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Available Models

The *C-more*® Operator Interface is the next generation of touch panel brought to you by *AutomationDirect*. It has been designed to display and interchange graphical data from a PLC by merely viewing or touching the screen.

The *C-more* Touch Panel is available in a variety of models to suit your application. Refer to the following tables for a list of part numbers, descriptions and options available.

Part Number	Description	User Memory	CF Card Option	USB Device	Ethernet
EA7-S6M-R	6-inch ***C-more*** grayscale STN touch panel (5.7 inch viewable screen), 15 shades of gray, 320 x 240 pixel QVGA screen resolution, 333 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), non-replaceable backlight, 50,000 hour half-life. *Base Model: Built-in USB only, no Ethernet or CompactFlash support.	10 MB	No	Yes	No
EA7-T6CL-R	6-inch ***C-more*** color TFT touch panel (5.7 inch viewable screen), 64K colors, 320 x 240 pixel QVGA screen resolution, 333 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), non-replaceable LED backlight, 50,000 hour half-life. *Base Model: Built-in USB only, no Ethernet or CompactFlash support.	10 MB	No	Yes	No
EA7-S6M	6-inch ***C-more*** grayscale STN touch panel (5.7 inch viewable screen), 15 shades of gray, 320 x 240 pixel QVGA screen resolution, 333 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), non-replaceable backlight, 50,000 hour half-life. Built-in Ethernet and USB; supports CompactFlash.	10MB	Yes	Yes	Yes
EA7-T6CL	6-inch ***C-more*** color TFT touch panel (5.7 inch viewable screen), 64K colors, 320 x 240 pixel QVGA screen resolution, 333 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), non-replaceable LED backlight, 50,000 hour half-life. Built-in Ethernet and USB; supports Compact Flash.	10 MB	Yes	Yes	Yes

Table continued on the next page.

Available Models (cont'd)

Part Number	Description	User Memory	CF Card Option	USB Device	Ethernet
EA7-T8C	8-inch ***C-more*** color TFT touch panel (8.4 inch viewable screen), 64k colors, 640 x 480 pixel VGA screen resolution, 400 MHz CPU, 24VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), 50,000 hour half-life. Built-in Ethernet and USB; supports Compact Flash.	10 MB	Yes	Yes	Yes
EA7-T10C	10-inch ***C-more*** color TFT touch panel (10.4 inch viewable screen), 64k colors, 640 x 480 pixel VGA screen resolution, 400 MHz CPU, 24VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), 50,000 hour half-life. Built-in Ethernet and USB; supports Compact Flash.	10 MB	Yes	Yes	Yes
EA7-T12C	12-inch ***C-more*** color TFT touch panel (12.1 inch viewable screen), 64K colors, 800 x 600 pixel SVGA screen resolution, 400 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), 50,000 hour half-life. Built-in Ethernet and USB; supports CompactFlash.	40 MB	Yes	Yes	Yes
EA7-T15C	15-inch ***C-more*** color TFT touch panel (15.0 inch viewable screen), 64K colors, 1024 x 768 XGA screen resolution, 400 MHz CPU, 24V DC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), 50,000 hour half- life. Built-in Ethernet and USB; supports CompactFlash.	40 MB	Yes	Yes	Yes

Model Specifications

The following tables on the next four pages provide details to the Specifications of all *C-more* models. The specification tables are separated into the following groups:

- 6" Base Feature Models, EA7-S6M-R and EA7-T6CL-R; obsolete model EA7-S6C-R
- 6" Full Feature Models, EA7-S6M, and EA7-T6CL; obsolete models EA7-S6C and EA7-T6C
- 8" & 10" Full Feature Models, EA7-T8C and EA7-T10C
- 12" & 15" Full Feature Models, EA7-T12C & EA7-T15C

The following note applies to the Backlight Average Lifetime of 50,000 hours shown in the following tables:

***Note**: The backlight average lifetime is defined as the average usage time it takes before the brightness becomes 50% of the initial brightness. The lifetime of the backlight depends on the ambient temperature. The lifetime will decrease under low or high temperature usage.*

The following note applies to the Touch Panel Type specification shown in the following tables:

***Note**: The Touchscreen is designed to respond to a single touch. If it is touched at multiple points at the same time, an unexpected object may be activated.*

6" Base Feature Models

Specification \ Model	6" STN grayscale w/ base features	6" TFT color w/ base features
Part Number	EA7-S6M-R	EA7-T6CL-R
Display Actual Size and Type	5.7" STN grayscale	5.7" TFT color
Color Scale	15 shades of gray	65,536 colors
Display Viewing Area	4.54" x 3.4" [115.2 mm x 86.4 mm]	
Screen Pixels	320 x 240 (QVGA)	
Display Brightness	150 cd/m² (NITS)	270 cd/m² (NITS)
LCD Panel Dot Pitch	0.36 mm x 0.36 mm	
Backlight Average Lifetime	Approximately 50,000 hours (See note at bottom of page 2-3.)	
Backlight User Replaceable	No	
Touch Panel Type	Analog resistive (10-bit resolution, 1024 x 1024 touch area) (See note at bottom of page 2-3.)	
CPU Type	32-Bit RISC CPU (333 MHz)	
Battery	Replaceable battery – ADC Part # D2-BAT-1 (Manufacturer Part # CR2354)	
System Memory	SDRAM 32 MBytes	
System Flash Memory	FLASH 32 MBytes	
Backup Memory (SRAM)	Control data backup memory (SRAM) 256 KBytes	
Logging Data Memory	USB Pen Drive	
Number of Screens	Up to 9999 with ver. 2.40 and later – limited by project memory (10 MBytes)	
Realtime Clock	Built into panel (PLC clock is still accessible if available)	
Calendar – Month/Day/Year	Yes - battery backup	
Screen Saver	Yes, backlight turns off after a 30–1500 minute adjustable time, or can be disabled	
Serial PLC Interface	Serial PLC Port: RS-232C/422/485 15-Pin D-sub (female)	
USB Port – Type B	Download/Program – USB Port – type B	
USB Port – Type A	Port for USB device options – type A	
Ethernet Port	not available	
Audio Line Out	not available	
CF Card – Slot #1	not available	
Expansion Assembly (p/n EA-EXP-OPT)	not available	
Supply Power	24 VDC, -15%, +20% (20.4–28.8 VDC operating range, minimum of 1.5 A) (Use the AC/DC Power Adapter, EA-AC, to power the touch panel from a 100-240 VAC, 50/60 Hz. power source.)	
Power Consumption	9 W @ 24 VDC	
Recommended DC Supply Fuse	2.5 A time delay, ADC p/n MDL2-5	
Operating Temperature	0 to 50 °C (32 to 122 °F); Maximum surrounding air temperature rating: 50 °C (122 °F)	
Storage Temperature	–20 to +60 °C (–4 to +140 °F)	
Humidity	10–85% RH (non-condensing)	
Noise Immunity	Noise voltage: 1000 Vp-p, Pulse width: 1 µs, Rise time: 1 ns	
Withstand Voltage	1000 VDC for 1 minute, between DC power supply input terminal and safety ground	
Insulation Resistance	Over 20 MΩ between DC power supply input terminal and safety ground	
Vibration	IEC61131-2 compliant, 10–57 Hz: 0.075 mm amplitude, 57–150 Hz 1.0 G: 10 sweep cycles per axis on each of 3 mutually perpendicular axes	
Shock	15 G peak, 11 ms duration, 2 shocks per axis, on 3 mutually perpendicular axes	
Environment	For use in Pollution Degree 2 environment	
Enclosure	Meets UL Type 4X, when mounted correctly. For indoor use only.	
Agency Approvals	UL, cUL, CSA, CE	
Dimensions	6.140" x 8.047" x 1.697" [156.0 mm x 204.4 mm x 43.1 mm]	
Weight	1.46 lb. [660 g]	1.43 lb. [650 g]

6” Full Feature Models

Specification \ Model	6” STN grayscale w/ full features	6” TFT color w/ full features
Part Number	**EA7-S6M**	**EA7-T6CL**
Display Actual Size and Type	5.7” STN grayscale	5.7” TFT color
Color Scale	15 shades of gray	65,536 colors
Display Viewing Area	4.54” x 3.4” [115.2 mm x 86.4 mm]	
Screen Pixels	320 x 240 (QVGA)	
Display Brightness	150 cd/m² (NITS)	270 cd/m² (NITS)
LCD Panel Dot Pitch	0.36 mm x 0.36 mm	
Backlight Average Lifetime	Approximately 50,000 hours (See note at bottom of page 2-3.)	
Backlight User Replaceable	No	
Touch Panel Type	Analog resistive (10-bit resolution, 1024 x 1024 touch area) (See note at bottom of page 2-3.)	
CPU Type	32-Bit RISC CPU (333 MHz)	
Battery	Replaceable battery – ADC Part # D2-BAT-1 (Manufacturer Part # CR2354)	
System Memory	SDRAM 32 MBytes	
System Flash Memory	FLASH 32 MBytes	
Backup Memory (SRAM)	Control data backup memory (SRAM) 256 KBytes	
Logging Data Memory	CompactFlash Memory Card p/n EA-CF-CARD, industrial grade, high speed (Optional) or USB Pen Drive	
Number of Screens	Up to 9999 with ver. 2.40 and later – limited by project memory (10 MBytes)	
Realtime Clock	Built into panel (PLC clock is still accessible if available)	
Calendar – Month/Day/Year	Yes - battery backup	
Screen Saver	Yes, backlight turns off after a 30–1500 minute adjustable time, or can be disabled	
Serial PLC Interface	Serial PLC Port: RS-232C/422/485 15-Pin D-sub (female)	
USB Port – Type B	Download/Program – USB Port – type B	
USB Port – Type A	Port for USB device options – type A	
Ethernet Port	Ethernet 10/100 Base-T	
Audio Line Out	Audio Line Out, 1 volt rms, stereo – requires amplifier and speaker(s)	
CF Card – Slot #1	Optional: CompactFlash Card p/n EA-CF-CARD, slot #1 located on top side of touch panel.	
Expansion Assembly (p/n EA-EXP-OPT)	Optional: Use the CF Card Adapter p/n EA-CF-IF in the right slot of the expansion assembly for installing CF card - Slot #2. The left slot of the expansion assembly is for future options.	
Supply Power	24 VDC, -15%, +20% (20.4–28.8 VDC operating range, minimum of 1.5 A) (Use the AC/DC Power Adapter, EA-AC, to power the touch panel from a 100-240 VAC, 50/60 Hz. power source.)	
Power Consumption	10 W @ 24 VDC	11 W @ 24 VDC
Recommended DC Supply Fuse	2.5 A time delay, ADC p/n MDL2-5	
Operating Temperature	0 to 50 °C (32 to 122 °F); Maximum surrounding air temperature rating: 50 °C (122 °F)	
Storage Temperature	–20 to +60 °C (–4 to +140 °F)	
Humidity	10–85% RH (non-condensing)	
Noise Immunity	Noise voltage: 1000 Vp-p, Pulse width: 1 µs, Rise time: 1 ns	
Withstand Voltage	1000 VDC for 1 minute, between DC power supply input terminal and safety ground	
Insulation Resistance	Over 20 MΩ between DC power supply input terminal and safety ground	
Vibration	IEC61131-2 compliant, 10–57 Hz: 0.075 mm amplitude, 57–150 Hz 1.0 G: 10 sweep cycles per axis on each of 3 mutually perpendicular axes	
Shock	15 G peak, 11 ms duration, 2 shocks per axis, on 3 mutually perpendicular axes	
Environment	For use in Pollution Degree 2 environment	
Enclosure	Meets UL Type 4X when mounted correctly. For indoor use only.	
Agency Approvals	UL, cUL, CSA, CE	
Dimensions	6.140” x 8.047” x 1.697” [156.0 mm x 204.4 mm x 43.1 mm]	
Weight	1.50 lb. [680 g]	1.48 lb. [670 g]

