ADVAN

# AUTO-SCANNING WITH DIGITAL CONTROL LCD COLOR MEDICAL MONITOR

## AMM15TK2/AMM15TK2-TE/AMM15TK2-TEW

Operation Manual


For future reference, record the serial number of your display monitor in the space below:
SERIAL number

The serial number is located on the back of the monitor

| WARNING |
| --- |
| The title “WARNING” is used to inform the users of possible causes that could inflict the injury, death, or property damage to the patients. |

| CAUTION |
| --- |
| The title “CAUTION” is used to inform the users of possible causes that could inflict the patients although it might not severe enough to cause deaths. |

| NOTE |
| --- |
| The title “NOTE” is used to inform the users of items that are of importance in terms of installation, operation, or maintenance of the Equipment although the failure does not inflict the bodily harm to the patients. |



### Revision Control

| **Date** | **Description** |
| --- | --- |
| 07162005 | Document number |

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# Warnings and Cautions

Please read this manual and follow its instructions carefully. The words **warning, caution**, and **note** carry special meanings and should be carefully reviewed:

| | |
|---|---|
| **Warning**  | **The personal safety of the patient or physician may be involved. Disregarding this information could result in injury to the patient or physician.** |
| **Caution** | **Special service procedures or precautions must be followed to avoid damaging the instrument.** |
| **Note** | Special information to make maintenance easier or important information more clear. |
|  | An exclamation mark within a triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the product. |
|  | A lightning bolt within a triangle is intended to warn of the presence of hazardous voltage. Refer all service to authorized personnel. |
| **Warning**  | **TO AVOID POTENTIAL SERIOUS INJURY TO THE USER AND THE PATIENT AND/OR DAMAGE TO THIS DEVICE, THE USER MUST:** |

**Warranty is void if any of these warnings are disregarded.**

ADVAN Int'l Corp accepts full responsibility for the effects on safety, reliability, and performance of the equipment only if:

• Re-adjustments, modifications, and/or repairs are carried out exclusively by ADVAN Int'l Corp.

• The electrical installation of the relevant operating room complies with the applicable IEC and CE requirements.

**Warning Federal law (United States of America) restricts this device to use by, or on order of a physician.**

The ADVAN Int'l Corp AMM15TK2 Series Monitor has been tested under UL 60601-1 standard and UL listed for Medical application.

ADAVN Int'l Corp reserves the right to make improvements in the product(s) described herein. Product(s), therefore, may not agree in detail to the published design or specifications. All specifications are subject to change without notice. Please contact ADVAN Int'l Corp directly or phone your local ADVAN Int'l Corp sales representative or agent for information on changes and new products.

# Warnings

1. Read the operating manual thoroughly and be familiar with its contents prior to using this equipment.
2. Carefully unpack the unit and check if any damage occurred during shipment.
3. Should any solid object or liquid fall into the panel, unplug the unit and have it checked by qualified personnel before operating it any further.
4. Unplug the unit if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.
5. Be a qualified physician, having complete knowledge of the use of this equipment.
6. Test this equipment prior to a surgical procedure. This monitor was fully tested at the factory before shipment.
7. Avoid removing covers on control unit to avoid electric shock.
8. Attempt no internal repairs or adjustments not specifically detailed in this operating manual.
9. Pay close attention to the care, cleaning instructions in this manual. A deviation may cause damage (refer to the Cleaning section on page 9).
10. DO NOT STERILIZE MONITOR.
11. Read the entire instruction manual before assembling or connecting the camera.
12. Do not place the monitor or any other heavy object on the power cord. Damage to the cable can cause fire or electric shock.
13. Monitor with power supply is suitable for use in patient environment.
14. DO NOT stack more than 8 boxes high

This equipment has been tested and found to comply with the limits for medical devices in IEC 601-1-2:2003. These limits are designed to provide reasonable protection against harmful interference in a typical medical installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to other devices, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving device.
- Increase the separation between the equipment.
- Connect the equipment into an outlet on a circuit different from that to which the other device(s) are connected.
- Consult the manufacturer or field service technician for help.

# Cautions

1. The AC Adapter must be plugged into a Grounded power outlet.
2. Use only the proprietary AMM15TK2 power supply for the AMM15TK2 monitor. Make a proper connection by ensuring that the shrink tubing completely secures the connection between the DC power cord and the extension cord.
3. Turn power off when unit is not in use.
4. Never operate the unit right after having transported from a cold location directly to a warm location.
5. Do not expose the monitor to moisture or directly apply liquid cleaners directly to the screen. Spray the cleaning solution into a soft cloth and clean gently.
6. Handle the monitor with care. Do not strike or scratch the screen.
7. Do not block the monitor cooling vents. The monitor is cooled by natural convection and has no fan.
8. Do not force the monitor past 28 degrees of vertical when adjusting the screen position. (For monitors equipped with stands only.)
9. Remove the power module and connection when transporting the unit.
10. Save the original carton and associated packing material. They will be useful should you have to transport or ship the unit.
11. Allow adequate air circulation to prevent internal heat buildup.
12. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
13. Do not install the unit near sunlight, excessive dust, mechanical vibration or shock.
14. The unit is designed for operation in a horizontal position. Never operate the unit in a vertical position.
15. Keep the unit away from equipment with strong magnets (i.e. a large loudspeaker.)
16. Do not expose the monitor to moisture or excessive dust.
17. Equipment with SIP/SOP connectors should either comply with IEC 60601-1 and/or IEC 60601-1-1 harmonized national standard or the combination should be evaluated. Do not touch the patient with signal input or output connectors.
18. Use only a hospital grade power supply cord.
19. This equipment generates, uses, and can radiate radio frequency energy. If not installed correctly and or not used in accordance with these instructions, it may cause harmful interference with other devices. This may be determined by turning the equipment off and on. The user is encouraged to try to correct the interference through one or more of the following measures:
    - •Reorient or relocate the receiving device.
    - •Increase the separation distance between the equipment.
    - •Connect the equipment to an outlet on a circuit different from that to which the other device(s) are connected.
    - •Consult the manufacturer or field service technician for help.
20. Grounding reliability can only be achieved when the equipment is connected to an equipment receptacle labeled “Hospital Only” or “Hospital Grade.”

