



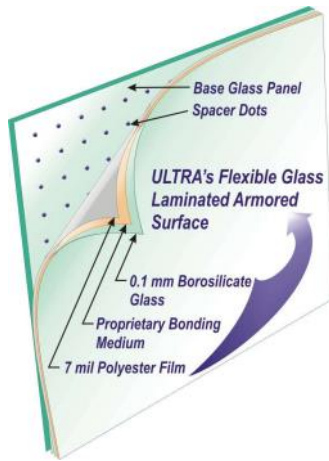
**Innovative**  
Solutions in Touch Screen Technology

# ULTRA Resistive Touch Screens

## Glass/Film/Glass (GFG), 4/8/5-Wire Touch Sensors

### Key Features

- ◆ Finger / stylus / glove operation
- ◆ Waterproof
- ◆ Chemical resistant
- ◆ Scratch resistant
- ◆ Hardness 6.5 Mohs
- ◆ Over 200 million touches\*
- ◆ Extended operational temperature range
- ◆ 3.5" to 24" sensors



ULTRA is A D Metro's line of durable resistive touchscreen sensors. Our patented thin-glass lamination process provides a flexible pressure activated membrane forming a Glass/Film/Glass (GFG) resistive touchscreen solution that offers un-paralleled performance characteristics. A solution that combines the operational advantages of a resistive sensor with the durability of a glass surface.

***Why buy a regular resistive touch sensor, when you can have the benefits of ULTRA?***

A D Metro has been manufacturing GFG sensors since 2007. Every day, around the world, millions of people use ULTRA touchscreen sensors. While others have attempted to imitate ULTRA, none have been able to replicate its results for reliability and functionality.

### Benefits

- ◆ Longer life cycle
- ◆ Less maintenance
- ◆ Improved ROI
- ◆ Operation by stylus or finger, and with medical or heavy industrial gloves
- ◆ Highly durable screen, scratch resistant and impervious to water and most chemicals
- ◆ Operates in presence of water, chemicals, dust, dirt and insects on the screen
- ◆ Sensor surface compatibility with NEMA 4, 6, and 12, and IP65 and IP67 enclosures.
- ◆ Extended operational temperature range
- ◆ Enhanced operational life cycle
- ◆ Minimal electromagnetic interference (EMI) and susceptibility

### Applications

- ◆ Military
- ◆ Aerospace
- ◆ Industrial
- ◆ Healthcare
- ◆ Kiosks
- ◆ Point of Sale
- ◆ Mobile/ PDA
- ◆ Marine

The features of ULTRA touchscreen sensors include:

A D Metro's ULTRA is the most cost-effective, reliable and durable resistive touchscreen sensor on the market. It enables intuitive, flexible and interactive touchscreen based applications to be used in the most demanding and extreme environments, that require durable and rugged solutions. ULTRA is ideal for OEMs and systems integrators, where it has been embedded in a diverse range of commercial, industrial and military applications.

***ULTRA ...the Most Cost Effective Durable Resistive Touch Screen***



\* Applies to 5-wire sensor, certain conditions apply

# ULTRA Resistive Datasheet

## Technical Specifications

### Mechanical Specifications

Construction.....Glass/Film/Glass, 3.5" to 24"  
Surface borosilicate glass ..... 0.1mm  
ITO substrate range..... 1.1-3.0mm  
PET film ..... Clear or Standard Anti-glare  
Cable design | termination ..... FFC, FPC | ZIF, AMP  
Input method ..... Finger, Stylus, Glove  
Activation force..... 80g typical  
Surface hardness..... 6.5 Mohs  
Sensor lifespan (touches) ..... >200 million (5-wire); >20 million (4/8-wire)  
Sensor Surface Enclosure Compatibility..... NEMA 4, 6, 12; IP65, IP67  
Fire/burn resistance ..... Open flame, sparks, cigarette burns  
Chemical resistance ..... ASTM D1308-87, ASTM F1598-95  
(E.g. acetone, methylene chloride, methyl ethyl ketone, isopropyl alcohol, hexane, turpentine, gasoline, diesel fuel, motor oil, transmission fluid, antifreeze, ammonia based glass cleaner, cleaners, coffee, grease, salt, etc.)

