



Allen-Bradley

Power and Energy Management Solutions

Heating, Ventilating and Air Conditioning (Bulletin 1414)



Selection Guide

AB Spares

Rockwell Automation

Instrumentation Selection Checklist

Use the following checklist as a guide to completing your own system specification. Skip any sections that do not apply.

✓	Step	See page
	1 Typical Air Handling Systems <ul style="list-style-type: none"> • Single Path Variable Air Volume 40% • Single Path Constant Volume 30% • Make-up Air with Exhaust Fans 10% • Multi-zone Air Handler 5% • Constant Volume Air Handler with Face/Bypass Damper 3% • Air Handler with Dehumidification & Heat Recovery 2% 	5 6 7 8 9 10 11
	2 Other Systems 10% <ul style="list-style-type: none"> • VAV Box with Reheat • Fan Coil Unit 	12 12 13
	3 Hydronic Systems <ul style="list-style-type: none"> • Heat Exchanger • Hot Water Boilers • Chillers 	14 14 15 16
	4 Catalog Number Explanation	17
	5 Selection Worksheet <ul style="list-style-type: none"> • Commercial Parts • Industrial Parts • Hybrid Parts 	18 18 20 21

Overview

This document is intended to help with the selection of instrumentation for an air handling unit. Several examples of typical air handling systems are provided. From these examples, you can select the air handler that best fits your application and add or delete instruments as required. For more detailed information on the instrumentation available, refer to the reference materials listed below. Referenced publications are available online at <http://www.rockwellautomation.com/literature>.

Reference Materials

Title	Publication
HVAC Humidity Transmitters	1414-PP001
HVAC Pressure Transmitters and Current to Pneumatic Transducers	1414-PP002
HVAC Switches	1414-PP003
HVAC Temperature Transmitters	1414-PP004
Air Flow Transmitter	1414-IN001
Current Switch	1414-IN002
Air Flow Switch	1414-IN003
Duct Average Temperature Transmitter	1414-IN004
Duct Temperature Transmitter	1414-IN005
Electronic to Pneumatic Transducer	1414-IN006
Relative Humidity Transmitter	1414-IN007
Immersion Temperature Transmitter	1414-IN008
Low-limit Temperature Switch	1414-IN009
Outside Air Temperature Transmitter	1414-IN010
Differential Air Pressure Transmitter	1414-IN011
Space Temperature Transmitter	1414-IN012
Strap-on Temperature Transmitter	1414-IN013
Differential Liquid/Gas Pressure Transmitter	1414-IN014
Gauge Liquid/Gas Pressure Transmitter	1414-IN015
Space Humidity Transmitter	1414-IN016
Combination Temperature/Relative Humidity	1414-IN017
Space Combination Temperature/Humidity	1414-IN018

Instrumentation

Allen Bradley provides a wide range of instrumentation including: temperature, pressure, and humidity transmitters; switches; and current to pneumatic transducers. Instrumentation is available with many different options, such as LCD displays, manual setpoint adjustment, and pushbutton overrides. Instrumentation is also available in three application grades: commercial, industrial, and hybrid.

- Commercial grade transmitters are designed for general commercial HVAC usage. Temperature transmitters are designed with Class B RTD sensors with an accuracy of $\pm 0.3^\circ @ 0^\circ\text{C}$. Humidity transmitters are designed with a 3% RH accuracy. All have ABS plastic enclosures.
- Industrial grade transmitters are designed for applications where high accuracy is needed, and where environmental conditions are unfavorable for typical commercial grade transmitters. Temperature transmitters are designed with Class A RTD sensors with an accuracy of $\pm 0.2^\circ @ 0^\circ\text{C}$. Humidity transmitters are designed with 2% RH accuracy. All have weather proof or guarded enclosures, and a conformal-coated transmitter circuit board.
- Hybrid grade transmitters are designed for applications where commercial grade accuracy is acceptable, but environmental conditions may be unfavorable for commercial grade transmitters.

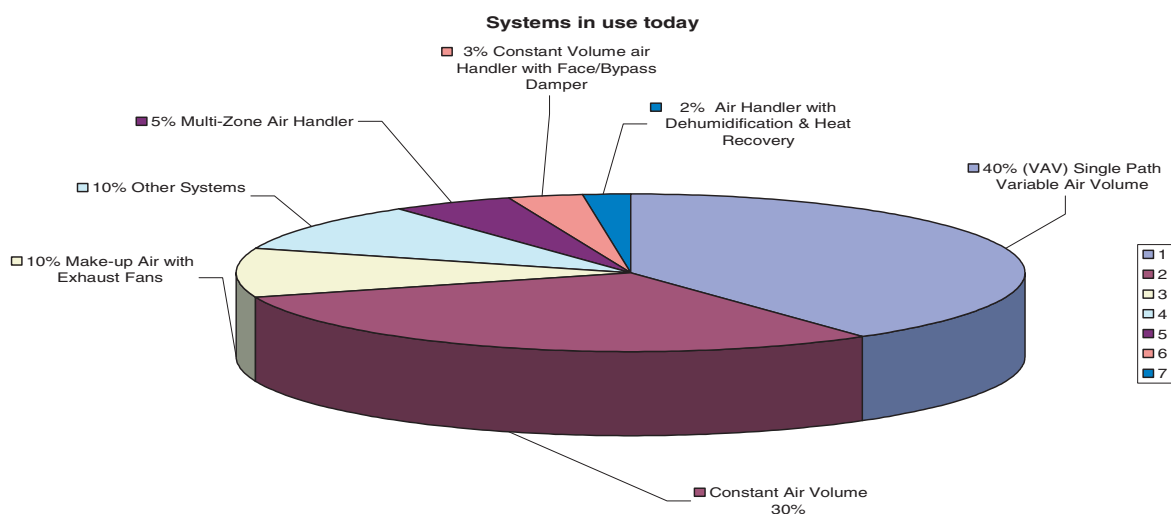
Refer to the Selection Worksheet starting on 18 for a list of all available instrumentation.

Step 1 - Select: Typical Air Handling System

- Single Path Variable Air Volume 40%
- Single Path Constant Volume 30%
- Make-up Air with Exhaust Fans 10%
- Multi-zone Air Handler 5%
- Constant Volume Air Handler with Face/Bypass Damper 3%
- Air Handler with Dehumidification & Heat Recovery 2%

Typical Air Handling Systems

There are many different types of air handling systems in use today. Air handling unit controls are designed with several factors in mind: people comfort, product comfort, energy management, and safety. Many of the early units, such as multi-zone and make-up air units, did not take into account energy management. Today, energy conservation is a key factor in HVAC design. This has led to the increased use of variable air volume systems, where fan speed can be controlled to save energy. The following diagram illustrates the typical air handling systems that are in use today.



