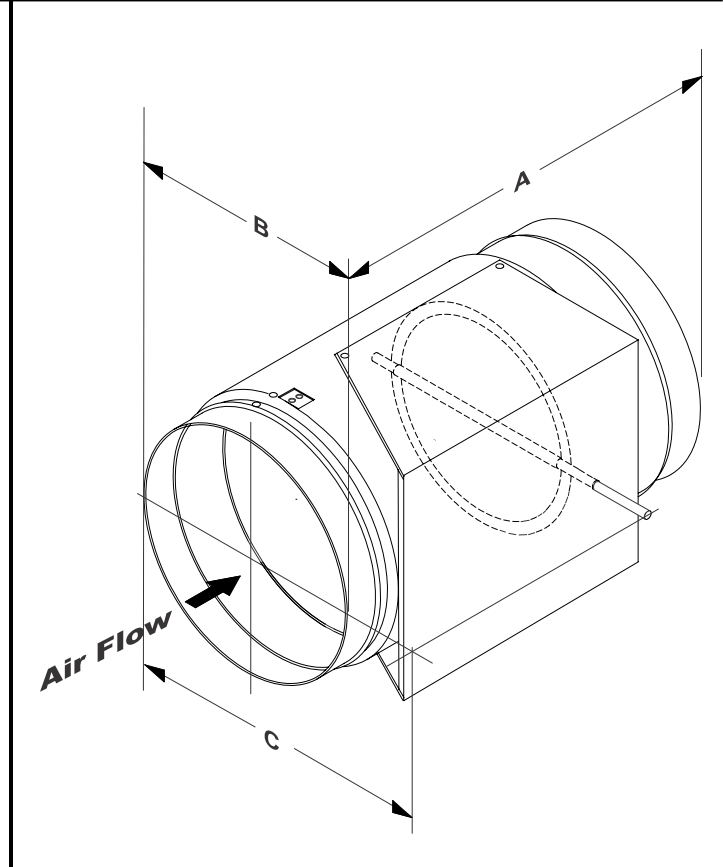


Description

The OE516 Round Pressure Dependent Zone Damper consists of a Round Air Damper with a control mounting plate on the side of the damper housing. This plate is designed for mounting of the OE742-31-VAVZ and OE742-32-VAVZ VAVZ Pressure Dependent Zone Controller Actuator Packages which are field mounted on the OE516 Round Pressure Dependent Zone Damper.

The Round Air Damper has a damper blade consisting of two 18 gauge galvanized metal blade halves with Volara® gasket material sandwiched between. The Volara® material is resistant to high temperatures and has low water absorption characteristics. The sandwiched gasketed damper design is mechanically fastened to the damper shaft to provide low leakage, low noise and low pressure drop through the damper. The 3/8" damper shaft rotates in three oil impregnated sintered bronze bearings. A slot is cut into the end of the damper shaft for damper position indication.

All Round Dampers are tested and certified in accordance with ARI standard 880. An ARI label is affixed to all units.



When selecting Round Dampers for use as a Pressure Dependent Zone Dampers, select from the Zone Damper Airflow Chart and follow the Zone Damper Guidelines on page 2 of this document.

Mounting

The Pressure Dependent Round Zone Damper assembly should be mounted according to standard duct installation practices with airflow direction as shown in the illustration above. After installation of the Round Zone Damper in the ductwork, insulation should be applied around any remaining uninsulated surface on the air valve inlet and outlet. The Round Zone Damper should be mounted so the control enclosure is positioned to the left or right side of the ductwork with the control enclosure in a vertical plane. Do not mount the Round Zone Damper Assembly with the control enclosure on the top or bottom of the ductwork. Adequate clearance should be maintained between the control panel and any obstruction to allow for removal of the control panel cover and access to the controls.

Technical Data		OE516 Pressure Dependent Round Zone Damper			
Air Damper Construction:		Dimensions:			
Damper Body	24 Ga. Galv. Steel	Air Damper Model	"A"	"B"	"C"
Damper Blade	Round -18 Ga. Galv. Steel	OE516-06 (6")	14.00	5.88	8.88
Damper Bearings	Oil Impregnated Bronze	OE516-08 (8")	14.00	7.88	10.88
Damper Seal	Volara® Type A Gasket	OE516-10 (10")	14.00	9.88	12.88
Leakage	Less Than 1% @ 3" SP	OE516-12 (12")	22.00	11.88	14.88
Insulation	½" Foil Faced Fiberglass	OE516-14 (14")	22.00	13.88	16.88
Control Enclosure	24 Ga. Galv Steel	OE516-16 (16")	22.00	15.88	18.88
WattMaster reserves the right to change specifications without notice					
One Year Warranty					

Round Pressure Dependent Zone Damper Sizing

Use a load program to determine the peak load for each zone. These calculations will be used to select Round Pressure Dependent Zone Damper sizes.

The Orion Systems utilize a typical low pressure duct design. To reduce noise problems, pressures should not exceed 1" W.C. in the duct.

Primary trunk ducts used with Orion systems should not be "undersized". This is especially true of "pressure dependent" systems. With larger trunk ducts, it is easier to assure relatively constant pressure to each Round Zone Damper. Runs should be as short as possible, and the trunk duct system kept as symmetrical as possible to facilitate system balancing. Wherever possible, run the trunk ducts above corridors and locate the Round Zone Dampers above corridors to reduce the noise in the space and facilitate service of the valves. Trunk ducts should be sized for no more than 0.1" W.C. drop per 100 ft. of duct, and a maximum duct velocity of 2000 FPM.

Using the maximum acceptable velocity for a branch duct (typically 1000-1500 FPM for minimal noise), find the smallest Round Zone Damper that will deliver the required CFM as determined by the load program. Locate the branch velocity used in the duct design program in the left hand column of the Round Zone Damper Selection Data table. Move across the table and find the Round Zone Damper, which will provide the acceptable CFM to meet the zone airflow requirements.

Note: Compare the Round Zone Damper size selected against the duct size to determine if the next size up or down will provide acceptable performance without requiring a transition fitting.

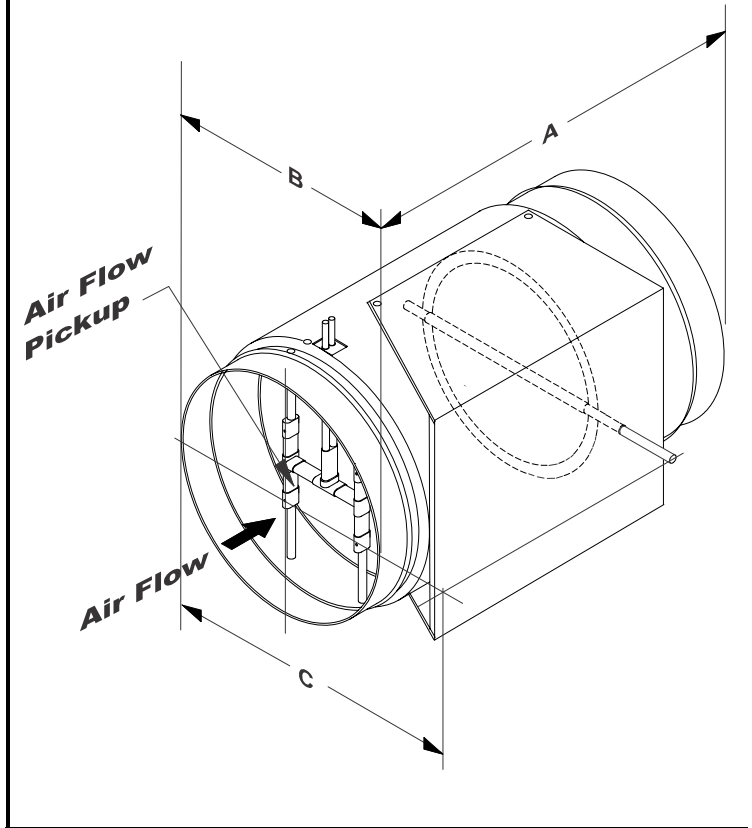
Up to a maximum of two Slaved Round Zone Dampers may be slaved together with the main Round Zone Damper for large zones. This design should be reserved only for situations when it is not practical to use a single Round Zone Damper. See the Round Slaved Zone Damper specification sheet for information regarding application and selection of Round Slaved Zone Dampers.

