

POLYSONICS®



DCT7088 Portable Digital Correlation
Transit Time Flowmeter

DCT7088 Portable Digital Correlation Transit Time Flowmeter



Applications

- HVAC
- Potable water
- Ultrapure liquids
- De-ionized water
- Petroleum products
- Water & waste management

Features

- Accuracy to +/-0.5%
- 0.001 ft/s flow sensitivity
- NEMA-6 environmental sealing
- Easy to install, clamp-on design
- Bi-directional flow measurement
- Powerful 65,000 point data logger
- TimeGate diagnostics & wave form analysis

The DCT7088 is the world's most advanced portable transit time flowmeter. Combining digital signal processing (DSP) with correlation detection methods, it features exceptional performance and flexibility. While principally designed for clean liquid applications, the instrument is tolerant of liquids with higher concentrations of entrained solids or gas bubbles than was previously possible with transit time technology. The non-intrusive, clamp-on transducers can be installed without flow interruption and insure leak-free measurements with zero pressure drop. The simple menu-driven operation of the DCT7088 allows the meter to be configured in a fraction of the time necessary for competitive portable transit time flowmeters.

Housed in a rugged NEMA-6 (IP67) enclosure, the DCT7088 is waterproof against accidental immersion and splashproof with the lid open. The display is a high resolution, backlit LCD providing excellent visibility, even in poorly lit conditions. Outputs include a 12 bit, 4-20mA analog signal and RS232 serial interface. The flowmeter also incorporates a powerful data logger that can record up to 65,000 data points for subsequent uploading to a personal computer. A separate memory function stores up to 16 sets of site parameters, eliminating the requirement to re-enter setup data when returning to a location for further measurements. The DCT7088 can be programmed to start and finish flow measurements at predetermined times for unattended operation. In addition to password protection, a padlock can be attached to the instrument enclosure to avoid any chance of unauthorized tampering. The meter will provide up to 16 hours of continuous battery operation and can be fully recharged in only 8 hours. Unlike competitive transit time flowmeters,

multiple transducers are not necessary for different pipe materials and sizes. The standard transducer set is suitable for most plastic, metal and even concrete-lined pipes, and for diameters from 1 in. (25mm) to 200 in. (5m).

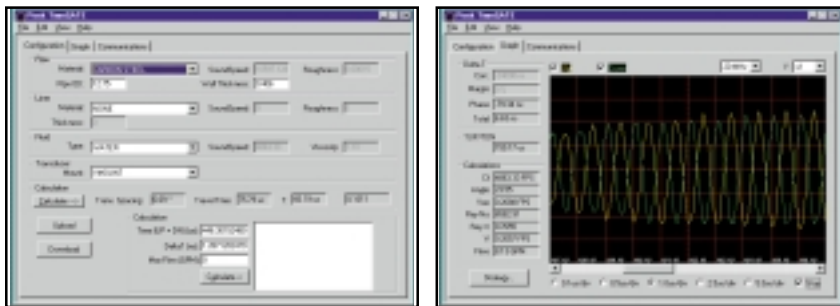
The DCT7088 is supplied with an impressive array of optional accessories. The UTG is a compact and rugged, ultrasonic thickness gauge which allows pipe wall thickness to be quickly determined from the outside of the pipe. As an instrument separate from the DCT7088, the UTG can be used for other functions such as measuring the corrosion or erosion of storage tank walls, etc. To provide an immediate paper record of individual flow measurements, logged data and/or site parameters, a small thermal printer is also available.



Advanced signal processing, simple operation and rugged construction combine to provide a flowmeter that can confidently be used in many applications throughout the plant.

TimeGate Program

Supplied with each DCT7088 is the acclaimed TimeGate configuration and signal analysis program. While not necessary to set up or operate the instrument, it offers a simple, Microsoft Windows based method to configure the flowmeter and access the extensive waveform diagnostics available from the DCT7088. Featuring easy-to-use pull down menus and pop up windows, it provides a very rapid and versatile means to select the ideal transducer location in marginal applications. Stored site and configuration data can also be downloaded to one or more instruments, thus eliminating the need to individually program multiple meters. In addition, it provides a paperless method of retaining and archiving the calibration data – simplifying the data retention and reporting requirements necessary for ISO9000, OSHA and FDA compliance.



While the flowmeter can be fully set up via its integral keypad, the TimeGate program provides a simple and rapid means by which multiple flowmeters can be configured. In addition, the waveform analysis allows the user to easily determine the optimum location for transducer installation.

