

Users Manual



Marine Display Unit:
MDU12, MDU15, MDU19, MDU20

User Manual MDU Display

MDU12, MDU15, MDU19, MDU20.

Thank you for purchasing a Comark Corporation Marine Display Unit. We at Comark appreciate your business and strive to ensure you receive the highest quality product available to the Marine Industry.

About Comark Corporation

Comark Corporation has been a leading provider of military computers, LCD displays, enclosures, and distributed I/O platforms for over 35 years.

Our Commitment To Quality

Comark Corporation designs standard systems suitable for shipboard and mobile automation environments and excels at custom solutions for unique and challenging applications. We utilize high-performance, low-power processing, efficient thermal designs and rugged vibration-resistant enclosures and chassis. We thoroughly test all system designs for EMI, shock, vibration and thermal properties in our on-site testing facilities to ensure that the products we manufacture will function reliably in your application.

Our dedicated team provides in-depth product testing, new product design and part qualification. Comark has the equipment, facilities and experience to design solutions that operate reliably in tough conditions where dust, dirt, water, extreme temperatures, high shock and vibration are part of everyday operations.

With our quality products and outstanding service, we want to guarantee your success.

Contact Information

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Disclaimers

This manual contains specifications for the electrical, mechanical and input/output signals required for the Comark MDU display. Specifications are subject to change without notice. Please visit our website www.comarkcorp.com for the latest electronic versions of this manual