Round Zone Damper Selection Data		OE516 Pressure Dependent Round Zone Damper				
VAV/Zone Damper Round Duct Size (Area Ft²)	6" (0.188)	8" (0.338)	10" (0.532)	12" (0.769)	14" (1.050)	16" (1.375)
Velocity Through VAV/Zone Damper FPM	Airflow Through VAV/Zone Damper - CFM (ΔP_s inches W.C. w/ Air Damper Full Open)					
500	94 (0.01)	169 (0.01)	266 (0.01)	385 (0.01)	525 (0.01)	687 (0.01)
750	141 (0.03)	254 (0.02)	399 (0.01)	577 (0.02)	788 (0.01)	1031 (0.01)
1000	188 (0.05)	338 (0.03)	532 (0.02)	769 (0.03)	1050 (0.02)	1375 (0.01)
1250	235 (0.07)	423 (0.04)	665 (0.03)	961 (0.04)	1313 (0.03)	1718 (0.02)
1500	282 (0.09)	507 (0.06)	798 (0.04)	1154 (0.05)	1575 (0.04)	2062 (0.03)
1750	329 (0.12)	592 (0.08)	931 (0.06)	1346 (0.06)	1838 (0.05)	2405 (0.04)
2000	376 (0.15)	676 (0.10)	1064 (0.07)	1538 (0.07)	2100 (0.07)	2749 (0.05)
WattMaster reserves the right to change specifications without notice						

Description

The OE517 Round Pressure Independent Zone Damper consists of a Round Air Damper with a control mounting plate on the side of the damper housing. This plate is designed for mounting of the OE744-31-VAVZ and OE744-32-VAVZ VAVZ Pressure Independent Zone Controller Actuator Packages which are field mounted on the OE517 Round Pressure Independent Zone Damper. The Round Pressure Independent Zone Damper also has a patented Tri Averaging Flow Sensor® built in to provide accurate airflow measurement when connected to the flow sensor provided with the Pressure Independent Zone Controller Actuator Packages..

The Round Air Damper has a damper blade consisting of two 18 gauge galvanized metal blade halves with Volara® gasket material sandwiched between. The Volara® material is resistant to high temperatures and has low water absorption characteristics. The sandwiched gasketed damper design is mechanically fastened to the damper shaft to provide low leakage, low noise and low pressure drop through the damper. The 3/8" damper shaft rotates in three oil impregnated sintered bronze bearings. A slot is cut into the end of the damper shaft for damper position indication.



All Round Dampers are tested and certified in accordance with ARI standard 880. An ARI label is affixed to all units.

When selecting Round Dampers for use as a Pressure Independent Zone Dampers, select from the Zone Damper Airflow Chart and follow the Zone Damper Guidelines on page 2 of this document.

Mounting

The Pressure Independent Round Zone Damper assembly should be mounted according to standard duct installation practices with airflow direction as shown in the illustration above. After installation of the Round Zone Damper in the ductwork, insulation should be applied around any remaining uninsulated surface on the air valve inlet and outlet. The Round Zone Damper should be mounted so the control enclosure is positioned to the left or right side of the ductwork with the control enclosure in a vertical plane. Do not mount the Round Zone Damper Assembly with the control enclosure on the top or bottom of the ductwork. Adequate clearance should be maintained between the control panel and any obstruction to allow for removal of the control panel cover and access to the controls.

Technical Data		OE517 Pressure Independent Round Zone Damper			
Air Damper Construction:		Dimensions:			
Damper Body	24 Ga. Galv. Steel	Air Damper Model	"A"	"B"	"C"
Damper Blade	Round -18 Ga. Galv. Steel	OE517-06 (6")	14.00	5.88	8.88
Damper Bearings	Oil Impregnated Bronze	OE517-08 (8")	14.00	7.88	10.88
Damper Seal	Volara® Type A Gasket	OE517-10 (10")	14.00	9.88	12.88
Leakage	Less Than 1% @ 3" SP	OE517-12(12")	22.00	11.88	14.88
Insulation	½" Foil Faced Fiberglass	OE517-14 (14")	22.00	13.88	16.88
Control Enclosure	24 Ga. Galv Steel	OE517-16 (16")	22.00	15.88	18.88
WattMaster reserves the right to change specifications without notice					
One Year Warranty					

Round Pressure Independent Zone Damper Sizing

Use a load program to determine the peak load for each zone. These calculations will be used in selecting the appropriate zone damper sizes.

The Orion Systems utilize a typical low pressure duct design. To reduce noise problems, pressures should not exceed 1" W.C. in the duct.

Primary trunk ducts used with Orion systems should not be "undersized". This is especially true of "pressure dependent" systems. With pressure independent systems this is not as critical. With larger trunk ducts, it is easier to assure relatively constant pressure to each Round Zone Damper. Runs should be as short as possible, and the trunk duct system kept as symmetrical as possible to facilitate system balancing. Wherever possible, run the trunk ducts above corridors and locate the Round Zone Dampers above corridors to reduce the noise in the space and facilitate service of the valves. Trunk ducts should be sized for no more than 0.1" W.C. drop per 100 ft. of duct, and a maximum duct velocity of 2000 FPM.

With pressure independent systems it is possible to exceed this rule by up to 50%. However it is advised that unless you are experienced with VAV duct design the 2000 FPM rule should be used. Using the maximum acceptable velocity for a branch duct (typically 1000-1500 FPM for minimal noise), find the smallest damper that will deliver the required CFM as determined by the load program.

Locate the branch velocity used in the duct design program in the left hand column of the Round Zone Damper Selection Data table. Move across the table and find the damper, which will provide the acceptable CFM to meet the zone airflow requirements.

Note: Compare the Round Zone Damper size selected against the duct size to determine if the next size up or down will provide acceptable performance without requiring a transition fitting.

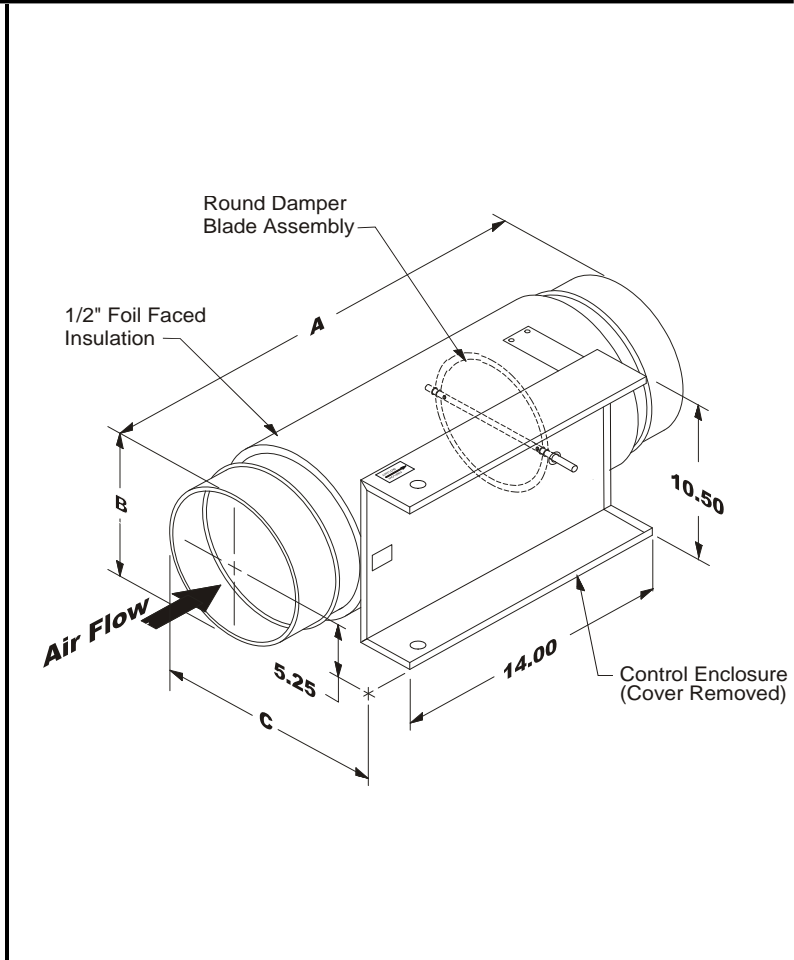
Pressure Independent Round Zone Dampers may not be slaved together with Round Slaved Zone Damper Assemblies. If more than one damper is required for a zone, all dampers must be selected as pressure dependent. See the Round Pressure Dependent Zone Damper submittal sheet and Round Slaved Zone Damper submittal sheets for selection of master/slave damper configurations.

