2 Inspections, 1 Window

The TTX series is a “Dual-View” inspection window that combines a large format infrared (IR) window, with a visual inspection window.

The dual-view design allows technicians to take IR scans and digital photos through the same window while de-risking their predictive maintenance work process.

Access the Inaccessible:

How does your facility inspect equipment that can no longer be opened while energized due to that equipment’s voltage or incident energy rating? How does your facility inspect equipment protected by switched interlocks? The Dual-View Inspection Panel provides safe access to “inaccessible” energized equipment.

Compliance Made Easy & Quick

Easily comply with OSHA, NFPA 70E, CSA Z462 and similar electrical safety mandates by using closed-panel inspection methods. Infrared (IR) Windows and Visual Inspection Windows allow workers to perform routine inspections while keeping energized electrical equipment closed, and in “normal operating condition.”

Closed-panel inspections eliminate inherently high-risk tasks, such as removing panels or opening hinged doors. The resulting work task is safer for personnel, plant assets and processes.

The more efficient work process can also reduce inspection costs by 75% to 95%, while improving worker safety.

Over-Engineered for Your Safety

The TTX is built to out-live your enclosure. You have to see it to believe it.

The panel is fabricated from 12 gauge stainless steel and the cover from 16 gauge stainless steel. When it comes to durability and brute strength, Turtle Tough is without peers.

Analyze Better Data:

Because using inspection windows does not increase risk of electrical hazards, inspections can be performed during peak load, when data collection is ideal, without worry of accidental process interruption.

Patent Pending

Made In America

Anatomy of a Dual-View Panel

❑ Visual Inspection Window:

- Viewing window provides broad field of view inside the enclosure, even across phase dividers.
- Impact-resistant polycarbonate: the durability and resilience you expect from Turtle Tough.
- Scratch-Off™ protection inside & out: peel scratches and hazing off the viewing window for a clear, accurate view with Turtle Tough patent-pending, multi-layer tear-away system.
- UV stabilized, oil resistant.

❑ Infrared (IR) Window:

- IR window optic provides a vast field of view without cropping issues.
- Impact-resistant optic for unsurpassed durability.
- Finger guard allows user to place camera lens next to window optic to maximize field of view.
- Polymer optic is inherently resistant to moisture, humidity, and a broad spectrum of acids and alkalis for longevity and stable transmission.
- Transmission throughout the entire long wave and mid wave spectra for accurate temperate and ΔT calculations.

❑ Window Body & Cover:

- 12 gauge stainless steel base, and 14 gauge stainless steel hinged cover for unmatched durability and integrity.
- Window frames machined from bar stock aluminum — Mil-Spec anodized.
- Stainless steel, spring loaded, captive cover screws for a safe, secure seal.
- Entire assembly powder coated to endure aggressive environments.
- Cover available in full or partial (IR only).

❑ Other Structural Features:

- Stainless steel reinforcing plate (inside the enclosure) ensures a tight, flat seal in the event of blast forces.
- Stainless steel studs with Nyloc nuts ground and anchor the window into virtually any enclosure.
- Gaskets between the cover and body, and between the body and enclosure provide a NEMA 4X seal for indoor and outdoor use.

❑ Get More Out of Your Inspection Windows

- More Durability
- More Field of View
- More Accuracy
- More for your Money
- Contact your local Distributor for a demonstration.