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Package Contents

51-0956X-XXX
50-09563-001
57-09563-001

Marine Display Unit
Kit MDUxx Panel Mounting
Software Distribution CD MDUxx

AC Input Power Kit Options

50-07613-001
or
50-07613-002

Kit Cable VGA and AC Power

Kit Cable VGA, AC Power and Serial TS

DC Power Kit Options

50-07613-201
or
50-07613-202

Kit Cable VGA, DC Power

Kit Cable VGA, DC Power and Serial TS

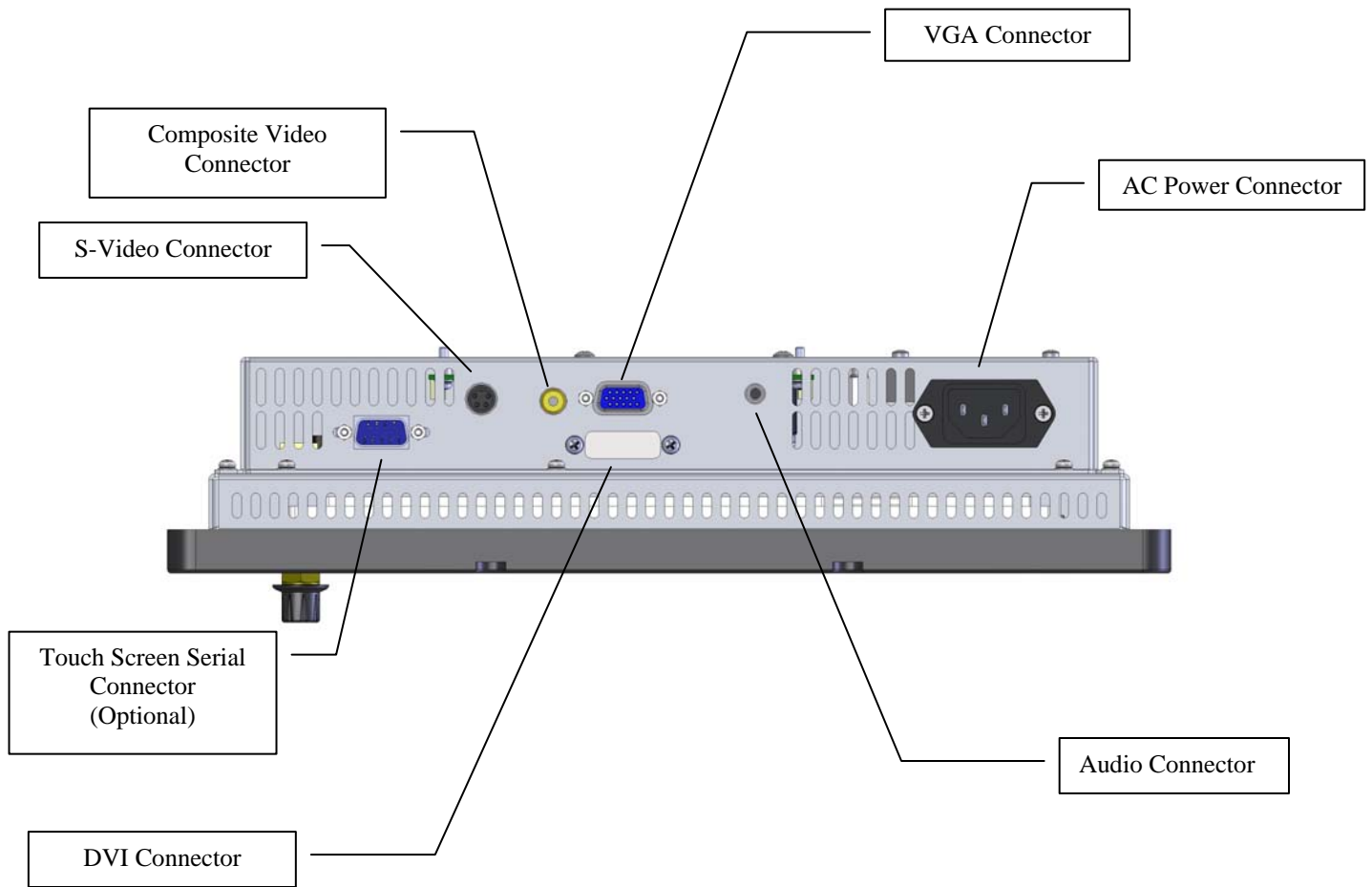
Optional equipment

50-11750-XXX
50-09563-1XX

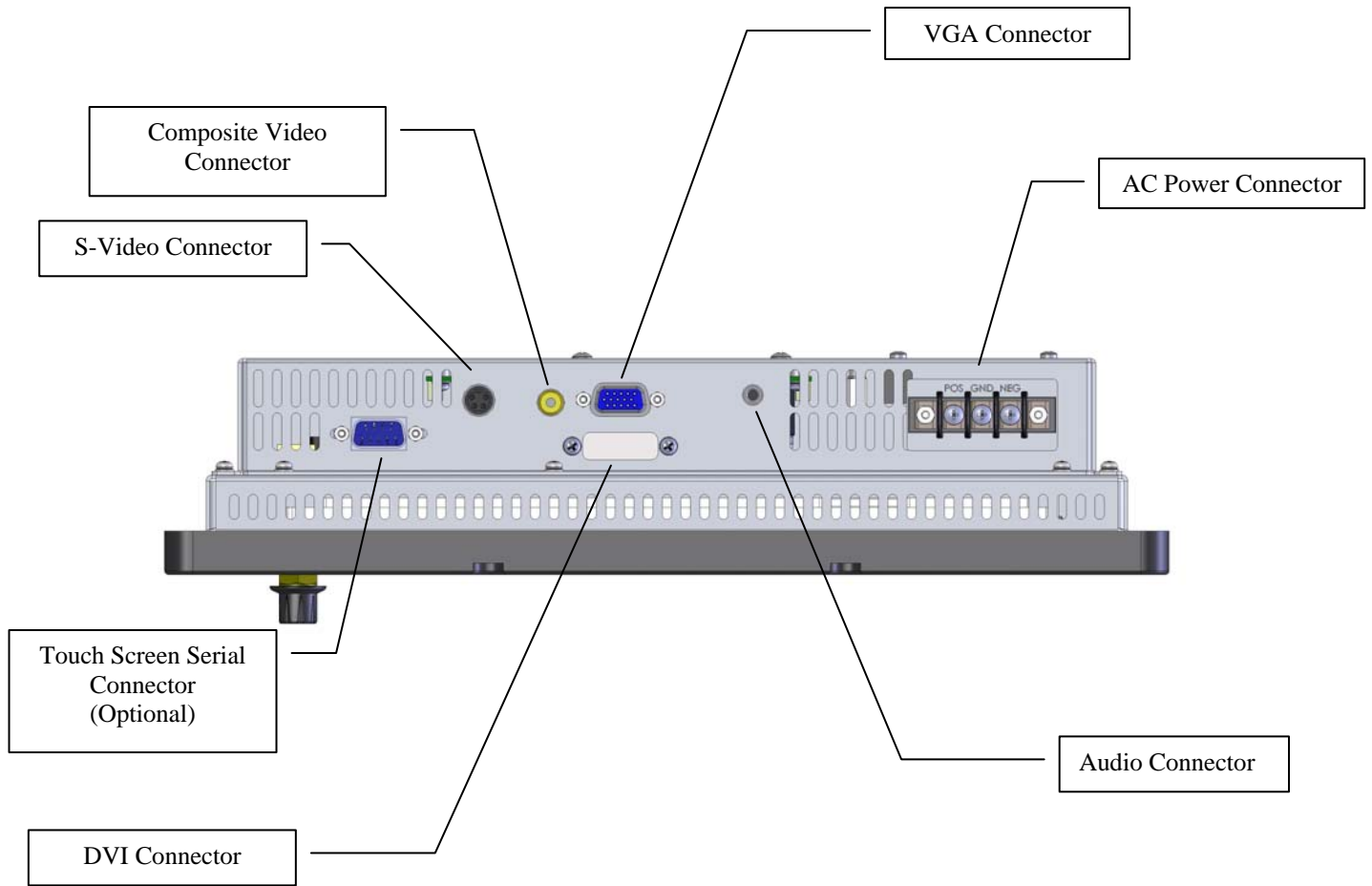
VESA mount bracket
Desk Top Mounting Bracket