Round Zone Damper Selection Data				OE517 Pressure Independent Round Zone Damper		
VAV/Zone Damper Round Duct Size (Area Ft ²)	6" (0.188)	8" (0.338)	10" (0.532)	12" (0.769)	14" (1.050)	16" (1.375)
CFM @ 1" Velocity Pressure (Air Flow Probe "K" Factor)	474	950	1417	2120	2908	3700
Velocity Through VAV/Zone Damper FPM	Airflow Through VAV/Zone Damper - CFM (ΔP _s inches W.C. w/ Air Damper Full Open)					
500	94 (0.01)	169 (0.01)	266 (0.01)	385 (0.01)	525 (0.01)	687 (0.01)
750	141 (0.03)	254 (0.02)	399 (0.01)	577 (0.02)	788 (0.01)	1031 (0.01)
1000	188 (0.05)	338 (0.03)	532 (0.02)	769 (0.03)	1050 (0.02)	1375 (0.01)
1250	235 (0.07)	423 (0.04)	665 (0.03)	961 (0.04)	1313 (0.03)	1718 (0.02)
1500	282 (0.09)	507 (0.06)	798 (0.04)	1154 (0.05)	1575 (0.04)	2062 (0.03)
1750	329 (0.12)	592 (0.08)	931 (0.06)	1346 (0.06)	1838 (0.05)	2405 (0.04)
2000	376 (0.15)	676 (0.10)	1064 (0.07)	1538 (0.07)	2100 (0.07)	2749 (0.05)
WattMaster reserves the right to change specifications without notice						

Description

The OE501 Round Bypass or Slaved Zone Damper consists of a Round Air Damper with a control enclosure mounted on the side of the damper housing. The damper blade consists of two 18 gauge galvanized metal blade halves with Volara® gasket material sandwiched between. The Volara® material is resistant to high temperatures and has low water absorption characteristics. The sandwiched gasketed damper design is mechanically fastened to the damper shaft to provide low leakage, low noise and low pressure drop through the damper. The 3/8" damper shaft rotates in three oil impregnated sintered bronze bearings. A slot is cut into the end of the damper shaft for damper position indication.

A large 24 gauge sheet metal control enclosure is provided for mounting of controls. Controls packages are available for field mounting which can configure the Round Damper for Bypass Damper control or Slaved Zone Damper Control. Knockouts are provided for ease of wiring installation. A cutout is provided in the enclosure for mounting of an airflow probe.



All Round Dampers are tested and certified in accordance with ARI standard 880. An ARI label is affixed to all units.

When selecting Round Dampers for use as a Bypass Damper, select from the Bypass Damper Airflow Chart and follow the Bypass Damper Guidelines on page 2 of this document. Bypass Dampers are limited to 10" Diameter through 16" Diameter sizes. When selecting Round Dampers for use as a Slaved Zone Damper select from the Slaved Zone Damper Selection Chart and follow the Slaved Zone Damper Guidelines on page 3 of this document

Mounting

The Round Damper assembly should be mounted according to standard duct installation practices with airflow direction as shown in the illustration above. After installation of the Round Damper in the ductwork, insulation should be applied around any remaining uninsulated surface on the air valve inlet and outlet. The Round Damper should be mounted so the control enclosure is positioned to the left or right side of the ductwork with the control enclosure in a vertical plane. Do not mount the Round Damper Assembly with the control enclosure on the top or bottom of the ductwork. Adequate clearance should be maintained between the control panel and any obstruction to allow for removal of the control panel cover and access to the controls.

Technical Data		OE501 Round Damper			
Air Damper Construction:		Dimensions:			
Damper Body	24 Ga. Galv. Steel	Air Damper Model	"A"	"B"	"C"
Damper Blade	Round -18 Ga. Galv. Steel	OE501-06 (6")	19.00	5.88	9.38
Damper Bearings	Oil Impregnated Bronze	OE501-08 (8")	19.00	7.88	11.38
Damper Seal	Volara® Type A Gasket	OE501-10 (10")	19.00	9.88	13.38
Leakage	Less Than 1% @ 3" SP	OE501-12 (12")	22.00	11.88	15.38
Insulation	1/2" Foil Faced Fiberglass	OE501-14 (14")	22.00	13.88	17.38
Control Enclosure	24 Ga. Galv Steel	OE501-16 (16")	22.00	15.88	19.38
WattMaster reserves the right to change specifications without notice					
One Year Warranty					

Bypass Damper Sizing

The Orion Systems utilize a typical low pressure duct design. To reduce noise problems, pressures should not exceed 1" W.C. in the duct.

Because the zones in an Orion System are controlled using variable air volume, it is unlikely that all zones will be at design load at the same time. This zoning allows for load diversity to be taken into account when sizing the central HVAC unit. This typically will provide better comfort with a smaller HVAC unit than with the use of a constant volume system. Use a load program to determine the individual zone loads. Because of zone diversity the HVAC unit should be sized for the correct instantaneous peak load, not the sum of the peak loads as would be the case when sizing a normal constant volume unit system. The Bypass Damper should be sized to provide for the maximum amount of air to be bypassed in the system. This is typically 60 to 70% of the HVAC units rated capacity. These calculations will be used in selecting the appropriate Bypass Damper Size(s).

Using the maximum acceptable velocity for a bypass duct (typically 1750-2250 FPM for minimal noise), find the smallest damper that will deliver the required CFM as determined by the load program.

When determining the bypass duct size, be sure to take into account any transition fittings and their associated pressure drops. Locate the bypass duct velocity used in the duct design program in the left hand column of the Bypass Damper Selection Data table. Move across the table and find the Bypass Damper size which will provide the acceptable CFM to meet the bypass airflow requirements.

Note: Compare the Bypass Air Damper size selected against the bypass duct size to determine if the next size up or down will provide acceptable performance without requiring a transition fitting.

Up to a maximum of two additional Bypass Dampers may be slaved together with the main Bypass Damper for large bypass airflow requirements. This design should be reserved only for situations when it is not practical to use a single large Bypass Damper. The slaved valves should all be of the same size for proper control. Divide the total CFM by two or three depending on how many bypass dampers you will be using and size accordingly.

<i>Bypass Air Damper Selection Data</i>				
Bypass Air Damper Round Duct Size (Area Ft ²)	10" (0.532)	12" (0.769)	14" (1.050)	16" (1.375)
Velocity Through Bypass Air Damper FPM	Airflow Through Bypass Air Damper - CFM (ΔP_s inches W.C. w/ Air Damper Full Open)			
750	399 (0.01)	577 (0.02)	788 (0.01)	1031 (0.01)
1000	532 (0.02)	769 (0.03)	1050 (0.02)	1375 (0.01)
1250	665 (0.03)	961 (0.04)	1313 (0.03)	1718 (0.02)
1500	798 (0.04)	1154 (0.05)	1575 (0.04)	2062 (0.03)
1750	931 (0.06)	1346 (0.06)	1838 (0.05)	2405 (0.04)
2000	1064 (0.07)	1538 (0.07)	2100 (0.07)	2749 (0.05)
2250	1197 (0.08)	1730 (0.08)	2363 (0.08)	3093 (0.06)
WattMaster reserves the right to change specifications without notice				

Slaved Zone Damper Sizing

Use a load program to determine the peak load for each zone. These calculations will be used in selecting the appropriate Zone and Slaved-Zone Damper sizes. Only pressure dependent Zone Dampers may be slaved.