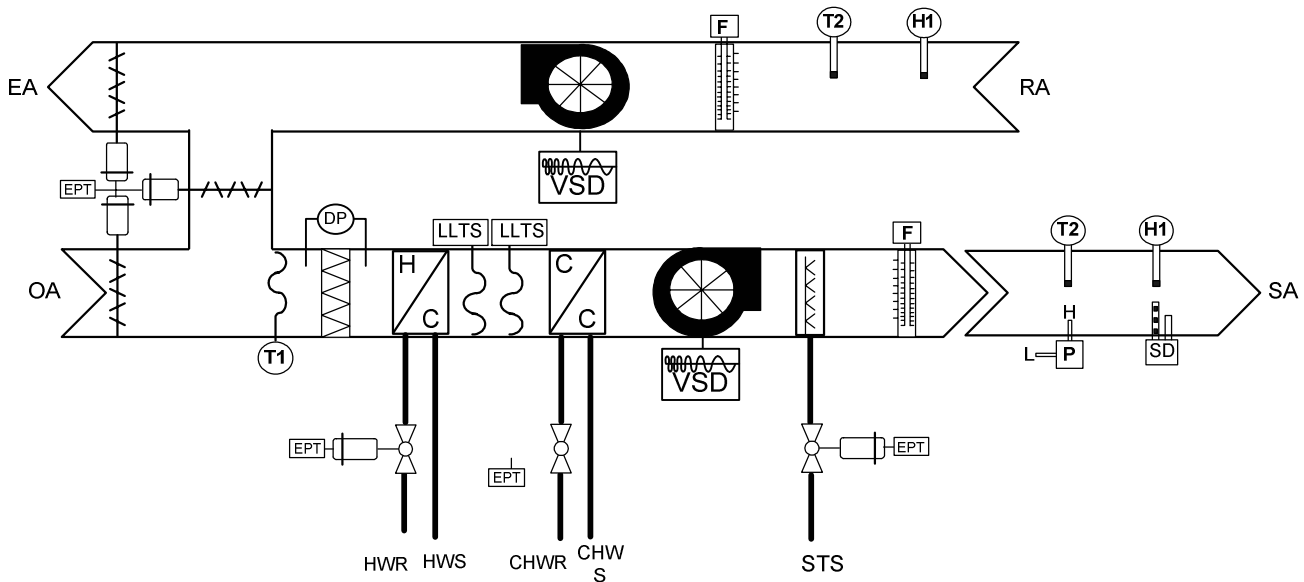
The following sections provide a brief description of typical air handling units and instrumentation. These abbreviations and symbols are used in the examples:

ABBREVIATIONS	SYMBOLS
AHU CCV CFM CHWR CHWS DA DP EA EF EPT FS HWR HWS LLTS MAD MAT OA OAT RA RAF RAT RAH RT SA STS VSD	FAN COOL COIL HEAT COIL PUMP DAMPER ELECTRIC 3-WAY VALVE ELEC 2-WAY VALVE ELEC DAMPER PNEUMATIC 3-WAY VALVE PNEU 2-WAY VALVE PNEU DUCT TEMP AVG SENSOR DUCT TEMP SENSOR ZONE SENSOR DUCT HUMIDITY SENSOR ROOM HUMIDITY SENSOR IMMERSION TEMP SENSOR FILTER DIFFERENTIAL PRESSURE SWITCH VAR SPD DRIVE END SWITCH CURRENT XFORMER ELECTRO-PNEUMATIC TRANSDUCER LOW LIMIT TEMPERATURE SWITCH DIFFERENTIAL PRESSURE AIR FLOW STATION WATER FLOW SWITCH



Single Path Variable Air Volume 40%

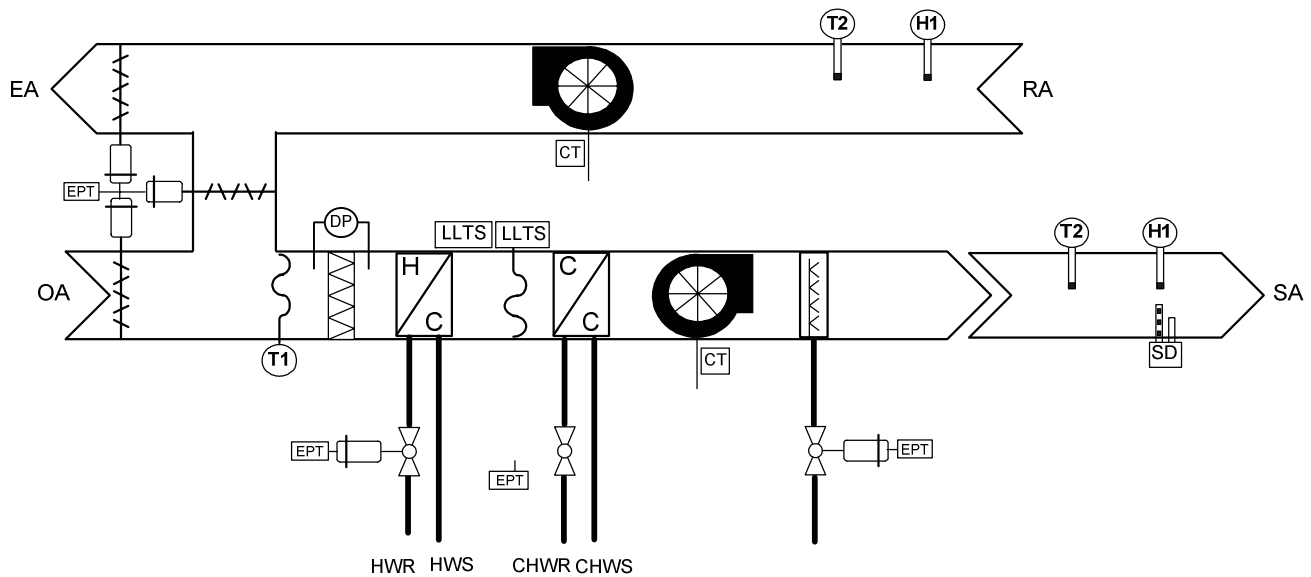
The volume of air supplied to the terminal boxes (VAV Boxes) is regulated by either controlling the speed of the fan (VSD) or air flow to the inlet of the fan. The supply air temperature remains constant by way of natural or mechanical cooling.