I/O Connectors

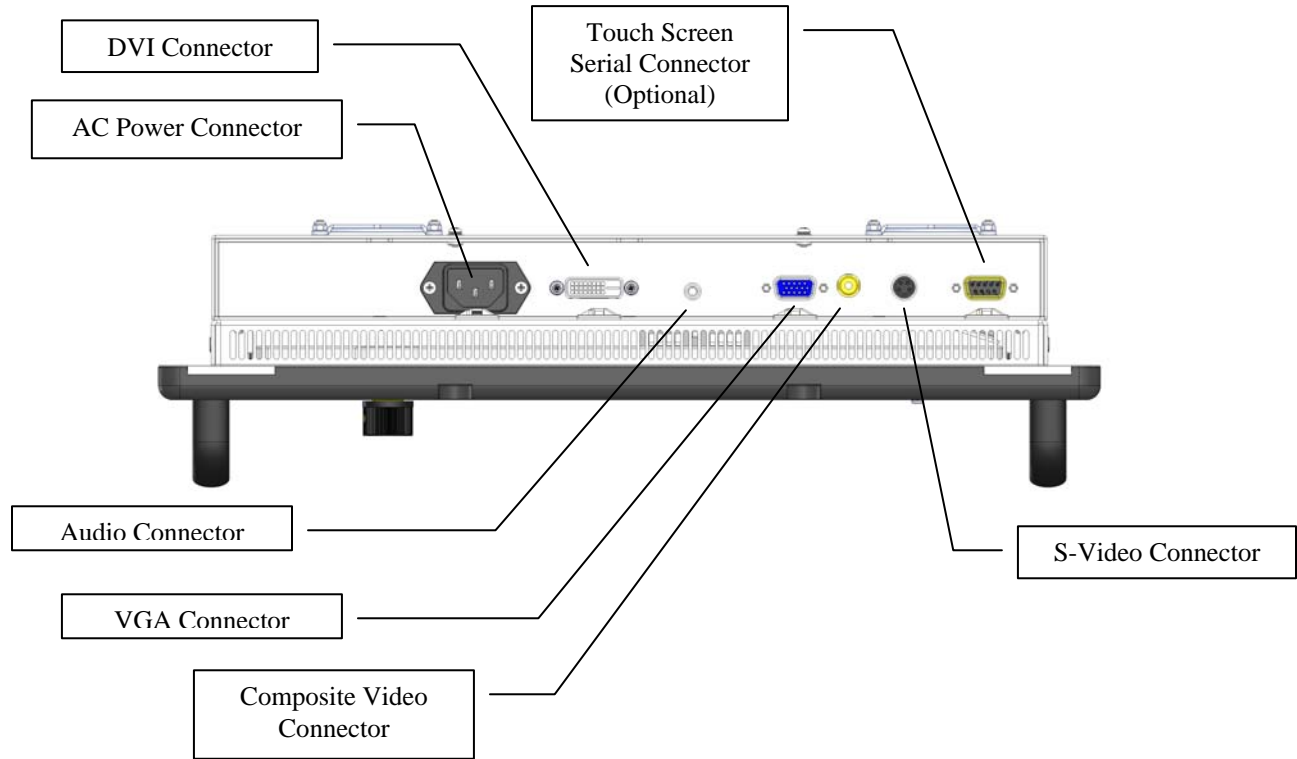
MDU12 AC Power



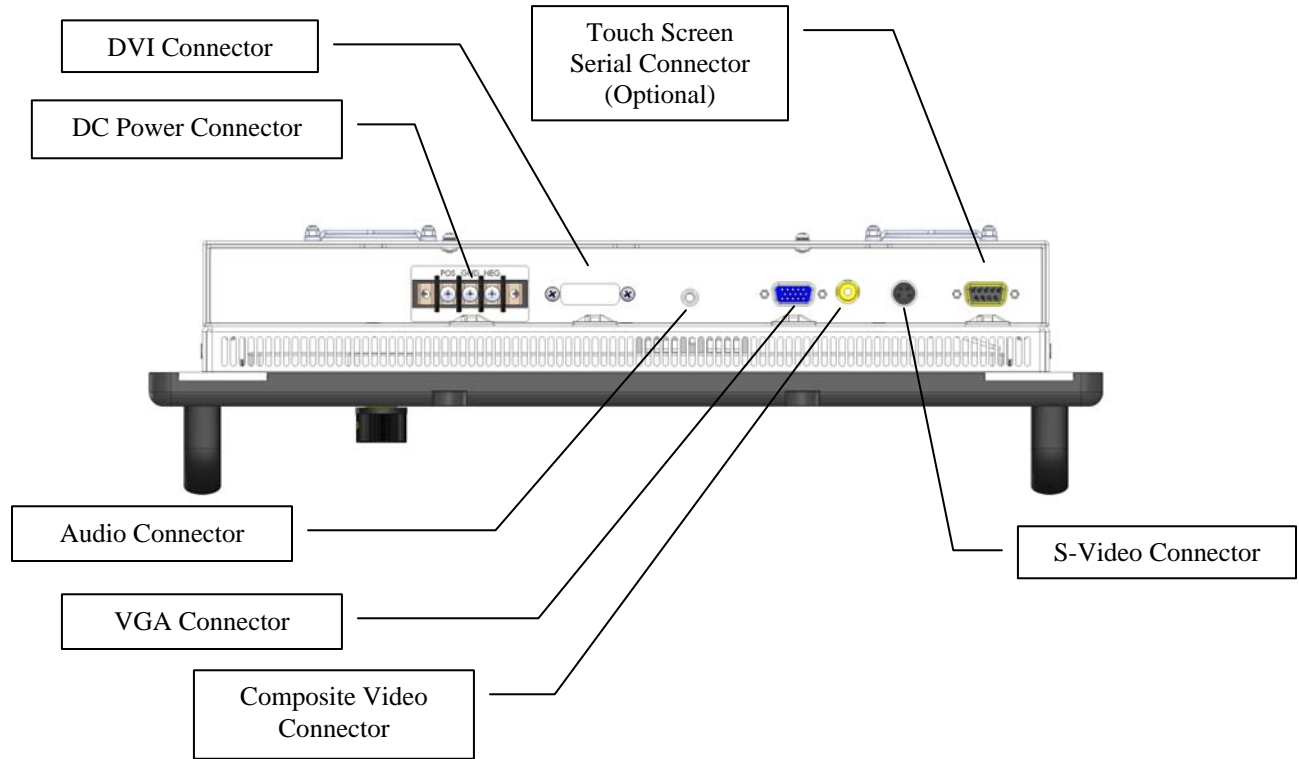
MDU12 DC Power



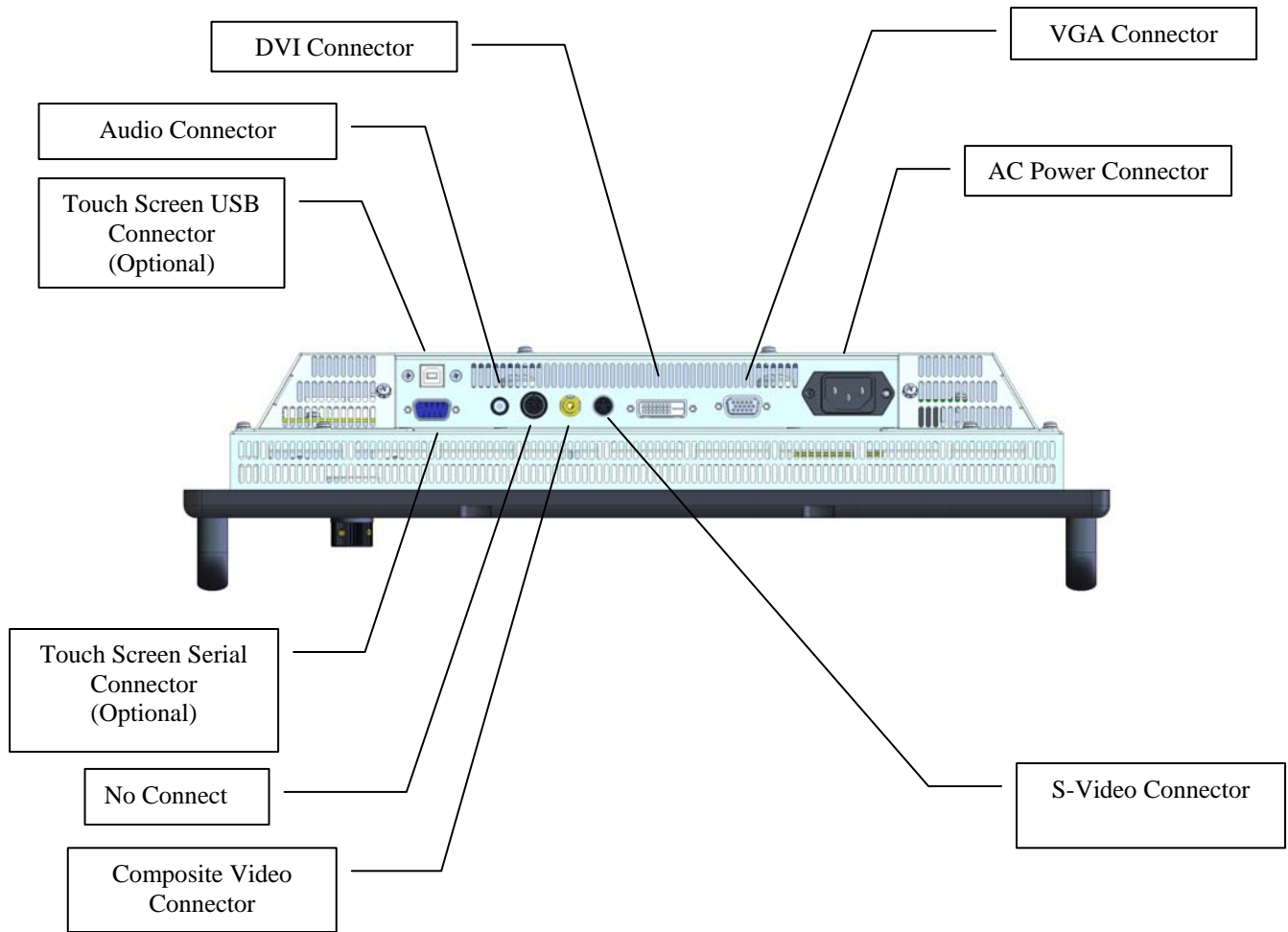
MDU15/MDU19 AC Power



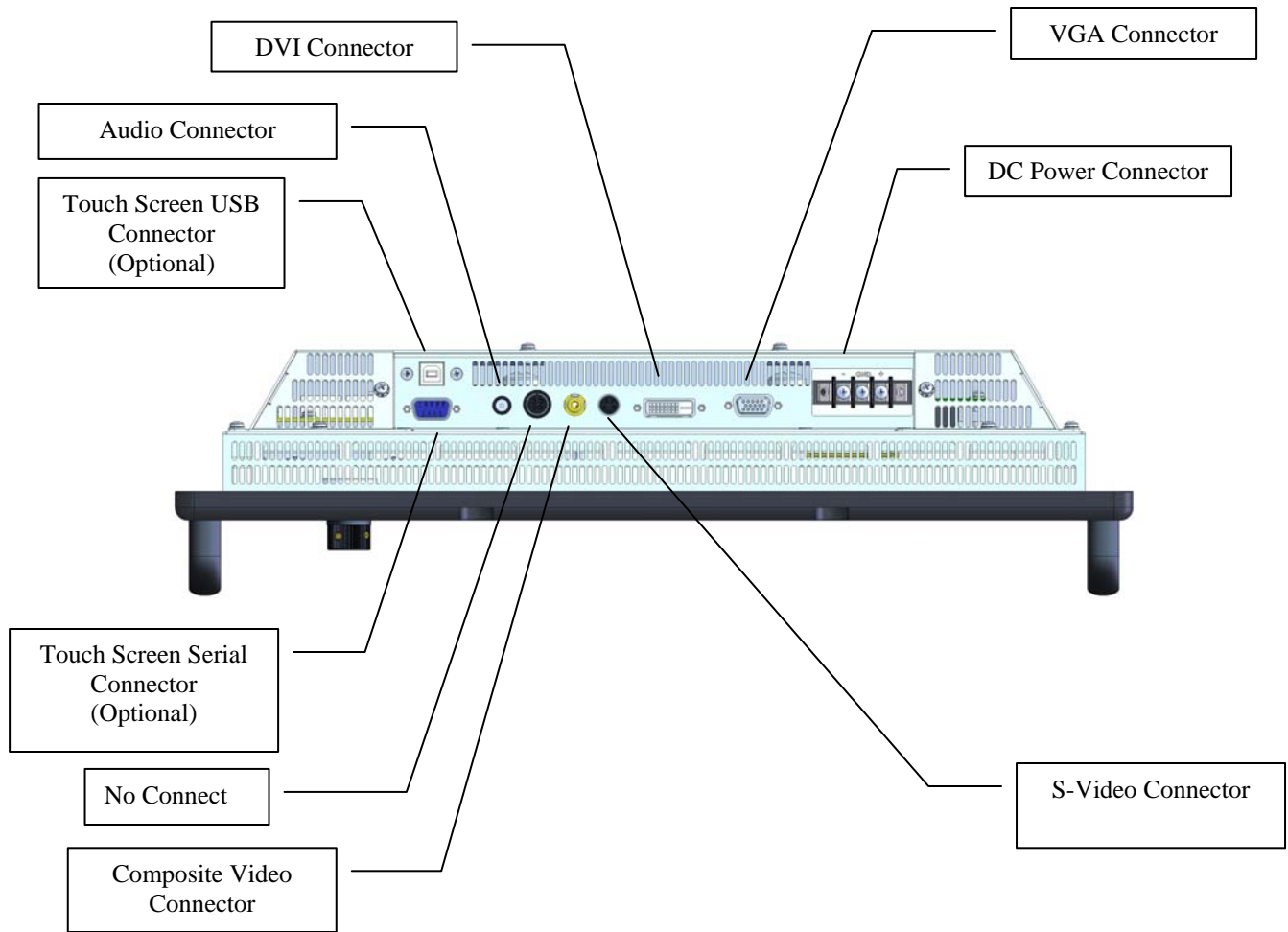
MDU15/MDU19 DC Power



MDU20 AC Power



MDU20 DC Power



Serial 1 (Touchscreen if equipped)

Pin Number	Signal
1	NC
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	NC

Installation

Unpacking Unit:

Carefully remove MDU and accessories from shipping container.

Verify contents.

Inspect unit for any damage. Leave protective film over LCD until ready to apply power to the unit. This will prevent any accidental damage to the display.

Dimming Knob Caution: DO NOT lay the unit flat on a surface as this could damage the Dimming Knob.

Panel Mounting Mounting Console

Refer to MDU Drawings and Cutouts section.

Ensure to leave room behind the unit for airflow.

VESA Mount instructions:

Install VESA mount bracket to rear of MDU with Four (4) Mounting screws and bolts.

Secure MDU with VESA mount as required.

Setup

1. Connect the Video cable to the display and video source.
2. If equipped with the optional touch screen, connect the touch screen cable between the display and the host computer (if required).
