

Model HTDP-S

ADVANCED THERMAL DISPERSION AIRFLOW & TEMPERATURE MEASURING PROBE

APPLICATION

Ruskin model HTDP-S offers the advanced technology available with the model TDP05K and makes it available for Same-Day or Next-Day shipping to meet critical project scheduling! The HTDP-S is a highly accurate thermal dispersion airflow and temperature measuring probe. Multiple velocity and temperature points on one or more probes installed in the duct or plenum are averaged to arrive at air measurements. The HTDP-S is capable of measuring a velocity range from 0 to 5,000 FPM and displaying the flow and temperature at each sensing point. Within each low pressure drop airfoil shaped probe are up to 8 moisture resistant flex sensors. Both velocity and temperature are measured by each flex sensor thermistor pair. The flex sensor pair is protected from the elements with a thin conformal coating. Trouble free performance is assured by laser etched, micro welded and hermetically sealed flex sensor connection points. The highest accuracy over the entire range of air flows results from probe sensing elements that are factory tested and calibrated at 20 points.

Contact Ruskin for availability based on sizes and quantities required.

STANDARD CONSTRUCTION

PROBE MATERIAL

Low profile 2" x 3/4" (51 x 19) 6063T6 high yield extruded aluminum with acid etch clear anodized finish

ACCURACY

Airflow: $\pm 2\%$ of reading and $\pm 0.25\%$ repeatability
Temperature: $\pm 0.10^\circ\text{F}$ (0.06°C)

PRODUCT PERFORMANCE RANGES

Airflow: 0-5000 FPM (0-25 m/s)
Transmitter Temperature: -20°F to 120°F (-29°C to 49°C)
Sensor Temperature: -20°F to 120°F (-29°C to 49°C)
Humidity: 0-99% RH, non-condensing

POWER REQUIREMENTS

24 VAC (+/- 15%); 15 VA

SENSOR DISTRIBUTION

Max 32 sensing points.

CALIBRATED METERED ORIFICE

U.L. 94 flame rated, high impact ABS

SENSOR CIRCUIT

Conformal coated, water resistant flexible polyimide circuit, with heated and ambient thermistors

MASTER CONTROL CIRCUIT

Field configurable, solid state, circuit board robotically assembled. Production includes high pressure deionizing wash, solder reflow, wave solder, secondary deionizing wash final assembly, four step inspection, conformal coating, retest and calibration. Two individually configurable outputs for Velocity or Temperature.

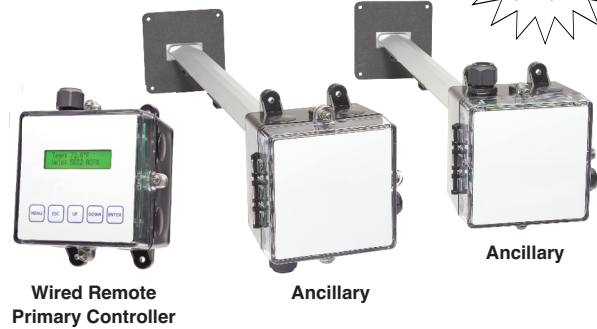
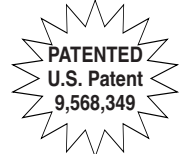
Velocity Output: 4-20mA or 2-10 VDC with 500 ohm resistor
Temperature Output: 4-20mA or 2-10 VDC with 500 ohm resistor

AGENCY LISTINGS

All components are U.L. Listed and compliant with Part 15 of the FCC rules and RoHS directive 2002/95/EC

DUCT/PLENUM SIZES

Width (Available Probe Length): 14", 18", 24", 30", 36" (356, 457, 610, 762, 914)
Height: 8" to 120" (203 to 3050)



Wired Remote
Primary Controller

Ancillary

Ancillary

One Wired Primary Controller to be combined with the required quantity of ancillary probes based on duct size.