**Note** To connect to an international power supply, use a an attachment plug appropriate for the power outlet.

**Note** Refer to the “Electromagnetic Compatibility” (EMC) section of this manual to ensure EMC. The AMM15TK2 must be installed and operated according to the EMC information provided in this manual.

# Product Description and Intended Use

The AMM15TK2 Series Medical Monitor is an intelligent, microprocessor-based TFT-LCD monitor intended for use in medical applications. It has an ergonomically designed display and is compatible with most analog RGB (Red, Green, Blue) display standards.

Advan AMM15TK2 Series Medical Monitor consists of a low-profile molded plastic monitor head, video and a power supply. Options include a Super sonic Acoustic Wave (AMM15TK2-TEW) or Resistive (AMM15TK2-TE) touchscreen with interface cable. The display shows 262,144 colors with a pixel matrix of 1024 columns by 768rows.

- **Advanced Viewing Solution (AVS)**: Our sophisticated filter extends the viewing angle of the screen image, without sacrificing contrast ratio and brightness.
- **Advanced Timing Setup (ATS)**: A unique technology from ADVAN is the One Touch Auto Adjustment. Pressing the Auto Adjust button on the front panel, automatically optimizes position, phase, frequency, contrast and color balance. This allows the user to maximize the perfect screen setting in the shortest amount of time.
- **Advanced Mounting Solution (AMS)**: ADVAN and Ergoton share their technology to improve flat panel environment, utilizing numerous ergonomic mounting solutions to allow creative use in conjunction to product application.
- The monitor is able to properly function even in case of upgrade video cards or software because of the wide auto-scanning compatibility range without requiring to buy a new monitor.
- The internal microprocessor digitally controls auto-scanning. For horizontal scan frequencies between 24.8 KHz and 60.2 KHz, and vertical scan frequencies between 50.0 Hz and 85.1 Hz. In each frequency mode, the microprocessor-based circuitry allows the monitor to function at the precision-of a fixed frequency.
- The resident memory allows for storing factory default settings and also additional user adjustment parameters.
- The maximum resolution achievable is XGA (1024 x 768), best suited for Windows applications
- The compact and sleek cabinet design saves lot of your desk space and makes your desk look neat and tidy.
- The monitor is compliant with VESA-DPMS power management standard. In order to save energy, the monitor must be connected to a system compliant with the standard.

The monitor is certified by UL International to medical standard UL 60601-1, EN60601-1 and EN60601-1-2. It is also CE marked for sale into the European Community for integration or use with medical products.

## Functional Description and Product Features

- Display Type Color Active Matrix LCD
- Control Buttons:

-OSD menu display: Menu Button

-Adjustment increase and Adjustment decrease and

-Power on/off

-Auto adjust & exit OSD menu: Auto Button

- Adjust brightness/contrast directly with the adjustment increase/decrease buttons.
- Indicators

-On-Screen Display "OSD" function

-Power LED indicator is lit when the monitor is on and blinking when the monitor is power-save/standby mode

- Display formats

-VGA, SVGA, and XGA

-VESA DDC1 and DDC2B Plug and Play Functions

# Cleaning Instructions

Advan AMM15TK2 Series Monitors will continue to operate normally while being cleaned in a fashion normal for a hospital environment. This includes cleaning with a damp (wrung out), mild soapy cloth. Protection from various chemicals used for cleaning.

Advan AMM15TK2 Series Monitors will withstand non-abrasive cloths and cleaning solutions used in hospitals for like equipment. This is typically warm water and mild detergent for all surfaces or 70% IPA for the touchscreen surface. Possible chemicals include:

- 70% isopropyl alcohol
- 6% aqueous ammonia
- Cidex (2.4% glutaraldehyde solution)
- Sodium Hypochlorite (bleach) 10%
- “Green soap” USP
- 0.5% Chlorhexidine in 70% isopropyl alcohol
- Ovation®
- Formula 409®
- Fantastic®
- Wex Cide®

To clean the screen, do not spray liquid cleaners directly on to the unit. Stand away Form the monitor and spray cleaning solution onto a cloth. Without applying excessive pressure, clean the screen with the slightly dampened rag.

| | |
|---|---|
| ⎓ | : Direct Current |
| CLASSIFIED C UL US<br>MEDICAL EQUIPMENT<br>WITH RESPECT TO ELECTRIC SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL 2601-1, AND CAN/CSA C22.2 NO. 601.1<br>51LJ<br>Medical Equipment<br>E215822 | : UL approval mark according to the safety standard for Medical equipment |

## Symbol Explanations

| | |
|---|---|
|  | Indicates proof of conformity to applicable European Economic Community Council directives and to harmonized standards published in the official journal of the European Communities |
|  | Tested and certified by UL to UL60601-1. If this mark appears with the indicators "C" and "US" the product is certified for both the U.S and Canadian markets, to the applicable U.S and Canadian standards. |
|  | Tested to comply with FCC Class B standards. |
|  | Dangerous high voltage. |
|  | Consult accompanying documents. |
|  | Indicates protective earth ground. |
|  | For indoor use only. |
|  | Direct Current |
|  | DC power control switch |

## Regulatory Compliance

This monitor has been tested to comply with IEC/EN 60601-1 and IEC/EN60601-1-2
Certified by UL to medical standard UL60601-1(UL/cUL Mark).