3. Connect the input power to the display. Red power light should illuminate. (LED may change to green if unit syncs to video source).
4. Set display settings as required (Optional):
 - a. Press "SOURCE" on right OSD to select input source.
 - b. Wait 3 seconds per selection
 - c. Source shows in upper right corner of display
 - d. DEFAULT = RGB (VGA)
 - e. DVI
 - f. S-VIDEO
 - g. COMPOSITE
5. Press "SELECT" to auto sync the display to your computer.

Operation

OSD MDU12/15/19/20

Start-Up

The MDU features “Instant On” functionality. The lower right control section of the display contains the following OSD controls:

- Power On/Off
- Power Indication: Red (OFF), Green (ON)
- Source (Video)
- Dimming Knob (Brightness)

The lower left control section of the display contains the following OSD controls:

MDU12/15/19:

- Menu
- Select
- Left
- Down

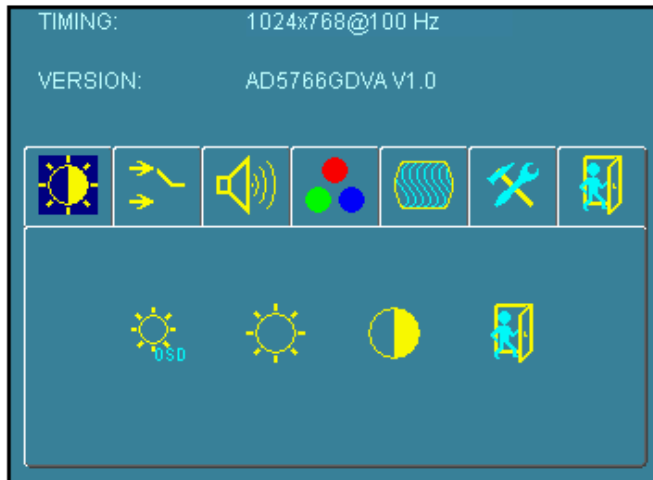
MDU20:

- Menu
- Select
- Left
- Right
- Up
- Down

OSD Controls (MDU12/MDU15/MDU19)

OSD menu

By pressing the "menu" button, you will see the below picture. Across from timing you will see resolution, frequency, and V-frequency of the panel. Version shows the firmware control version. These cannot be altered by the user.