STANDARD FEATURES

- Wired Primary Controller, mounted remotely.
- Self-diagnostics utilizing artificial intelligence
- BACnet and analog output standard
- Lowest power consumption thermal dispersion device available
- Tool-free one touch setup through surface membrane label
- Stainless Steel mounting hardware.
- Standard cabling, no proprietary cables
- Third party verified FCC, UL, BTL, AMCA, NIST and ISO 9001
- Airfoil shaped acid-etch clear anodized sensing probes featuring lower pressure drop and less noise

VARIATIONS

Ruskin model HTDP-S is available with the following Options:

- Two (2) Additional **Cord Grips**
- **Probe Extension Kit**; allows for installation where the HTDP-S probe length is up to 3" shorter than the actual width dimension of the duct

NOTES:

1. Values shown in () indicate metric units.
2. Refer to Installation Instructions for additional details:
<http://www.ruskin.com/doc/ld/6766>

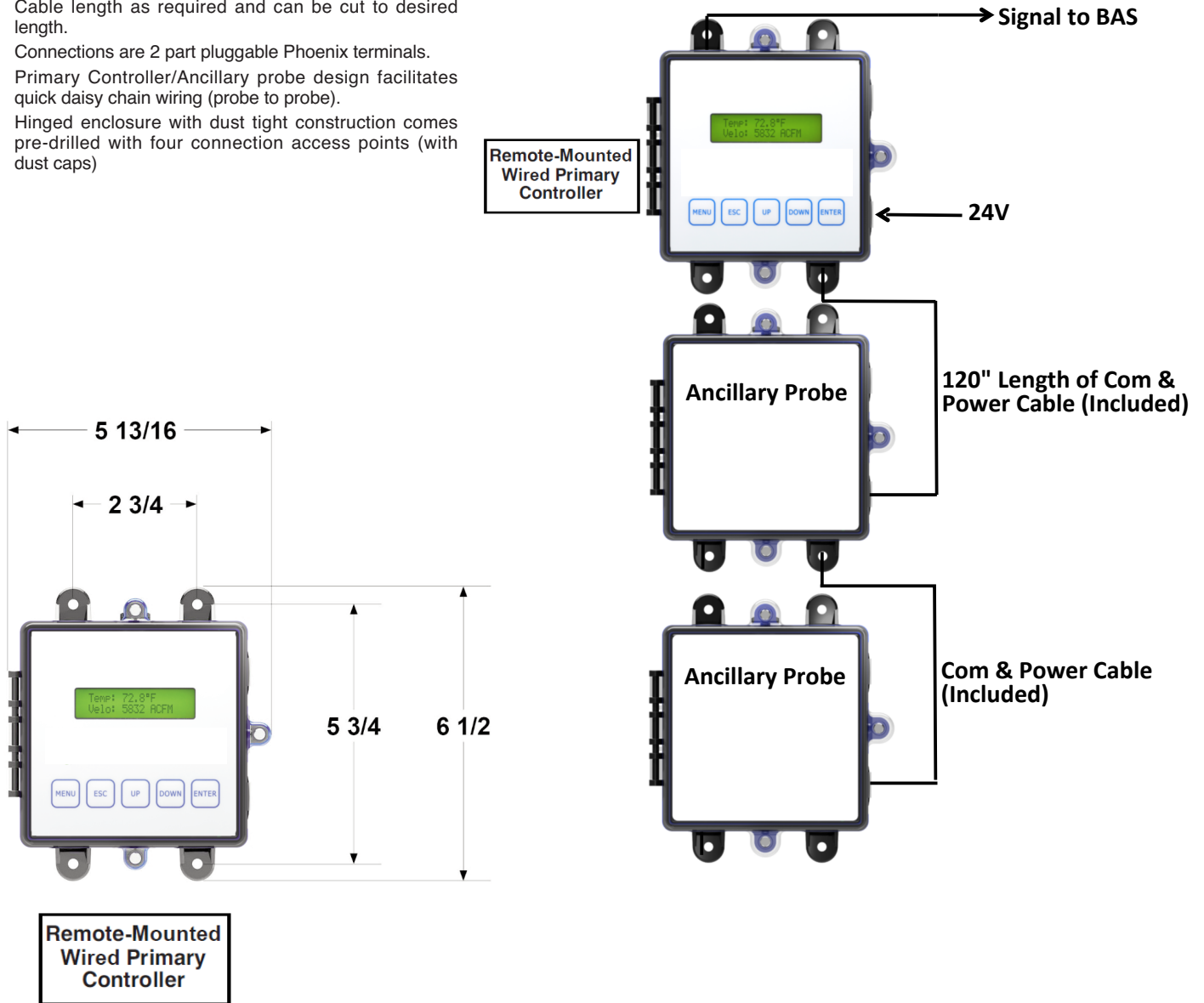
INSTALLATION DETAILS

Probe kit comes with Remote Wired Primary Controller and utilizes thermal dispersion technology to calculate the airflow and average the temperature. Two thermistors at multiple sensing points measure ambient temperature and velocity. Temperature and velocity thermistors at each sensing point are housed in a high impact, ABS, calibrated metered orifice that is mechanically fastened to the airfoil