Because many medical offices are located in residential areas, this monitor, in addition to the medical requirements, has also been tested and found to comply with the limits for FCC Class B computing devices in a typically configured system. It is the system integrator or configurer's responsibility to test and ensure that the entire system complies with applicable EMC laws.

## EU Declaration of Conformity for Medical Applications

A Declaration of Conformity has been filed for this product. A sample of this document may be found in the addendum which accompanied this manual. For a copy of the Declaration of Conformity document, please contact ADVAN Int'l Corp. and request for AMM15TK2 DOC.

## Prepare for Unpack

Before you unpack your monitor, prepare a suitable workspace. You need a stable and level surface near a grounded wall outlet in an area which is relatively free of glare from sunlight or other sources of bright light. The monitor is cooled by natural convection (it has no fan).
For optimum performance, do not block the cooling vents.

While unpacking the monitor, inspect it and other package contents for shipping damage that could cause a fire or shock hazard. Immediately report any shipping damage to the carrier or transportation company and contact customer service for monitor in the future or in case of return.

After you unpack the monitor, make sure the following items are included

- Monitor with 1.5 meter(5ft)monitor-to computer video cable

- AC adapter with cable
  ⚠CAUTION: AC Adapter must be plugged into Grounded a power outlet)

  ⚠CAUTION : AC adapter
  Manufacturer: Ault Inc
  Model No: MW160KA1203F54

- Touchscreen cable if monitor has touchscreen option

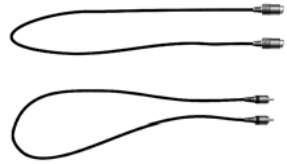
- This operations manual

⚠ Note : Your system provider may offer alternative cords or cables depending on the installation requirement and local geography issues.

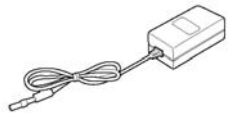
Please check if the following items are present when you unpack the box, and save the packing materials in case you will need to ship or transport the monitor in future.

·**AMM15TK2 Series Medical Monitor, VGA cable, S-Video cable, BNC cable and BNC to RCA adapter.**






·**AC power cord and AC-Adapter**

⚠ CAUTION
Manufacturer : Ault Inc.
Model No : MW160KA1203F54

·**User Manual.**


·***Touch screen DB9 data cable and floppy disk (touchscreen driver) optional***

## DDC

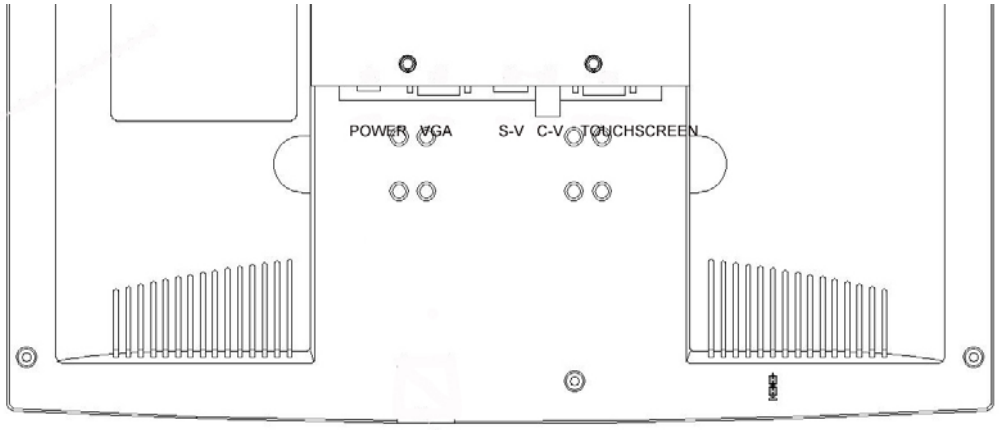
To make your installation easier, the monitor is able to Plug and Play with your system if your system also supports DDC protocol. The DDC(Display Data Channel)is a communication protocol through which the monitor automatically informs the host system about its capabilities, for example, supported resolution and corresponding timing. The monitor supports DDC1 and DDC2B standard.

## Installation

To install the monitor to your host system, please follow the steps as given below:

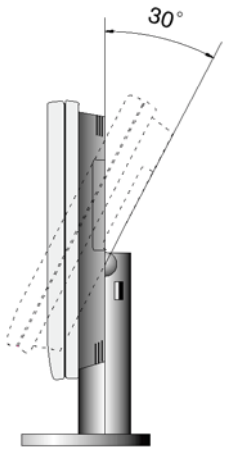
**Steps**

1. Use the VGA cable that provides D-SUB 15P connector and connect to the 15-pin connector on the VGA controller card.
2. Use the S-Video cable that provides S-Video connector and connector to the S-Video port on the video source device (ex. VCR, Camera system)
3. Use the BNC cable with the BNC to RAC adapter that provides composite video connector and connector to the composite video port on the video source device.
4. Use the RS-232 serial cable that provides DB9 pin connector and connect to the 9-pin connector on the source device for touch screen communication. (Optional)
5. Connect the DC power to the DC power connector on the monitor.
6. Connect one end of AC power cord into the AC Adapter and the other end to AC power outlet.
7. Then turn the computer on and then the monitor.
8. If the monitor still does not function properly, please refer to the troubleshooting section to diagnose the problem.



## Screen Position Adjustment (with optional stand)

In order to optimize the best viewing position, you can adjust the tilt of the monitor by using both of your hands to hold the edges of the monitor as shown in the figure below. The monitor can be adjusted up to 30 degrees as indicated by arrow below.