6" Obsolete Models

Specification \ Model	6" STN color w/ base features
Part Number	EA7-S6C-R
Display Actual Size and Type	5.7" STN color
Color Scale	256 colors
Display Viewing Area	4.54" x 3.4" [115.2 mm x 86.4 mm]
Screen Pixels	320 x 240 (QVGA)
Display Brightness	200 cd/m² (NITS)
LCD Panel Dot Pitch	0.36 mm x 0.36 mm
Backlight Average Lifetime	Approximately 50,000 hours (See note at bottom of page 2-3.)
Backlight User Replaceable	No
Touch Panel Type	Analog resistive (10-bit resolution, 1024 x 1024 touch area) (See note at bottom of page 2-3.)
CPU Type	32-Bit RISC CPU (333 MHz)
Battery	Replaceable battery – ADC Part # D2-BAT-1 (Manufacturer Part # CR2354)
System Memory	SDRAM 32 MBytes
System Flash Memory	FLASH 32 MBytes
Backup Memory (SRAM)	Control data backup memory (SRAM) 256 KBytes
Logging Data Memory	USB Pen Drive
Number of Screens	Up to 9999 with ver. 2.40 and later – limited by project memory (10Mbytes)
Realtime Clock	Built into panel (PLC clock is still accessible if available)
Calendar – Month/Day/Year	Yes - battery backup
Screen Saver	Yes, backlight turns off after a 30–1500 minute adjustable time, or can be disabled
Serial PLC Interface	Serial PLC Port: RS-232C/422/485 15-Pin D-sub (female)
USB Port – Type B	Download/Program – USB Port – type B
USB Port – Type A	Port for USB device options – type A
Ethernet Port	not available
Audio Line Out	not available
CF Card – Slot #1	not available
Expansion Assembly (p/n EA-EXP-OPT)	not available
Supply Power	24 VDC, -15%, +20% (20.4–28.8 VDC operating range, minimum of 1.5 A) (Use the AC/DC Power Adapter, EA-AC, to power the touch panel from a 100-240 VAC, 50/60 Hz. power source.)
Power Consumption	10 W @ 24 VDC
Recommended DC Supply Fuse	2.5 A time delay, ADC p/n MDL2-5
Operating Temperature	0 to 50 °C (32 to 122 °F); Maximum surrounding air temperature rating: 50 °C (122 °F)
Storage Temperature	–20 to +60 °C (–4 to +140 °F)
Humidity	10–85% RH (non-condensing)
Noise Immunity	Noise voltage: 1000 Vp-p, Pulse width: 1 µs, Rise time: 1 ns
Withstand Voltage	1000 VDC for 1 minute, between DC power supply input terminal and safety ground
Insulation Resistance	Over 20 MΩ between DC power supply input terminal and safety ground
Vibration	IEC61131-2 compliant, 10–57 Hz: 0.075 mm amplitude, 57–150 Hz 1.0 G: 10 sweep cycles per axis on each of 3 mutually perpendicular axes
Shock	15 G peak, 11 ms duration, 2 shocks per axis, on 3 mutually perpendicular axes
Environment	For use in Pollution Degree 2 environment
Enclosure	Meets UL Type 4X, when mounted correctly. For indoor use only.
Agency Approvals	UL, cUL, CE
Dimensions	6.140" x 8.047" x 1.697" [156.0 mm x 204.4 mm x 43.1 mm]
Weight	1.39 lb. [630 g]

6” Obsolete Models (cont’d)

Specification \ Model	6” STN color w/ full features	6” TFT color w/ full features
Part Number	**EA7-S6C**	**EA7-T6C**
Display Actual Size and Type	5.7” STN color	5.7” TFT color
Color Scale	256 colors	65,536 colors
Display Viewing Area	4.54” x 3.4” [115.2 mm x 86.4 mm]	
Screen Pixels	320 x 240 (QVGA)	
Display Brightness	200 cd/m² (NITS)	270 cd/m² (NITS)
LCD Panel Dot Pitch	0.36 mm x 0.36 mm	
Backlight Average Lifetime	Approximately 50,000 hours (See note at bottom of page 2-3.)	
Backlight User Replaceable	No	
Touch Panel Type	Analog resistive (10-bit resolution, 1024 x 1024 touch area) (See note at bottom of page 2-3.)	
CPU Type	32-Bit RISC CPU (333 MHz)	
Battery	Replaceable battery – ADC Part # D2-BAT-1 (Manufacturer Part # CR2354)	
System Memory	SDRAM 32 MBytes	
System Flash Memory	FLASH 32 MBytes	
Backup Memory (SRAM)	Control data backup memory (SRAM) 256 KBytes	
Logging Data Memory	CompactFlash Memory Card p/n EA-CF-CARD, industrial grade, high speed (Optional) or USB Pen Drive	
Number of Screens	Up to 9999 with ver. 2.40 and later – limited by project memory (10Mbytes)	
Realtime Clock	Built into panel (PLC clock is still accessible if available)	
Calendar – Month/Day/Year	Yes - battery backup	
Screen Saver	Yes, backlight turns off after a 30–1500 minute adjustable time, or can be disabled	
Serial PLC Interface	Serial PLC Port: RS-232C/422/485 15-Pin D-sub (female)	
USB Port – Type B	Download/Program – USB Port – type B	
USB Port – Type A	Port for USB device options – type A	
Ethernet Port	Ethernet 10/100 Base-T	
Audio Line Out	Audio Line Out, 1 volt rms, stereo – requires amplifier and speaker(s)	
CF Card – Slot #1	Optional: CompactFlash Card p/n EA-CF-CARD, slot #1 located on top side of touch panel.	
Expansion Assembly (p/n EA-EXP-OPT)	Adapter p/n EA-CF-IF in the right slot of the expansion assembly for installing CF card - Slot #2. The left slot of the expansion assembly is for future options.	
Supply Power	24 VDC, -15%, +20% (20.4–28.8 VDC operating range, minimum of 1.5 A) (Use the AC/DC Power Adapter, EA-AC, to power the touch panel from a 100-240 VAC, 50/60 Hz. power source.)	
Power Consumption	11 W @ 24 VDC	13 W @ 24 VDC
Recommended DC Supply Fuse	2.5 A time delay, ADC p/n MDL2-5	
Operating Temperature	0 to 50 °C (32 to 122 °F); Maximum surrounding air temperature rating: 50 °C (122 °F)	
Storage Temperature	–20 to +60 °C (–4 to +140 °F)	
Humidity	10–85% RH (non-condensing)	
Noise Immunity	Noise voltage: 1000 Vp-p, Pulse width: 1 µs, Rise time: 1 ns	
Withstand Voltage	1000 VDC for 1 minute, between DC power supply input terminal and safety ground	
Insulation Resistance	Over 20 MΩ between DC power supply input terminal and safety ground	
Vibration	IEC61131-2 compliant, 10–57 Hz: 0.075 mm amplitude, 57–150 Hz 1.0 G: 10 sweep cycles per axis on each of 3 mutually perpendicular axes	
Shock	15 G peak, 11 ms duration, 2 shocks per axis, on 3 mutually perpendicular axes	
Environment	For use in Pollution Degree 2 environment	
Enclosure	Meets UL Type 4X when mounted correctly. For indoor use only.	
Agency Approvals	UL, cUL, CE	
Dimensions	6.140” x 8.047” x 1.697” [156.0 mm x 204.4 mm x 43.1 mm]	
Weight	1.43 lb. [650 g]	1.52 lb. [690 g]

8" and 10" Full Feature Models

Specifications \ Model	8" TFT color w/ full features	10" TFT color w/ full features
Part Number	**EA7-T8C**	**EA7-T10C**
Display Actual Size and Type	8.4" TFT color	10.4" TFT color
Color Scale	65,536 colors	
Display Viewing Area	6.73" x 5.05" [170.9 mm x 128.2 mm]	8.31" x 6.24" [211.2 mm x 158.4 mm]
Screen Pixels	640 x 480 (VGA)	
Display Brightness	300 cd/m² (NITS)	270 cd/m² (NITS)
LCD Panel Dot Pitch	0.267 mm x 0.267 mm	0.33 mm x 0.33 mm
Backlight Average Lifetime	Approximately 50,000 hours (See note at bottom of page 2-3.)	
Backlight User Replaceable	Yes – Correct replacement bulb is dependent on the panel serial no, see Chapter 9 for complete details.	
Touch Panel Type	Analog resistive (10-bit resolution, 1024 x 1024 touch area) (See note at bottom of page 2-3.)	
CPU Type	32-Bit RISC CPU (400 MHz)	
Battery	Replaceable battery – ADC Part # D2-BAT-1 (Manufacturer Part # CR2354)	
System Memory	SDRAM 32 MBytes	
System Flash Memory	FLASH 32 MBytes	
Backup Memory (SRAM)	Control data backup memory (SRAM) 256 KBytes	
Logging Data Memory	CompactFlash Memory Card p/n EA-CF-CARD, industrial grade, high speed (Optional) or USB Pen Drive	
Number of Screens	Up to 9999 with ver. 2.40 and later – limited by project memory (10 MBytes)	
Realtime Clock	Built into panel (PLC clock is still accessible if available)	
Calendar – Month/Day/Year	Yes - battery backup	
Screen Saver	Yes, backlight turns off after a 30–1500 minute adjustable time, or can be disabled	
Serial PLC Interface	Serial PLC Port: RS-232C/422/485 15-Pin D-sub (female)	
USB Port – Type B	Download/Program – USB Port – type B	
USB Port – Type A	Port for USB 1.1 device options – type A	
Ethernet Port	Ethernet 10/100 Base-T	
Audio Line Out	Audio Line Out, 1 volt rms, stereo – requires amplifier and speaker(s)	
CF Card – Slot #1	Optional: CompactFlash Card p/n EA-CF-CARD, slot #1 located on top side of touch panel.	
Expansion Assembly (p/n EA-EXP-OPT)	Optional: Use the CF Card Adapter p/n EA-CF-IF in the right slot of the expansion assembly for installing CF card - Slot #2. The left slot of the expansion assembly is for future options.	
Supply Power	24 VDC, -15%, +20% (20.4–28.8 VDC operating range, minimum of 1.5 A) (Use the AC/DC Power Adapter, EA-AC, to power the touch panel from a 100-240 VAC, 50/60 Hz. power source.)	
Power Consumption	15 W @ 24 VDC	17 W @ 24 VDC
Recommended DC Supply Fuse	2.5 A time delay, ADC p/n MDL2-5	
Operating Temperature	0 to 50 °C (32 to 122 °F); Maximum surrounding air temperature rating: 50 °C (122 °F)	
Storage Temperature	–20 to +60 °C (–4 to +140 °F)	
Humidity	10–85% RH (non-condensing)	
Noise Immunity	Noise voltage: 1000 Vp-p, Pulse width: 1 µs, Rise time: 1 ns	
Withstand Voltage	1000 VDC for 1 minute, between DC power supply input terminal and safety ground	
Insulation Resistance	Over 20 MΩ between DC power supply input terminal and safety ground	
Vibration	IEC61131-2 compliant, 10–57 Hz: 0.075 mm amplitude, 57–150 Hz 1.0 G: 10 sweep cycles per axis on each of 3 mutually perpendicular axes	
Shock	15 G peak, 11 ms duration, 2 shocks per axis, on 3 mutually perpendicular axes	
Environment	For use in Pollution Degree 2 environment	
Enclosure	Meets UL Type 4X when mounted correctly. For indoor use only.	
Agency Approvals	UL, cUL, CSA, CE	
Dimensions	8.748" x 10.894" x 2.053" [222.2 mm x 276.7 mm x 52.1 mm]	10.669" x 13.661" x 2.079" [271.0 x 347.0 x 52.8 mm]
Weight	2.60 lb. [1,180 g]	3.55 lb. [1,610 g]

