InVue® Integrated Flow Controllers, Model NT6510

Designed for point-of-use chemical flow control

Entegris is solving today's flow control challenges using innovative flow control technology. The InVue® integrated flow controller (IFC) NT6510 is designed for point-of-use chemical blending and dispense of ultrapure liquid chemical, DI water, and CMP slurry. The NT6510 controller is also designed for effective control of bubble producing media and is engineered for applications requiring low to medium flow rates. It is the smallest InVue integrated flow controller available, saving valuable space in liquid handling systems.

Our IFC 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 integrate more precise functionality.

Constructed for Compatibility

The 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, InVue IFCs are ideal for protecting chemical integrity. In addition, the chemical resistant nonwetted parts perform well in harsh chemical environments.

Advanced Technology

The InVue IFCs utilize dual PTFE valve diaphragms for fluid containment and contamination protection. Leveraging the latest motorized valve and flowmeter technology, encapsulated internal electronics control all aspects of the flow controllers. The units are activated by a setpoint signal (for example, 4 – 20 mA, 0 – 10 VDC) to maintain fluid flow at the desired setpoint.

The IFC NT6510 has flow range capability of 15 mL/min to 1,250 mL/min

APPLICATIONS

The InVue integrated flow controller, NT6510 combines our differential pressure based flowmeter and leading-edge control valve technology to create a closed-loop flow controller ideal for:

- Critical dispense applications
- Chemical spiking and blending
- On-demand chemical mixing

FEATURES & BENEFITS

Integral pressure transducer	Allows for simultaneous dual output - flow and pressure
Robust design	Provides stability and long-term reliability
High repeatability and fast response performance	Enables superior process control and accurate dispense rates
LED status and discrete alarm output	Allows for visual and electronic diagnostics
Compact footprint	Saves space and allows easy field installs where space is limited
Horizontal or vertical orientation	Provides installation flexibility

SPECIFICATIONS

Materials of construction	Wetted parts:	Body, valve diaphragms: PTFE
		Sensor interface: CTFE or PFA
		Primary O-ring: Perfrez® PXC Ultra
	Nonwetted parts:	Polypropylene, PVDF, Viton®, polyurethane, and nylon (in addition to materials listed above)
Operating range	10 –100% of full scale flow	
Flow control accuracy	±1% of full scale (Calibrated using DI water @ 23°C [73°F])	
Repeatability	±0.5% full scale	
Pressure measurement	0 to 414 kPa (0 to 60 psig)	
Pressure accuracy	±1% of full scale	
Operating pressure	69 to 414 kPa (10 to 60 psig)	
Minimum required differential pressure*	10 psi, differential	
Output signals	Two 4-20 mA electrically isolated outputs, one for flow and one for pressure	
Response time	<3 seconds	
Over-pressure limit	690 kPa (100 psig)	
Process temperature	10° to 65°C (50° to 149°F)	
Electrical input	24 VDC (±10%) at 1.2 amps	
Setpoint input signal	4 – 20 mA, 0 – 10 VDC, 0 – 5 VDC	
Enclosure	IP64	
Weight	1.8 kg (4.0 lb) approximate	
Approvals	CE	
Software	Windows-based interface for user setup, calibration, monitoring, and data collection System Requirements: Windows 7 or 10, 8GB RAM (minimum) Current software version InVue TechTool 1.0.1.3	

*Minimum required differential pressure is the minimum inlet to outlet fitting differential pressure required to reach full scale flow and response time specifications.
Note: Specifications are subject to change without notice. Please Contact Entegris for the most current information.

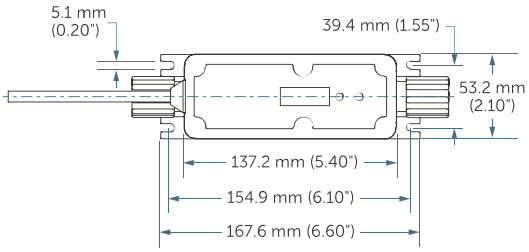
The following fitting size and flow range combinations are available:

	Flow Range (mL/min)						
	TL	**TT**	**T0**	**T1**	**T2**	**T3**	**T4**
Fitting size	**0-15**	**0-25**	**0-50**	**0-125**	**0-250**	**0-500**	**0-1250**
1/4"	Yes	Yes	Yes	Yes	Yes*	Yes*	Yes*
3/8"	Yes**	Yes**	Yes**	Yes**	Yes	Yes	Yes

