

# PRECISION ULTRASONIC THICKNESS GAGE FOR CRITICAL AND COMPLEX APPLICATIONS



## Evolution of Perfection

For more than 20 years, the NovaScope series of precision Thickness Gages have remained the world's finest gages available! Now, with the introduction of the All New NovaScope 5000 series, that tradition is set to continue well into the future. Incorporated in the design of the New NovaScope 5000 is a new, full color, Touch Screen display featuring virtual front panel controls that mimic the same layout as the NovaScope 3000, 4000 or 4500, will feel right at home. Previous calibration procedures directly apply to the NovaScope 5000. There are no new or complicated multi-level text screen menus with their associated membrane keyboards to learn. In addition, there is a Touch Button to display the controls previously located on the side panels of prior generations... just to keep it familiar!



## TSO

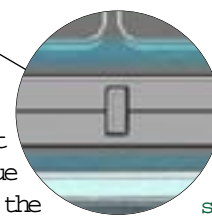
### Touch Screen Operation

The all-new TOUCH Screen Operation significantly simplifies the operation and setup of the NovaScope 5000. Gone are more than 40 cumbersome knobs and switches of the veteran NovaScope series eliminating a busy front panel and areas of potential mechanical failure. In their place are virtual controls. These are color images representing the same mechanical controls displayed on a state-of-the-art, color, Active Matrix Display. To use a feature, simply touch it, and use the single



Front Panel with Slider

TSO knob or the NovaScope's exclusive Slider feature; a bar which Pops-Up at the bottom of the color display permitting the user to simply Touch and drag the value of the particular control back and forth. For example, touch the damping knob and the Slider pops up. Drag it right to increase the damping or left to decrease the damping, or you can elect to use the TSO knob. The NovaScope's Slider is particularly useful for all long range controls such as Calibrate, Initial Pulse and InterFace gating to mention a few.



NovaScope's exclusive slider feature

**"Touch 'N Go"**

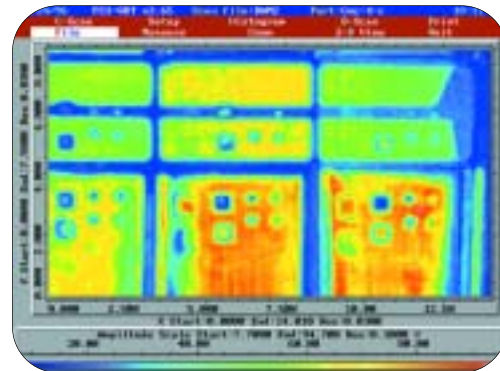
## The BUDDy System... Back Up Device

Another NEW and exclusive feature on the NovaScope 5000 is the incorporation of the BUDDy System, an option enabling the user to save setups to a removable solid state device for transfer between various NovaScopes or for archival of user setups. This data can be further archived on personal IBM compatible computers or servers for safekeeping. Additionally, our Transducer Engineers can tailor a custom transducer for your specific part or requirement and then e-mail or post the setup on our web site for your availability. (Additional charges may apply)



## Stationary Products

Many products with simple or complex shapes or contours can be gaged manually with small handheld transducers such as contact or delay line models. For gaging on particularly sharp contours or on parts with very small contact surfaces effective results can be obtained using a bubbler (or immersion transducer with a finely focused ultrasonic beam).



C-Scan Image using NovaScope 5000. The data processed by the 5000 can be fed in real time to an imaging system such as NDT Systems PortaScan data acquisition system to create a C-Scan of the part under test.

## In-Motion Products

Non-contact immersion type transducers mounted on a miniature water jet squirter assembly can be automatically scan indexed across a product's surface to collect thickness data with the NovaScope 5000. The



## NovaScope Series Transducers

To compliment the NovaScope 5000, NDT Systems manufactures one of the most extensive ranges of high performance thickness gaging transducers for just about any application. A wide variety of Bubbler, Immersion, Delay Line, Pencil and Contact Style transducers are available. These transducers provide optimal performance when used with the NovaScope series.

## Advanced Design Increases Application Range

The NovaScope 5000 is specially designed and improved, high performance, 3-mode, pulser-receiver section covers applications ranging from those requiring delicate high resolution to those demanding hefty penetrating power and high sensitivity. The broadband dual-trace scope displays the ultrasonic A-Trace and the various selectable gates needed to optimize the setup and assure the digital thickness response for a given application.

A host of other controls including an exclusive real time, AGC (Automatic Gain Control) function round out the features necessary to produce exceptional performance and versatility. To extend its standard digital output interfacing ability, there is a microprocessor based high-speed binary (updated at rep rate) and RS-232 output.

## Applications Include:

- |                  |                       |                 |                   |
|------------------|-----------------------|-----------------|-------------------|
| Turbine Blades   | Chem-Milled Parts     | Wax Castings    | Shrouds           |
| Tubing           | Castings              | Valves          | Lenses            |
| Pipe             | Stampings             | Forgings        | Tanks/Drums       |
| Sheet            | Graphite Composites   | Tires           | Pressure Vessels  |
| Plate            | Carbon-Carbon Comp    | Cladding        | Corrosion/Erosion |
| Extrusions       | Kevlar Composites     | Heat Exchangers | Discs             |
| Billets          | Fiberglass Composites | Machined Parts  | Drawn/Spun Parts  |
| Liners & Casings | Blow Moldings         | Bars            | Bottles           |

## Notable Features

- Pop-Up Keyboard for calibration & text entry
- User Lockout Feature disables controls from inadvertent change
- Analog and BCD output AT REPRATE!!
- Rack Mount Version available
- Download of setups to and from other NovaScope 5000's
- Optional X-Hi-Res Mode. 0.00001, 0 - 0.100
- Hundreds of user defined setup possibilities
- 12+ Pre-Programmed transducer setups get you started for just about any use. From Contact to Delay Line to Bubbler and Immersion style. Start here and then save modified setups as desired.
- Rep Rate to 5000 Hz!