Material Specifications			
Primary Panel & Cover Material	Stainless Steel (Powder Coated)		
Backer Plate & Finger Guard	Stainless Steel (Powder Coated)		
Window Bezel (behind primary panel)	Aluminum (Anodized and Powder Coated)		
Hardware & Fasteners	Stainless Steel		
Self-Locking Nuts	Nickel-Plated, Nylon Insert Lock Nuts (“Nyloc")		
IR Optic	Transmissive Polymer		
Viewing Window Optic	1/4” Polycarbonate, UV stabilized, oil resistant. Includes Scratch-Off™ protective layers on both planes of window		
Gaskets	Silicone & Neoprene		
Cover Screws*	Stainless Steel, Captive, Spring Loaded		
Dimension Specifications (nom.)	**TTX-#-10-#-#**	**TTX-#-15-#-#**	**TTX-#-20-#-#**
Panel (L x H)	12.0 in x 8.25 in (305 mm x 210 mm)	17.0 in x 8.25 in (381 mm) x (210 mm)	24.0 in x 8.25 in (508 mm) x (210 mm)
Thickness: Body, Cover	12 gauge, 16 gauge	12 gauge, 16 gauge	12 gauge, 16 gauge
IR Aperture Dimension	9.5 in x 3.25 in (240 mm x 83 mm)	15 in x 3.25 in (356 mm) x (83 mm)	20 in x 3.25 in (508 mm) x (83 mm)
Viewing Window Aperture Dimension	9.5 in x 2.25 in (240 mm x 56 mm)	15 in x 2.25 in (356 mm) x (56 mm)	20 in x 2.25 in (508 mm) x (56 mm)
Tested			
NEMA Environmental Rating	NEMA 4X		
Ingress Protection (IP)	IP65		
ANSI/IEEE C37.20.2 Sec A.3.6 (Switchgear Window Impact Resistance)	Yes		
Transmission Compatibility			
Mid Wave & Long Wave Imagers	All Brands		
Vibration	Unaffected		
Broad Spectrum Acids / Alkalis	Unaffected		
Humidity & Moisture	Unaffected		
General			
Voltage Range	Low, Medium & High		
Grounding	Automatically grounds when mounted to grounded panel/door		
Operating Temperature	-40°C (-40°F) to 150°C (300°F)		
Installation	Saw-Cut or Nibbler		
Lifetime Warranty	Unconditional for Materials & Workmanship		
Patent	Patents Pending: USA and International		
Country of Origin	**Proudly Made in the USA**		

Quick & Easy Installation:

The TTX IR inspection panels require a one-time modification to the enclosure. A qualified person simply cuts an opening along the lines of the included template and drills pilot holes in the panel or door.

The rectangular opening gives users the latitude to use a saw, cutoff wheel or nibbler. Properly equipped, a team of two technicians can install four to five windows an hour.

Omni DualSaw

Why Polymer?

Turtle Tough designed it's IR windows for the industrial electrical market. With this in mind, traditional laboratory crystals were not an option. After extensive testing and research, it was determined that only polymer satisfies the most important demands of the industrial market:

- Durability: Industrial electrical equipment requires impact resistant optics
- Longevity: Transmission characteristics must be resistant to humidity, moisture, chemicals
- Accuracy: Accurate Temperatures and ΔTs require an optic that transmits the *entire* LWIR spectrum
- Large Field of View: Larger, square windows allow Thermographers to evaluate more with less
- Value: Larger windows mean fewer windows needed, and fewer windows to install

TTX Dual-View Inspection Panels with patent-pending polymer infrared optic and patent-pending Scratch-Off™ window protection are uniquely suited for industrial and facilities maintenance environments: Built like a tank, resilient and warranted for life, accurate and compatible with all models of cameras, big enough to see it all with fewer windows, yet surprisingly affordable.

Turtle Tough won't compromise on safety, accuracy or usability. That's why we over-engineer our design and only use industrial-grade materials — like polymer, aluminum and stainless steel.

Ordering Information:

Made In America

TTX - ## - ## - # - #

Body/Cover Material:
SA = Stainless Steel Panel & Cover w Aluminum Bezel (Standard)
SS = All Stainless Steel

Aperture Width:
10 = 9.5" (240mm) (Standard)
15 = 15" (356mm)
20 = 20" (508mm)

Cover Screw Type:
K = Knurled Philips Head (Standard)
U = Un-knurled Torx® Head

Cover Option:
P = Partial: Covers IR Optic Only (Standard)
F = Full: Covers IR and Viewing Windows