There are 7 sub menus within the OSD user interface: Brightness, Signal Select, Sound, Color, Image, Tools, and Exit.

When you press the "menu" button, you enter the "Brightness" sub directory. In this directory, you will see 4 selections:

 press "menu"  press "menu"  press "menu"  press "menu"



OSD Brightness:



press "right" key



Press the "menu" once, to adjust the brightness. Press "left" to dim down the brightness to "0", press "right" to increase the brightness to "100"



Ambient light sensor: Press this Icon for auto dimming. (OPTION) To use this option, the Litemax ambient light sensor needs to have been installed



Potentiometer: Navigate to this icon to adjust the VR function. (OPTION)



Ambient light sensor with OSD offset: To set minimum brightness level based on ambient light.



Press "right" key



Press "menu" once, to adjust minimum luminance to fit your application (OPTION)



Contrast: Press “menu” and “right” buttons to adjust the contrast from “0” to “100”. To adjust from “100” to “0”, press “menu” and the “left” buttons.



Exit: You can exit this sub menu back to normal screen.



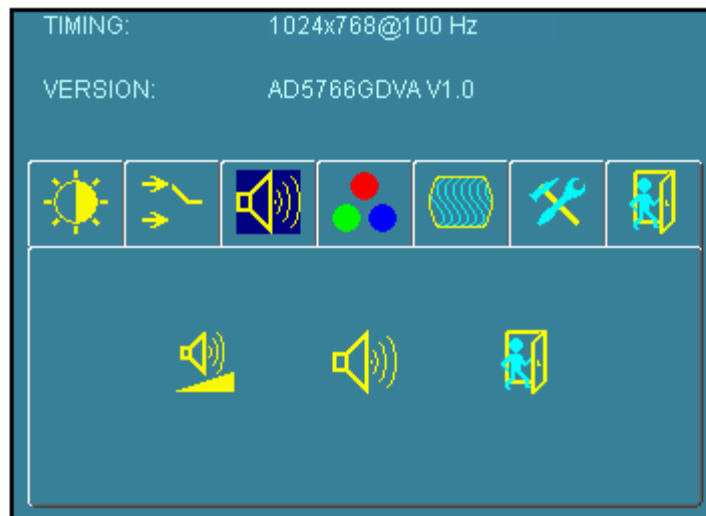
VGA **Analog:** RGB/VGA input

DVI **Digital:** DVI input

AV1 **AV1:** Composite input

S-Video **S-Video:** S-Video input

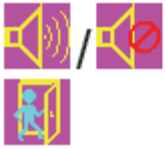
Exit **Exit:** You can exit this sub menu back to the beginning



There are 3 options for “Sound” sub page.



Audio Volume: Audio volume adjustment.



UnMute/Mute: You can mute the speaker by pressing this option.

Exit: back to the beginning menu.



Auto Color: By navigating over to the “Auto Color” option, optimal color performance is invoked.



sRGB: Windows standard color setting



Color Temperature: You have 3 options in this selection



Color Temperature User Define: Default is 100 for "R", "G", and "B".



Color Tempure_6500K: Warm color scheme

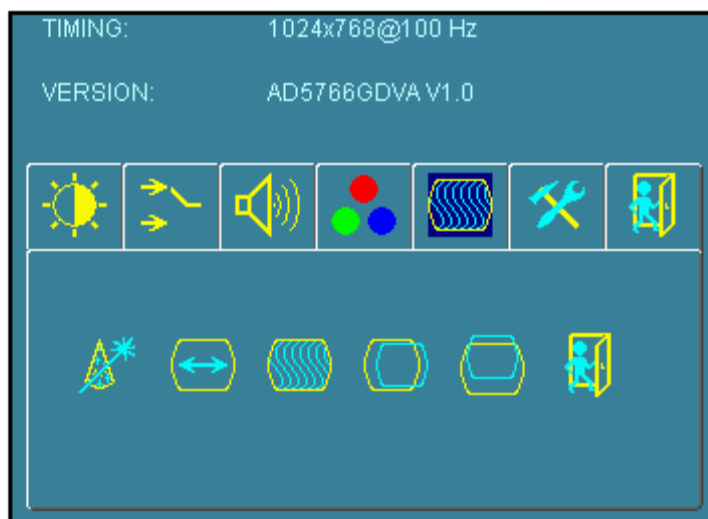


Color Tempure_9300K: Cold color scheme



Exit: back to the normal screen.

Go to the "Image" page, and you will see the below picture





Auto Adjust: Choose this option and the AD5766 will adjust to the optimal horizontal and vertical frequency. You will see "Auto tune...." on the screen for around 3 seconds.



Clock: If you are not satisfied with the Auto tune result, you can adjust manually by pressing "Clock". Using this will make the image wider.



Phase: If "double images" appear around the characters, choose "Phase" to remove them..



HPos: You can shift the screen horizontally using this function.



Vpos: You can shift the screen vertically using this function.



Exit: Back to normal screen.

On the "Tools" sub menu, you will see 5 icons.



OSD Control: Selecting this option, brings you to 4 more options:



Osd_time: Select time for the OSD user interface to stay on screen, for 2 sec. to 16 sec. Default is 6 sec.



Osd_HPos: Moves the OSD user interface horizontally on screen.



Osd_VPos: Moves the OSD user interface vertically on screen.



Exit: back to main menu.



Factory_Reset: By pressing this, the screen will revert to factory settings, and the previous settings will be deleted.



Sharpness: Sharpen characters.

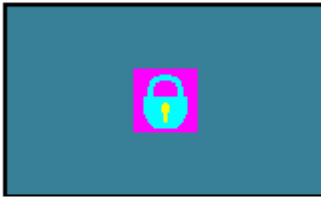


Dos_mode/Gxf_mode: For some old programs which use 640x400 and 720x400 (DOS Mode and graphics mode), This option needs to be selected manually.



Exit

OSD Lock Function: It is possible to lock all the OSD buttons to prevent unauthorized changes to occur by pressing "Menu" and "right >" buttons simultaneously. You will see the "lock" icon below on the center of the screen for 3 seconds. If any button is pushed after the lock function is initiated, the below icon will appear on the screen.'