Tag	Quantity	Part Number	Description	Vendor
T1	1	1414-ITX02ACDAA	Duct Averaging Temperature Transmitter	Allen-Bradley
T2	2	1414-ITQ02ADDAA	Duct Temperature Sensor/Transmitter	Allen-Bradley
H1	2	1414-IHZ20AKDAA	Duct Humidity Sensor/Transmitter	Allen-Bradley
LLTS	2	1414-CLM20AHDAB	Low Limit Temperature Switch	Allen-Bradley
P	1	1414-IPZ10FODAA	Duct Static Pressure Transmitter	Allen-Bradley
	1		Static Pressure Probe	Other Vendors
EPT	4	1414-INZ10ZXPBP	Electro-pneumatic Transducer	Allen-Bradley
F	2	1414-IFZ35FGDAA	Air Flow Transmitter	Allen-Bradley
DP	1	1414-CPN10APWAB	Differential Pressure Switch	Allen-Bradley
VSD	2	PowerFlex	Variable Speed Drive	Allen-Bradley

Single Path Constant Volume 30%

The supply and in this case return fans remain at a constant speed, or volume and temperature, supplying air to the space where it may be reheated as needed to maintain space temperature.



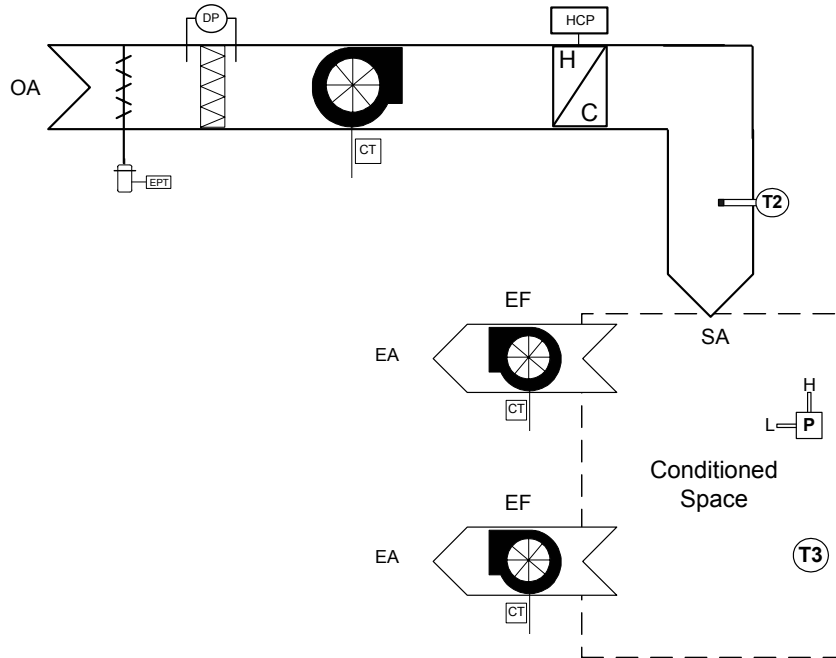
IMPORTANT

Pneumatic actuators are shown in this example.

Tag	Quantity	Part Number	Description	Vendor
T1	1	1414-ITX02ACDAA	Duct Averaging Temperature Transmitter	Allen-Bradley
T2	2	1414-ITQ02ADDAA	Duct Temperature Sensor/Transmitter	Allen-Bradley
H1	2	1414-IHZ20AKDAA	Duct Humidity Sensor/Transmitter	Allen-Bradley
LLTS	2	1414-CLM20AHDAB	Low Limit Temperature Switch	Allen-Bradley
EPT	4	1414-INZ10ZXPBP	Electro-Pneumatic Transducer	Allen-Bradley
CT	2	1414-CC20PTWZB	Current Switch	Allen-Bradley
DP	1	1414-CPN10APWAB	Differential Pressure Switch	Allen-Bradley

Make-up Air with Exhaust Fans 10%

Fans will either supply or exhaust 100% outside air to or from the building. Used as a supply fan, the incoming air, generally outside air, is tempered by way of a coil (Steam or Hot Water), heat exchanger or direct fired gas, supplying make up air to the building that has been expelled by exhaust fans. Used as an exhaust fan it will remove air from the building.



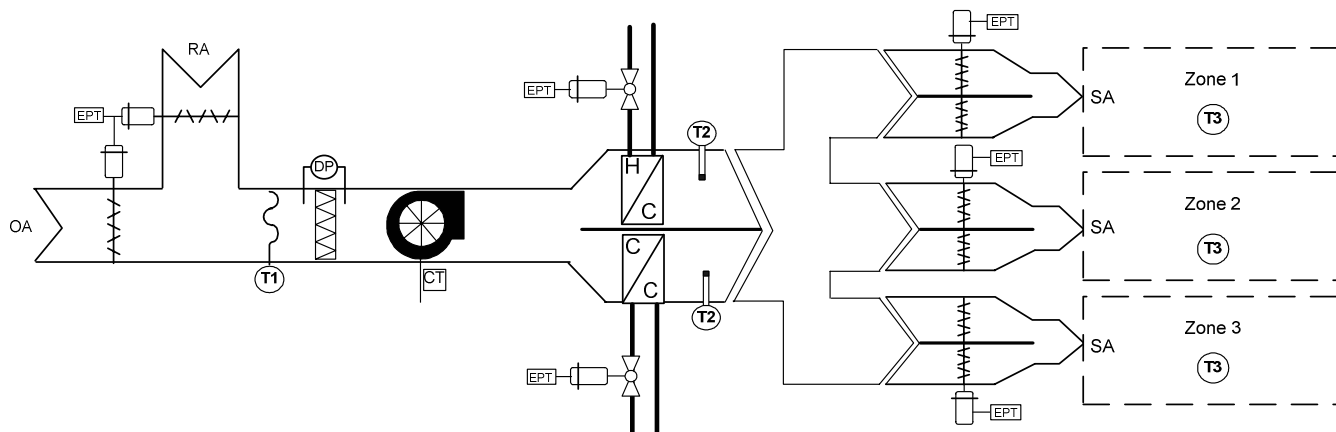
IMPORTANT

Pneumatic actuators are shown in this example.

Tag	Quantity	Part Number	Description	Vendor
T2	1	1414-ITQ02ADDA	Duct Temperature Sensor/Transmitter	Allen-Bradley
T3	1	1414-ITS02GBRA	Space Temperature Sensor/Transmitter	Allen-Bradley
EPT	1	1414-INZ10ZXPBP	Electro-Pneumatic Transducer	Allen-Bradley
CT	3	1414-CC20PTWZB	Current Switch	Allen-Bradley
DP	1	1414-CPN10APWAB	Differential Pressure Switch	Allen-Bradley
P	1	1414-CPD10PNRA	Room Differential Pressure Transmitter	Allen-Bradley

Multi-zone Air Handler 5%

Once past the fan section the air handler is divided into two systems maintaining both a hot and a cold deck temperature year round. Each zone has a set of dampers that control the amount of hot or cold air needed to maintain the zone set point or area being served. Maintaining both hot and cold deck temperatures year round uses a great deal of energy.