## Connecting the Power Cord

- Check first to make sure that the power cord you use is the correct type required for your area.
- This monitor has an universal AC adapter that allows operation in either AC 100 - 240 Vac voltage area. No user-adjustment is required.
- Plug one end of the power cord to the AC adapter, plug another end to a proper AC outlet.

  The cord set should have the appropriate safety approvals for the country in which the equipment will be installed and marked HAR.

For 120 volt Applications, use only UL Listed detachable power cord with NEMA configuration 5-15P type (parallel blades) plug cap. For 240 volt applications use only UL Listed Detachable power supply cord with NEMA configuration 6-15P type (tandem blades) plug cap.

# Power Management Function

The monitor is equipped with the power management function which automatically reduce the power consumption when not in use in three power level modes.

### • Stand-by Mode

The monitor goes into stand-by mode when the horizontal sync signal is off for about 10 seconds. In this mode, the screen goes off and the power LED blinks for 1 seconds On and 1 second Off. The screen is displayed after the horizontal sync signal is restored.

### • Suspend Mode

The monitor goes into suspend mode when the vertical sync signal is off for about 10 seconds. The power consumption during this is less than 8 W. In this mode, the screen goes off and the power LED blinks for 1 seconds On and 1 second Off. The screen is displayed after the vertical sync signal is restored.

### • Off Mode

The monitor goes into power-off mode when the vertical and horizontal sync signals are off for about 10 seconds. In this mode, the screen goes off and the power LED blinks for 1 seconds On and 1 second Off. The screen is displayed after the vertical and horizontal sync signals are restored.

# Power Management System

The AMM15TK2 Series Medical Monitor complies with the VESA DPMS power management proposal. The VESA DPMS proposal provides four phases of power-saving modes by detecting the horizontal sync signal as shown in the table blow.

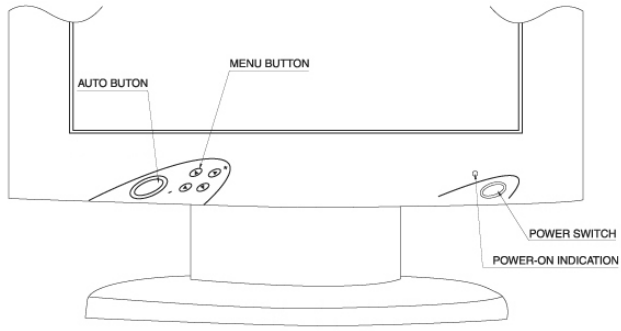
| Mode | DC Input Power (monitor only) | AC Input power (incl. AC adapter) | LED Status |
|---|---|---|---|
| On | 28.0 W max. | 37 W max. | Steady Green |
| Standby | 4.5 W max. | 6W max | Blinking Green |
| Suspend | 4.5 W max. | 6W max | Blinking Green |
| Off | 4.5 W max. | 6W max | Blinking Green |

When the monitor is power saving mode or detects an incorrect timing, the screen will be blank and power LED indicator will blink.

# User Controls

## Front Panel Controls

1. Power LED : Lights up to indicate the power is turned ON.
2. Power Switch : To turn ON or OFF the power.
3. + : To increase the value of the parameter in the OSD you have selected for adjustment.
   : To increase the contrast directly when OSD menu is not activated.
   : To move upward in the OSD menu.
   : Execute a function of selected item.
4. - : To decrease the value of the parameter in the OSD you have selected for adjustment.
   : To decrease the brightness directly when OSD menu is not activated.
   : To move downward in the OSD menu.
5. Menu : To enter OSD.
6. Select : Enter a sub menu or select a menu item.
   If video display option is adopted, switch PC display to Video display and vice versa by one touch when OSD menu is not activated.
7. Auto Button : One touch Auto adjust or Exit OSD menu.




# Standard OSD Operation

1. Press **“Menu”** button to activate the OSD.
2. Use **“+”** then **“-”** keys to move through the menu.
   The parameter will be highlighted when selected.
3. Then use **“+”** or **“-”** to increase or decrease the value of the parameter, or make selection between different options.
4. To quit the OSD screen at any time during the operation, press **“Auto”** button.
   If no keys are pressed for a time period, the OSD automatically disappears.

# OSD Function Description

**Under Analog RGB Display**

| Item | Function |
|---|---|
| Brightness | To increase or decrease the brightness. |
| Contrast | To increase or decrease the contrast. |
| Frequency | To adjust frequency (dot clock). |
| Phase | To adjust phase (clock-phase). |
| Vertical. | To move the screen upward or downward |
| Horizontal | To move the screen left or right. |
| OSD Hor Pos | To move OSD menu left or right. |
| OSD Ver Pos | To move OSD menu upward or downward. |
| OSD Background | Choose between Opaque and Translucent. |
| User Timeout | Set OSD screen appearing time. |
| Color Temp | Choose between Default, System1, Sytem2, Sytem3, System4 for color temp. |
| Red | Balance Red. |
| Green | Balance Green. |
| Blue | Balance Blue. |
| DPMS | Enable or Disable DPMS. |
| Auto Source Select | Enable or disable auto source selection. |
| Freeze Frame | Enable or disable freeze frame. |
| Zoom | Enable zoom-in function. |
| Scale Mode | Choose scale mode between “Fill Screen”, “Aspect Ratio”, “One to One” |
| Input Source Select | Choose input source between “Analog RGB”, “Composite Video”, “Super Video” |
| Auto Adjust | Press + to turn on this function. The Auto-Adjust will automatically adjust V-Position, H-Position, Frequency, Clock-Phase. The whole process takes about 5 seconds. (Please use the test pattern file in the attached LCD monitor utility disk for Auto Adjust) |
| Factory Reset | Set to factory default. |
| Information | Display information on resolution, refresh rate and input mode. |