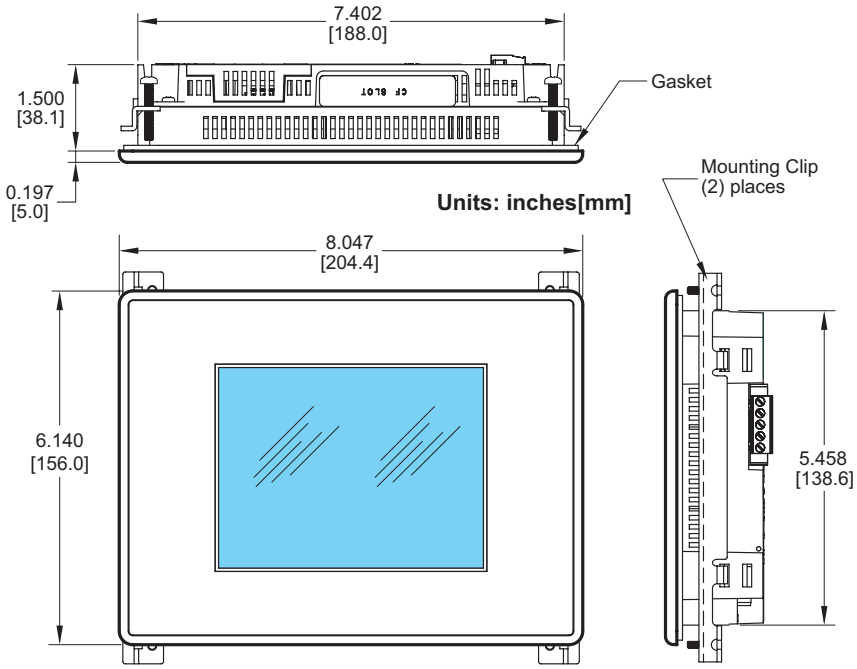
12" and 15" Full Feature Models

Specifications \ Model	12" TFT color w/ full features	15" TFT color w/ full features
Part Number	**EA7-T12C**	**EA7-T15C**
Display Actual Size and Type	12.1" TFT color	15.0" TFT color
Color Scale	65,536 Colors	
Display Viewing Area	9.47" x 7.62" [240.6 mm x 184.5 mm]	11.97" x 8.98" [304.1 mm x 228.1 mm]
Screen Pixels	800 x 600 (SVGA)	1024 x 768 (XGA)
Display Brightness	260 cd/m² (NITS)	220 cd/m² (NITS)
LCD Panel Dot Pitch	0.267 mm x 0.267 mm	0.297 mm x 0.297 mm
Backlight Average Lifetime	Approximately 50,000 hours (See note at bottom of page 2-3.)	
Backlight User Replaceable	Yes – Correct replacement bulb is dependent on the panel serial no, see Chapter 9 for complete details.	
Touch Panel Type	Analog resistive (12-bit resolution, 4096 x 4096 touch area) (See note at bottom of page 2-3.)	
CPU Type	32-Bit RISC CPU (400 MHz) Plus Graphic Accelerator Chip	
Battery	Replaceable battery – ADC Part # D2-BAT-1 (Manufacturer Part # CR2354)	
System Memory	SDRAM 64 MBytes	
System Flash Memory	FLASH 64 MBytes	
Backup Memory (SRAM)	Control data backup memory (SRAM) 256 KBytes	
Logging Data Memory	CompactFlash Memory Card p/n EA-CF-CARD, industrial grade, high speed (Optional) or USB Pen Drive	
Number of Screens	Up to 9999 with ver. 2.40 and later – limited by project memory (10 MBytes))	
Realtime Clock	Built into panel (PLC clock is still accessible if available)	
Calendar – Month/Day/Year	Yes - battery backup	
Screen Saver	Yes, backlight turns off after a 30–1500 minute adjustable time, or can be disabled	
Serial PLC Interface	Serial PLC Port: RS-232C/422/485 15-Pin D-sub (female)	
USB Port – Type B	Download/Program – USB Port – type B	
USB Port – Type A	Port for USB device options – type A	
Ethernet Port	Ethernet 10/100 Base-T	
Audio Line Out	Audio Line Out, 1 volt rms, stereo – requires amplifier and speaker(s)	
CF Card – Slot #1	Optional: CompactFlash Card p/n EA-CF-CARD, slot #1 located on top side of touch panel.	
Expansion Assembly (p/n EA-EXP-OPT)	Optional: Use the CF Card Adapter p/n EA-CF-IF in the right slot of the expansion assembly for installing CF card - Slot #2. The left slot of the expansion assembly is for future options.	
Supply Power	24 VDC, -15%, +20% (20.4–28.8 VDC operating range, minimum of 1.5 A) (Use the AC/DC Power Adapter, EA-AC, to power the touch panel from a 100-240 VAC, 50/60 Hz. power source.)	
Power Consumption	20 W @ 24 VDC	33 W @ 24 VDC
Recommended DC Supply Fuse	4.0 A time delay, ADC MDL4	
Operating Temperature	0 to 50 °C (32 to 122 °F); Maximum surrounding air temperature rating: 50 °C (122 °F)	
Storage Temperature	–20 to +60 °C (–4 to +140 °F)	
Humidity	10–85% RH (non-condensing)	
Noise Immunity	Noise voltage: 1000 Vp-p, Pulse width: 1 µs, Rise time: 1 ns	
Withstand Voltage	1000 VDC for 1 minute, between DC power supply input terminal and safety ground	
Insulation Resistance	Over 20 MΩ between DC power supply input terminal and safety ground	
Vibration	IEC61131-2 compliant, 10–57 Hz: 0.075 mm amplitude, 57–150 Hz 1.0 G: 10 sweep cycles per axis on each of 3 mutually perpendicular axes	
Shock	15 G peak, 11 ms duration, 2 shocks per axis, on 3 mutually perpendicular axes	
Environment	For use in Pollution Degree 2 environment	
Enclosure	Meets UL Type 4X when mounted correctly. For indoor use only.	
Agency Approvals	UL, cUL, CSA, CE	
Dimensions	11.024" x 13.336" x 2.075" [280.0 x 339.5 x 52.7 mm]	13.000" x 16.748" x 1.0481" [330.2 x 425.4 x 54.0 mm]
Weight	4.59 lb. [2,080 g]	7.01 lb. [3,180 g]

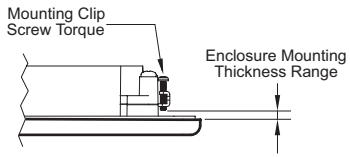
EA7-S6M-R, S6C-R, T6CL-R, S6M, S6C, T6C, T6CL

Dimensions:

All the necessary mounting hardware is provided with the touch panel. Use the two (2) mounting clips and screws to secure the touch panel to the cabinet or enclosure surface. A template is provided for marking the cutout dimensions on the mounting surface.



Enclosure Mounting Thickness Ranges and Mounting Clip Screw Torque



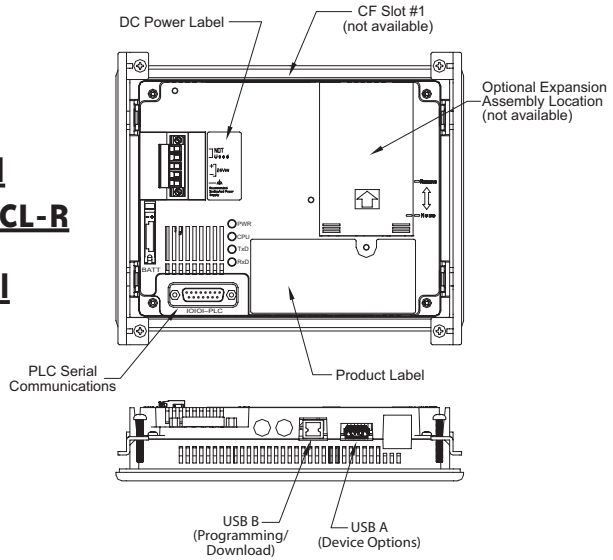
Touch Panel Size	Enclosure Thickness Range	Mounting Clip Screw Torque
6" – lower mounting clip position	0.039 - 0.24 inch [1 – 6 mm]	35 ~ 50 oz-in [0.25 ~ 0.35 Nm]
6" – upper mounting clip position	0.20 - 0.63 inch [5 – 16 mm]	35 ~ 50 oz-in [0.25 ~ 0.35 Nm]

EA7-S6M-R, S6C-R, T6CL-R, S6M, S6C, T6C, T6CL

Ports & Memory Expansion:

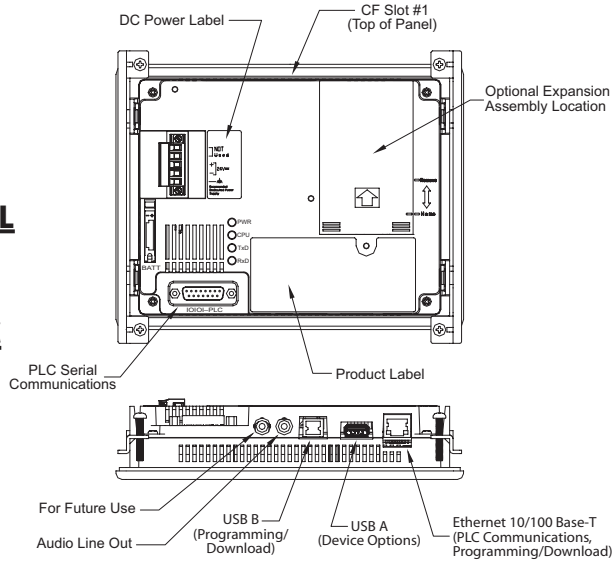
Base Feature Model
EA7-S6M-R and EA7-T6CL-R