IMPORTANT

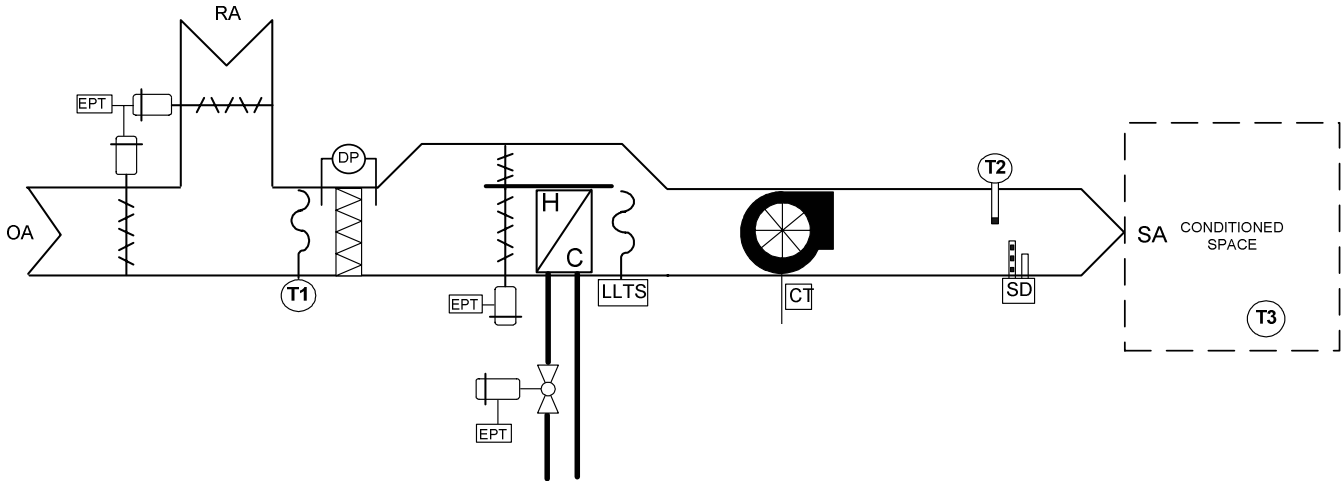
Pneumatic actuators are shown in this example.

Tag	Quantity	Part Number	Description	Vendor
T1	1	1414-ITX02ACDAA	Duct Averaging Temperature Transmitter	Allen-Bradley
T2	2	1414-ITQ02ADDAA	Duct Temperature Sensor/Transmitter	Allen-Bradley
T3	3	1414-ITS02GBRAA	Space Temperature Sensor/Transmitter	Allen-Bradley
EPT	6	1414-INZ10ZXPBP	Electro-Pneumatic Transducer	Allen-Bradley
CT	1	1414-CC20PTWZB	Current Switch	Allen-Bradley
DP	1	1414-CPN10APWAB	Differential Pressure Switch	Allen-Bradley

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Constant Volume Air Handler with Face/Bypass Damper 3%

The supply fan remains at a constant speed or volume and temperature supplying air to the space where it may be reheated as needed to maintain space temperature. In colder climates, a face & bypass set of dampers are installed in the air handler to control the heat being given off by the preheat coil.



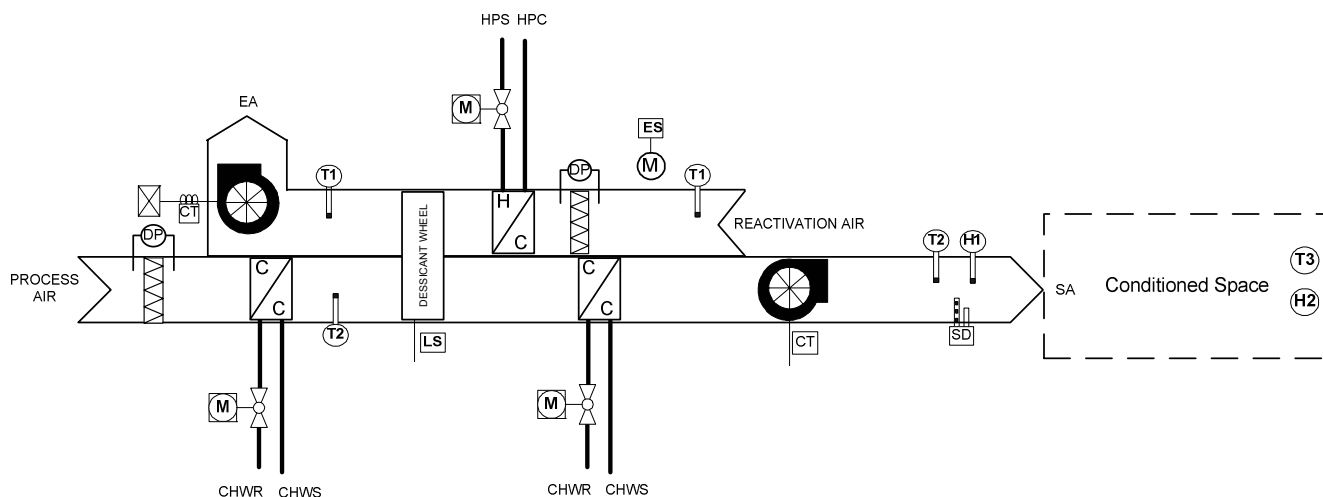
IMPORTANT

Pneumatic actuators are shown in this example.

Tag	Quantity	Part Number	Description	Vendor
T1	1	1414-ITX02ACDAA	Duct Averaging Temperature Transmitter	Allen-Bradley
T2	1	1414-ITQ02ADDAA	Duct Temperature Sensor/Transmitter	Allen-Bradley
T3	1	1414-ITS02GBRAA	Space Temperature Sensor/Transmitter	Allen-Bradley
LLTS	1	1414-CLM20AHDAB	Low Limit Temperature Switch	Allen-Bradley
EPT	3	1414-INZ10ZXPBP	Electro-Pneumatic Transducer	Allen-Bradley
CT	1	1414-CC20PTWZB	Current Switch	Allen-Bradley
DP	1	1414-CPN10APWAB	Differential Pressure Switch	Allen-Bradley

Air Handler with Dehumidification & Heat Recovery 2%

A single path air handler where the air is sub cooled to dehumidify and then reheated to supply conditioned air to the space. Heat is recovered from the return air before being exhausted to the outdoors.



IMPORTANT

Electronic actuators are shown in this example.