**Under Composite or Super Video Display**

| Item | Function |
|---|---|
| Hue | To increase or decrease the hue level. |
| Saturation | To increase or decrease the saturation level. |
| Brightness | To increase or decrease the brightness. |
| Contrast | To increase or decrease the contrast. |
| Frequency | To adjust frequency (dot clock). |
| Phase | To adjust phase (clock-phase). |
| Vertical. | To move the screen upward or downward |
| Horizontal | To move the screen left or right. |
| OSD Hor Pos | To move OSD menu left or right. |
| OSD Ver Pos | To move OSD menu upward or downward. |
| OSD Background | Choose between Opaque and Translucent. |
| User Timeout | Set OSD screen appearing time. |
| Color Temp | Choose between Default, System1, Sytem2, Sytem3, System4 for color temp. |
| Red | Balance Red. |
| Green | Balance Green. |
| Blue | Balance Blue. |
| DPMS | Enable or Disable DPMS. |
| Auto Source Select | Enable or disable auto source selection. |
| Freeze Frame | Enable or disable freeze frame. |
| Zoom | Enable zoom-in function. |
| Video-Sharp | To increase or decrease the video sharpness. |
| Video Scale Mode | Choose scale mode between “Normal”, “One to One”, “Wide” |
| Input Source Select | Choose input source between “Analog RGB”, “Composite Video”, “Super Video” |
| Factory Reset | Set to factory default. |
| Information | Display information on resolution, input mode. |

# Specification Of AMM15TK2

| | | |
|---|---|---|
| **AMM 15TK2** | LCD Panel | 15" Color TFT Panel |
| | Type | Active Matrix |
| | Resolution | 1024 ×768 @ 75Hz Max. |
| | Display Color | 16 million colors |
| | Response Time | 25 ms |
| | Color Tone | Upto 256 tone |
| | Color Filter | RGB vertical stripe type |
| | Face Finishing | Anti-glare Hard Coated |
| | Viewing Angle(L/R/T/B) | 85/85/85/85 |
| | Video | 0.7 Vp-p analog RGB |
| **Input Signal** | Sync | 2.5 ~ 5.0 Vp-p separated sync |
| | Input Impedance | Video-75 Ohm, Sync-1k Ohm |
| **Scanning Frequency** | Horizontal | 30 ~ 68 KHz |
| | Vertical | 50 ~ 75 Hz |
| **Display Size** | H x V | 12.09 "×9.07 "(307.2 mm ×230.4 mm) |
| **Brightness, Contrast Ratio Gray Scales** | Brightness | 300 cd/m<br>270 cd/m (AMM15TK2-TEW,)<br>225 cd/m (AMM15TK2-TE) |
| | Gray Scale | Up to 256 Gray Scale |
| | Contrast Ratio | 450 : 1 |
| **Signal Input Connector** | Video | D-Sub 15pin, Composite Video, S-Video |
| | Touchscreen | RS-232 DB-9 (Optional) |
| **Environment** | Operating Temperature & Humidity | 50 F ~ 104 F (10°C ~ 40°C),<br>30% ~75% (Without Condensation) |
| | Storage Temperature | -4 F ~ 140 F (-20°C ~ 60°C) |
| | Storage Humidity | 10% ~90% (Max, Without condensation) |
| | Atmospheric Pressure | Within 500 to 1060 hPa |
| **Power Source** | Display Monitor | DC 12 V 3.5 A |
| | AC Adapter | AC 100 ~ 240 V |
| **Regulations** | Safety and EMC | UL 60601-1, EN60601-1, EN60601-1-2, CE, FCC |
| **Cabinet** | Desk top Stand | 15.7 "(W)×15.5 "(H) x 5.9 "(D) |
| | | 399 mm(W)×395 mm(H)×64 mm(D) |
| | Free Mount | 45.7 "(W)×12.6 "(H)×2.5 "(D) |
| | | 399 mm(W)×320 mm(H)×64 mm(D) |
| **Weight** | Desktop Stand | 11.7 lbs (5.3 Kg)<br>13.9 lbs (6.3 Kg) Touchscreen model |
| | Free Mount | 7.5 lbs (3.4 Kg)<br>10.7 lbs (4.8 Kg) Touchscreen model |
| **Optional Module** | | Touch Panel |

* All contents are subject to change without notice.
* Touch Screen Model doesn't include the Video-in (C-Video, S-Video) function.
* Surface Wave Touchscreen model AMM15TK2-TEW and Resistive Touchscreen model AMM15TK2-TE

## Supported Modes

| Mode | Resolution(H ×V) | H. Freq.(KHz) | V. Freq.(Hz) |
|---|---|---|---|
| 1 | 640 ×350 | 31.5 | 70 |
| 4 | 720 ×400 | 31.5 | 70 |
| 6 | 640 ×480 | 31.5 | 60 |
| 7 | 640 ×480 | 35.0 | 67 |
| 8 | 640 ×480 | 37.9 | 72 |
| 9 | 640 ×480 | 37.5 | 75 |
| 11 | 800 ×600 | 35.1 | 56 |
| 12 | 800 ×600 | 37.9 | 60 |
| 13 | 800 ×600 | 48.1 | 72 |
| 14 | 800 ×600 | 46.9 | 75 |
| 16 | 832 ×624 | 49.7 | 75 |
| 17 | 1024 ×768 | 48.8 | 60 |
| 18 | 1024 ×768 | 48.4 | 60 |
| 19 | 1024 ×768 | 56.5 | 70 |
| 20 | 1024 ×768 | 60 | 75 |