## T300 Bubbler Tank

This is a water recirculation system for use with bubbler or captive water column transducers. The T300 offers an adjustable water flow control on the front of the unit to minimize water flow from the transducer tip while maintaining optimal couplant. Capacity 1 quart of water.

FAMILIAR

SIMPLE OPERATION

TOUCH SCREEN

ADVANCED FEATURES

CUSTOMIZABLE

IN-FIELD UPGRADEABLE

Introducing the  
**NOVASCOPE 5000™**

Our Newest Edition to the World's Finest Series of

Ultrasonic  
Precision  
Thickness  
Gages



Go"



Store & Recall Screen Cap



Pop-Up Keyboard for text entry



Virtual Side Panel View

**SAVE & RECALL**  
A NEW and welcomed feature is the save and recall screen menu for saving and recall of setup parameters. The user has the ability to save hundreds of setup parameters with up to 60 character names per setup.

With NovaScope's exclusive POP-UP virtual text keyboard, or optional external keyboard, the user can type a descriptive name to edit and save each setup. For instance: IBU-25 SN-122301-Blade X234JL-BOB JENKINS 05-12-01 and so on. Also, from this screen, the user can recall, edit an existing name and restore as a new setup or delete a setup.

Simply Touching the virtual switches toggles their state to the opposite or next position performing operations of previous mechanical switches. For example, Touch the video switch once to toggle from RF to +HW, then Touch it again to -HW, then once again to RF. Once a full setup has been defined for a given application simply Store the entire setup for future recall.

**Rear Panel View**  
The NovaScope 5000 offers many I/O options, most notable is the BUDDY card slot

**ALL NEW Features!!**

- Store and recall hundreds of setups
- Factory pre-defined setups
- POP-Up text entry panel
- Optional X-HiRes Mode 0.00001", .0050-.100"
- Optional BUDDy kit for setup data transfer
- Single TSO knob for easy adjustments
- NDT Systems EXCLUSIVE Touch Slider

**Features:**

- Color Scan imaging capability when used with NDT Systems. PortaScan
- 0.0001" (0.0025 mm) digital resolution; as low as 0.005" (0.127 mm) thickness resolution
- Compatible with contact, delay line or immersion transducers
- Dual-Trace display; A-Trace and gates
- Displays English or Metric units
- Velocity display (quartz-stabilized, digital)
- Full RF or rectified RF display
- Selectable multiple echo interval
- Receiver attenuation control plus manual gain and Automatic Gain Control (AGC)
- TAC (Thickness Amplitude Compensation) for noise suppression
- Outputs: Alarms, Analog thickness, Digital high-speed binary, Serial RS-232C, IP Sync, and PortaScan

**Technical Specifications:**

- Digital Display**
  - Four digit (LED), thickness readout
- Dimensional Readout:**
  - English and Metric
- Gaging Range English: 0.005-10 inches; Metric 0.13-100 mm (depending upon material)
- Digital Resolution**
  - ± 0.0001" on 1" range
  - ± 0.001" on 10" range

**Metric Units**

- ± 0.001 mm on 10 mm range
- ± 0.01 mm on 100 mm range

**Measuring Mode**

- Sets mode for contact, delay line or immersion transducers

**Readout Mode**

- Selects digital display for thickness or velocity

**Pulser**

- Risetime

- 5 to 10 ns into 50 Ohms (depending on pulser voltage)

**Amplitude**

- Selectable for 90, 150, or 300 volts

**Repetition rate**

- Peak into 50 Ohms

**Damping**

- Selectable for 625, 1200, 2500, or 5000 Hz

**Receiver**

- Adjustable gain

- 66 dB

**Automatic gain control**

- 40 dB dynamic range

**Reject**

- Variable threshold to full scale

**Bandwidth**

- 30 MHz (3 dB down)

**Attenuator**

- 0, 10, and 20 dB selectable

**A-Trace Display**

- Sweep width

- Switchable down to 50 ns/Div
- Continuously adjustable

**Sweep delay**

- 1 ms to 80 ms

**Display**

- Dual Trace; A-Trace plus selectable
- Gate Traces (IP, IF, T or TAC)

**Display modes**

- Full wave RF, positive or negative
- Rectified

**T-Gate**

- Thickness gate with adjustable sync

**T-Gate Start/Stop**

- Selectable on positive or negative half cycles

**IP-Gate**

- 0.25 to 20 ms (contact), 1.0 to 0 ms (continued)

(delay or immersion)

**IF-Gate**

- 0.1 to 8.0 ms

**TAC-Gate**

- Adjustable thickness amplitude
- Compensation of gain
- Start control: 0.02 to 6 ms
- Amplitude control: 0 to 17 dB
- Slope control: 0.1 to 50 ms

**Alarms**

- Three functions: LO, HI, LO/HI

**Outputs**

- Alarms, Analog thickness, Digital high-speed binary, Serial RS-232C, IP Sync and PortaScan

**Inputs**

- External sync

**Power Source**

- Auto-switchable between nominal 115VAC (95-128) and nominal 230VAC (185-250)

48 to 440 Hz

**Power Consumption**

- 70 Watts

**Size**

- 5.4" H x 12.9" W x 17.2" D (137 x 328 x 437 mm)

**Weight**

- 18.2 lbs. (8.3 kg)

**Warranty**

- One year

Authorized Representatives

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**NDT Systems, Inc.**  
Worldwide Excellence In Ultrasonics

Specifications subject to change without notice. (E & O.E.)

Featuring "TSO" Touch Screen Operation