Tag	Quantity	Part Number	Description	Vendor
T1	2	1414-ITX02ACDAA	Duct Averaging Temperature Transmitter	Allen-Bradley
T2	2	1414-ITQ02ADDAA	Duct Temperature Sensor/Transmitter	Allen-Bradley
T3	1	1414-ITS02GBRAA	Space Temperature Sensor/Transmitter	Allen-Bradley
H1	1	1414-IHZ20AKDAA	Duct Humidity Sensor/Transmitter	Allen-Bradley
H2	1	1414-IHZ20GKRAA	Space Humidity Sensor/Transmitter	Allen-Bradley
CT	1	1414-CC20PTWZB	Current Switch	Allen-Bradley
DP	1	1414-CPN10APWAB	Differential Pressure Switch	Allen-Bradley
ES	1		Damper Endswitch	By others

AB Spares

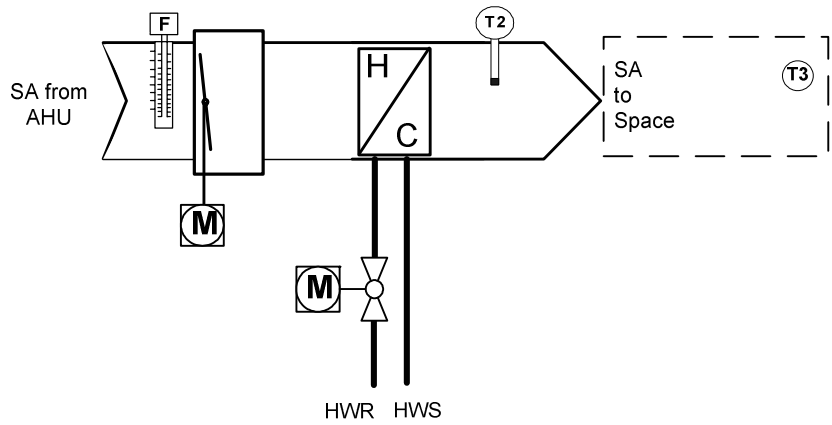
**Step 2 - Select:
Other Systems 10%**

- VAV Box with Reheat
- Fan Coil Unit

Other Systems 10%

VAV Box with Reheat

Terminal boxes that regulate the CFM of airflow and reheat the air to the space.



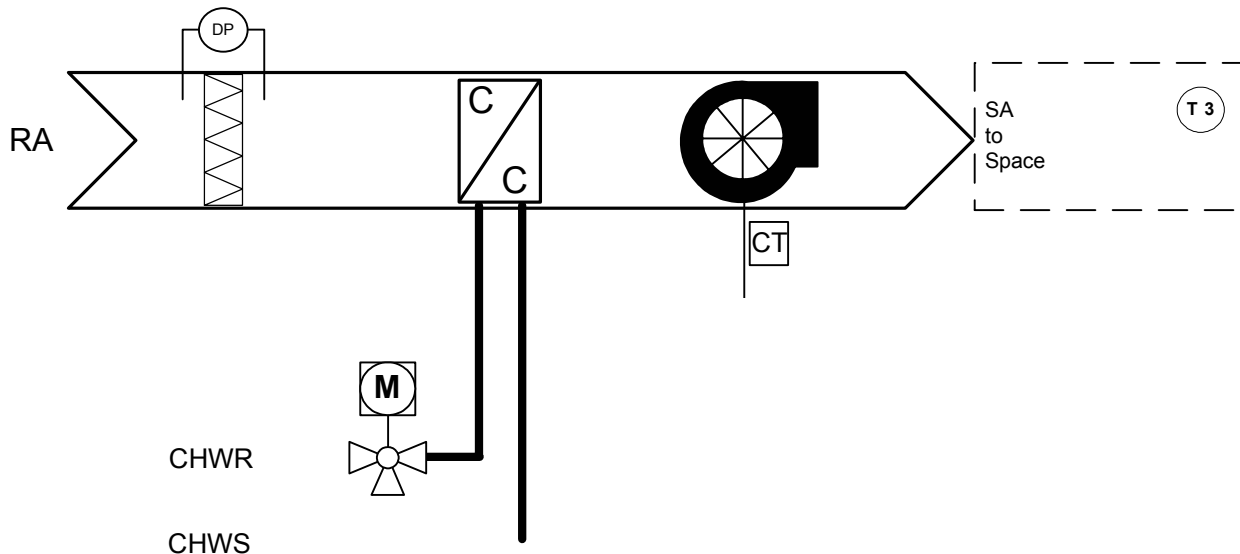
IMPORTANT

Electronic actuators are shown in this example.

Tag	Quantity	Part Number	Description	Vendor
T2	1	1414-ITQ02ADDAA	Duct Temperature Sensor/Transmitter	Allen-Bradley
T3	1	1414-ITS02GBRAA	Space Temperature Sensor/Transmitter	Allen-Bradley
F	1	1414-IFZ35FGDAA	Velocity Pressure Sensor/Transmitter	Allen-Bradley
M	1		Zone Damper Actuator	By Others
M	1		Heating Valve with Actuator	By Others

Fan Coil Unit

These units contain a fan, are 100% return air, and utilize a heating or cooling coil to condition the space air.



IMPORTANT

Electronic actuators are shown in this example.

Tag	Quantity	Part Number	Description	Vendor
T3	1	1414-ITS02GBRAA	Space Temperature Sensor/Transmitter	Allen-Bradley
CT	1	1414-CC20PTWZB	Current Switch	Allen-Bradley
DP	1	1414-CPN10APWAB	Differential Pressure Switch	Allen-Bradley
M	1		3-Way Valve with Actuator	By Others

AB Spares

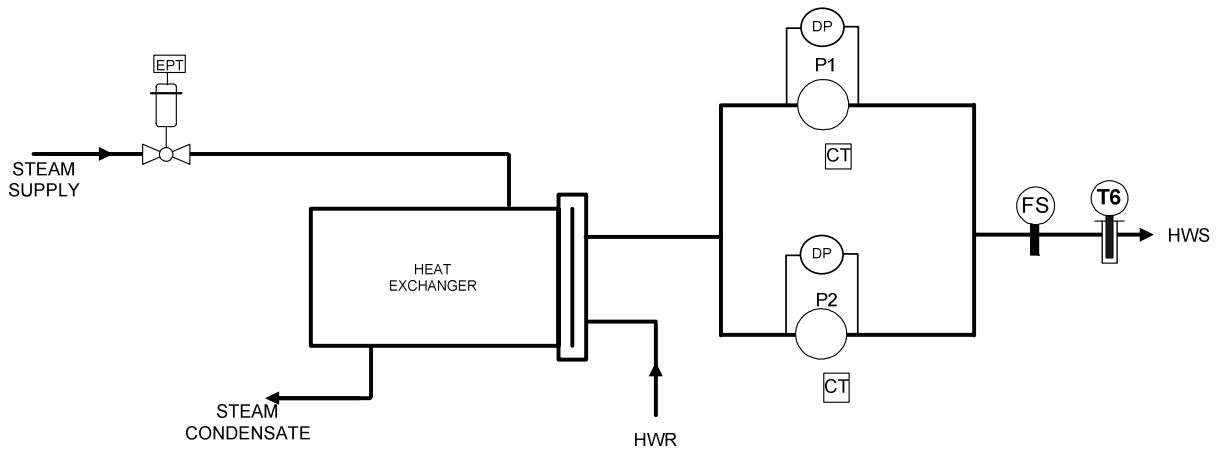
**Step 3 - Select:
Hydronic Systems**

Hydronic Systems

- Heat Exchanger
- Hot Water Boilers
- Chillers

Heat Exchanger

The heating media is transferred from one heating process to another, (for example, steam to hot water or open flame gas to warm air). In this case, the illustration is showing steam to hot water.

