



## NT<sup>®</sup> INTEGRATED FLOW CONTROLLER

*Precise point-of-use chemical flow control*



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## Liquid Flow Controller

Entegris introduces the NT® IFC model 6510, designed for point-of-use chemical blending and dispense applications. The smallest liquid controller available today, the reduced footprint saves valuable space in liquid handling systems and allows toolmakers to integrate more process functionality. The NT® IFC model 6510 uses proven and reliable differential pressure flow measurement technology and advanced closed-loop process control. Visual indicators provide diagnostics for preventive maintenance, troubleshooting and alarm conditions, enabling users to maintain high uptime.

- PTFE wetted surfaces for high-purity applications
- Nonmetallic components for corrosion resistance
- Integral pressure transducer for additional process information
- One percent (1%) full scale accuracy for critical dispense applications
- Compact footprint for easy field installs with limited space
- Fast response for accurate dispense rates
- Discrete alarm output

## Constructed for Compatibility

The patented NT® Integrated Flow Controller was developed for use in ultrapure liquid chemical applications and with DI water and slurry. The NT® Integrated Flow Controller also effectively controls liquids containing bubbles.

The instrument's valve seat and diaphragm are designed to minimize dead volume and fluid shear, reducing the possibility of process contamination. Featuring fluorinated materials for wetted parts, the NT® Integrated Flow Controller is ideal for protecting chemical integrity. In addition, the chemical resistant nonwetted parts perform well in harsh chemical environments.

## Advanced Technology

The NT® Integrated Flow Controller utilizes dual PTFE valve diaphragms for fluid containment and contamination protection. Featuring the latest motorized valve and flowmeter technology, encapsulated internal electronics control all aspects of the flow controller. The unit is activated by a setpoint signal (i.e., 4-20 mA, 0-10 VDC, 0-5 VDC) to maintain fluid flow at the desired setpoint.

## Applications

Entegris is solving today's flow control challenges using innovative flow control technology. The NT® Integrated Flow Controller combines Entegris' differential pressure based flowmeter and leading-edge control valve technology to create a closed-loop flow controller ideal for:

- Continuous flow control for critical dispense applications
- Batch control for chemical spiking and blending
- On-demand chemical mixing applications