Also obsolete model
EA7-S6C-R



Full Feature Model
EA7-S6M and EA7-T6CL

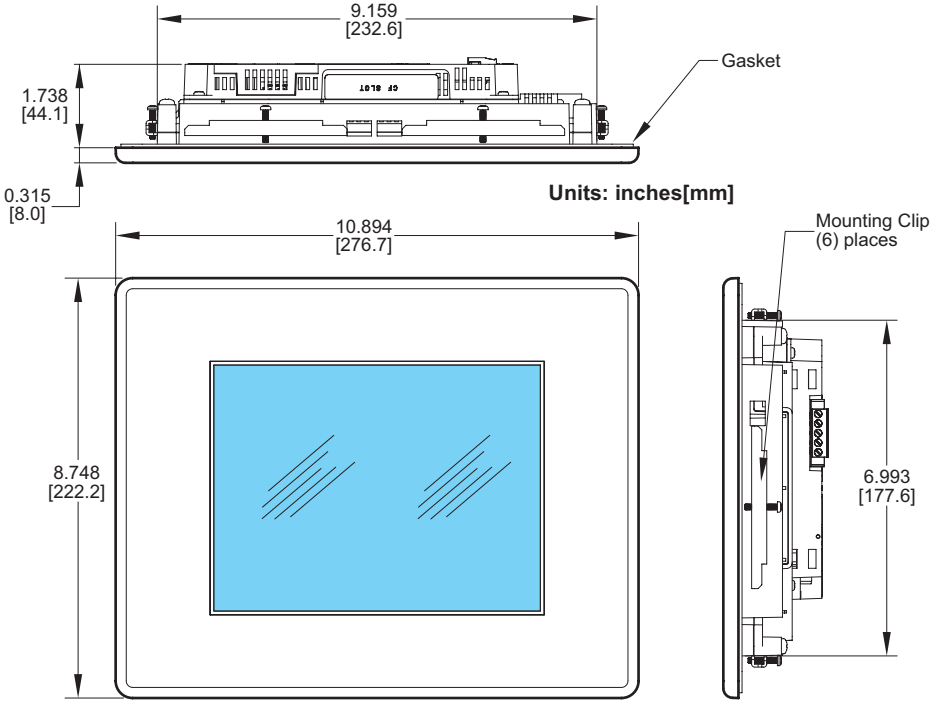
Also obsolete models
EA7-S6C and EA7-T6C



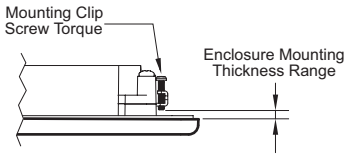
EA7-T8C

Dimensions:

All the necessary mounting hardware is provided with the touch panel. Use the six (6) mounting clips and screws to secure the touch panel to the cabinet or enclosure surface. A template is provided for marking the cutout dimensions on the mounting surface.



Enclosure Mounting Thickness Ranges and Mounting Clip Screw Torque

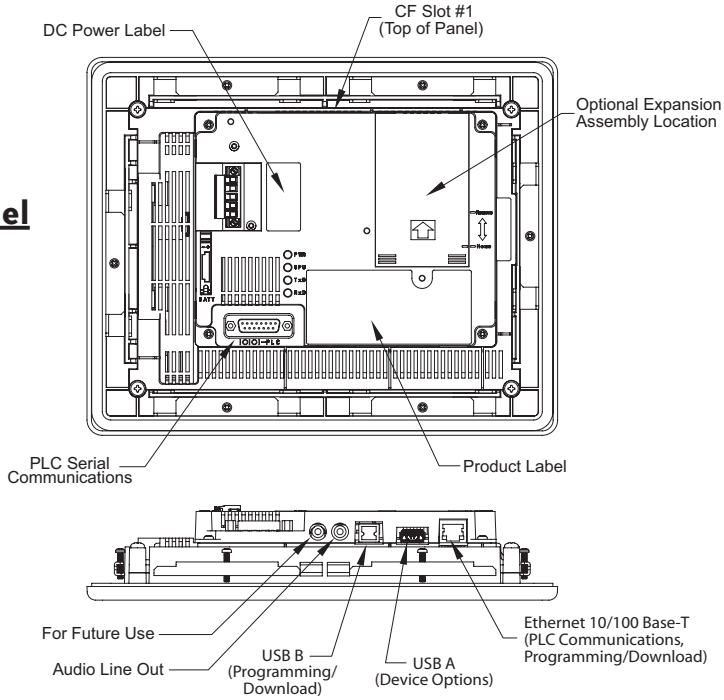


Touch Panel Size	Enclosure Thickness Range	Mounting Clip Screw Torque
8", 10", 12" & 15"	0.039 - 0.20 inch [1 – 5 mm]	42 ~ 57 oz-in [0.3 ~ 0.4 Nm]

EA7-T8C

Ports & Memory Expansion:

Full Feature Model
EA7-T8C

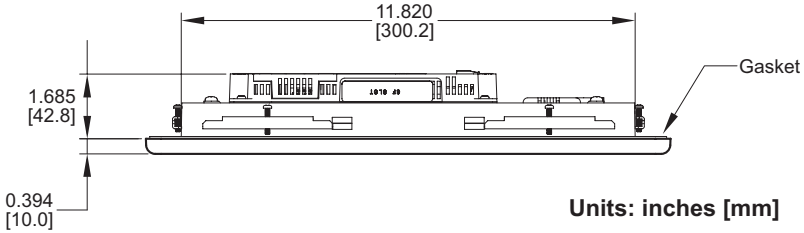


EA7-T10C

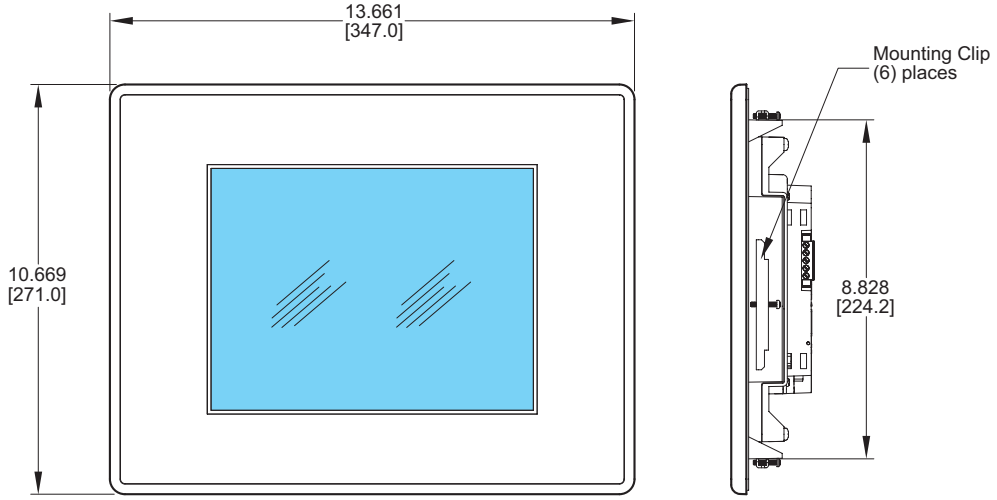
Dimensions:

2

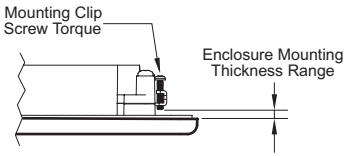
All the necessary mounting hardware is provided with the touch panel. Use the six (6) mounting clips and screws to secure the touch panel to the cabinet or enclosure surface. A template is provided for marking the cutout dimensions on the mounting surface.



Units: inches [mm]



Enclosure Mounting Thickness Ranges and Mounting Clip Screw Torque

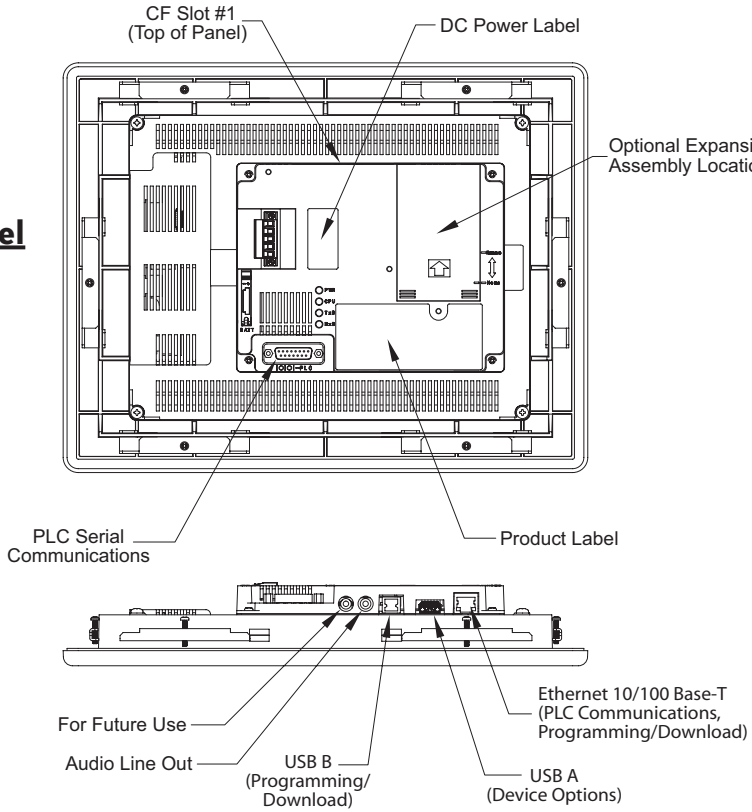


Touch Panel Size	Enclosure Thickness Range	Mounting Clip Screw Torque
8", 10", 12" & 15"	0.039 - 0.20 inch [1 – 5 mm]	42 ~ 57 oz-in [0.3 ~ 0.4 Nm]

EA7-T10C

Ports & Memory Expansion:

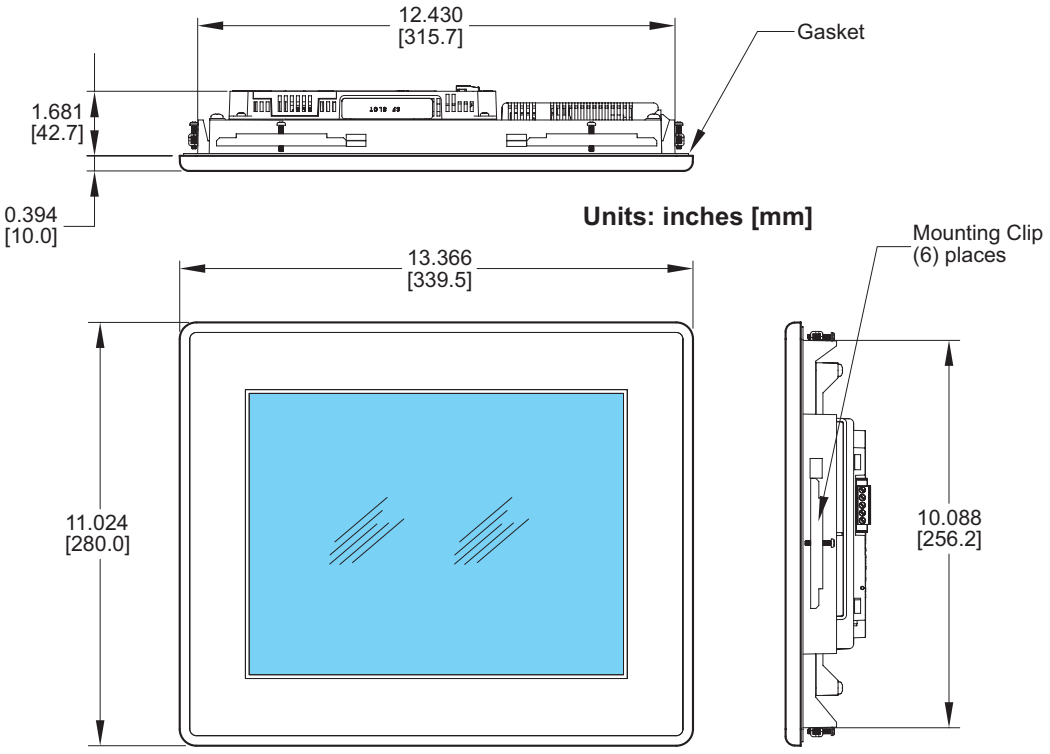
Full Feature Model
EA7-T10C



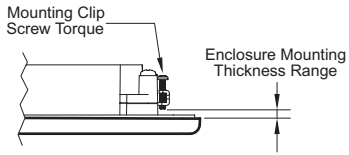
EA7-T12C

Dimensions:

All the necessary mounting hardware is provided with the touch panel. Use the six (6) mounting clips and screws to secure the touch panel to the cabinet or enclosure surface. A template is provided for marking the cutout dimensions on the mounting surface.



Enclosure Mounting Thickness Ranges and Mounting Clip Screw Torque

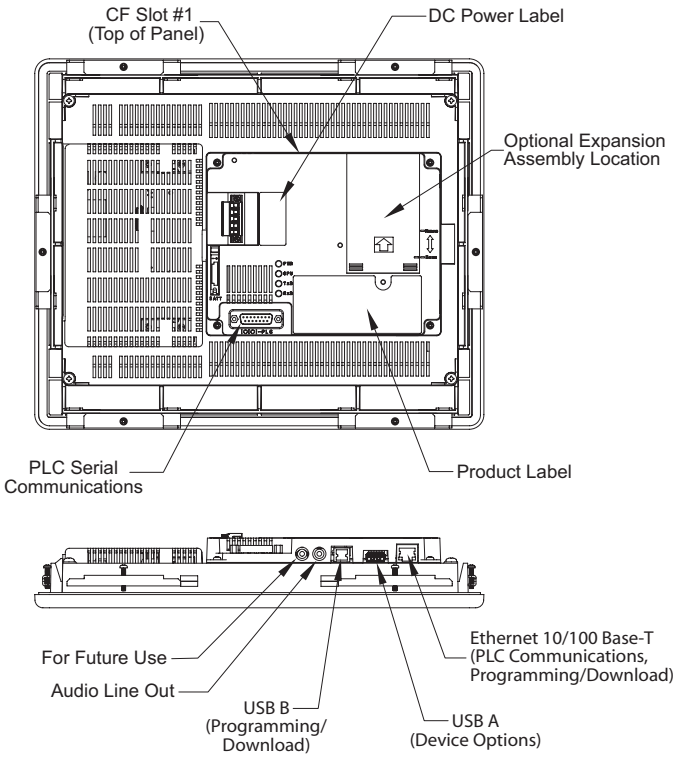


Touch Panel Size	Enclosure Thickness Range	Mounting Clip Screw Torque
8", 10", 12" & 15"	0.039 - 0.20 inch [1 – 5 mm]	42 ~ 57 oz-in [0.3 ~ 0.4 Nm]

EA7-T12C

Ports & Memory Expansion:

Full Feature Model
EA7-T12C

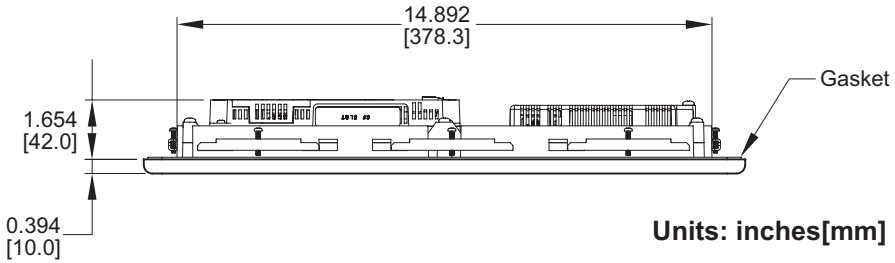


EA7-T15C

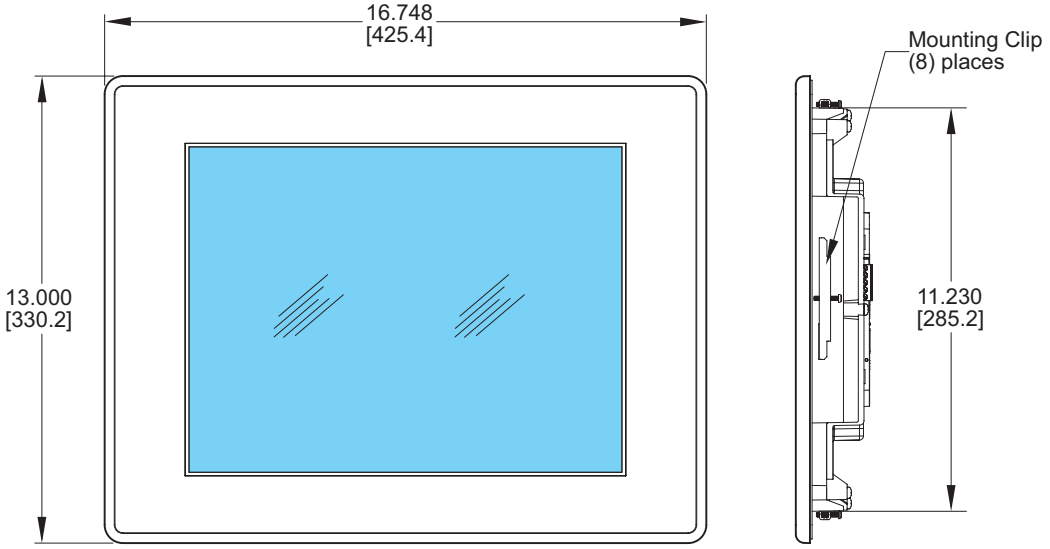
2

Dimensions:

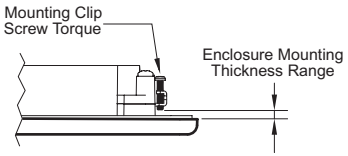
All the necessary mounting hardware is provided with the touch panel. Use the eight (8) mounting clips and screws to secure the touch panel to the cabinet or enclosure surface. A template is provided for marking the cutout dimensions on the mounting surface.



Units: inches[mm]



Enclosure Mounting Thickness Ranges and Mounting Clip Screw Torque

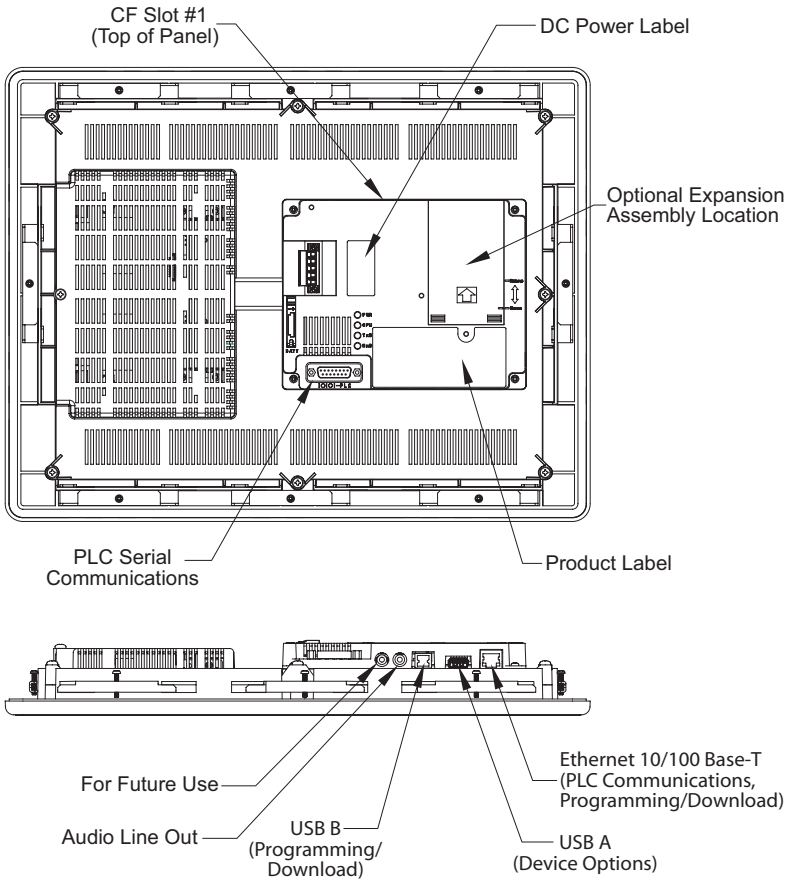


Touch Panel Size	Enclosure Thickness Range	Mounting Clip Screw Torque
8", 10", 12" & 15"	0.039 - 0.20 inch [1 – 5 mm]	42 ~ 57 oz-in [0.3 ~ 0.4 Nm]

EA7-T15C

Ports & Memory Expansion:

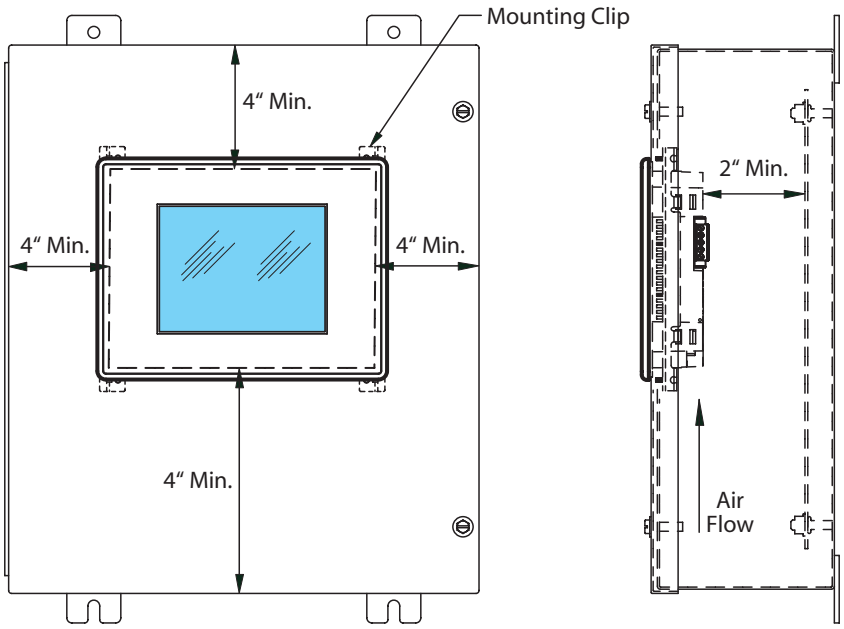
Full Feature Model
EA7-T15C



Mounting Clearances

The following drawing shows the mounting clearances for the *C-more* touch panel. There should be a minimum of 4 inches of space between all sides of the panel and the nearest object or obstruction and at least 2 inches between the rear of the panel and the nearest object or obstruction.