The Orion Systems utilize a typical low pressure duct design. To reduce noise problems, pressures should not exceed 1" W.C. in the duct.

Primary trunk ducts used with Orion systems should not be "undersized". With larger trunk ducts, it is easier to assure relatively constant pressure to each Zone Damper. Runs should be as short as possible, and the trunk duct system kept as symmetrical as possible to facilitate system balancing. Wherever possible, run the trunk ducts above corridors and locate the master Zone and Slaved Zone Dampers above corridors to reduce the noise in the space and facilitate service of the valves. Trunk ducts should be sized for no more than 0.1" W.C. drop per 100 ft. of duct, and a maximum duct velocity of 2000 FPM.

Up to a maximum of two additional Slaved Zone Dampers may be connected together with the main Zone Damper(s) for large zone air flow requirements.

This design should be reserved only for situations when it is not practical to use a single large Zone Air Damper.

It is recommended that the Slaved Zone Damper(s) should be of the same size as the master Zone Damper. This insures that adequate air flow and minimum noise will occur at all damper positions.

Divide the total zone CFM required by the total number of air valves to be used.

Using the maximum acceptable velocity for a branch duct (typically 1000-1500 FPM for minimal noise), go to the Air Damper Selection Data Chart below and find the quantity and size of Air Dampers that will deliver the required CFM as determined by the load program

Note: Compare the Zone and Slaved Zone Damper sizes selected against the branch duct sizes to determine if the next size up or down will provide acceptable performance without requiring a transition fitting.

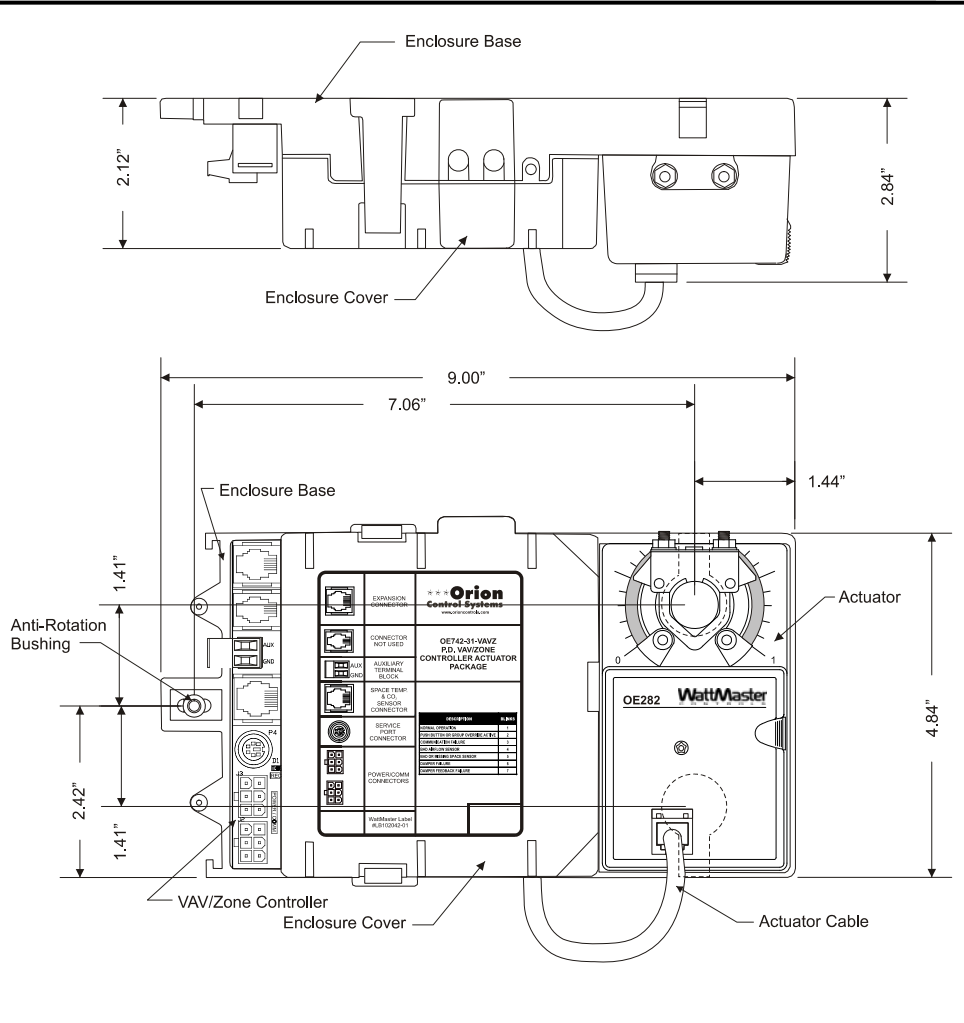
Order one OE503 Pressure Dependent Zone Damper of the size selected previously. Order one or two OE501 Slaved Zone Dampers as required of the same size as the OE503 Zone Damper just selected. Select the Slaved Zone Control Packages for the Slaved Zone Dampers you need. With these controls mounted on the Slaved Zone Dampers the dampers will track and maintain the same damper position as the master Zone Damper.

Slaved Zone Air Damper Selection Data						
Zone Air Damper Round Duct Size (Area Ft²)	6" (0.188)	8" (0.338)	10" (0.532)	12" (0.769)	14" (1.050)	16" (1.375)
Velocity Through Zone Air Damper FPM	Airflow Through Zone Air Damper – CFM (ΔP_s inches W.C. w/ Air Damper Full Open)					
500	94 (0.01)	169 (0.01)	266 (0.01)	385 (0.01)	525 (0.01)	687 (0.01)
750	141 (0.03)	254 (0.02)	399 (0.01)	577 (0.02)	788 (0.01)	1031 (0.01)
1000	188 (0.05)	338 (0.03)	532 (0.02)	769 (0.03)	1050 (0.02)	1375 (0.01)
1250	235 (0.07)	423 (0.04)	665 (0.03)	961 (0.04)	1313 (0.03)	1718 (0.02)
1500	282 (0.09)	507 (0.06)	798 (0.04)	1154 (0.05)	1575 (0.04)	2062 (0.03)
1750	329 (0.12)	592 (0.08)	931 (0.06)	1346 (0.06)	1838 (0.05)	2405 (0.04)
2000	376 (0.15)	676 (0.10)	1064 (0.07)	1538 (0.07)	2100 (0.07)	2749 (0.05)

WattMaster reserves the right to change specifications without notice

Description

The OE742-31-VAVZ VAV/Zone Controller Actuator Package with Power/Comm connectors provides a new solution for zone damper applications. The new package includes a VAV/Zone Actuator and a VAV/Zone Controller mounted in a plastic enclosure. An optional conduit cover is also available that mounts over the control terminals for installations requiring conduit connections. The VAV/Zone Controller Actuator Package is designed for left- or right-hand mounting on a VAV Terminal unit. Each package comes standard with a right-hand label and the actuator positioned for right-hand use. For left-hand units, the actuator can be rotated 180 degrees by removing two screws that secure it to the enclosure, rotating the damper actuator, and re-fastening the actuator to the enclosure. A left-hand label is also supplied that can be applied over the right-hand label for left-hand applications.



Mounting

The VAV/Zone Actuator package is very easy to mount on your terminal unit. It is installed by simply loosening the damper shaft u-bolt on the actuator and sliding the entire Zone Controller Actuator Package Assembly over the terminal unit's damper shaft, tightening the actuator u-bolt around the damper shaft, and inserting a self-tapping screw into the anti-rotation bushing located at the opposite end of the enclosure base. Detailed mounting and installation instructions are provided with each package. A conduit enclosure is available as an option which provides conduit knockouts and encloses the electrical connections for applications where code requirements mandate conduit be used for low voltage electrical wiring.