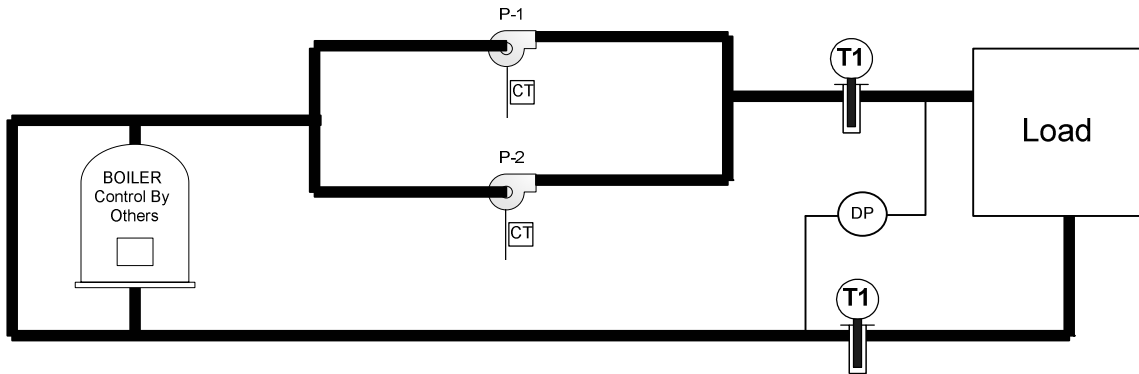


IMPORTANT

Pneumatic actuators are shown in this example.

Tag	Quantity	Part Number	Description	Vendor
T6	1	1414-ITI02ADIAA	Immersion Temperature Sensor/Transmitter	Allen-Bradley
	1	1414-CIZZBZBZZ	4 inch Brass Well for Immersion Temperature Transmitter	Allen-Bradley
EPT	1	1414-INZ10ZXPBP	Electro-Pneumatic Transducer	Allen-Bradley
CT	2	1414-CC20PTWZB	Current Switch	Allen-Bradley
T8	1	1414-ITZ02FAOAA	Enclosure Temperature Sensor/Transmitter	Allen-Bradley
FS	1		Flow Switch	By Others
DP	2	1414-IPZ10FWFAA	Differential Pressure Transmitter	Allen-Bradley

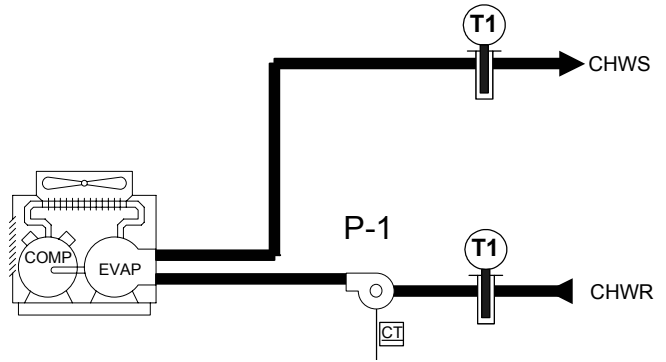
Hot Water Boilers



Tag	Quantity	Part Number	Description	Vendor
T1	2	1414-ITI02ADIAA	Immersion Temperature Sensor/Transmitter	Allen-Bradley
	2	1414-CTIZZBZBZZ	4 inch Brass Well for Immersion Temperature Transmitter	Allen-Bradley
DP	1	1414-IPZ10FWFAA	Differential Pressure Transmitter	Allen-Bradley
CT	2	1414-CC20PTWZB	Current Switch	Allen-Bradley

AB Spares

Chillers



Tag	Quantity	Part Number	Description	Vendor
T1	2	1414-ITI02ADIAA	Immersion Temperature Sensor/Transmitter	Allen-Bradley
	2	1414-CTIZZBZBZZ	4 inch Brass Well for Immersion Temperature Transmitter	Allen-Bradley
CT	2	1414-CC20PTWZB	Current Switch	Allen-Bradley

**Step 4 - Select:
Catalog Number Explanation**

Catalog Number Explanation

All catalog number combinations begin with the bulletin number 1414.

Grade	Element	Element Accessories 1	Accuracy	Enclosure Accessories	Range	Style	Power Supply	Output
C - (Commercial)	A - (Accessory)	A - (Averaging)	02 - (0.2%)	P - (Plastic)	A - (-58...122 °F)	D (Duct)	A (24V ac 3 wire or 24V dc 2 wire)	A (4 ... 20 ma)
I - (Industrial c/w gasketed encl. & conform coated PCB)	C - (Current)	C - (Current)	03 - (0.3%)	B - (Brass Well)	B - (32...95 °F)	I (Immersion Stainless)	B (4 - 20 ma)	B (Switch)
P - (Process)	F - (Air Flow)	D - (Display)	10 - (1.0%)	F - (ABS)	C - (32...122 °F)	R (Room)	Z (None)	P (3...15 psig)
L - (Life Sciences)	H - (Humidity Only)	E - (2 in)	20 - (2.0%)	G - (Steel Guard Surrounding a Plastic Enclosure)	D - (32...212 °F)	O (Outside)		Z (None)
	L - (Limit)	I - (4 in)	25 - (2.5%)	A - (Aluminum)	E - (122...302 °F)	B (Well Immersion Brass)		
	N - (Pneumatic)	L - (Low Limit Temperature)	30 - (3.0%)	S - (Stainless)	F - (122...482 °F)	P (Panel)		
	P (Pressure)	M - (Manual Reset)	50 - (5.0%)	Z - (None)	G - (0...1575 / 0...3150 ft per min)	W (Wire)		
	Q - (Humidity 2% and Temperature 0.3%)	N - (Auto Reset)	ZZ - (None)		H - (-60...160 °F)	C (well imm. Steel)		
	R - (Humidity 3% and Temperature 0.3%)	O - (Local Setpoint 20k...30K and Display)			I - (ETP 4...20 mA/ 3...15 psi)	S (Strap on)		
	S - (Humidity 2% and Temperature 0.2%)	P - (12 in)			K - (0...100%)	F (pipe fitting)		
	T - (Temperature)	Q - (18 in)			N - (air) 0...4 in wc	Z (None)		
	Z - (none)	R - (20 in)			O - (air) 0...12 in wc			
		S - (Local Setpoint 20... 30 kΩ, Override Button & Display)			P - (± 0.02 in wc ... 12 in wc)			
		T - (Tamper Proof Stainless Steel Plate)			Q - (± 0.02 in wc ... 2 in wc)			
		W - (Water Flow)			S - (Gauge Liquid/Gas - 10,20,50,100 psig Range)			
		X - (20 ft)			T - (1.0 Amp Trip)			
		Z - (None)			W - (Differential Liquid/Gas - 10,20,50,100 psid Range)			
					X - (4...20ma - 3/15 psig)			
					Y - (1000 ma)			
					Z (None)			