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DCT7088 Specifications

Performance Specifications

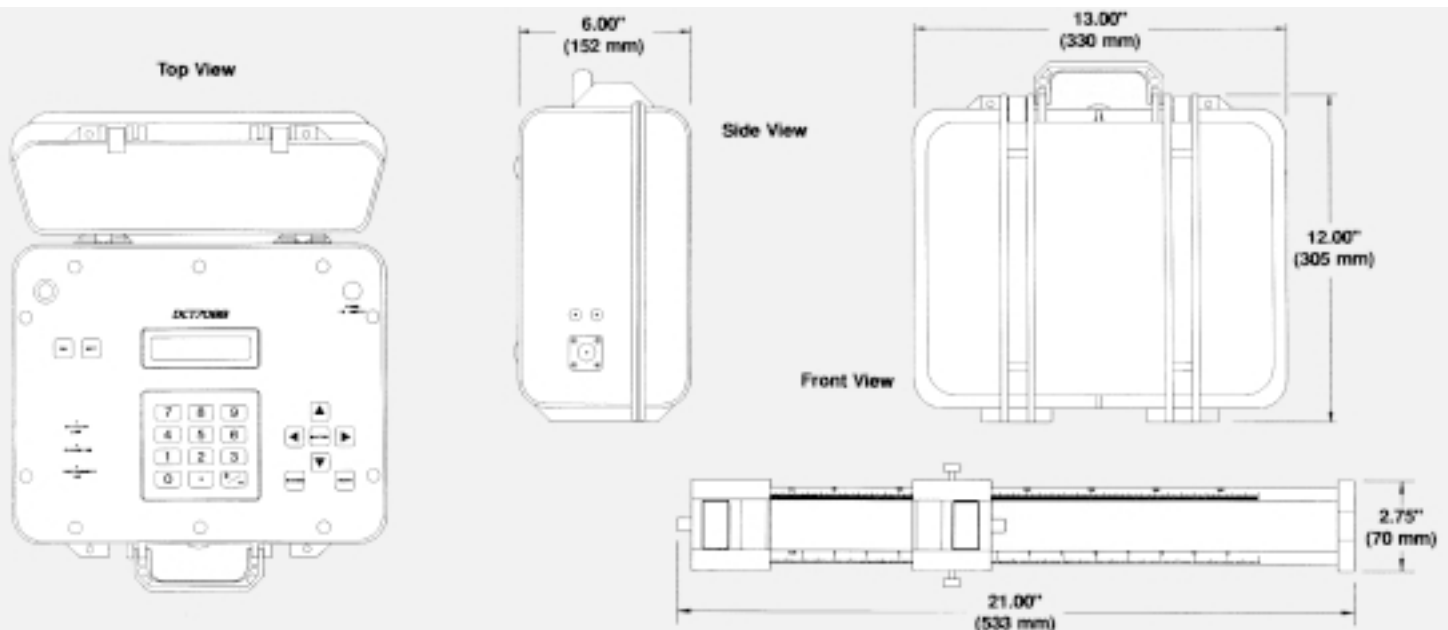
Flow Range:	±0 to 50 ft/s (±0 to 15 m/s)
Accuracy:	Velocity >1 ft/s (>0.3 m/s) ± 0.5% of velocity Velocity ≤1 ft/s (≤0.3 m/s) ± 0.03 ft/s (0.01 m/s)
Sensitivity:	0.001 ft/s (0.3 mm/s) at any flow rate including zero
Linearity:	0.003 ft/s (0.9 mm/s)
Pipe Size:	1 in. to 200 in. (25mm to 5m)

Physical Specifications

Transmitter:	NEMA-6 (IP67), waterproof against accidental immersion and splashproof with lid open.
Transducers:	Encapsulated design. Standard cable length: 16 ft. (5m)
Weight:	Approximately 11 lbs. (4.9 kg) – 8 hr. battery Approximately 15 lbs. (6.8 kg) – 16 hr. battery opt.

Functional Specifications

Outputs:	4-20 mA (into 1,000 Ohms), 12 bit, isolated. RS232 serial interface
Power Supply:	Built-in lead acid gel battery. 8 hours continuous operation – std. 16 hours continuous operation – opt. With AC adapter/battery charger 90-264 VAC, 50-60 Hz. – std.
Keypad:	19 key with tactile action
Display:	40 character, 2 line alphanumeric, backlit LCD. Screens include: present and total flow, velocity, signal strength and delta T.
Data Logger:	Greater than 65,000 data points, time stamped. Programmable in one second intervals.
Temperature:	-40° to +300°F (-40° to +150°C): transducers -5° to +140°F (-20° to + 60°C): transmitter For higher temperature, please consult factory.



Ordering Information

Model	Product Description
DCT7088	Portable Digital Correlation Transit Time Flowmeter
Code	Battery Duration
1	8 hours
2	16 hours
Code	Transducer Cable Length
16A or XXXXA	16 ft. (5m) cable - standard Additional cable, max. 1000 ft. (305m), 10 ft. increments
Code	Additional Options
0704/0188	UTG ultrasonic thickness gauge, English units
0704/0187	UTG ultrasonic thickness gauge, Metric units
22334-0001	Thermal printer kit
20739-0001	High temperature transducer block -40° to +470°F (-40° to +243°C)
Typical Model Number: DCT7088-1-16A	

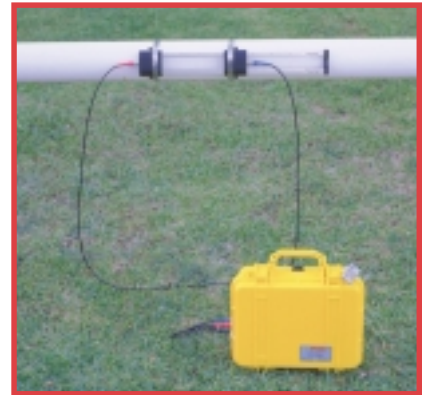
Polysonics is approved to the ISO 9001 quality standard.