# Connectors

### DC Input

Connector Jack Power Input
The SCD-014-1-A (SHIUA CHYUAN)or equivalent.

| Pin | Description |
|---|---|
| 1 | +12V DC |
| 2 | GND |

### Video Input

15 pin D-subminiature connector.
The vendor P/N is DHSB-15 FRF7(LEOCO) or equivalent.

| Description | Pin | Pin | Description |
|---|---|---|---|
| Red Video | 1 | 9 | NC |
| Green Video | 2 | 10 | VGA CON |
| Blue Video | 3 | 11 | NC |
| NC | 4 | 12 | SDA (DDC1/2) |
| Logic Ground | 5 | 13 | H- sync |
| Red Video Ground | 6 | 14 | V-sync |
| Green Video Ground | 7 | 15 | SCL (DDC2B) |
| Blue Video Ground | 8 | | |

### Touch Port

9Pin D-subminiature connector.

| Description | Pin | Pin | Description |
|---|---|---|---|
| DCD | 1 | 6 | DSR |
| RXD | 2 | 7 | RTS |
| TXD | 3 | 8 | CTS |
| DTR | 4 | 9 | RINC |
| Logic Ground | 5 | | |

# Troubleshooting

Before sending your LCD monitor for servicing, please check the troubleshooting list below to see if you can self-diagnose the problem.

| Problem | Current Status | Remedy |
|---|---|---|
| No Picture | LED ON | ·Using OSD, adjust brightness and contrast to maximum or reset to their default setting. |
| | LED OFF | ·Check the power switch. |
| | | ·Check if AC power cord is properly connected to the AC adapter. |
| | LED Blinking | ·Check if video signal cable is properly connected at the back of monitor. |
| | | ·Check if the power to computer system is ON. |
| Abnormal · Picture | Unstable Picture | ·Check if the specification of graphics adapter and monitor is in compliance which may be causing the input signal frequency mismatch. |
| | Display is missing, center shift, or too small or too large in display size | ·Using Auto adjust button, if still display abnormal picture then adjust Frequency, Clock -Phase, H-Position and V-Position with non-standard signals. |
| | | ·Using OSD, in case of missing full-screen image, please select other resolution in your Operating System (Windows 95/98, NT) or other vertical refresh timing. |
| | | ·Must wait for a few seconds after adjusting the size of the image before changing or disconnecting the signal or powering OFF the monitor. |

For more update information on our monitor
**http://www.advancorp.com**
Tech Support : 1-888-786-1688

This monitor is intended for use in Health Care Facilities model AMM15TK2

Equipment is not suitable for use in the presence of flammable anesthetic mixture with air or with oxygen or nitrous oxide.

No user serviceable parts inside, ask qualified personnel when accessing inside.

For disposal of waste product, follow the requirement of local code.

Electrical input rating: 12V DC 3.5A

## Classification

Type of protection against electric shock: Class I Equipment.

Degree of protection against the ingress of water: IPX0

Mode of operation: Continuous

This monitor has been tested to comply with IEC/EC 60601-1 and IEC/EN60601-1-2 Certified by UL to medical standard UL60601-1(UL/cUL Mark).

Because many medical offices are located in residential areas, this monitor, in addition to the medical requirements, has also been tested and found to comply with the limits for FCC Class B computing devices in a typically configured system. It is the system integrator or configurer's responsibility to test and ensure that the entire system complies with applicable EMC laws.
Environmental conditions for transport and storage:

- Temperature range within –4° to 140° F (-20° to 60° C)
- Relative humidity range within 10% to 90%
- Atmospheric pressure range within 500 to 1060 hPa.

# Electromagnetic Compatibility

Like other electrical medical equipment, the AMM15TK2 family Flat Panel Monitor requires special precautions to ensure electromagnetic compatibility with other electrical medical devices. To ensure electromagnetic compatibility (EMC), the AMM15TK2 family Flat Panel Monitor must be installed and operated according to the EMC information provided in this manual.

**Note** The AMM15TK2 family Flat Panel Monitor has been designed and tested to comply with IEC 60601-1-2:2003 requirements for EMC with other devices.

**Caution** 

**The AMM15TK2 family Flat Panel Monitor may be interfered with by other equipment, including portable and mobile RF communication equipment, even if such equipment meets the applicable emissions requirements.**

**Warning** 

**Do not use cables or accessories other than those provided with the AMM15TK2 family Flat Panel Monitor, as this may result in increased electromagnetic emissions or decreased immunity to such emissions.**

**Warning** 

**If the AMM15TK2 family Flat Panel Monitor is used adjacent to or stacked with other equipment, observe and verify normal operation of the AMM15TK2 family Flat Panel Monitor in the configuration in which it will be used prior to using it in a surgical procedure. Consult the tables below for guidance in placing the AMM15TK2 family Flat Panel Monitor.**

| Guidance and Manufacturer's Declaration: Electromagnetic Emissions | | |
|---|---|---|
| AMM15TK2 family Flat Panel Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of AMM15TK2 family Flat Panel Monitor should ensure that it is used in such an environment. | | |
| Emissions test | Compliance | Electromagnetic Environment - guidance |
| RF emissions CISPR11 | Group 1 | The AMM15TK2 family Flat Panel Monitor must emit electromagnetic energy in order to perform its intended function. NEarby electronic equipment may be affected. |
| RF emissions CISPR11 | Class B | AMM15TK2 family Flat Panel Monitor is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes. |
| Harmonic emissions IEC61000-3-2 | Class A | |
| Voltage Fluctuations/ flicker emissions IEC61000-3-3 | Complies | |

