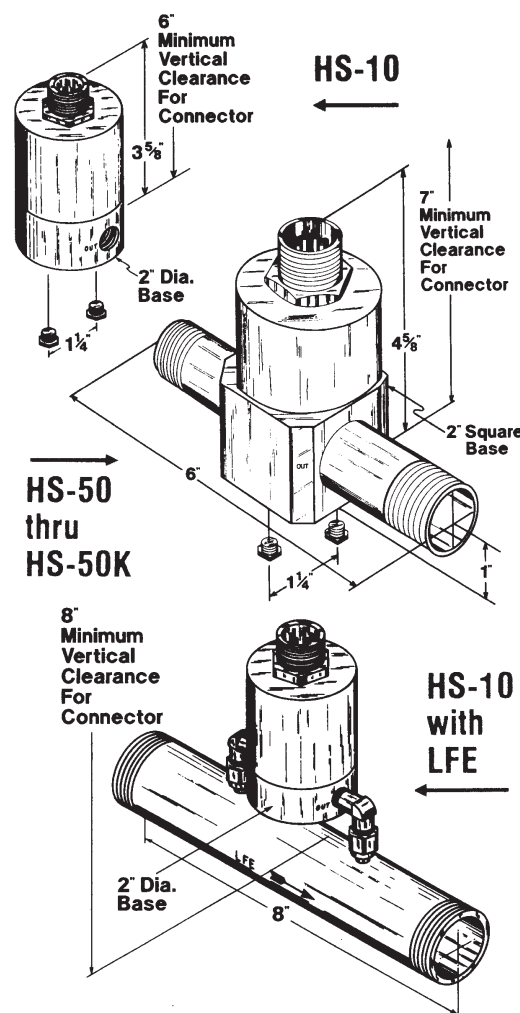


NALL SERIES

Transducer Dimensions



All dimensions shown are in inches

Your Customer Service Representative



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TELEDYNE HASTINGS

NALL-SERIES MASS FLOWMETERS

INSTRUMENTS

Model NALL

FEATURES

- The Original Hastings Mass Flowmeter
- 15 Standard Flow Ranges
- No Corrections for 20% Variations in Temperature or Pressure

APPLICATIONS

For All of Your Gas Flow Measuring Needs:

- Vapor Deposition
- Leak Testing
- Gas Blending
- Semiconductor Processes
- Measurement of Toxic and Hazardous Gases
- High Temperature, High Pressure, and Hermetically Sealed Uses



H Series Transducer



Model NALL Power Supply

DESIGN FEATURES

The Hastings NALL-Series Flowmeter is the original model that has generated repeat customers for over 50 years. It operates on a unique thermal principle which permits inherently linear response to flow. The flow passage is constructed entirely of metal and contains no O-rings. The transducer is also separate from any electronic circuitry, making it ideal for high temperature or other adverse environmental applications. The power supply features a bright digital display and is contained in either a cabinet or panel mountable case.

All models feature high accuracy and excellent repeatability.



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SELECTION CHART

Each flowmeter requires one Power Supply; one Cable; one Transducer; and (if using a range higher than 0-50 slpm) one Laminar Flow Element.

Power Supplies

Stock #	Model #	Description	Dimensions
54-113	NALL	Digital Cabinet	7.75"W x 5.75"H x 5.75"D
54-096	NALL-P	Digital Panel	5.41"W x 8.71"H x 9.68"D
54-121	NALL-P/CC	Digital Panel, 4.20 mA output	same as above
54-111	TNALL-P	Digital Panel Flowmeter/Totalizer	same as above
54-115	NALL-C	Digital Chassis	10.0"W x 3.25"H x 6.50"D

Cables

Stock #	Model #	Transducer Cable Length
65-060	NF-8-NM	8-foot
65-074	NF-25-NM	25-foot
65-095	NF-50-NM	50-foot
65-079	NF-100-NM	100-foot
65-228	NF-200-NM	200-foot
65-229	NF-300-NM	300-foot
65-313	NF-8T-NM*	8-foot (high-temp)
65-314	NFT-25T-NM*	25-foot (high-temp)

*For use with models with OPT-T (high temperature) ONLY.