An important benefit of the DCT7088 is its ability to operate in the most severe weather conditions. Featuring a NEMA 6 enclosure, the instrument can even be used during heavy rain without fear of damage.

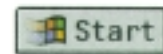


In addition to the DCT7088, other Polysonics transit time flowmeters include single and multi-channel models for permanent installation. A comprehensive range of award winning digital Doppler ultrasonic flowmeters is also available for aerated or solids bearing fluids.



With up to 16 hours of battery operation, a 65,000 point data logger and lockable case, the meter can be used for remote and unmanned flow monitoring.

Microsoft®



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Windows®

POLYSONICS®

A subsidiary of ONIX Systems Inc., a Thermo Electron company.

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ISO 9001



Represented by:

POLYSONICS®

MODEL DCT7088 PORTABLE DIGITAL CORRELATION TRANSIT TIME FLOWMETER RECOMMENDED PROCUREMENT SPECIFICATION

1. The flowmeter shall utilize ultrasonic, digital transit time correlation technology to provide indication, totalization and signal transmission of liquid flow rate in full pipes.
2. The instrument enclosure will be environmentally protected to NEMA 6 (IP67).
3. The instrument will incorporate a rechargeable battery suitable for 8 hours continuous operation. An optional internal battery providing over 16 hours continuous operation will also be available. The battery must be fully chargeable within a maximum 8 hour period.
4. Configuration will be via a front panel, 19-key, flat membrane keypad with tactile feedback. Input parameters will be password protected. The nonvolatile memory shall retain totalizer and user parameters for up to five years. Diagnostics shall be accessible via the keypad.
5. The TimeGate signal analysis and configuration program will be supplied with each shipment of flowmeters. This will provide graphical wave form analysis and incorporate pop up windows and pull down menus to facilitate rapid configuration of multiple instruments.
6. The flowmeter shall have a built-in microprocessor to provide for adapting instrument hardware to existing piping and flow conditions. It will automatically calculate transducer spacing and read in English or metric units. Low flow cut-off, bi-directional totalization with selectable resolution, automatic speed of sound calculation of measured fluid and adjustable damping, shall be standard and configurable via the keypad.
7. The flowmeter will measure flow rates of clean liquids with a velocity span of ± 0 to 50 ft/s. A dual transducer will be supplied which shall be suitable for pipe sizes from 2 to 200 inches.
8. Accuracy of the instrument will be $\pm 0.5\%$ of velocity or ± 0.05 ft/s, typical on a calibrated system.
 - 8.1 Flow sensitivity will be ± 0.001 ft/s at any flow rate including zero.
 - 8.2 The linearity of the instrument will be 0.1% of scale.

Model DCT7088 (Continued)
Procurement Specification
Page 2 of 2

9. The analog output shall be an isolated 4-20mA DC proportional to flow. The maximum resistive load shall be 1,000 ohms. Output current limiting circuitry will be incorporated in the flowmeter electronics. An RS232 serial interface will also be provided.
10. The flowmeter electronics shall be designed to operate at temperatures between -5° F and +140° F (-20° C to +60° C). All electronic circuits are to be interchangeable with other flowmeters having the same model number. All circuit boards will be conformally coated with an anti-fungus compound.
11. The display will be a high resolution, backlit, 40 character LCD.
12. A test block will be supplied, as standard, for field performance verification.
13. The transducers will attach to the outside of the pipe by means of a slide-track mounting method. The transducer cable length will be 16 feet (5m). Longer transducer cable lengths will optionally be available.
14. The transducers will be suitable for operation from -40° F to +300° F (-40° C to +150° C).
15. The manufacturer shall optionally provide an NIST traceable, multi-point flow calibration for the instrument.
16. A 40,000 point data logger, programmable in 1 second intervals, will be included as standard in the flowmeter.
17. The enclosure of the flowmeter will provide a facility for the attachment of a padlock to prevent unauthorized access to the display and front panel during unmanned flow monitoring.
- 18. The instrument shall be manufactured in the USA at an ISO 9001 certified facility.**
19. The transit time flowmeter will be the Polysonics Model DCT7088 manufactured by Polysonics Inc., 10335 Landsbury, Suite 300, Houston, Texas 77099-3407, (281) 879-3700 Tel., (281) 498-7721 Fax.

Polysonics Inc. 10335 Landsbury, Suite 300, Houston, Texas 77099-3407, Tel. (281) 879-3700, Fax (281) 498-7721