probe. The probe and sensor circuit default density are based on the duct or plenum size and corresponding density chart. Number of probes and number of sensors per probe are based on the OD dimensions where "A" is the duct or plenum width* and "B" is the duct or plenum height. The sensor readings are digitally communicated to the Remote Wired Primary Controller.

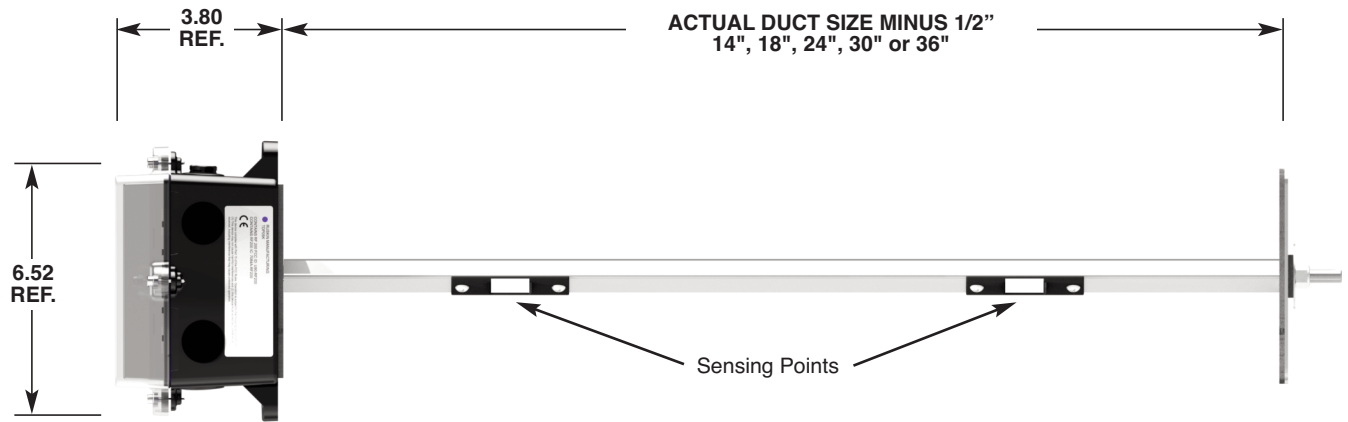
TYPICAL WIRING DETAIL

- Recommended cable is Connect Air W24182P-2306BL.
- Cable length as required and can be cut to desired length.
- Connections are 2 part pluggable Phoenix terminals.
- Primary Controller/Ancillary probe design facilitates quick daisy chain wiring (probe to probe).
- Hinged enclosure with dust tight construction comes pre-drilled with four connection access points (with dust caps)



The Remote Wired Primary Controller is standard. All probes are Ancillary, and the separate Primary Controller can be mounted up to 500 feet from the HTDP-S Ancillary probes.

DIMENSION



FRONT VIEW

Install with sensors on bottom of probe when installed horizontally.