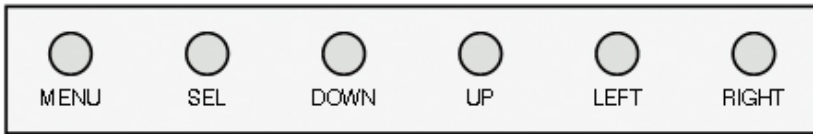
To release the OSD lock, press "Menu" and "Right >". The below icon will appear on the center of the screen for 3 seconds. Now all OSD keys are active again.



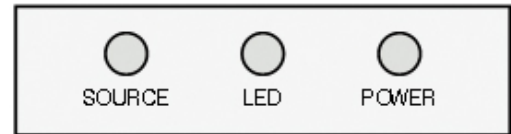
OSD Controls MDU20

OSD Controls

Left OSD Control



Right OSD Control



MAIN MENU	SUB MENU	CONTROL		MODE
PICTURE	PSM	Dynamic/Standard/Mild/Game/User		VIDEO
		USER	Brightness, Contrast, Color, Sharpness	
	CSM	CSM/Brightness/Contrast		PC
		CSM	Normal/Warm/User	
	User	Red/Green/Blue		
PIP/POP/PBP	ON/OFF	ON	PIP	Source, Swap, PIP Size, PIP Position
			POP, PBP	Source, Swap
SETUP	Language	English/ Deutsch /François /Italiano /Espanol		
	Transparency	50 (1 ~ 100)		
	ARC	Auto/16:9/14:9/4:3		AV/TV: PAL
		16:9/14:9/4:3		AV/TV: NTSC
		4:3/16:9		PC
	ISM Method	Normal, Orbit, White		
Factory Reset	On/Off			
SCREEN	Auto Configure	On/Off		RGB PC
	H Position	50 (0 ~ 100)		
	V Position	50 (0 ~ 100)		
	Clock	50 (0 ~ 100)		
	Phase	50 (0 ~ 100)		

MDU20 Picture on Picture Setup

Press the "MENU" button

Press the "RIGHT" button

Press the "DOWN" button to select the Picture-In-Picture menu

Press the "LEFT" or "RIGHT" buttons to select different Picture-In-Picture options

MDU20 Serial Communication Commands (Optional)

Certain MDU20 models have optional Serial Control of the OSD. This section defines the common commands for use with Serial Control of the OSD.

MDU20 Controller Setup using OSD

MENU → SET UP → Set ID On/Off → 'ON' setting

Set ID: 0, 1 ~ 99

You can adjust the set Id to choose desired monitor Id number in special menu.

Adjustment range is 1~99. When selecting Set ID '0', every connected NCB410 set is controlled. Set ID is indicated as decimal '1~99' on menu and transmission/receiving protocol.

RS232 Protocol = 9600 8N1 Flow control = None

MDU20 COMMUNICATION COMMANDS

Command Protocol

<k><x><sp><id><yy><cr><lf> All characters in ASCII.

x = Command type

sp = space

id = Set ID

yy = Data range

Example:

kh = The command type

0 = Set ID 1-99 for individual displays 0 for all connected displays.

64 = The data for the command to perform.

OSD Control (K Command)

ka SET_ID Data : Power On/Off (0 ~ 1)

Data - 0 : Power OFF / 1 : Power ON

kb SET_ID Data : Input Select (0 ~ 3)

Data - 0 : RGB / 1 : DVI / 2 : Video / 3 : S-Video

kf SET_ID Data : PSM Control(0 ~ 4)

Data - 0 : Dynamic / 1 : Standard / 2 : Mild / 3 : Game / 4 : User

AV Only

kg SET_ID Data : Contrast(0 ~ 64H)

Data - Min : 0 ~ Max : 64H

When PSM is User , This Function is working

kh SET_ID Data : Brightness (0 ~ 64H)

Data - Min : 0 ~ Max : 64H

When PSM is User , This Function is working (PSM : Picture system Management)

ki SET_ID Data : Colors (0 ~ 64H)

Data - Min : 0 ~ Max : 64H

When PSM is User , This Function is working

kj SET_ID Data : Tint (0 ~ 64H)

Data - Min : 0 ~ Max : 64H

- 0 → -50 (-45)
- 1 → -49
- A → -40
- C → -38
- 10 → -34
- 32 → 0
- 64 → 50 (45)

When PSM is User , This Function is working

kk SET_ID Data : Sharpness (0 ~ 64H)

Data - Min : 0 ~ Max : 64H

When PSM is User , This Function is working

kl SET_ID Data: Backlight (0~64)

Data - Min : 0 ~ Max : 64

km SET_ID Data : FLIP (0 ~ 3)

Data - Min : 0 ~ Max : 3

- 0: Normal
- 1: Horizontal Reverse
- 2: Vertical Reverse
- 3: Vertical & Horizontal Reverse (180' Rotate)