### Optical Specifications

Light transmission ..... Clear: 88%; Standard: 84%  
Gloss of front glass ..... Clear: 170-180 GU | Anti-glare: 50-60 GU  
Anti-reflection ..... SAE AMS-2521 & MIL-C-675

### Environmental Specifications

Operating temperature..... -35°C to +80°C\*  
Storage temperature ..... -40°C to +85°C\*  
Relative humidity ..... 90% at 60°C up to 240 hrs  
Altitude ..... 10,000ft / 3,048km

### Electrical Specifications

Insulation resistance ..... 20MΩ @ 25V DC  
Linearity (5-wire, active area, post calibration) ..... <1.5%  
Contact bounce..... <15ms  
Operating voltage ..... <5V  
Contact current..... 70mA (max)  
Corner to corner resistance (5-wire)..... 40-60Ω (typical)  
Bar to bar resistance (4/8-wire) ..... 200-800Ω (typical)  
Electrostatic discharge..... EN 61000-4-2 (1995) 20 x 15kV  
Designed in compliance with ..... EN 60950, UL 60950, UL 544  
Controller ..... Available Option - See Controller Datasheet

## Enhancement Options

### Sensor enhancements

A D Metro's standard ULTRA resistive touch screen sensor technology offers the most cost-effective durable solution for many applications. We also offer custom enhancement options to meet the requirements of demanding applications e.g. military, avionics and vandal proof kiosks:

### Optical Enhancements

- ◆ Anti-reflective coating—AR
- ◆ Anti-glare matte finish—AG / Anti-Newton Ring
- ◆ Anisotropic film for use with polarized glasses

### Mechanical Enhancements

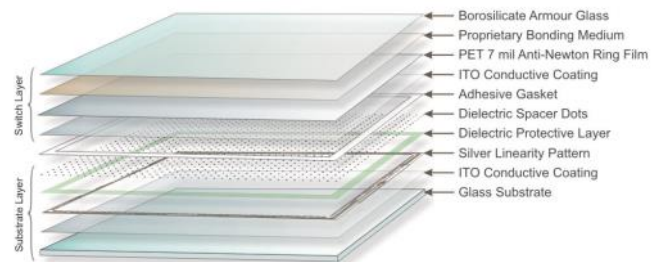
- ◆ Chemically strengthened glass lamination
- ◆ Substrate options: 1.1, 1.6, 2.0 & 3.0mm
- ◆ Surface borosilicate glass options: 0.1, 0.145, & 2.0mm

### EMI shielding

- ◆ ITO coatings (4 ohm/sq, 13 ohm/sq standard)
- ◆ Military grade Micro Mesh/Laser Mesh/Wire Mesh
- ◆ Various grounding options

### Miscellaneous

- ◆ Infra-red reflection coatings and films
- ◆ Application of NVIS compliant filters
- ◆ Mullion heaters for extreme conditions
- ◆ Neoprene/Poron foam and/or adhesive mounting gaskets
- ◆ Custom tail assemblies
- ◆ Silk screened borders and die-cut vinyl overlays
- ◆ Vented or pressure Compensated Resistive diaphragm
- ◆ Elo Touch & 3M Touch type connector pinouts



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Disclaimer: Technical specifications are provided for guidance and subject to change without notice. Specifications and performance may depend on sensor dimensions, selected options, installation and mounting. Please contact A D Metro for confirmation of the applicable specifications, individual sensor drawings, as well as installation and mounting best practices.

### ABOUT US:

Established in 1988, A D Metro designs, manufactures and supplies innovative touch screen technology solutions for original equipment manufacturers (OEMs), system integrators and value added resellers. Everyday A D Metro's products are touched by millions of people around the world. Our ULTRA product line is the most durable resistive touch screen sensor available on the market and our projected capacitive (PCAP) touch screen solutions simplify design and accelerate time to market.

Contact us, for more information on our innovative touch screen products, enhancements and custom manufacturing solutions.

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