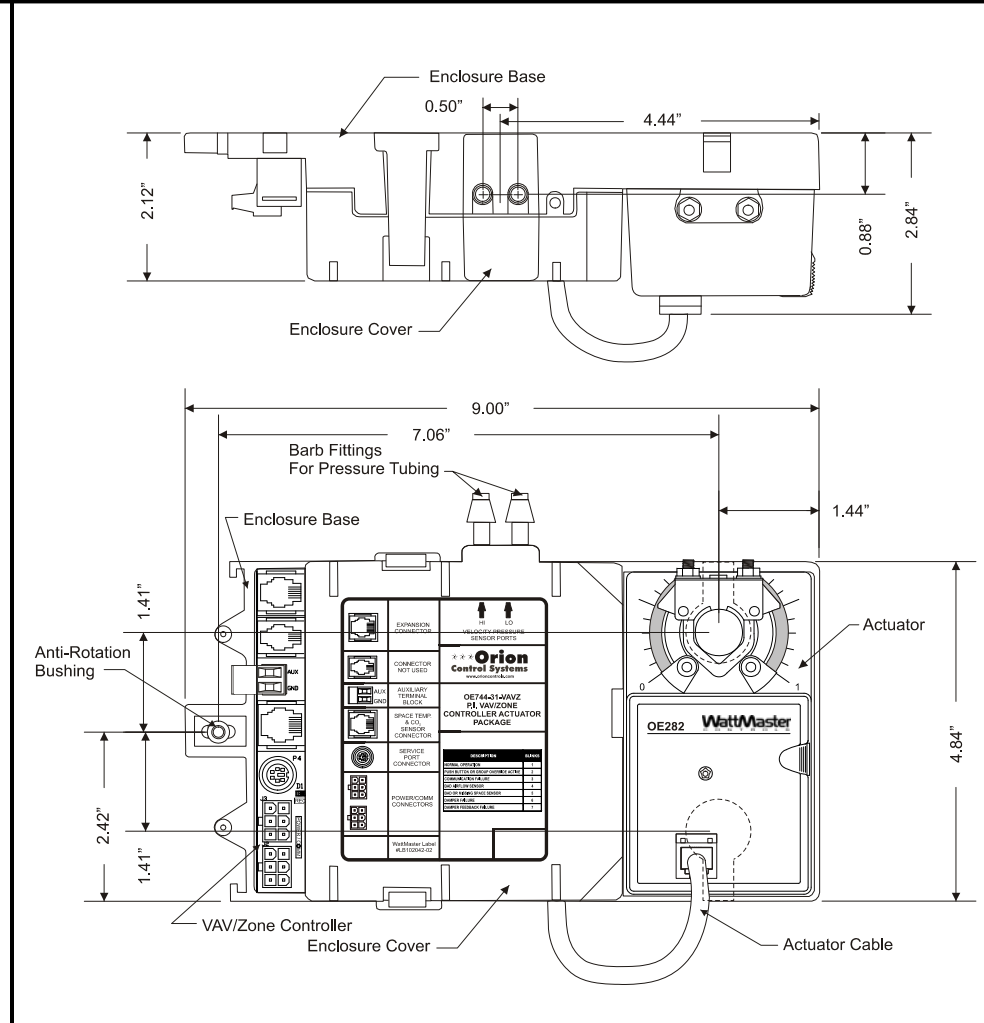
Technical Data		OE742-31-VAVZ VAV/Zone Controller Actuator Package	
Zone Controller:		Outputs:	
Supply Power	24 VAC	(1) RJ-45 Cable Connection For Auxiliary Relay Board	
Power Consumption	12 VA Maximum	(1) RJ-45 Cable Connection To Damper Actuator	
Operating Temperature	10°F to 149°F	(1) Molex Connector For Power/Comm Out	
Operating Humidity	90% RH Non-Condensing	Features:	
Communications	RS-485 – 9600 Baud	Programming Port	Mini-DIN Jr. Port
Inputs:		Enclosure Material	Fire Rated ABS Plastic
(1) RJ-45 Cable Connection For Digital Temperature Or Analog Temperature		Zone Controller	Factory Mounted Inside The Enclosure
(2) Auxiliary Terminals For Duct Temperature Sensor		Zone Actuator	Factory Mounted To The Enclosure
(1) Molex Connector For Power/Comm In		Actuator Rating	35 in/lbs (6 ft ² Damper Area Max.)
WattMaster reserves the right to change specifications without notice.		Labeling	Right Hand & Left Hand
Three Year Warranty		Airflow Ports	Barbed Tube Fittings (PI Versions Only)

Description

The OE744-31-VAVZ VAV/Zone Controller Actuator Package with Power/Comm connectors provides a new solution for zone damper applications. The new package includes a VAV/Zone Actuator, a VAV/Zone Controller, and an Airflow Sensor all mounted in a plastic enclosure. An optional conduit cover is also available that mounts over the control terminals for installations requiring conduit connections. The VAV/Zone Controller Actuator Package is designed for left- or right-hand mounting on a VAV Terminal unit. Each package comes standard with a right-hand label and the actuator positioned for right-hand use. For left-hand units, the actuator can be rotated 180 degrees by removing two screws that secure it to the enclosure, rotating the damper actuator, and re-fastening the actuator to the enclosure. A left-hand label is also supplied that can be applied over the right-hand label for left-hand applications.

Mounting

The VAV/Zone Actuator package is very easy to mount on your terminal unit. It is installed by simply loosening the damper shaft u-bolt on the actuator and sliding the entire Zone Controller Actuator Package Assembly over the terminal unit's damper shaft, tightening the actuator u-bolt around the damper shaft, and inserting a self-tapping screw into the anti-rotation bushing located at the opposite end of the enclosure base. Detailed mounting and installation instructions are provided with each package. A conduit enclosure is available as an option which provides conduit knockouts and encloses the electrical connections for applications where code requirements mandate conduit be used for low voltage electrical wiring.



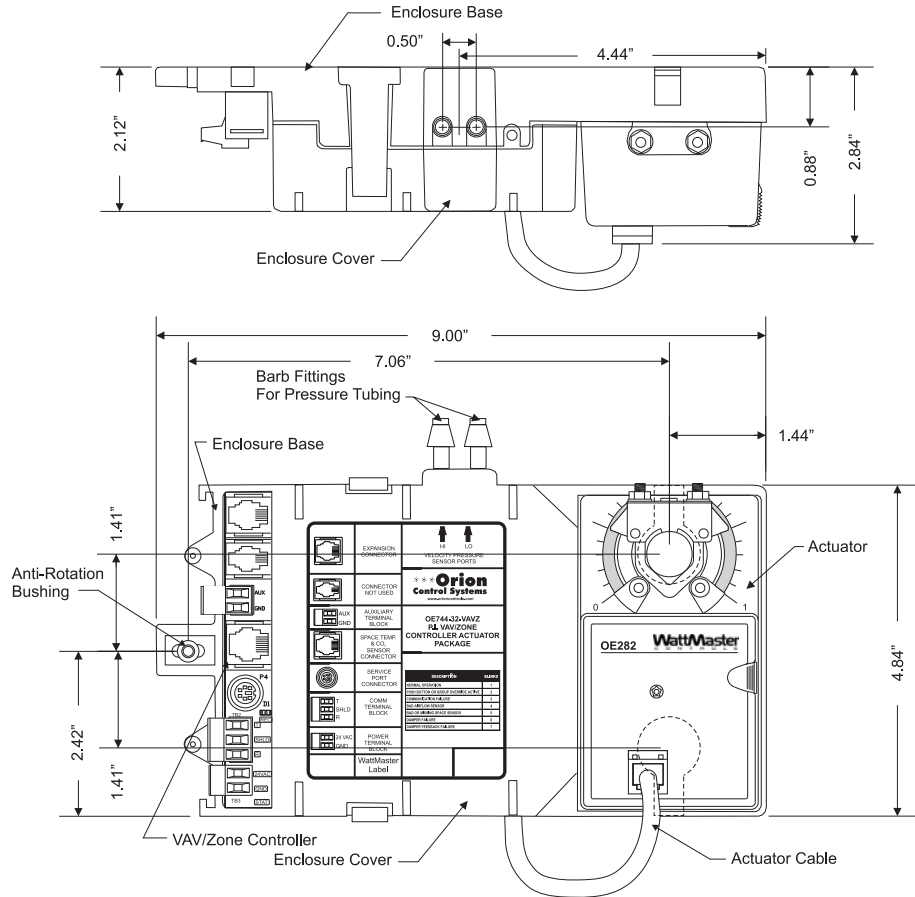
Technical Data		OE744-31-VAVZ VAV/Zone Controller Actuator Package	
Zone Controller:		Outputs:	
Supply Power	24 VAC	(1) RJ-45 Cable Connection For Auxiliary Relay Board	
Power Consumption	12 VA Maximum	(1) RJ-45 Cable Connection To Damper Actuator	
Operating Temperature	10°F to 149°F	(1) Molex Connector For Power/Comm Out	
Operating Humidity	90% RH Non-Condensing	Features:	
Communications	RS-485 – 9600 Baud	Programming Port	Mini-DIN Jr. Port
Inputs:		Enclosure Material	Fire Rated ABS Plastic
(1) RJ-45 Cable Connection For Digital Temperature Or Analog Temperature		Zone Controller	Factory Mounted Inside The Enclosure
(2) Auxiliary Terminals For Duct Temperature Sensor		Zone Actuator	Factory Mounted To The Enclosure
(1) Molex Connector For Power/Comm In		Actuator Rating	35 in/lbs (6 ft ² Damper Area Max.)
		Labeling	Right Hand & Left Hand
		Airflow Ports	Barbed Tube Fittings (PI Versions Only)
WattMaster reserves the right to change specifications without notice.			
Three Year Warranty			