Stainless Steel Transducers

Stock #	Model #	Flow Range	Connection
54-131	HS-10S	0-10 sccm	1/8" NPT female
54-173	HS-50S	0-50 sccm	1/4" NPT female
54-174	HS-100S	0-100 sccm	1/4" NPT female
54-175	HS-500S	0-500 sccm	1/4" NPT female
54-176	HS-1KS	0-1 slm	1/2" NPT male
54-177	HS-5KS	0-5 slm	1/2" NPT male
54-129	HS-10KS	0-10 slm	3/4" NPT male
54-130	HS-50KS	0-50 slm	3/4" NPT male

Monel Transducers

Stock #	Model #	Flow Range	Connection
54-153	HS-10M	0-10 sccm	1/8" NPT female
54-178	HS-50M	0-50 sccm	1/4" NPT female
54-179	HS-100M	0-100 sccm	1/4" NPT female
54-180	HS-500M	0-500 sccm	1/4" NPT female
54-181	HS-1KM	0-1 slm	1/2" NPT male
54-182	HS-5KM	0-5 slm	1/2" NPT male
54-156	HS-10KM	0-10 slm	3/4" NPT male
54-157	HS-50KM	0-50 slm	3/4" NPT male

Stainless Steel Laminar Flow Elements (to be used with Model HS-10S transducer)

Stock #	Model #	Flow Range	Connection
P-5-SS-T	L-5S	0-5 scfm (0-150 slm)	1" NPT
P-10-SS-T	L-10S	0-10 scfm (0-300 slm)	1.5" NPT
P-25-SS-T	L-25S	0-25 scfm (0-750 slm)	2" NPT
P-50-SS-F	L-50SF*	0-50 scfm (0-1500 slm)	3" flange
P-100-SS-F	L-100SF*	0-100 scfm (0-3000 slm)	4" flange
P-200-SS-F	L-200SF*	0-200 scfm (0-6000 slm)	6" flange
P-500-SS-F	L-500SF*	0-500 scfm (0-15,000 slm)	8" flange

*250 psig working pressure max. at 100°F. See ASA B16.5 100 lb. std.

Monel Laminar Flow Elements (to be used with Model HS-10M transducer)

Stock #	Model #	Flow Range	Connection
P-5-M-T	L-5M	0-5 scfm (0-150 slm)	1" NPT
P-10-M-T	L-10M	0-10 scfm (0-300 slm)	1.5" NPT
P-25/2-M-T	L-25M	0-25 scfm (0-750 slm)	2" NPT
P-3-M-T	L-50M	0-50 scfm (0-1500 slm)	3" NPT

Monel LFEs, 500 lb. max. working pressure.

SPECIFICATIONS

Accuracy	±1% of range for 20% variation in pressure and temperature
Linearity	±1% of range
Repeatability	±0.25% of F.S.
Working Pressure	500 psig max.; transducers available for 1000 psig
Temperature	Gas temperature, -20°C to 100°C Ambient for transducer and indicator, 0°C to 40°C
Power	115 volt AC, 50/60 hz - 15 watt. For 230 volt, add prefix “E” to power supply model number.
Output	0-5 volts DC into a load of 2000 ohms or greater. The signal is available at binding posts on rear of instrument.
Material	316SS, or monel, gold/nickel braze
Calibration	Direct reading is for air. Calibration available at time of order for oxygen, nitrogen, hydrogen, carbon monoxide, other gases.
Response Time	< 10 secs. to 67% of reading
Options	OPT-T: High temperature transducer to 200°C OPT-P: Working pressures up to 1000 psig; contact factory OPT-H: Hermetically sealed transducer OPT-NIST: NIST traceability OPT-E: 230 VAC/50 Hz