0 : Normal

1 : Horiz Reverse

2 : Vert Reverse

3 : Vert & HorizReverse

kn SET_ID Data : PIP/POP/PBP

Data - 0 : PIP OFF / 1 : PIP / 2 : POP / 3 : PBP1 / 4 : PBP2

ko SET_ID Data : PIP Position

Data - 0 : RIGHT BOTTOM / 1 : LEFT BOTTOM / 2 : LEFT TOP / 3 : RIGHT BOTTOM

kp SET_ID Data : Sub Display Input Select

Data - 0 : RGB / 1 : DVI / 2 : Video / 3 : S-Video

kq SET_ID Data : PIP Size

Data - 0 : Small 1 : Large

kr SET_ID Data : PIP SWAP

Data : N/A , Any data

ku SET_ID Data : CSM

Data - 0 : NORMAL / 1 : COOL / 2 : WARM1 / 3 : WARM2 / 4 : User

User Mode can be changed in Only RGB

kv SET_ID Data : Red Adj

Data - Min : 0 ~ Max : FF

Only RGB , Only CSM is User

kw SET_ID Data : Green Ad

Data - Min : 0 ~ Max : FF

Only RGB , Only CSM is User

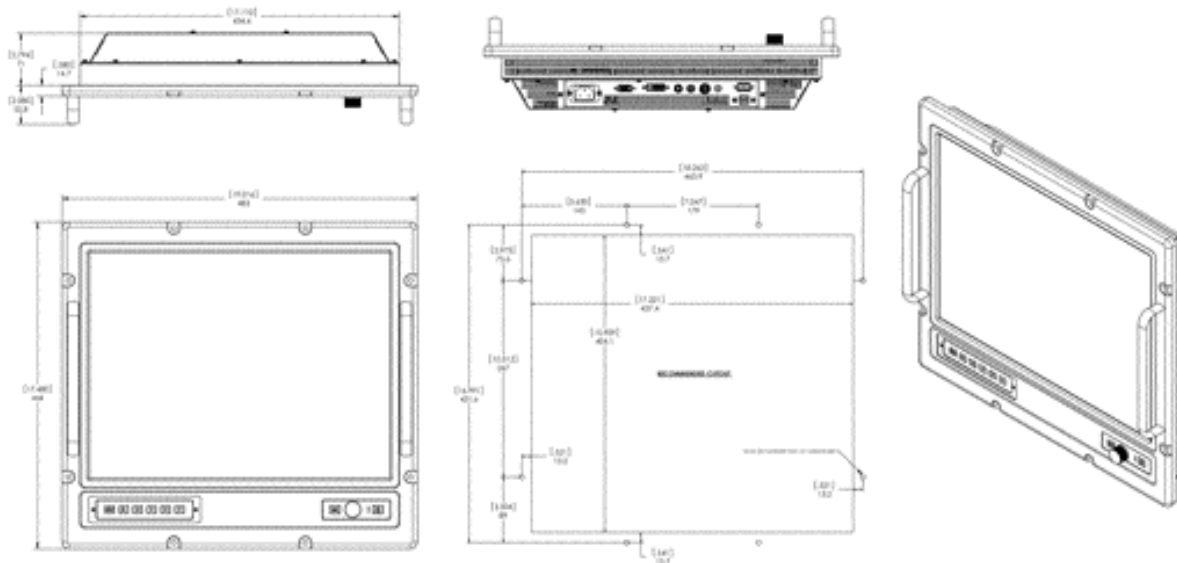
kx SET_ID Data : Blue Adj
Data – Min : 0 ~ Max : FF
Only RGB , Only CSM is User

Adjust range 0 ~ 64(Hex) :

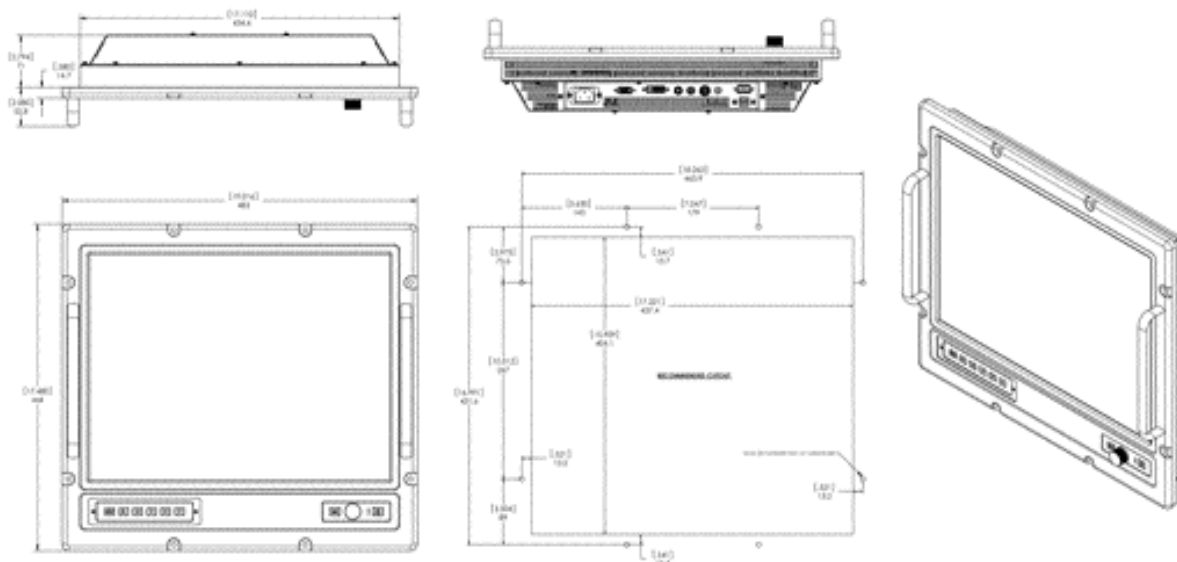
Hex.	Dec.
0	0
1	1
9	9
A	10
F	15
10	16
32	50
64	100