Duct Height; Inches (mm)	Duct Width (<i>Probe Length</i>) Inches (mm)				
	14 (356)	18 (457)	24 (610)	30 (762)	36 (914)
8 (203)	1/4	1/4	1/4	1/6	1/8
12 (305)	1/4	1/4	1/4	1/6	1/8
14 (356)	1/4	1/4	1/4	1/6	1/8
16 (406)	2/4	2/4	2/4	1/6	1/8
18 (457)	2/4	2/4	2/4	1/6	1/8
20 (508)	2/4	2/4	2/4	2/6	1/8
22 (559)	2/4	2/4	2/4	2/6	1/8
24 (610)	2/4	2/4	2/4	2/6	2/8
30 (762)	3/4	3/4	2/4	2/6	2/8
36 (914)	3/4	3/4	2/4	2/6	2/8
42 (1067)	3/4	3/4	3/4	2/6	2/8
48 (1219)	4/4	4/4	3/4	3/6	2/8
54 (1372)	4/4	4/4	3/4	3/6	2/8
60 (1524)	4/4	4/4	3/4	4/6	4/8
66 (1676)	4/4	4/4	3/4	4/6	4/8
72 (1829)	4/4	4/4	3/4	4/6	4/8
84 (2134)	4/4	4/4	4/4	4/6	4/8
96 (2438)	4/4	4/4	4/4	4/6	4/8
108 (2743)	4/4	4/4	4/4	4/6	4/8
120 (3048)	4/4	4/4	4/4	4/6	4/8

Probe/Sensor Count per Duct Size

#Probes / #Sensors per Probe

Example: HTDP-S ordered for a 24" w x 24" h duct will consist of two (2) 24" long probes with each probe having 4 sensors (2/4)

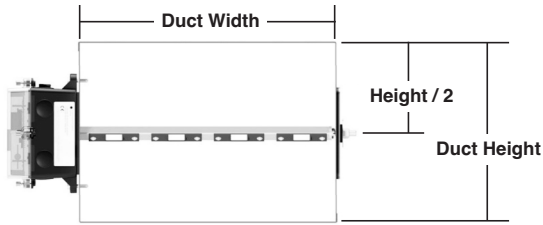


Typical HTDP-S Installation Configuration

(HTDP-S shown with 3 duct-mounted ancillary probes wired to wall-mounted Remote Primary Controller with Display)

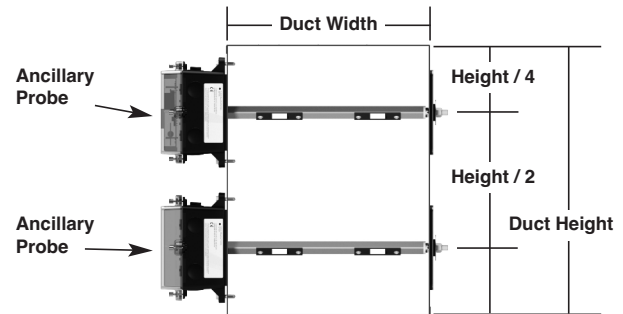
INSTALLATION DETAILS

The model HTDP-S probe assembly may be installed in square ducts and plenums. Hardware required for the insertion style mounting configuration (as depicted in the DETAILS shown below) is provided as standard with the HTDP-S.

