

Tough Series Products, Specifically designed to withstand Heat & Humidity of Indian Sub-Continent



Ambient Temperature: 45°C
Ambient Humidity: 90% - 95%

Temperature rise inside the
Control panel: 10°C - 15°C

Temperature seen by HMI
LCD Display: 55°C - 60°C

Maximum Wet bulb Temperature of
current LCDs with CCFL : 39°C !!!

CCFL Life at 25°C: 50,000 hrs
CCFL Life at 60°C: <25,000 hrs!!!

Tough Series Products built for Indian Environments

Current CCFL Technology: Until now all LCD displays in HMIs have utilized Cold Cathode Fluorescent Light bulb. CCFL works fairly well in US, Europe and Japan where ambient temperatures typically do not exceed 30°C, however, CCFL is a problem in the Indian sub-continent where the ambient itself is 45°C. **STN** displays with CCFL have a maximum operating temperature of 45°C and the bulb is rated for 20,000 - 30,000 hours at 25°C. STN displays also have a limited viewing angle, i.e. operator has to be right on top the display to be able to view it. **TFT** displays with CCFL have a maximum operating temperature of 50°C and the bulb is rated for 40,000 - 50,000 hours at 25°C. TFT displays have a wider viewing angle i.e. operator can view it from the side as well.

Uticor's White LED Technology: Uticor ever since its invention of PLC in 1968 has always being 2-5 years ahead of other competitors in automation. CCFL is no different. Uticor is the first Automation company to introduce white LED technology. White LEDs are brighter, can operate at 60°C, have a longer life of minimum of 100,000 hours at 60°C and there is no wet bulb temperature phenomenon!

Conformal Coating: All products have conformal coat on its Printed Circuit Boards which increases the life of the product by protecting inner circuits and components from moisture, salt spray, aggressive chemicals and vapors, ideal protection from Indian humidity and dust.

Metal Construction: Tough Series HMI have either Stainless Steel or Aluminum Bezel. Competitor's HMIs for the most part have plastic bezels which are highly susceptible to cracking under high heat.

2.25mm Thick Touch Screen: Unlike our competitors that use a thin plastic film for touch screen, Tough Series HMIs use a 2.25mm thick, robust touch screen.

Class I, Div II: Toughpanels are UL certified for operation even in Class I, Div II hazardous environment where there is occasional presence of explosive gases.

4 Year Warranty: All Uticor products carry a limited 4 year warranty.