MDU Drawings and Cut Outs

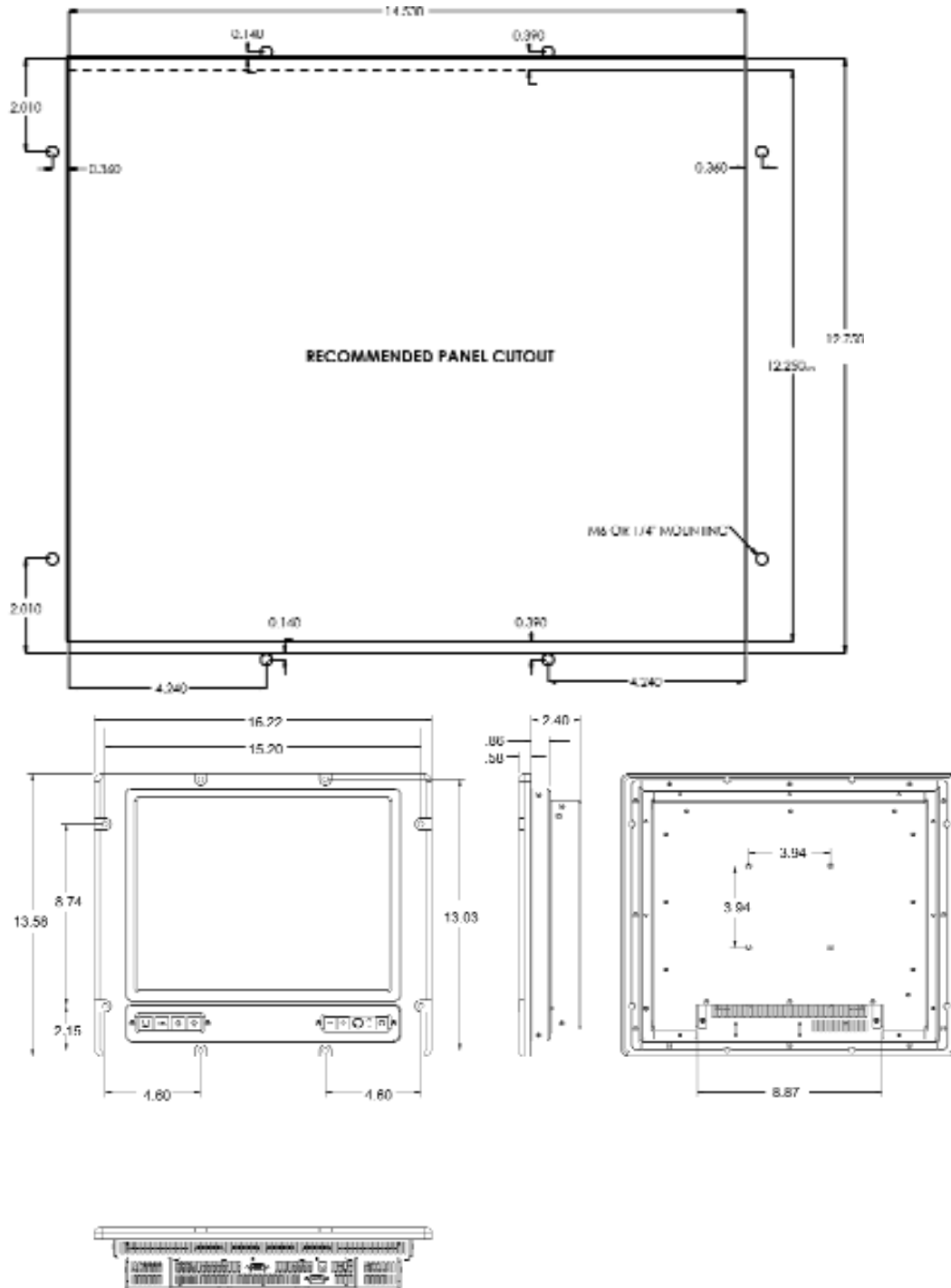
MDU20 Technical Drawings



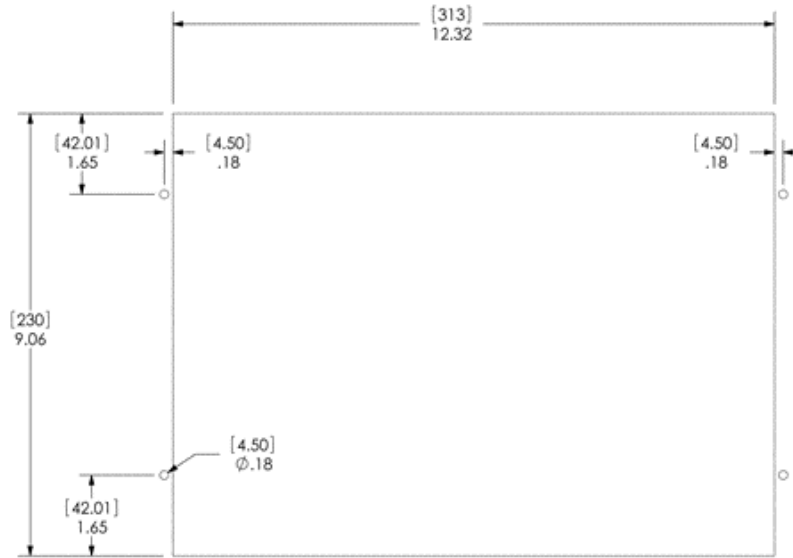
MDU19 Technical Drawings



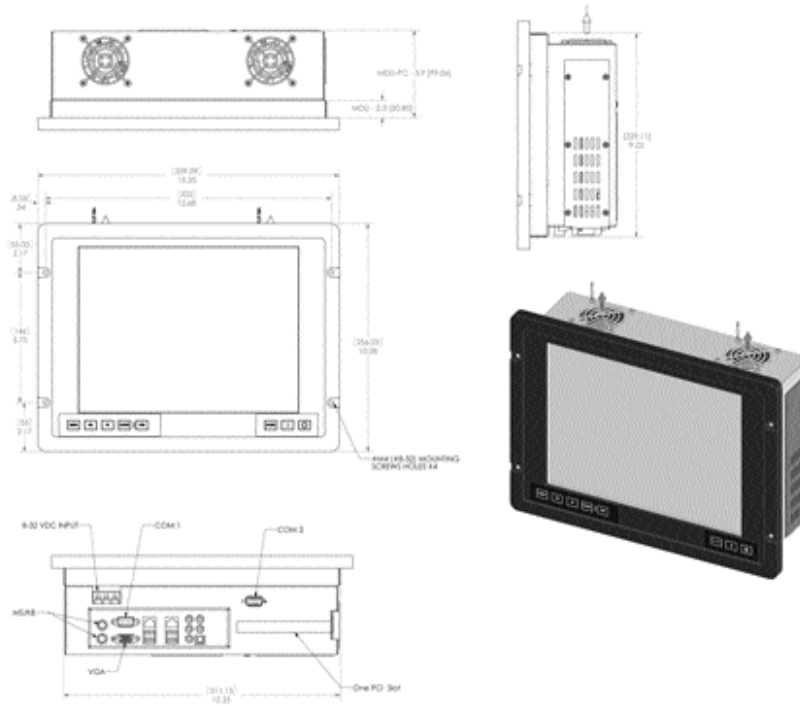
MDU15 Technical Drawings



MDU12 Technical Drawings



PANEL CUT OUT



Warranty & Technical Support

Warranty and Returns

Comark Corporation warrants products to be in good working order for a period of one year from the date of shipment as a new product (90 days for out-of warranty repairs). Should products fail to perform properly anytime within that period, Comark Corporation will, at its option, repair or replace the products at no cost except as set forth in this warranty. Replacement parts or products will be furnished on an exchange basis only. Replacement parts and/or products become the property of Comark Corporation. No warranty is expressed or implied for products damaged by accident, abuse, misuse, natural or personal disaster, or unauthorized modification. All warranties for product, expressed or implied, including merchantability and fitness for a purpose, are limited to a one year duration from date of purchase; no warranties, expressed or implied, will apply after that period. If product does not perform as warranted herein, the owner's sole remedy shall be repair or replacement as provided above. In no event will Comark Corporation be liable to any purchaser for damages, lost revenue, lost wages, lost savings, or any other incidental or consequential damages arising from purchase, use, or inability to use this product, even if Comark has been advised of the possibility of such damages.

Return Material Authorization (RMA)

All return items must be accompanied by an RMA number (obtained from Technical Support), and a purchase order to process repairs. (This covers cost of misuse, improper packing and incorrect setup for in-warranty work.) For out-of-warranty repairs, a flat fee of \$100 for evaluation, inspection, and minor repairs is charged. If major subassemblies are found to be defective, a flat fee for major repairs has been established (consult factory for fee structure). Method of Comark shipment corresponds to method used by customer.

NOTE:

ALL MATERIAL RETURNED SHALL BE SHIPPED PREPAID, TAGGED WITH PART NUMBER, FAILURE MODE, TECHNICAL CONTACT, TELEPHONE, AND FAX NUMBER TO EXPEDITE RESOLUTION OF TECHNICAL PROBLEMS.

For Pricing, Applications and Delivery, contact Sales: 1-800-280-8522

For Technical Questions, System Use or Problems contact Technical Support: 1-800-280-8522 (ext 130)