Description

The OE744-32-VAVZ VAV/Zone Controller Actuator Package with Terminal Block connectors provides a new solution for zone damper applications. The new package includes a VAV/Zone Actuator, a VAV/Zone Controller, and an Airflow Sensor all mounted in a plastic enclosure. An optional conduit cover is also available that mounts over the control terminals for installations requiring conduit connections. The VAV/Zone Controller Actuator Package is designed for left- or right-hand mounting on a VAV Terminal unit. Each package comes standard with a right-hand label and the actuator positioned for right-hand use. For left-hand units, the actuator can be rotated 180 degrees by removing two screws that secure it to the enclosure, rotating the damper actuator, and re-fastening the actuator to the enclosure. A left-hand label is also supplied that can be applied over the right-hand label for left-hand applications.

Mounting

The VAV/Zone Actuator package is very easy to mount on your terminal unit. It is installed by simply loosening the damper shaft u-bolt on the actuator and sliding the entire Zone Controller Actuator Package Assembly over the terminal unit's damper shaft, tightening the actuator u-bolt around the damper shaft, and inserting a self-tapping screw into the anti-rotation bushing located at the opposite end of the enclosure base. Detailed mounting and installation instructions are provided with each package. A conduit enclosure is available as an option which provides conduit knockouts and encloses the electrical connections for applications where code requirements mandate conduit be used for low voltage electrical wiring.



Technical Data		OE744-32-VAVZ VAV/Zone Controller Actuator Package	
Zone Controller:		Outputs:	
Supply Power	24 VAC	(1) RJ-45 Cable Connection For Auxiliary Relay Board	
Power Consumption	12 VA Maximum	(1) RJ-45 Cable Connection To Damper Actuator	
Operating Temperature	10°F to 149°F	Uses Same 3 Conductor Terminal Block as Comm Input	
Operating Humidity	90% RH Non-Condensing	Features:	
Communications	RS-485 – 9600 Baud	Programming Port	Mini-DIN Jr. Port
Inputs:		Enclosure Material	Fire Rated ABS Plastic
(1) RJ-45 Cable Connection For Digital Temperature Or Analog Temperature		Zone Controller	Factory Mounted Inside The Enclosure
(2) Auxiliary Terminals For Duct Temperature Sensor		Zone Actuator	Factory Mounted To The Enclosure
(1) Terminal Block Connector For Power In		Actuator Rating	35 in/lbs (6 ft ² Damper Area Max.)
(1) Terminal Block Connector For Comm In		Labeling	Right Hand & Left Hand
		Airflow Ports	Barbed Tube Fittings (PI Versions Only)
WattMaster reserves the right to change specifications without notice.			
Three Year Warranty			

Description

The OE519 Rectangular Damper is used in applications where rectangular duct is specified or required because of space limitations or job requirements. The Rectangular Damper utilizes opposed blades of airfoil design for improved air flow control. The Rectangular Damper frame is made of .080 thick extruded aluminum. The blades are also made of extruded aluminum. Blade pins are 7/16" hexagon shaped aluminum fixed to a Celcon inner bearing rotating within a polycarbonate outer bearing inserted in the damper frame. The Damper linkage is mechanically assembled and located in the damper frame. The linkage components are constructed of aluminum, zinc and nickel plated steel. Blade gaskets are made of extruded EPDM material and are secured within an integral slot on the blade. Jamb seals are of extruded TPE material for low leakage through the damper when closed. The control shaft is 1/2" diameter hexagon shaped rod and can be extended 9" past the damper frame for connection to the damper actuator. The damper shaft is shipped retracted into the frame area and must be adjusted to the required length in the field.

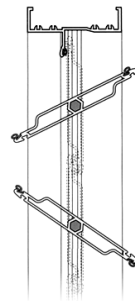
Mounting

The Rectangular Damper should be mounted in the ductwork according to standard duct installation practices. The rectangular damper should be selected for the nominal inside duct size. All Rectangular Dampers are supplied with 1" flanges all around damper frame, making the overall damper width and height 2" larger than the nominal inside duct size thus providing for external flange mounting to ductwork. The damper shaft is shipped retracted into the damper frame. Loosen the two nuts on the U-bolt that secures the damper shaft to the damper blade and adjust to length. It is recommended that the shaft length be adjusted so approximately 4" of shaft extends beyond the inside of the damper frame. Retighten the two nuts on the U-bolt that secures the damper shaft to the blade. After installation of the Rectangular Damper to the ductwork, it is recommended that insulation be applied around any non-insulated surface on the ductwork where the Rectangular Damper was installed.

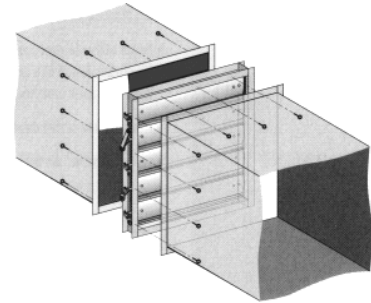
Damper Sizing

Use a load program to determine the peak load for each zone. These calculations will be used in selecting the appropriate Rectangular Damper sizes. The Orion Systems utilize a typical low pressure duct design. To reduce noise problems, duct pressures should not exceed 1" W.C.

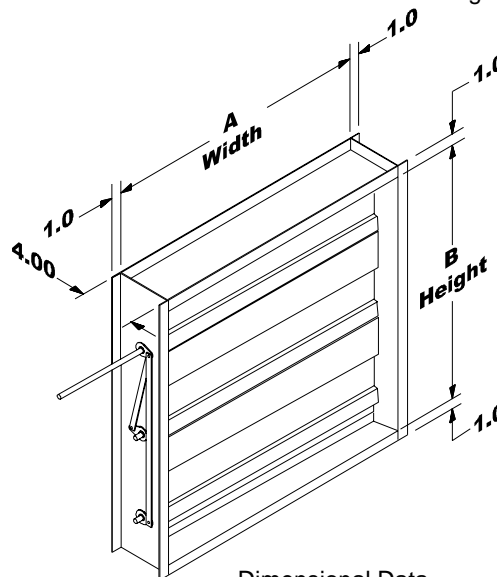
Primary trunk ducts used with Orion systems should not be "undersized". This is especially true of "pressure dependent" systems. With pressure independent systems this is not as critical. With larger trunk ducts, it is easier to assure relatively constant pressure to each Rectangular Damper. Runs should be as short as possible, and the trunk duct system kept as symmetrical as possible to facilitate system balancing. Wherever possible, run the trunk ducts above corridors and locate the Rectangular Dampers above corridors to reduce the noise in the space and facilitate service of the valves. Trunk ducts should be sized for no more than 0.1" W.C. drop per 100 ft. of duct, and a maximum duct velocity of 2000 FPM.