| Guidance and Manufacturer's Declaration: Electromagnetic Immunity | | | |
|---|---|---|---|
| AMM15TK2 family Flat Panel Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of AMM15TK2 family Flat Panel Monitor should ensure that it is used in such an environment. | | | |
| Immunity Test | IEC 60601 Test Level | Compliance Level | Electromagnetic Environment: Guidance |
| Electrostatic Discharge (ESD)<br>IEC61000-4-2 | ±6kV contact<br>±8kV air | ±2,4,6kV contact<br>±2,4,8kV air | Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%. |
| Electrical fast transient/burst<br>IEC61000-4-4 | ±2kV for power supply lines<br>±1kV for input/ output lines | ±2kV line to ground<br>±1kV line to line | Mains power quality should be that of a typical commercial or hospital environment. |
| Surge<br>IEC61000-4-5 | ±1kV differential mode<br>±2kV common mode | ±0.5, 1kV differential mode<br>±0.5, 1, 2kV common mode | Mains power quality should be that of a typical commercial or hospital environment. |
| Voltage dips, short interruptions and voltage variations on power supply input lines<br>IEC61000-4-11 | <5% Ut (>95% dip in Ut) for 0.5 cycle<br>40% Ut (60% dip in Ut) for 5 cycles<br>70% Ut (30% dip in Ut) for 25 cycles<br><5% Ut (>95% dip in Ut) for 5 sec. | <5% Ut (>95% dip in Ut) for 0.5 cycle<br>40% Ut (60% dip in Ut) for 5 cycles<br>70% Ut (30% dip in Ut) for 25 cycles<br><5% Ut (>95% dip in Ut) for 5 sec. | Mains power quality should be that of a typical commercial or hospital environment. If the user of AMM15TK2 family Flat Panel Monitor requires continued operation during power mains interruptions, it is recommended that AMM15TK2 family Flat Panel Monitor be powered from an uninterruptible power supply or a battery. |
| Power frequency (50/60Hz) magnetic field<br>IEC 61000-4-8 | 3 A/m | N/A | Power-frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment. |
| NOTE: Ut is the a.c. mains voltage prior to application of the test level. | | | |

| Guidance and Manufacturer's Declaration: Electromagnetic Immunity | | | |
|---|---|---|---|
| AMM15TK2 family Flat Panel Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of AMM15TK2 family Flat Panel Monitor should ensure that it is used in such an environment. | | | |
| **Immunity Test** | **IEC 60601 Test Level** | **Compliance Level** | **Electromagnetic Environment: Guidance** |
| | | | Portable and mobile RF communications equipment should be used no closer to any part of the AMM15TK2 family Flat Panel Monitor system, including its cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. |
| Conducted RF<br>IEC 61000-4-6 | 3 Vrms<br>150 kHz to 80 MHz | 3 V | Recommended Separation Distance<br>$d = 1.17\sqrt{P}$ |
| Radiated RF<br>IEC 61000-4-3 | 3 V/m<br>80MHz to 2.5 GHz | 3 V/m | |
| | | | $d = 1.17\sqrt{P}$ 80 MHz to 800 MHz<br>$d = 2.33\sqrt{P}$ 800 MHz to 2.5 GHz<br><br>where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).<br>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey [(a)], should be less than the compliance level in each frequency range[(b)].<br>Interference may occur in the vicinity of equipment marked with the following symbol:<br>  |
| NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies. | | | |
| NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people. | | | |
| (a) Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast, cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the AMM15TK2 family Flat Panel Monitor system is used exceeds the applicable RF compliance level above, the AMM15TK2 family Flat Panel Monitor system should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the AMM15TK2 family Flat Panel Monitor AMM15TK2 family Flat Panel Monitor unit.<br>(b) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m. | | | |

| Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the AMM15TK2 family Flat Panel Monitor System | | | |
|---|---|---|---|
| The AMM15TK2 family Flat Panel Monitor system is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The user of the AMM15TK2 family Flat Panel Monitor system can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the AMM15TK2 family Flat Panel Monitor system as recommended below, according to the maximum output power of the communications equipment. | | | |
| Rated maximum output power (W) of transmitter | Separation distance (m) according to frequency of transmitter | | |
| | 150 kHz to 80 MHz $d = 1.17\sqrt{P}$ | 80 MHz to 800 MHz $d = 1.17\sqrt{P}$ | 800 MHz to 2.5 GHz $d = 2.33\sqrt{P}$ |
| 0.01 | 0.12 | 0.12 | 0.23 |
| 0.1 | 0.37 | 0.37 | 0.74 |
| 1 | 1.17 | 1.17 | 2.33 |
| 10 | 3.70 | 3.70 | 7.37 |
| 100 | 11.70 | 11.70 | 23.30 |
| For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer. | | | |
| NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. | | | |
| NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people. | | | |

# Description of Warranty

Advan warrants that the goods the goods sold hereunder will be free of defects in materials and workmanship, and such goods will substantially conform to the specifications furnished by Advan, and to any drawings or specifications furnished to Advan by the Buyer if approved by Advan. This warranty shall be effective only if Advan receives notice of such defect or nonconformance during the period of the warranty. Advan sole and exclusive the Advan product(s) with refurbished units provide a credit to buyer in the amount of the purchase price.

### Commencement and Duration of Warranty

The warranty period begins on the date of shipment from Advan. The goods sold hereunder are warranted for a period of 18 months from date of shipment unless otherwise agreed to by Buyer and Advan. No extension of the warranty will be given during the time the goods are in Advan possession.

### Place of Repair or Replacement

In order to obtain service under this warranty, Buyer must notify Advan of the defect before expiration on the warranty period, and request a "Return Material Authorization Number." If the configuration has been modified in any manner, the product must be returned to its original configuration before any warranty service will be performed by Advan. No goods are to be returned to Advan without prior authorization. Buyer will be responsible for packaging and shipping the defective goods to the Advan Service Facility with shipping charges prepaid.