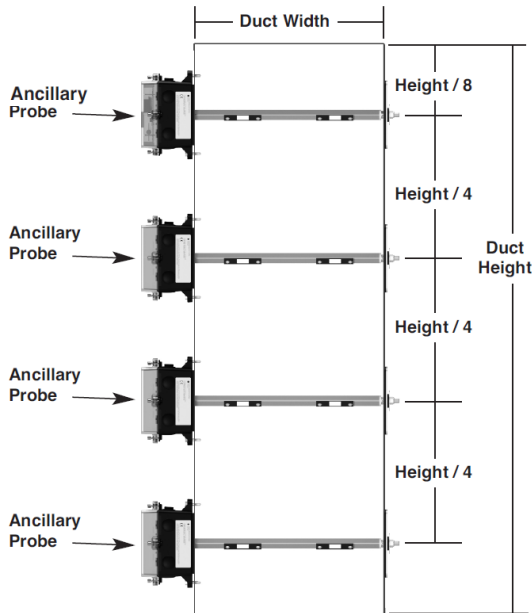


DETAIL 1

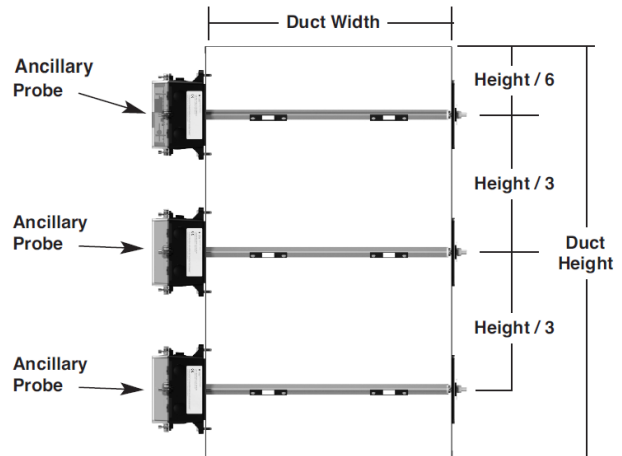
For specific installation and operation details, and for round or oval applications, refer to the Installation and Maintenance Instructions. The information on this data sheet is for general reference and is subject to correction or modification.



DETAIL 2



DETAIL 4



DETAIL 3

SUGGESTED SPECIFICATION

CSI-3 Part Guide Specification is available at <https://www.ruskin.com/model/HTDP-S> under Additional Resources.

Furnish and install, at locations shown on plans or as in accordance with schedules, an electronic thermal dispersion type airflow and temperature measuring station (AFTMS). The AFTMS shall be capable of monitoring and reporting the airflow and temperature at + each measuring location with up to 4 measuring probes containing 4 to 8 sensor points per probe. AFTMS shall include a remote Wired Primary Controller primary that interfaces with the building automation system (BAS) using BACnet protocol or 4-20mA analog outputs reporting velocity and temperature measurements. Probe(s) shall be constructed of an airfoil shaped acid-etch clear anodized 6063T6 aluminum extrusion containing the sensor circuit(s) for low pressure drop and low noise in installed applications. Each moisture resistant flexible polyimide sensor circuit shall consist of thermistors for velocity and temperature. The remote Wired Primary Controller user interface shall feature tool-free touch setup through surface membrane label on a hinged enclosure with dust tight construction. Factory calibration of thermal dispersion sensors shall be at 20 points between 0 and 5,000 FPM using NIST traceable calibration standards.

Production of all circuits shall include primary and secondary deionizing wash and include conformal coating.

Complete assembly shall be constructed and calibrated in an ISO 9001 certified facility following strict ISO calibration test procedures.

Proprietary cables are not acceptable. For ease of installation, a composite 4 wire cable similar to Connect Air W24182P-2306BL with communications and power in one cable is recommended. Alternatively, communications cable shall be a TSP (Twisted Shielded Pair) 24AWG low capacitance wire and power shall be an 18AWG Pair. The Remote Wired Primary Controller shall be capable of processing up to 32 (4 probes, 8 sensors/probe each) independent sensing points per AFTMS and shall operate on a Class 2 24VAC lowvoltage supply. The remote Wired Primary Controller shall feature a 16 character x 2 line alphanumeric backlit LCD display, digital offset/gain adjustment, continuous performing sensor/transmitter diagnostics and a visual alarm to detect malfunctions. Display shall be field adjustable to display either I.P. or S.I. units. The remote Wired Primary Controller output shall be BACnet® compatible and also supply a field adjustable 4-20 mA, or 2- 10 VDC across a 500 ohm resistor. All electronic components of the assembly shall be leadfree RoHS compliant. Accuracy shall be based on tests and procedures performed in accordance with AMCA publications 610 and 611.

AFTMS shall be in all respects equivalent to Ruskin model HTDP-S, advanced thermal dispersion airflow and temperature measuring probe.



3900 Dr. Greaves Rd.
Kansas City, MO 64030
(816) 761-7476
FAX (816) 765-8955
www.ruskin.com