Opposed Blade Profile



Flanged to Duct Installation



Dimensional Data

Using the maximum acceptable velocity for a branch duct (typically 1000-1500 FPM for minimal noise), find the smallest damper that will deliver the required CFM as determined by the load program.

Locate the required CFM on the Rectangular Damper Selection Data table below. This table is based on an airflow velocity of 1000 FPM across the damper.

This is the recommended velocity for quiet operation and normal pressure drop through the damper. When space considerations or design criteria dictate, dampers may be selected for other face velocities by using the multipliers listed in the notes associated with the table. Move across the table and find the damper selection, which will provide the required CFM and fit within the ceiling area where the damper will be located. Many size selections are possible for a given CFM. Pressure drop across the damper is shown in parenthesis below the CFM.

Rectangular Damper											Selection Data				
Damper Height "B"	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"	30"	32"	34"	36"
Damper Width "A"	Airflow Data with Full Open Damper CFM @ 1000 FPM Velocity (ΔP_s - inches W.C. @ 1000 FPM Velocity)														
8"	410 (0.16)	530 (0.10)	640 (0.07)	740 (0.05)	850 (0.04)	970 (0.03)	1080 (0.03)	1190 (0.02)	1300 (0.02)	1410 (0.02)	1520 (0.01)	1630 (0.02)	1740 (0.01)	1850 (0.01)	1970 (0.01)
10"	510 (0.10)	590 (0.07)	690 (0.05)	800 (0.03)	910 (0.03)	1030 (0.02)	1150 (0.02)	1260 (0.01)	1380 (0.01)	1500 (0.01)	1610 (0.01)	1730 (0.01)	1840 (0.01)	2000 (0.01)	2080 (0.01)
12"	560 (0.07)	650 (0.05)	730 (0.03)	850 (0.02)	970 (0.02)	1090 (0.01)	1210 (0.01)	1330 (0.01)	1460 (0.01)	1580 (0.01)	1700 (0.01)	1820 (0.01)	1940 (-)	2060 (-)	2190 (-)
14"	660 (0.05)	770 (0.03)	880 (0.02)	1030 (0.02)	1180 (0.01)	1330 (0.01)	1480 (0.01)	1630 (0.01)	1760 (0.01)	1910 (0.01)	2060 (-)	2210 (-)	2360 (-)	2510 (-)	2640 (-)
16"	750 (0.04)	890 (0.03)	1030 (0.02)	1200 (0.01)	1370 (0.01)	1540 (0.01)	1710 (0.01)	1880 (0.01)	2060 (-)	2230 (-)	2400 (-)	2570 (-)	2740 (-)	2910 (-)	3090 (-)
18"	770 (0.03)	980 (0.03)	1180 (0.01)	1380 (0.01)	1580 (0.01)	1780 (0.01)	1980 (0.01)	2180 (-)	2350 (-)	2550 (-)	2750 (-)	2950 (-)	3150 (-)	3350 (-)	3540 (-)
20"	850 (0.03)	1090 (0.02)	1330 (0.01)	1550 (0.01)	1770 (0.01)	1990 (0.01)	2210 (-)	2430 (-)	2650 (-)	2870 (-)	3090 (-)	3310 (-)	3530 (-)	3750 (-)	3990 (-)
22"	930 (0.02)	1210 (0.01)	1480 (0.01)	1730 (0.01)	1980 (0.01)	2230 (-)	2480 (-)	2730 (-)	2950 (-)	3200 (-)	3450 (-)	3700 (-)	3950 (-)	4200 (-)	4440 (-)
24"	950 (0.02)	1290 (0.01)	1630 (0.01)	1900 (0.01)	2170 (-)	2440 (-)	2710 (-)	2980 (-)	3250 (-)	3520 (-)	3790 (-)	4060 (-)	4330 (-)	4600 (-)	4880 (-)
26"	990 (0.02)	1390 (0.01)	1780 (0.01)	2080 (0.01)	2380 (-)	2680 (-)	2980 (-)	3280 (-)	3550 (-)	3850 (-)	4150 (-)	4450 (-)	4750 (-)	NA	NA
28"	1070 (0.01)	1500 (0.01)	1930 (0.01)	2250 (-)	2570 (-)	2890 (-)	3210 (-)	3530 (-)	3850 (-)	4170 (-)	4500 (-)	4820 (-)	NA	NA	NA
30"	1020 (0.01)	1550 (0.01)	2080 (0.01)	2430 (-)	2780 (-)	3130 (-)	3480 (-)	3830 (-)	4150 (-)	4500 (-)	4850 (-)	NA	NA	NA	NA
32"	1090 (0.01)	1660 (0.01)	2230 (-)	2600 (-)	2970 (-)	3340 (-)	3710 (-)	4080 (-)	4450 (-)	4820 (-)	NA	NA	NA	NA	NA
34"	1150 (0.01)	1770 (0.01)	2380 (-)	2780 (-)	3180 (-)	3580 (-)	3980 (-)	4370 (-)	4750 (-)	NA	NA	NA	NA	NA	NA
36"	1060 (0.01)	1790 (0.01)	2520 (-)	2670 (-)	3090 (-)	3510 (-)	3930 (-)	4350 (-)	5040 (-)	NA	NA	NA	NA	NA	NA

WattMaster reserves the right to change specifications without notice

Notes:

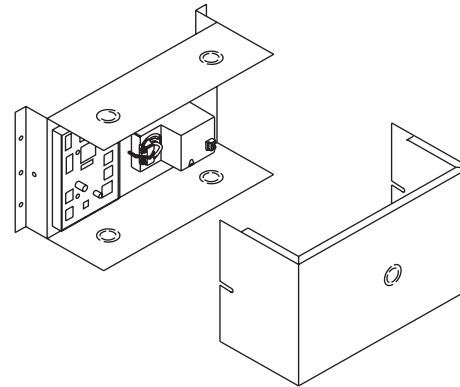
- The table above is calculated based on 1000 FPM velocity across the full open damper. For other velocities use the following multipliers to obtain the correct CFM: **500 FPM = 0.5, 1500 FPM = 1.5, 2000 FPM = 2.0**. It is recommended the damper velocity does not exceed 1500 FPM for quiet operation.
- Pressure drop (ΔP_s) is based on 1000 FPM Velocity. Any pressure drop less than 0.01" W.C. is shown as (-).

Description

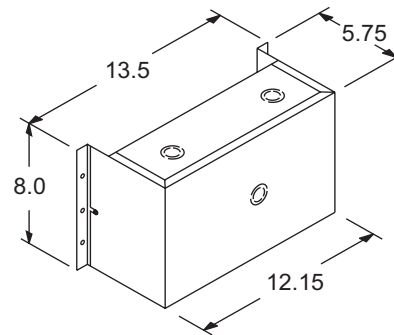
The OE736 Rectangular VAV/Zone Damper Kit provides a new solution for rectangular zone damper applications. The new Rectangular Damper Kit is used in conjunction with rectangular dampers for applications where rectangular dampers are specified or required because of space limitations or job requirements. The rectangular dampers may be purchased from WattMaster or you may get them from the supplier of your choice. For proper control, WattMaster recommends the use of low leakage opposed blade dampers. The maximum allowable damper face area for the Rectangular Damper Kit is 6 sq. ft. The Rectangular Damper Kit comes packaged with the VAV/Zone Controller and Damper Actuator pre-mounted in a galvanized steel enclosure. Each kit is supplied with mounting hardware and installation instructions.