Step 5 - Select: Instrumentation

Selection Worksheet

- Commercial Parts
- Industrial Parts
- Hybrid Parts

Commercial Parts

Select Commercial Parts

Catalog Number	Description	Quantity Selected
Temperature Transmitters		
Room/Space Temperature Sensors (4..20 ma output)		
1414-CTZ03PBRAA	Space Temperature Transmitters (32...95 °F)	
1414-CTD03PBRAA	Space Temperature Transmitters (32...95 °F) c/w LCD	
1414-CTO03PBRAA	Space Temperature Transmitters (32...95 °F) c/w LCD and 20...30 kΩ setpoint adjustment	
1414-CTS03PBRAA	Space Temperature Transmitters (32...95 °F) c/w LCD, 20-30 kΩ setpoint adjustment and pushbutton override, normally open	
1414-CTT03PBRAA	Stainless Steel Plate Transmitters (32...95 °F) - Tamperproof	
Duct Temperature Sensors (4..20 ma output)		
1414-CTQ03PDDAA	Duct Temperature Transmitter, 18 in (32...212 °F)	
1414-CTQ03PCDAA	Duct Temperature Transmitter, 18 in (32...122 °F)	
1414-CTQ03PBDAA	Duct Temperature Transmitter, 18 in (32...95 °F)	
1414-CTP03PDDAA	Duct Temperature Transmitter, 12 in (32...212 °F)	
1414-CTP03PCDAA	Duct Temperature Transmitter, 12 in (32...122 °F)	
1414-CTP03PBDAA	Duct Temperature Transmitter, 12 in (32...95 °F)	
1414-CTX03PCDAA	Duct Averaging Temperature Transmitter 20 ft (32...122 °F)	
1414-CTX03PDDAA	Duct Averaging Temperature Transmitter 20 ft (32...212 °F)	
Water Immersion Temperature Sensors (4..20 ma output)		
1414-CTI03PBIAA	Immersion Temperature Transmitter, 4 in (32...95 °F)	
1414-CTI03PDIAA	Immersion Temperature Transmitter, 4 in (32...212 °F)	
1414-CTI03PEIAA	Immersion Temperature Transmitter, 4 in (122...302 °F)	
1414-CTI03PFIAA	Immersion Temperature Transmitter, 4 in. (122...482 °F)	
1414-CTIZZBZBZZ	4 in Brass Well for All Immersion Temperature Transmitters (Required with Immersion Transmitters)	
Remote Ended Temperature Sensors (4..20 ma output)		
1414-CTE03PDSAA	Strap on Temperature Transmitter, 2 in (32...212 °F)	
1414-CTE03PCSAA	Strap on Temperature Transmitter, 2 in (32...122 °F)	
1414-CTE03PASAA	Strap on Temperature Transmitter, 2 in (-58...122 °F)	
Outside Air Temperature Sensors (4..20 ma output)		
1414-CTZ03FAOAA	Outside Air Temperature Transmitter (-58...122 °F)	
Humidity Sensors (4..20 ma output)		
1414-CHZ30PKRAA	Space Humidity Transmitter (3%)	
1414-CHD30PKRAA	Space Humidity Transmitter (3%) c/w LCD	
1414-CHZ30PKDAA	Duct Humidity Transmitter (3%)	
1414-CHZ30PKOAA	Outside Air Humidity Transmitter (3%)	
1414-CRZ30PBRAA	Space Combination Humidity (3%) / Temperature Transmitter (32...95 °F)	
1414-CRZ30PDDA	Duct-Combination RH (3%) / Temperature Transmitter (32...212 °F)	
1414-CRZ30FAOAA	Outside Air-Combination RH (3%) / Temperature Transmitter (-58...122 °F)	
Pressure Sensors		
Air Flow - Sensors(4..20 ma output)		
1414-CPZ10FNDA	Static Differential Pressure Transmitter (air) 0..4 in wc	
1414-CPZ10FODAA	Static Differential Pressure Transmitter (air) 0..12 in wc	

Select Commercial Parts

Catalog Number	Description	Quantity Selected
1414-CPD10PNRAA	Room Differential Pressure Transmitter w/ LCD Disp. (air) 0..4 in wc	
	Water Flow - Sensors (4..20 ma output)	
1414-CPZ10FWFAA	Differential Pressure Transmitter (Liquid/Gas) (10,20,50,100 psi Range)	
1414-CPZ10FSFAA	Gauge Pressure Transmitter (Liquid/Gas)(10,20,50,100 psi Range)	
Switches		
	Air Flow - Pressure Switches	
1414-CPN10APWAB	Differential Air Flow Switch (± 0.02 in wc to 12 in wc) auto reset	
1414-CPN10APQAB	Differential Air Flow Switch (± 0.02 in wc to 2 in wc) auto reset	
1414-CPM10APWAB	Differential Air Flow Switch (± 0.02 in wc to 12 in wc) manual reset	
	Low-Limit Switches	
1414-CLM20AHDAB	Duct low limit thermostat 20 ft (Manual Reset)	
1414-CLN20AHDAB	Duct low limit thermostat 20 ft (Automatic Reset)	
	Current Switches	
1414-CC20PTWZB	Split Core, 1.5 Amp Trip	
	Transducers	
1414-CNZ10ZXPBP	Electronic to Pneumatic Transducer (ETP) 4..20V dc/ 3..15 psi	
1414-CAZZPZZZZ	Filter for Current to Pneumatic Transducer	
1414-CADZZZFZZ	0 to 30# Gauge for Current to Pneumatic Transducer	