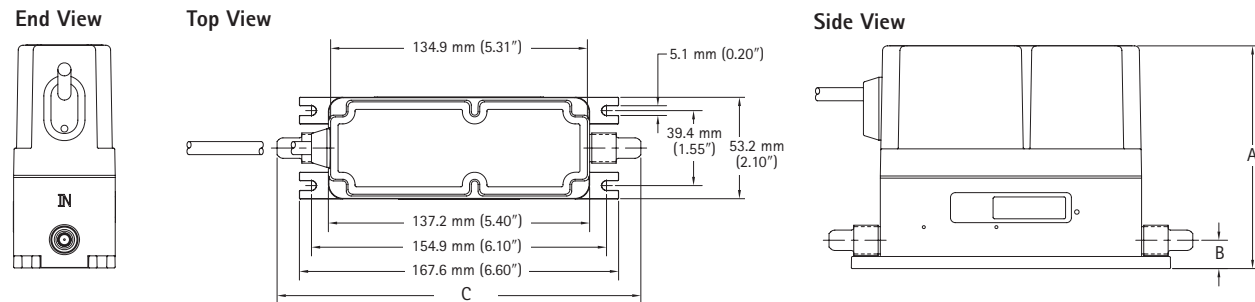
# Specifications

Description	
Materials of construction:	Wetted parts: Body: PTFE Diaphragms: PTFE Sensor interface: PFA or CTFE Primary o-ring: Kalrez® Nonwetted parts: Polypropylene, PVDF and Viton® (In addition to materials listed above.)
Flow measurement:	±1% of full scale from 20 to 100% of flow range ±2.5% of full scale from 10 to 20% of flow range (Calibrated using deionized water at 23°C [73°F])
Repeatability:	±0.5% FS at 20% to 100% of full scale ±1.0% FS at 10% to 20% of full scale
Pressure measurement:	0-413.7 kPa (0-60 PSIG)
Pressure accuracy:	±1% of full scale
Operating pressure:	69.0 kPa (10 PSIG) to 413.7 kPa (60 PSIG)
Output signals:	Two 4-20 mA electrically isolated outputs, one for flow and one for pressure
Response time:	<3 seconds from 10 to 95% of full scale flow range
Over-pressure limit:	689.5 kPa (100 PSIG)
Process temperature:	10°C (50°F) to 65°C (149°F)
Electrical input:	24 VDC (±10%) at 1 amp
Setpoint input signal:	4-20 mA, 0-10 VDC, 0-5 VDC
Enclosure:	NEMA 5/IP54
Approvals:	CE pending

Note: Specifications are subject to change without notice. Please consult the factory for the most current information.

# Dimensional Information

Inlet/Outlet Port Connection	Dimensions		
	A	B	C
1/4" Flaretek®	115.7 mm (4.55")	13.6 mm (0.54")	187.5 mm (7.38")
3/8" Flaretek®	117.0 mm (4.61")	14.9 mm (0.59")	191.0 mm (7.52")
1/2" Flaretek®	120.8 mm (4.76")	18.7 mm (0.74")	195.1 mm (7.68")



The following fitting size and flow range combinations are available:

Fitting Size	Flow Range				
	T0	T1	T2	T3	T4
	0-50 ml/min.	0-125 ml/min.	0-250 ml/min.	0-500 ml/min.	0-1250 ml/min.
1/4" Flaretek®	Yes	Yes	Yes	Yes	Yes
3/8" Flaretek®	Yes	Yes	Yes	Yes	Yes
1/2" Flaretek®	-	-	-	Yes	Yes

Please consult the factory for custom fitting size and flow range combinations.

# Ordering Information

## Part Number

6510-T2-F02-D06-A-P1-U1

### Primary/Secondary Seal

U1 = Kalrez® 4079/Viton® (default)  
U2 = Kalrez® 1050/Viton®  
U3 = Kalrez® 6375 UP/Viton®

### Sensor Interface

P1 = CTFE (default)  
P2 = PFA

### Setpoint Input Signal, Controller Type

A = 4-20 mA, continuous  
B = 0-10 VDC, continuous  
C = 0-5 VDC, continuous  
K = 4-20 mA, batch  
L = 0-10 VDC, batch  
M = 0-5 VDC, batch

### Electrical Connector Type

B06 = FEP-jacketed 6' pigtail electrical cable  
B12 = FEP-jacketed 12' pigtail electrical cable  
B30 = FEP-jacketed 30' pigtail electrical cable  
V06 = PVC-jacketed 6' pigtail electrical cable  
V12 = PVC-jacketed 12' pigtail electrical cable  
V30 = PVC-jacketed 30' pigtail electrical cable

### Inlet/Outlet Port Connection

F02 = 1/4" Flaretek® tube fitting  
F03 = 3/8" Flaretek® tube fitting  
F04 = 1/2" Flaretek® tube fitting

### Flow Range\*

T0 = 0-50 ml/min.  
T1 = 0-125 ml/min.  
T2 = 0-250 ml/min.  
T3 = 0-500 ml/min.  
T4 = 0-1250 ml/min.

*\*Flow ranges are scaled to zero flow, measurement is from 10 to 100% of full scale flow range.*

*Product specified with a flared tube connection is packaged with two PVDF nuts. For alternative nut materials, or custom configurations and specifications, please contact the factory.*

## For Additional Information

For more information on NT® Integrated Flow Controllers or our complete line of fluoropolymer fluid handling solutions, contact your local Entegris distributor or Entegris, Inc.

To review our complete line of sensing and control product solutions visit Entegris' Web site at [www.entegrisfluidhandling.com](http://www.entegrisfluidhandling.com) or contact Entegris Customer Service.

## Terms and Conditions of Sale

All purchases are subject to Entegris' "Terms and Conditions of Sale."

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U.S. Patent 5,672,832; 6,578,435, other patents pending.

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