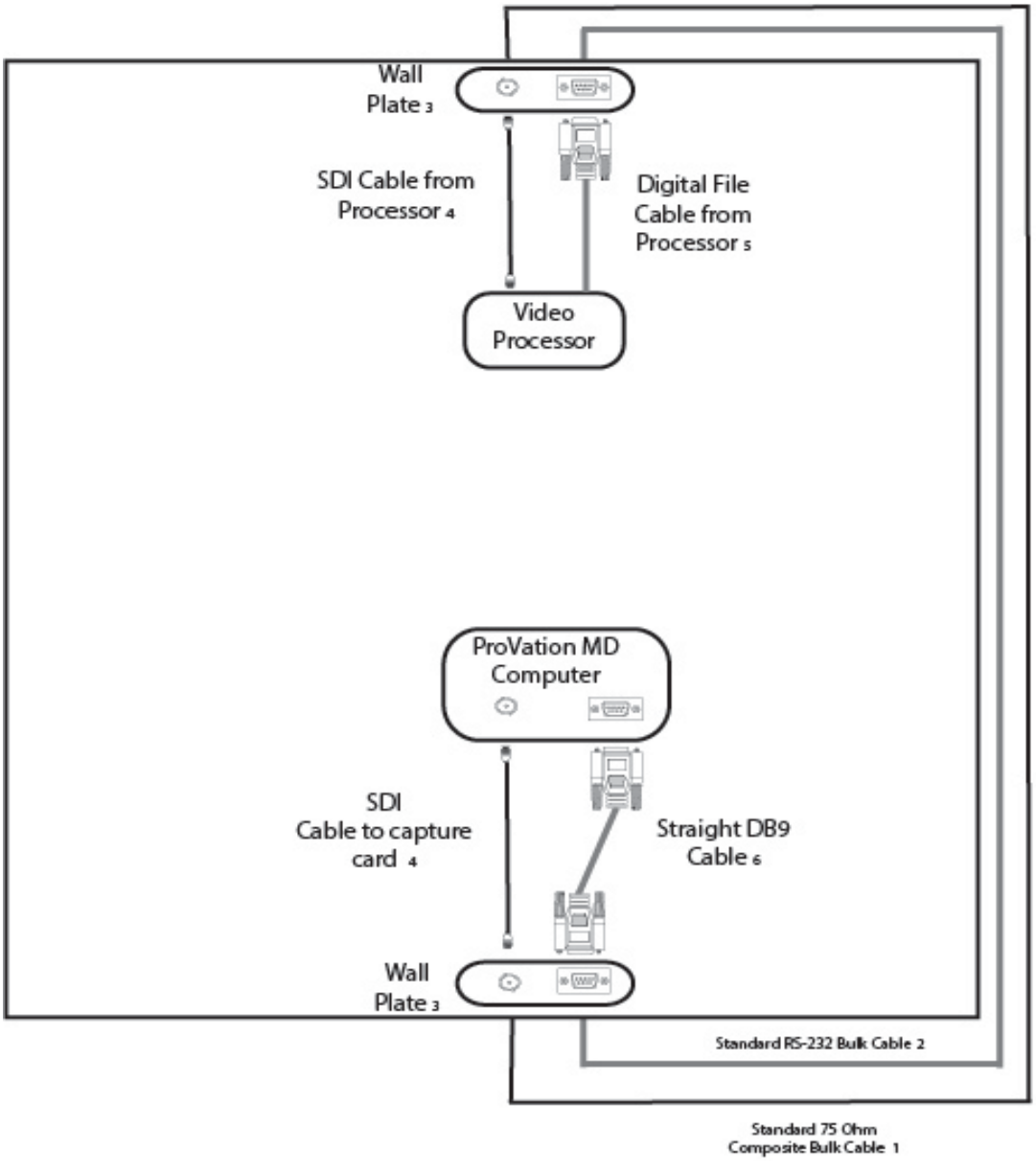
3. Standard RGBS, composite, and Straight 9-Pin cabling would run from the wall plate near the video processor, to the wall plate across the room in close proximity to the ProVation MD workstation.
4. These cables will terminate at the wall plate in close proximity to the ProVation MD workstation. This wall plate would require five Female BNC connectors (for SD Images) or 1 Female BNC connector (for HD Images) and one Male DB9 connector.
5. The ProVation MD workstation needs to connect directly with the wall plate in close proximity to this workstation. The ProVation MD workstation will connect to the wall plate via the image capture card cable, and Straight 9-Pin cables.
6. The Image capture card cable connects the image capture card to the wall plate. The image capture cable is a proprietary cable that is purchased as a kit along with the image capture card. The cable has RGBS and a Composite cable or s-video cable when used for SD images. For HD Images a 75 Ohm Composite cable is used to connect the image capture card to the wall. The image capture card enables the ProVation MD workstation to capture and import high quality endoscopic images from the video processors.
7. The Standard Straight 9-Pin cable (purchased separately) connects the wall plate near the ProVation MD workstation connects directly with the ProVation MD workstation. The connection at the ProVation MD workstation is a Female DB9 connection to Com Port 1 of the ProVation MD workstation.

Cabling and Wall Plate Connections for SD images



1.) Standard RGBS Bulk Cable - Connects BNC connectors from wall plate to wall plate behind the wall
2.) Standard RS-232 Bulk Cable - Connects RS-232 connectors from wall plate to wall plate behind the wall
3.) Wall Plate should have the following connections
    a.) 5 Female BNC Connectors - 4 are used for RGBS connection, 1 is used for composite cable (optional)
    b.) 1 Male RS-232 Connector
4.) RGB Cable From Processor - Typically a proprietary cable that must be ordered by the processor manufacturer - Connects processor to wall plate
5.) Digital File Cable From Processor - Typically a proprietary cable that must be ordered by the processor manufacturer - Connects processor to wall plate
6.) Image Capture Card Cable - Cable supplied with image capture card - connects computer to wall plate
7.) Straight DB9 Cable - Should be Female to Female - connects computer to wall plate

Cabling and Wall Plate Connections for HD images



1.) Standard 75 Ohm Composite Bulk Cable - Connects BNC connectors from wall plate to wall plate behind the wall
2.) Standard RS-232 Bulk Cable - Connects RS-232 connectors from wall plate to wall plate behind the wall
3.) Wall Plate should have the following connections
    a.) 1 Female BNC Connector
    b.) 1 Male RS-232 Connector
4.) SDI Cable From Processor - Male to Male 75 Ohm Composite cable
5.) Digital File Cable From Processor - Typically a proprietary cable that must be ordered by the processor manufacturer - Connects processor to wall plate
6.) Straight DB9 Cable - Should be Female to Female - connects computer to wall plate