AB Spares

Industrial Parts

Select Industrial Parts

Part Number	Description	Quantity Selected
Temperature Transmitters		
	Room/Space Temp Sensor (4..20 ma output)	
1414-ITZ02GBRAA	Space Temperature Transmitters, Steel Guard (32...95 °F)	
1414-ITD02GBRAA	Space Temperature Transmitters, Steel Guard (32...95 °F) c/w LCD	
1414-ITO02GBRAA	Space Temperature Transmitters, Steel Guard (32...95 °F) c/w LCD and 20...30 kΩ setpoint adjustment	
1414-ITS02GBRAA	Space Temperature Transmitters, Steel Guard (32...95 °F) c/w LCD, 20...30 kΩ setpoint adjustment and pushbutton override normally open	
1414-ITT002SBRAA	Stainless Steel Plate Transmitters (32...95 °F) - Tamperproof	
	Duct Temperature Sensors (4..20 ma output)	
1414-ITQ02ADDAA	Duct Temperature Transmitter, 18 in (32...212 °F)	
1414-ITQ02ACDAA	Duct Temperature Transmitter, 18 in (32...122 °F)	
1414-ITQ02ABDAA	Duct Temperature Transmitter, 18 in (32...95 °F)	
1414-ITP02ADDAA	Duct Temperature Transmitter, 12 in (32...212 °F)	
1414-ITP02ACDAA	Duct Temperature Transmitter, 12 in (32...122 °F)	
1414-ITP02ABDAA	Duct Temperature Transmitter, 12 in (32...95 °F)	
1414-ITX02ACDAA	Duct Averaging Temperature Transmitter 20 ft (32...122 °F)	
	Water Temp Sensors (4..20 ma output)	
1414-ITI02ABIAA	Immersion Temperature Transmitter, 4 in (32...95 °F)	
1414-ITI02ADIAA	Immersion Temperature Transmitter, 4 in (32...212 °F)	
1414-ITI02AEIAA	Immersion Temperature Transmitter, 4 in (122...302 °F)	
1414-ITI02AFIAA	Immersion Temperature Transmitter, 4 in. (122...482 °F)	
1414-ITIZZSZCZZ	4 in Stainless Well for (All) Immersion Temperature Transmitters (Required with Immersion Transmitters)	
1414-ITE02ADSAA	Strap on Temperature Transmitter, 2 in (32...212 °F)	
1414-ITE02ACSAA	Strap on Temperature Transmitter, 2 in (32...122 °F)	
	Outside Air Temperature (4..20 ma output)	
1414-ITZ02FAOAA	Outside Air Temperature Transmitter (-58...122 °F)	
	Humidity Sensors (4..20 ma output)	
1414-IHZ20GKRAA	Space Humidity Transmitter (2%)	
1414-IHD20GKRAA	Space Humidity Transmitter (2%) c/w LCD	
1414-IHZ20AKDAA	Duct Humidity Transmitter (2%)	
1414-IHZ20AKOAA	Outside Air Humidity Transmitter (2%)	
1414-ISZ20GBRAA	Space Combination Humidity (2%) / Temperature Transmitter (32...95 °F)	
1414-ISZ20ADDAA	Duct-Combination RH (2%) / Temperature Transmitter (32...212 °F)	
1414-ISZ20FAOAA	Outside Air-Combination RH (2%) / Temperature Transmitter (-58...122 °F)	
Pressure Sensors		
	Air Flow - Sensors(4..20 ma output)	
1414-IPZ10FNDA A	Static Differential Pressure Transmitter (air) 0...4 in wc	
1414-IPZ10FODAA	Static Differential Pressure Transmitter (air) 0...12 in wc	
1414-IPD10FNRAA	Room Differential Pressure Transmitter w/ LCD Disp. (air) 0...4 in wc	
1414-IFZ35FGDAA	Air flow transmitter	
	Water Flow - Sensor(4..20 ma output)	
1414-IPZ10FWFAA	Differential Pressure Transmitter (Liquid/Gas) (10,20,50,100 psi Range)	
1414-IPZ10FSFAA	Gauge Pressure Transmitter (Liquid/Gas)(10,20,50,100 psi Range)	
	Transducers	
1414-INZ10ZXPBP	Electronic to Pneumatic Transducer (ETP) 4...20Vdc/ 3...15 psi	

Hybrid Parts

Select Hybrid Parts

Part Number	Description	Quantity Selected
Temperature Transmitters		
Room/Space Temperature Sensors (4..20 ma output)		
1414-ITZ03PBRAA	Space Temperature Transmitters (32...95 °F)	
1414-ITD03PBRAA	Space Temperature Transmitters (32...95 °F) c/w LCD	
1414-ITO03PBRAA	Space Temperature Transmitters (32...95 °F) c/w LCD and 20-30 kΩ setpoint adjustment	
1414-ITS03PBRAA	Space Temperature Transmitters (32...95 °F) c/w LCD, 20-30 kΩ setpoint adjustment and pushbutton override normally open	
1414-ITT03SBRAA	Stainless Steel Plate Transmitters (32...95 °F) - Tamperproof	
Duct Temperature Sensors (4..20 ma output)		
1414-ITQ03ADDAA	Duct Temperature Transmitter, 18 in (32...212 °F)	
1414-ITQ03ACDAA	Duct Temperature Transmitter, 18 in (32...122 °F)	
1414-ITQ03ABDAA	Duct Temperature Transmitter, 18 in (32...95 °F)	
1414-ITP03ADDAA	Duct Temperature Transmitter, 12 in (32...212 °F)	
1414-ITP03ACDAA	Duct Temperature Transmitter, 12 in (32...122 °F)	
1414-ITP03ABDAA	Duct Temperature Transmitter, 12 in (32...95 °F)	
1414-ITX03ACDAA	Duct Averaging Temperature Transmitter 20 ft (32...122 °F)	
Water Temperature Sensors (4..20 ma output)		
1414-ITI03ABIAA	Immersion Temperature Transmitter, 4 in (32...95 °F)	
1414-ITI03ADIAA	Immersion Temperature Transmitter, 4 in (32...212 °F)	
1414-ITI03AEIAA	Immersion Temperature Transmitter, 4 in (122...302 °F)	
1414-ITI03AFIAA	Immersion Temperature Transmitter, 4 in. (122...482 °F)	
1414-CTIZBZBZZ	4 in Stainless Steel Well for Immersion Temperature Transmitters	
Remote Ended Temperature Sensors (4..20 ma output)		
1414-ITE03ADSAA	Strap on Temperature Transmitter (32...212 °F)	
1414-ITE03ACSAA	Strap on Temperature Transmitter (32...122 °F)	
Outside Air Temperature Sensors (4..20 ma output)		
1414-ITZ03FAOAA	Outside Air Temperature Transmitter (-58...122 °F)	
Humidity Sensors (4..20 ma output)		
1414-IQZ20PBRAA	Space Combination Humidity / Temperature Transmitter (32...95 °F)	
1414-IQZ20ADDAA	Duct-Combination RH / Temperature Transmitter (32...212 °F)	
1414-IQZ20FAOAA	Outside Air-Combination RH / Temperature Transmitter (-58...122 °F)	

AB Spares

AB Spares

Rockwell Automation Support

Rockwell Automation provides technical information on the web to assist you in using our products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnect Support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://support.rockwellautomation.com>.

Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running:

United States	1.440.646.3223 Monday - Friday, 8am - 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

We test all of our products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned:

United States	Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for return procedure.

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Publication 1414-SG001A-EN-P - December 2005