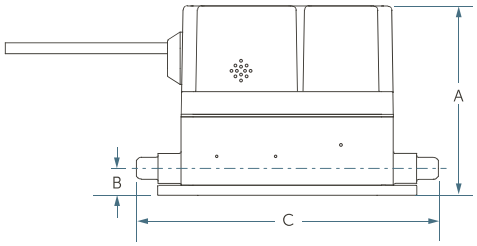
**Flaretek and Super 300 Type Pillar only.*
*** Flaretek only. Please consult Entegris for custom flow range requirements.*

DIMENSIONS

Top View

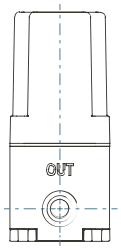


Side View



Inlet/Outlet port connection	Dimensions A	B	C
1/4" Flaretek® tube fitting	118.1 mm (4.65")	17.0 mm (0.67")	187.5 mm (7.38")
3/8" Flaretek tube fitting	119.6 mm (4.71")	17.0 mm (0.67")	191.0 mm (7.52")
1/4" PrimeLock® tube fitting	118.1 mm (4.65")	17.0 mm (0.67")	177.8 mm (7.00")
3/8" PrimeLock tube fitting	119.6 mm (4.71")	17.0 mm (0.67")	177.8 mm (7.00")
1/4" Super 300 Type Pillar tube fitting	118.1 mm (4.65")	17.0 mm (0.67")	159.3 mm (6.27")
3/8" Super 300 Type Pillar tube fitting	119.6 mm (4.71")	17.0 mm (0.67")	167.1 mm (6.58")

End View



ORDERING INFORMATION

InVue Integrated Flow Controller NT6510: part number

6510-__-____-____-__-__-__

Primary/Secondary Seal
U3 = Perfrez® PXC Ultra/Viton

Sensor Interface
P7 = CTFE (for acids, bases and oxidants, typically)
P8 = PFA (for solvents and temperatures >40°C, typically)
Note: Selection is dependent on application and chemical media. Please contact Entegris for best selection.

Setpoint Input Signal, Controller Type
A = 4–20 mA, continuous
B = 0–10 VDC, continuous
K = 4–20 mA, batch
L = 0–10 VDC, batch
M = 0–5 VDC, batch

Electrical Connector Type
B12 = FEP-jacketed 12' pigtail electrical cable
G01 = PVC-jacketed 1' electrical cable terminated with 14-pin Turck® connector**

Inlet/Outlet Port Connection***
F02 = ¼" Flaretek tube fitting
F03 = ⅜" Flaretek tube fitting
K02 = ¼" PrimeLock tube fitting
K03 = ⅜" PrimeLock tube fitting
W02 = ¼" Super 300 type Pillar tube fitting
W03 = ⅜" Super 300 type Pillar tube fitting

Flow Range*
TL = 0–15 mL/min
TT = 0–25 mL/min
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 10–100% of full scale flow range.*
***For electrical connector types G01 and G06, a 14-pin mating cable is required for installation. See "Electrical Mating Cables for InVue Flow Controller NT6510–Accessory" chart below for ordering information.*
****For other options not shown here, please contact Entegris.*
Product specified with a flared tube connection is packaged with two PVDF nuts. For custom configurations and specifications, please contact Entegris.

NT™ Flow Viscosity, Density And Temperature Correction

Use our Flow Viscosity, Density and Temperature Correction tool to calculate a full scale flow correction for media other than DI water at 23°C.

Flow Range: Flow ranges are scaled to zero flow, measurement is from 10-100% of full scale flow range. .
Inlet/Outlet Port Connection: For other options not shown here, please contact Entegris.
Electrical Connector Type: For electrical connector types G01 and G06, a 14-pin mating cable is required for installation. See accessories section for more information.

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

For help selecting the correct model, view the *Materials of Construction and Chemical Compatibility for Sensing and Control Products* technical note found under Product Documentation at the bottom of this page.

Software Download

Windows-based interface for alarm setup, monitoring, and data collection
System Requirements: Windows 7 or 10; 8GB RAM (minimum)

Current software version InVue TechTool 1.0.1.4

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the Contact Us link to find the customer service center nearest you.

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