### Limitation of Warranty

**Monitor:**
For 18 months after the date of purchase, ADVAN or its Authorized Service Centers, will repair or replace if defective in material or workmanship. This Limited Warranty does not include cle aning, or damage caused by accident, neglect, misuse or improper installation or operation, any damage caused from service, maintenance, modifications or tampering by anyone other than an ADVAN Authorized Service Representative, or by the use of supplies, consumable items and co nditions beyond the control of ADVAN, such as common carrier provided equipment and/or fac ilities, operation of ADVAN product in excess of the specifications or with the Serial Number or Rating label removed.

***Touch Screen:**
For one year after the date of purchase, ADVAN or its Authorized Service Centers, will repair o r replace if defective in material or workmanship. This Limited Warranty does not include clea ning, or damage caused by accident, neglect, misuse or improper installation or operation, any d amage caused from service, maintenance, modifications or tampering by anyone other than an ADVAN Authorized Service Representative, or by the use of supplies, consumable items and co nditions beyond the control of ADVAN, such as common carrier provided equipment and/or fac ilities, operation of ADVAN product in excess of the specifications or with the Serial Number or Rating label removed.

ADVAN DISCLAIMS ALL OTHER WARRANTIES EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FI TNESS FOR PARTICULAR PURPOSE, EXCEPT TO THE EXTENT THAT ANY WARRAN TIES IMPLIED BY LAW CANNOT BE VALIDLY WAIVED.

No oral or written information or advice given by ADVAN, its authorized service center, distrib utors, dealers, agents or employees, shall create another warranty or modify this warranty. This warranty states ADVAN's entire liability and your exclusive remedy against ADVAN for any fai lure of the ADVAN's product to operate properly.

Neither ADVAN nor anyone else involved in the development, production, or delivery of this pr oduct shall be liable for any indirect, incidental, special consequential, exemplary, or punitive d amages, including lost profits, arising from the use of or inability to consequential or incidental damages, the above limitation may not apply to you.

This Limited Warranty gives you special legal rights and you may also have other right, which v ary from State to State.

### Installation

Advan makes no warranty with respect to any installation of Advan's product(s) by Advan, any authorized dealer, or any other person.

### Technical Assistance

For technical assistance please call (510)490-1005 between 8:00 a.m. and 5:00 p.m. PST, Monday through Friday or email to support@mail.advancorp.com with a description of your technical issues.

### Service

If your Medical Monitor needs service, call Advan Customer Service at (510)490-1005 between 7:00 a.m and 4:00 p.m PST, Monday through Friday or fax to (510)490-1151. You will need the unit's serial number and a brief description of the problem and where unit were purchased to receive a RMA number.

If a service is required please return the product for service using the original shipping container with the RMA number included in package on the outside of the box.

In order to protect ADVAN employees form potential health hazards, ADVAN requires that the RMA product be disinfected before returning to ADVAN for service. Any product not cleaned prior to shipment will be returned to the customer.

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**Note**: Returns will not be accepted without an assigned RMA number.

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In-transit damage is not covered by warranty. We suggest you always insure your shipment. Advan will only pay for the return shipment by surface transportation. It is the responsibility of the sender to prepay transportation charges.

# Tounchscreen User's Manual (AMM15TK2-TE or AMM15TK2-TEW)

## Quick Start

1.Connect Power Code and VGA Cable of LCD Monitor.
2.Connect Touchscreen DB9 male RS-232 cable.
3.Turn the LCD display Power ON.
4.Adjust the tilt of LCD Monitor.
5.Adjust the Picture of LCD Monitor.
6.Install driver software of Touchscreen (See "Driver software" for details).
7.Adjust the calibration of Touchscreen (See "Driver software" for details).

## Introduction

The ELO IntelliTouch Touchscreen system consists of a touchscreen and an electronic touchscreen controller. The touchscreen may be a flat, spherical, or cylindrical and is installed over the face of the LCD. The touchscreen controller installed inside of theLCD.

- The IntelliTouch Touchscreen

The IntelliTouch surface wave touchscreen consists of a glass panel molded to the precise shape of a display's face. A scratch-resistant, hard-coated plastic cover sheet may be clear for best image clarity or have an antiglare finish.

- The IntelliTouch Controller

The IntelliTouch controllers provide the drive signal for touchscreen, convert the received analogue signals into digital touch coordinates, and send these coordinates to the computer.

### Touchmonitor installation

- Cable Connection

1. Connect and test LCD as a video display only.
2. Plug the DB9 male into the DB9 female connector labeled "TOUCHSCREEN" on the back of the LCD Monitor.

### Driver software

ELO provide driver programs for the DOS, Windows, Windows NT, OS/2, and Macintosh systems. Additional drivers may be available for other system. Contact ELO for details. Installing Driver software for Windows / Windows NT

1. Shutdown Windows or Windows NT and turn off your computer.
2. Install touchscreen hardware as described in the "Quick start" or "Touchmonitor installation".
3. Start your computer.

4. Insert the Windows or Windows NT driver disk into diver A or B.
5. Browse for “setup.exe” in the directory to which you extracted the driver files.
6. Type “setup.exe” in the space provided and press Enter.
7. The touchscreen setup wizard will appear.
   You will need to select serial port, type of touchscreen controller, and language.
8. Complete the setup program.
9. Shutdown and restart windows NT.
10. Click the start button, then click control panel.
11. Double-click touchscreen control panel.
12. Click the calibrate button and touch each of the three targets as
    they appear on the screen.

**Contacting ELO**
www.elotouch.com

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CA 94554 USA

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