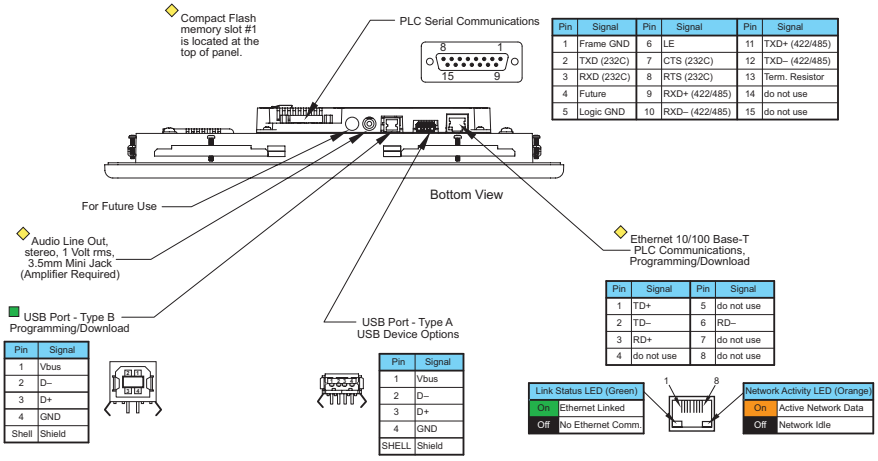
Note: *Make sure the touch panel is mounted on a vertical surface to allow convection air flow for proper cooling.*



Front View

Side View

Communications Ports



Note: Device is not available on Base Feature touch panels, part numbers EA7-S6M-R and EA7-T6CL-R.

Note: Use USB Programming Cable, for example p/n USB-CBL-AB15.

Ethernet Port

The Ethernet port can be used several ways: for programming the panel (downloading a project), for PLC communication, and for the advanced features, such as sending e-mail, web server, FTP access, and allowing users to access and control the panel remotely.

The Ethernet connector is an RJ-45 Module jack type. It has a green and an orange LED.

- The orange LED indicates the Ethernet communication status. It illuminates when there is data activity on the network.
- The green LED indicates link status and illuminates when a link is established.

Ethernet connections to devices:

- *Direct*LOGIC Ethernet
- Productivity3000 Ethernet
- Modbus TCP/IP
- Allen-Bradley EtherNet/IP™ Server - Generic I/O Messaging (ControlLogix™, CompactLogix™, and FlexLogix™)
- Allen-Bradley EtherNet/IP Client - Tag Based (ControlLogix, CompactLogix, and FlexLogix)
- Allen-Bradley EtherNet/IP Client - (MicroLogix and SLC5)
- Entivity Modbus TCP/IP
- Mitsubishi Q/QnA Ethernet
- Omron Ethernet FINS
- Siemens Ethernet ISO over TCP

Note: *The base panels (-R part numbers) do not include an Ethernet port, and do not have these capabilities.*

Refer to http://cmore.automationdirect.com for the latest driver information.

Communications Ports (cont'd)

USB Port B

Program *C-more* via the USB programming port. It's fast and easy, with no baud rate settings, parity, or stop bits to worry about. We stock standard USB cables for your convenience, such as part no. USB-CBL-AB15. USB Port B can be used to upload or download projects to and from a PC (personnel computer).

USB Port A

The Universal Serial Bus (USB) type A port is a standard feature for all models and can be used to connect various USB 1.1 HID (Human Input Device) devices to the panel, such as:

- USB pen drives
- USB keyboards
- USB barcode scanners
- USB card scanners

C-more can log data to the USB pen drive as well as load projects to the panel from the pen drive. You can also back up project files and panel firmware.

Sound Interface (Audio Line Out)

When attached to an amplifier and speaker(s), *C-more* can play warning sounds, or pre-recorded messages such as: "conveyor is jammed". *C-more* supports WAV type files. The output is stereo. See the next page for the WAV file specifications. Various "Objects" in the *C-more* programming software support sounds. Sound files are stored in the sound library. See the *C-more* programming software help support for additional details.

PLC Port

The PLC port is an RS-232C, RS-422A or RS-485A female 15-pin D-sub connector. Use this port for serial connections to PLCs. The port supports the following PLC protocols:

- All *AutomationDirect.com* PLCs:
  - Productivity3000
  - CLICK
  - *Direct*LOGIC K-sequence
  - *Direct*NET
  - Modbus (Koyo Addressing)
- Allen Bradley:
  - DF1 Full & Half Duplex
  - DF1 Full & Half Duplex - Tag Based
  - PLC5 DF1
  - DH485
- Modbus RTU
- Entivity Modbus RTU
- GE SNPX (90/30, 90/70, Micro 90, VersaMax Micro)
- Omron:
  - Host Link (C200 Adapter, C500)
  - FINS (CJ1, CS1)
- Mitsubishi
  - Melsec FX
  - QnA
- Siemens PPI (S7-200 CPU)

Audio WAV File Specifications

The *C-more* Audio Line Out port supports the following WAV file specifications:

Audio Format (codec): PCM

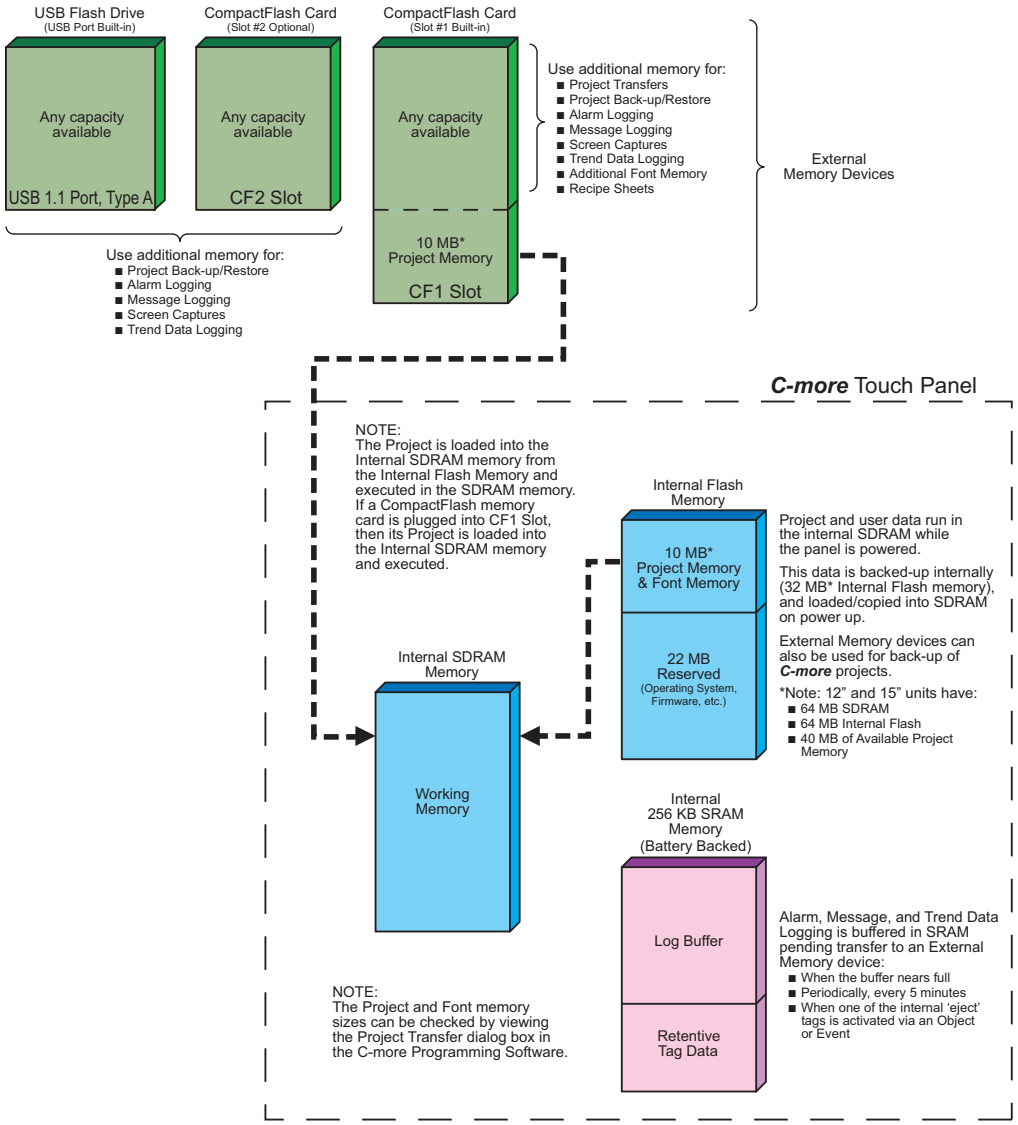
Audio Sample Rate: 11 kHz, 22 kHz or 44 kHz

Channels: 1 (mono) or 2 (stereo)

Audio Sample Size: 8-bit or 16-bit

Memory Organization

The following diagram outlines the relationships between the internal memory of the panel and any external memory device. It also shows how the various memory areas can be used for different functions. The 6", 8" and 10" panels have a project area of **10 MB**, while the 12" and 15" panels have a **40 MB** project area.



Handling External Memory Devices

Consider the following to prevent data error risk when utilizing data logging.

- Do not turn off power to the *C-more* touch panel at any time the external memory device is being accessed.
- Do not remove any external memory device when the device is being accessed by the touch panel.

Note: *A system tag, such as* ***SYS %device% WriteStatus*** *can be used to detect when the external memory device is being accessed. See the* ***C-more*** *programming software on-line help for additional information on* ***System Tag Names****.*

- If a CompactFlash memory card is plugged into the CF1 slot while the panel is running, the project will continue to run from the project that is currently in the internal SDRAM. If power is cycled and there is a good project stored on the CompactFlash, then that project will be loaded into the internal SDRAM and ran.
- Be sure to backup the memory device at regular intervals.
- A CompactFlash memory card plugged into the CF1 slot that includes a project that is being run cannot be used for backup.
- If you suspect the memory device is bad, you may want to use a PC to re-format the device, or use a known good memory device.

Note: *The* ***C-more*** *touch panel requires that all external memory devices be formatted with a* ***FAT*** *or* ***FAT32*** *file system. The* ***FAT*** *file system is recommended for better performance.*

- The number of times the memory device can be written to is limited, approximately 300,000 times. Consequently, frequent writing at short intervals may shorten the service life of the memory device. Try to use as long as possible sampling times for logging data to reduce the amount of times the memory device is accessed.

Power Loss Detection and Power Retention Period

It is important to have an understanding of how the touch panel handles power loss as it applies to data logging and retentive name tag data. The ***C-more*** touch panel system CPU will receive a power loss interrupt signal when the incoming DC voltage level drops below 19.2 VDC. If using the optional AC/DC Power Adapter, EA-AC, then an interrupt signal will occur when the incoming AC voltage level drops below 58 VAC (+/- 5%). When power loss is detected, the backlight will turn off immediately to allow extending the power retention period. Any logging to either CompactFlash memory or an USB pen drive will also stop. This will allow time to complete writing any data to the internal 256 KB SRAM. The 256 KB SRAM along with CPU Date/Time registers are battery backed.

Because the 24 VDC power retention time period is very short, only data backup to the internal 256 KB SRAM memory buffer can occur. When power is restored, the contents of the SRAM will be written to the selected memory storage device.

Data Logging Function and Logging Media

Considering the power retention period and the CF card write performance, the EA-CF-CARD memory card is recommended to minimize data loss. It is also recommended to further reduce the risk of losing data, a uninterruptible power supply (UPS) should be used to provide power to the touch panel.

Data Logging - Memory Device Full

The following explains what occurs when logging data from an object, such as Line Trending, and the memory device becomes full. The memory device can be a USB pen drive plugged into the USB port, or a CompactFlash memory card plugged into location CF1 or CF2.

The answer is when the memory device that is being used for logging is full, the panel will stop writing to the log and a RTE-001 Runtime Error will be displayed on the screen. The displayed error message will read “Log Failed. Not enough Memory Space in %Device%”. (%Device% can be USB, CF1, or CF2.) The data logging object will continue to execute.

The user can monitor the System Tag “SYS %DEVICE% FreeMemory” with the Event Manager, and display a message to the operator to warn when the memory device is close to full.

The user can also use a Pushbutton object with the tag “SYS Copy Log to %Device%” to copy ALL logs on ALL other devices to %Device% and therefore save the current data.

For example, if the application is logging to CF1 and CF2, the user can monitor “SYS CF1 FreeMemory” and “SYS CF2 FreeMemory” in the Event Manager. When the value of either gets below a set value in the Event Manager, then the Event Manger can issue an Alarm, send an email, etc. The operator can then insert a USB pen drive into the panel’s USB port, and press a pushbutton that is configured with System Tag “SYS Copy Log to USB”. This action will copy all of the logged data to the USB pen drive from both CF1 and CF2. The operator can then use the System Setup Screen’s Memory selection to clear both CompactFlash CF1 and CF2.

This example can work with different combinations of the memory devices, but the preferred method is using a USB pen drive because it is the easiest device to insert and remove.

Chemical Compatibility

The *C-more* touch panels comprise three different materials that may be exposed to outside elements: a gasket, a screen sheet and a bezel.

The *C-more* panel serial number can be found on the label on the back of the panel. It has the format MODEL NUMBER + yymddBsss. The characters yym represent the year and month of manufacture. These are the characters that determine the materials used in construction of your panel as follows:

All panel gaskets are Silicone

Panel Size	Date Code	Screen Sheet Material	Bezel Frame Material
6 inch	05m through 077	PET	ABS
	078 through 112	PC	
	113 through current	PET	
8 inch	05m through 077	PET	
	078 through 082	PC	
	083 through current		PPE/PS
10 inch	05m through 077	PET	ABS
	078 through 081	PC	
	082 through current		PPE/PS
12 and 15 inch	05m through 077	PET	ABS
	078 through 081	PC	
	082 through 096		PPE/PS
	097 through current	PET	

Chemical compatibility tables begin on the next page.

Chemical Compatibility (cont'd)

The following tables are provided to make you aware of the general compatibility between chemicals that may be present in your work environment and the various materials used in the manufacture of the panel. Use the table to determine those chemicals that are safe to use around your *C-more* touch panel and those that may harm it. The tables are made up of specifications provided by the manufacturer of the listed material. The tables rate these chemicals as either Excellent, Good, Not Recommended, or Not Usable. Because the ratings are for ideal conditions at room temperature, consider all factors when evaluating your application. Areas left blank have not been tested by the manufacturer and therefore information of compatibility is not available.

The values in [**brackets**] represent the chemical's density at room temperature, 20 °C.

Chemicals	Screen Sheet – PET [Density %, Temperature °C]	Screen Sheet – PC [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Bezel – PPE / PS [Density %, Temperature °C]	Gasket – Silicone [Density %, Temperature °C]
Acetaldehyde			Not Recommended	Not Usable	
Acetic Acid			[10, 20 °C] Excellent		
			[10, 20 °C] Excellent		
	[Glacial] Excellent		[50, 20 °C] Not Usable		
			[50-70, 20 °C] Not Usable		
			[100, 20 °C] Not Usable		
Acetic anhydride			Not Recommended		
Acetone	Excellent	Not Usable	Not Usable	Not Usable	
Acetophenone			Not Usable	Not Usable	
Acetylene			Excellent		
Acrylonitrile			Not Recommended	Not Usable	
Alcohol - Butyl Ether					Excellent
Alcohol - Ethanol					Excellent
Alcohol - Isopropyl					Excellent
Alums NH3, Cr, K			Excellent		
Aluminum acetate			Excellent		
Aluminum bromide			Good		
Aluminum chloride			Good		
Aluminum nitrate			Excellent		
Aluminum sulfate			Excellent		
Ammonia [anhydrous] (10%)			Good	Good	Good
Ammonia gas [cold]			Good		
Ammonia liquid			Good		

Table continued at top of next page.

Chemical Compatibility (cont'd)

Chemicals	Screen Sheet – PET [Density %, Temperature °C]	Screen Sheet – PC [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Gasket – Silicone [Density %, Temperature °C]
Ammonia water	[12%] Not Usable		[12%] Not Usable		
	[28%] Not Usable		[28%] Not Usable		
Ammonium carbonate			Excellent		
Ammonium chloride			Excellent		
Ammonium hydroxide [ammonia water]			Excellent		
Ammonium nitrate			Excellent		
Ammonium nitrite			Excellent		
Ammonium persulfate			Excellent		
Ammonium phosphate			Excellent		
Ammonium sulfate			Excellent		
Amyl acetate			Not Usable		
Amyl alcohol			Good		
Aniline dyes			Not Recommended		
Animal oil [lard]			Good		
Aqua regia			Not Usable		
Arsenic acid			Not Recommended		
Asphalt			Excellent		
Barium chloride			Excellent		
Barium hydroxide			Excellent		
Barium sulfate			Excellent		
Barium sulfide			Excellent		
Beer			Excellent	Good	
Beet sugar liquors			Excellent		
Benzaldehyde			Not Recommended	Not Usable	
Benzene [Benzol]			Not Recommended	Not Usable	
Benzene	Excellent			Not Usable	Not Usable
Benzine			Not Usable	Not Usable	
Benzyl alcohol			Not Recommended	Not Usable	
Benzyl benzoate			Not Usable	Not Usable	
Benzyl chloride			Not Usable	Not Usable	
Borax			Excellent		
Boric acid			Good		
Bromine			Not Usable		
Butane			Excellent		

Table continued at top of next page.

Chemical Compatibility (cont'd)

Chemicals	Screen Sheet – PET [Density %, Temperature °C]	Screen Sheet – PC [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Gasket – Silicone [Density %, Temperature °C]
Butter			Good		
Butyl acetate			Not Usable	Not Usable	
Butyl acrylate			Not Usable	Not Usable	
Butyl alcohol [Butanol]			Good	Good	
Butyl Cellosolve		Not Usable			
Calcium actetate			Excellent		
Calcium bisulfite			Good		
Calcium chloride			Excellent		
Calcium hydroxide			Excellent		
Calcium hypochlorite			[20,RT] Excellent		
Calcium nitrate			Excellent		
Calcium sulfide			Excellent		
Cane sugar liquors			Excellent	Good	
Carbon dioxide			Excellent		
Carbon disulfide			Not Usable		
Carbonic acid			Good		
Carbon tetrachloride	Excellent		Not Usable	Not Usable	
Castor oil			Not Recommended	Not Usable	
China wood [tung] oil			Excellent	Not Usable	
Chlorine gas [dry]			Not Usable		
Chlorine gas [wet]			Not Usable		
Chlorine liquid			Not Usable		
Chlorinated solvents			Not Usable	Not Usable	
Chloroacetic acid			Not Usable	Not Usable	
Chloroacetone			Not Usable	Not Usable	
Chloroform	Excellent		Not Usable	Not Usable	
Chlorophenol	Not Usable			Not Usable	
Chlorosulfonic acid			Not Usable	Not Usable	
Chlorotoluene			Not Usable	Not Usable	
Chromic acid			[2, 70 °C] Not Usable	[2, 70 °C] Not Usable	
			[5, 70 °C] Not Usable	[5, 70 °C] Not Usable	
			[10, 70 °C] Not Usable	[10, 70 °C] Not Usable	
			[25, 70 °C] Not Usable	[25, 70 °C] Not Usable	
Citric acid			Good		

Table continued at top of next page.

Chemical Compatibility (cont'd)

Chemicals	Screen Sheet – PET [Density %, Temperature °C]	Screen Sheet – PC [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Gasket – Silicone [Density %, Temperature °C]
Cocoanut oil			Good	Not Usable	
Copper chloride			Excellent		
Copper cyanide			Excellent		
Copper sulfate			Excellent		
Corn oil			Good	Not Usable	
Cottonseed oil			Good	Not Usable	
Creosol			Not Usable	Not Usable	
Cyclohexane			Good	Not Usable	
Cyclohexanol			Good	Not Usable	
Cyclohexanone		Not Usable	Not Usable	Not Usable	
Developing solutions [Hypos]			Excellent		
Dibutyl phthalate [DBP]			Not Usable	Not Usable	
Dichlorobenzene			Not Usable	Not Usable	
Diethylene glycol			Good	Not Usable	
Diethyl ether			Not Usable	Not Usable	
Disopropyl ketone			Not Usable	Not Usable	
Dimethyl aniline			Not Usable	Not Usable	
Dimethyl formamide			Not Usable	Not Usable	
Dioxane			Not Usable	Not Usable	
Dipentene			Not Usable	Not Usable	
Epichlorohydrine			Not Usable	Not Usable	
Ethyl acetate	Excellent		Not Usable	Not Usable	
Ethyl acetoacetate			Not Usable	Not Usable	
Ethyl acrylate			Not Usable	Not Usable	
Ethyl alcohol			Not Recommended	Good	
Ethyl benzene			Not Usable	Not Usable	
Ethyl chloride			Not Usable	Not Usable	
Ethylene chlorohydrin			Not Usable	Not Usable	
Ethylene diamine			Not Usable	Not Usable	
Ethylene dichloride			Not Usable	Not Usable	
Ethylene glycol			Excellent	Good	
Ethylene oxide			Not Usable	Not Usable	
Fatty acid			Good	Not Usable	
Ferric chloride			Excellent		

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Chemical Compatibility (cont'd)

Chemicals	Screen Sheet – PET [Density %, Temperature °C]	Screen Sheet – PC [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Gasket – Silicone [Density %, Temperature °C]
Ferric nitrate			Excellent		
Ferric sulfate			Excellent		
Fluorboric acid			Not Recommended		
Fluorobenzene			Not Usable	Not Usable	
Fluosilicic acid			Not Recommended		
Formaldehyde			[40, 20 °C] Good	[40, 20 °C] Not Usable	
Formic acid			[25, 20 °C] Excellent		
			[50, 20 °C] Good		
			[90, 20 °C] Not Recommended		
Freon	[45°C] Excellent				
Freon 11			Not Recommended		
Freon 12			Good		
Freon 113			Not Usable		
Freon 114			Not Recommended		
Fuel oil			Good		
Gasoline (Leaded)		Good	Not Recommended	Not Usable	Not Usable
Gasoline (Unleaded)		Good	Not Recommended	Not Usable	Not Usable
Gelatin			Excellent		
Glauber's salt			Excellent		
Glucose			Excellent		
Glue			Excellent		
Glycerin			Excellent	Good	
Grease			Excellent	Good	
Hexane			Not Recommended	Not Usable	
Hexyl alcohol			Good	Not Usable	
Hydrobromic acid			[20, 20 °C] Not Usable		
			[20-70, 20 °C] Not Usable		
			[37, 20 °C] Not Usable		
Hydrochloric acid	[18%] Excellent		[10, 20 °C] Excellent	[10, 20 °C] Good	Good
			[20, 20 °C] Good		
	[35%] Good	[35%] Good	[20-80, 20 °C] Not Recommended		
			[38,20 °C] Not Recommended		

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Chemical Compatibility (cont'd)

Chemicals	Screen Sheet – PET [Density %, Temperature °C]	Screen Sheet – PC [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Gasket – Silicone [Density %, Temperature °C]
Hydrocyanic acid			Excellent		
Hydrofluoric acid			[10, 20 °C] Excellent		
			[20, 20 °C] Excellent		
			[40, 20 °C] Good		
Hydrofluoric acid anhydrous			Not Usable		
Hydrogen			Excellent		
Hydrogen peroxide			[5, 20 °C] Not Recommended		
			[5-50, 20 °C] Not Recommended		
			[30, 20 °C] Not Usable		
Hydrogen sulfide			Excellent		
Hydorquinone			Not Recommended		
Hypochlorous acid			Not Recommended		
Isobutyl alcohol		Good	Good	Good	
Isopropyl acetate			Not Usable	Not Usable	
Isopropyl alcohol			Good	Good	
JP fuels (1-6)			Good	Not Usable	
Kerosene			Good	Not Usable	
Lacquer			Not Usable		
Lactic acid			Excellent		
Lard			Excellent		
Lead acetate			Excellent		
Lead nitrate			Good		
Lead sulfamate			Good		
Linoleic acid			Excellent		
Linseed oil			Excellent	Not Usable	
Liquified petroleum gas [LPG]			Excellent		
Lubricating oil			Excellent		
Lye solution			Excellent		
Magnesium chloride			Excellent		
Magnesium hydroxide			Excellent		
Magnesium sulfate			Excellent		
Maleic acid			Excellent		

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Chemical Compatibility (cont'd)

Chemicals	Screen Sheet – PET [Density %, Temperature °C]	Screen Sheet – PC [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Gasket – Silicone [Density %, Temperature °C]
Marcuric chloride			Excellent		
MEK		Not Usable	Not Usable	Not Usable	
Mercury			Excellent		
Metacresol	Not Usable				
Methylene Chloride		Not Usable			
Methyl acetate			Not Usable	Not Usable	
Methyl alcohol	Excellent		Not Recommended	Not Usable	
Methyl Benzoate	Not Usable				
Methyl chloride			Not Usable	Not Usable	
Methyl ethyl ketone [MEK]		Not Usable	Not Usable	Not Usable	
Methyl isobutyl ketone [MIBK]			Not Usable	Not Usable	
Methyl methacrylate			Not Usable	Not Usable	
Methyl dichloride			Not Usable	Not Usable	
Methyl Salicylate	Not Usable				
Milk			Excellent		
Mineral oil			Excellent		Excellent
Monochlorobenzene	Not Usable		Not Usable	Not Usable	
Naptha			Good		
Napthalene			Excellent		
Napthenic acid			Good		
Natural gas			Excellent		
Natural oil					Excellent
Nickel acetate			Excellent		
Nickel chloride			Excellent		
Nickel sulfate			Excellent		
Nitric acid	[35%] Good		[10, 20 °C] Good	[10, 20 °C] Not Usable	
			[10-70, 20 °C] Not Usable	[10-70, 20 °C] Not Usable	
			[30, 20 °C] Not Usable	[30, 20 °C] Not Usable	
	[60%] Not Usable		[30-70, 20 °C] Not Usable	[30-70, 20 °C] Not Usable	
			[61.3, 20 °C] Not Usable	[61.3, 20 °C] Not Usable	
			[Vapor, 20 °C] Not Usable	[Vapor, 20 °C] Not Usable	

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Chemical Compatibility (cont'd)

Chemicals	Screen Sheet – PET [Density %, Temperature °C]		Bezel – ABS [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Gasket – Silicone [Density %, Temperature °C]
Nitrobenzene	Not Usable		Not Usable	Not Usable	
Nitroethane			Not Usable	Not Usable	
Nitromethane			Not Usable	Not Usable	
Nitropropane			Not Usable	Not Usable	
Nitrogen			Excellent	Good	
Octyl alcohol			Good		
Oleic acid			Excellent	Not Usable	
Olive oil			Excellent	Not Usable	
Oxalic acid			Excellent		
Oxygen			Excellent		
Ozone			Not Recommended		
Palmitic acid			Excellent		
Perchloroethylene			Not Usable	Not Usable	
Petroleum			Excellent	Not Usable	
Phenol	Not Usable		Not Usable	Not Usable	
Phospheric acid			[50, 20 °C] Good		
			[50-70, 20 °C] Not Usable		
			[75, 20 °C] Not Usable		
Pickling solution			[Sulfuric acid 20% + nitric acid 4%] Good		
			[Sulfuric acid 40% + nitric acid 15%] Not Recommended		
Pine oil			Good		
Potassium chloride			Excellent		
Potassium cyanide			Excellent		
Potassium dichromate			[10, 20 °C] Excellent		
Potassium hydroxide	[10%] Not Usable		Excellent		
Potassium nitrate			Excellent		
Potassium permangante			[5, 20 °C] Excellent		
Potassium sulfate			Excellent		
Propane			Excellent		
Propyl acetate			Not Usable	Not Usable	
Propyl alcohol			Good	Good	
Salt water			Excellent	Good	

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Chemical Compatibility (cont'd)

Chemicals	Screen Sheet – PET [Density %, Temperature °C]	Screen Sheet – PC [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Gasket – Silicone [Density %, Temperature °C]
Silicone oils			Good	Good	
Silver nitrate			Excellent		
Skydrol 500			Not Usable		
Skydrol 7000			Not Usable		Not Usable
Soap solutions			Excellent		
Soda ash			Excellent		
Sodium bicarbonate			Excellent		
Sodium bisulfate			Good		
Sodium borate			Excellent		
Sodium carbonate	[10%] Excellent				
Sodium chloride			Excellent	Good	
Sodium cyanide			Excellent		
Sodium hydroxide	[40%] Not Usable	[40%] Not Usable	[10, 20 °C] Excellent		Good
			[30, 20 °C] Excellent		
			[30-70, 20 °C] Not Usable		
Sodium hypochlorite			[5, 20 °C] Excellent		
			[5-70, 20 °C] Not Usable		
Sodium metaphosphate			Excellent		
Sodium nitrate			Excellent		
Sodium perborate			Excellent		
Sodium peroxide			Not Usable		
Sodium phosphate			Excellent		
Sodium thiosulfate			Excellent		
Sodium sulfate [Glauber's salt]			Good		
Sodium sulfite			Excellent		
Soybean oil			Excellent		
Stannic chloride			Good		
Steam			[below 150 degrees] Not Usable		
			[above 150 degrees] Not Usable		
Stearic acid			Excellent		
Styrene			Not Recommended	Not Usable	
Sucrose solutions			Excellent	Good	

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Chemical Compatibility (cont'd)

Chemicals	Screen Sheet – PET [Density %, Temperature °C]	Screen Sheet – PC [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Bezel – ABS [Density %, Temperature °C]	Gasket – Silicone [Density %, Temperature °C]
Sulfur			Excellent		
Sulfur dioxide			Good		
Sulfuric acid	[40%] Excellent		[10, 20 °C] Excellent	[10, 20 °C] Good	Not Usable
			[10-70, 20 °C] Not Usable		
	[60%] Excellent		[30, 20 °C] Excellent		
			[30-70, 20 °C] Not Recommended		
	[70%] Excellent		[98, 20 °C] Not Usable		
			[Vapor, 20 °C] Not Usable		
	[80%] Not Usable				
Sulpherous acid			[10, 20 °C] Good		
Tannic acid			Good		
Tar			Not Recommended		
Tartaric acid			Excellent		
Terpineol			Not Recommended		
Tetrachloroethane	Excellent		Not Usable		
Tetraethyl lead			Good	Not Usable	
Tetralin	Not Usable				
Tetrahydrofuran			Not Usable	Not Usable	Not Usable
Thionyl chloride			Not Usable	Not Usable	
Toluene		Not Usable	Not Usable	Not Usable	Not Usable
Trichloroethylene [Trichlene]			Not Usable	Not Usable	
Triethanol amine			Good	Not Usable	
Turpentine oil			Good	Not Usable	
Vegetable oil			Good	Not Usable	
Vinegar			Excellent	Good	
Water			Excellent	Good	
Whiskey			Excellent		
Xylene	Excellent	Not Usable	Not Usable	Not Usable	
Zeolites			Excellent		
Zinc acetate			Excellent		
Zinc chloride			Excellent		
Zinc sulfate			Excellent		