Mounting

Before mounting the Rectangular Damper Kit, the rectangular damper should be mounted in the ductwork according to standard duct installation practices. The damper should be mounted so the damper shaft turns in a clockwise direction to open the damper. The Rectangular Damper Kit is simply slid over the damper shaft, the actuator shaft collar setscrews tightened and the supplied self tapping screws are used to mount the enclosure to the ductwork. Detailed mounting and installation instructions are provided with each kit. A knockout is provided in the front access cover, which can be punched out to allow for damper shaft lengths, which extend past the enclosure depth. When mounting the Rectangular Damper Kit, be sure to allow clearance for removal of the access cover. Conduit knockouts are provided in the top and bottom of the enclosure for simplified wiring installation.



Component View



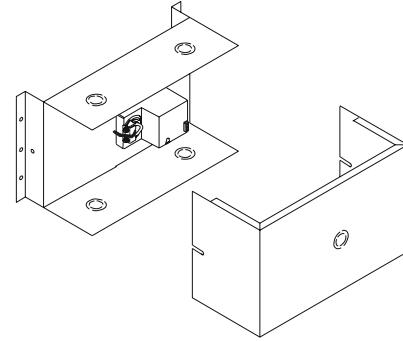
Dimensions

Technical Data		OE736 Rectangular VAV/Zone Damper Kit	
Zone Controller:		Damper Kit Features:	
Supply Power	24 Volt AC	Enclosure Base	22 Ga. Galv. Steel
Power Consumption	12 VA Maximum	Enclosure Cover	22 Ga. Galv. Steel
Operating Temperature	10°F to 149°F	Conduit Openings	Top - (2) ½ & ¾" Comb. Knockouts Bottom - (2) ½ & ¾" Comb. Knockouts
Operating Humidity	90% RH Non-Condensing	Shaft Clearance	Front - (1) ½ & ¾" Comb. Knockout
Communications	RS-485 – 9600 Baud	Controls	Factory Mounted inside the Enclosure
Inputs:		Mounting Hardware	Supplied with (4) Self Tapping Screws
Zone Temperature Sensor		Instructions	Included with Each Kit
Setpoint Adjustment		Controls Access	Cover is Removable by Loosening 2 Screws
Actuator Position Feedback		Actuator Rating	35 in/lbs (6 ft ² Damper Area Max.)
Outputs:			
Expansion Port for Auxiliary Relay Board			
WattMaster reserves the right to change specifications without notice			
Three Year Warranty			

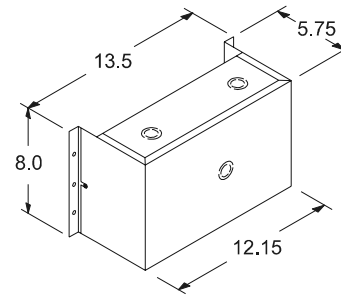
Description

The OE737 Rectangular Bypass Damper Kit mounts to an OE519 Rectangular Damper and controls duct static pressure to insure proper system airflow. The Rectangular Bypass Damper is controlled by the Orion HVAC Unit Controller. The Unit Controller modulates the Rectangular Bypass Damper in response to the duct static pressure based on a signal received from a static pressure sensor located in the main system ductwork.

The Rectangular Bypass Damper Kit is used in conjunction with rectangular dampers for applications where rectangular dampers are specified or required because of space limitations or job requirements. The rectangular dampers may be purchased from WattMaster or you may get them from the supplier of your choice. For proper control, WattMaster recommends the use of low leakage opposed blade dampers. The maximum allowable damper face area for the Rectangular Bypass Damper Kit is 6 sq. ft. The Rectangular Bypass Damper Kit comes packaged with the Damper Actuator and Wiring Interface pre-mounted in a galvanized steel enclosure. Each kit is supplied with mounting hardware and installation instructions. For applications where CFM or space requirements dictate the use of more than a single bypass damper, up to 2 additional bypass dampers can be slaved together. No other components are required. Each bypass is wired to the other bypass damper(s) by means of the Wiring Interface.



Component View



Dimensions

Mounting

Before mounting the Rectangular Damper Kit, the rectangular damper should be mounted in the ductwork according to standard duct installation practices. The damper should be mounted so the damper shaft turns in a clockwise direction to open the damper. The Rectangular Damper Kit is simply slid over the damper shaft, the actuator shaft collar setscrews tightened and the supplied self tapping screws are used to mount the enclosure to the ductwork. Detailed mounting and installation instructions are provided with each kit. A knockout is provided in the front access cover, which can be punched out to allow for damper shaft lengths, which extend past the enclosure depth. When mounting the Rectangular Damper Kit, be sure to allow clearance for removal of the access cover. Conduit knockouts are provided in the top and bottom of the enclosure for simplified wiring.

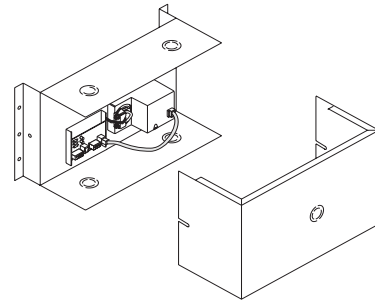
Technical Data		OE737 Rectangular Bypass Damper Kit	
Supply Power	24 Volt AC	Enclosure Base	22 Ga. Galv. Steel
Power Consumption	3.0 VA Maximum	Enclosure Cover	22 Ga. Galv. Steel
Operating Temp	-22°F to 122°F	Conduit Openings	Top - (2) ½ & ¾" Comb. Knockouts Bottom - (2) ½ & ¾" Comb. Knockouts
Operating Humidity	90% RH Non-Condensing	Shaft Clearance	Front - (1) ½ & ¾" Comb. Knockout
Actuator Feedback	10Kohm, 1W Potentiometer	Controls	Factory Mounted Inside Enclosure
Actuator Rating	35 in/lbs (6 ft ² Damper Area Max.)	Controls Access	Cover is Removable by Loosening 2 Screws
Mounting Hardware	(4) Self Tapping Screws		
Instructions	Included with Each Kit		
WattMaster reserves the right to change specifications without notice			
Three Year Warranty			

Description

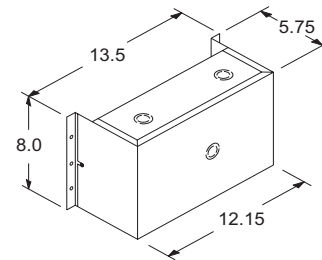
The OE738 Rectangular Slaved-VAV/Zone Damper Kit provides a new solution for rectangular damper applications. The OE738 Rectangular Slaved-VAV/Zone Damper Kit is used in conjunction with rectangular dampers for applications in systems when it is not possible or practical to use a single large Rectangular VAV/Zone Air Damper to satisfy the zones CFM requirements.

The rectangular dampers may be purchased from WattMaster or you may get them from the supplier of your choice. For proper airflow control, WattMaster recommends the use of low leakage opposed blade dampers. The Rectangular Slaved-VAV/Zone Damper Kit is supplied with the slave wiring interface card and actuator factory mounted in a sheet metal enclosure. A total of two Slaved-VAV/Zone Air Dampers may be used in conjunction with a master Rectangular VAV/Zone Damper Kit. The Rectangular Slaved-VAV/Zone Air Damper(s) are wired in parallel with the master Rectangular VAV/Zone Damper Kit and track the movement of the master Rectangular VAV/Zone Damper.

Connection to the master Rectangular VAV/Zone Damper Kit requires a Slave Wiring Adapter Kit, part # OE267 which is supplied with each Rectangular Slaved-VAV/Zone Damper Kit. The kit connects the zone controller on the master to the master actuator and provides wiring terminals for wiring to the Rectangular Slaved-VAV/Zone Damper Kit(s). Only one Slaved Wiring Kit is required for each Slaved-VAV/Zone system. Each kit is supplied with mounting hardware and installation instructions.



Component View



Dimensional Data

Mounting

The rectangular damper should be mounted in the ductwork according to standard duct installation practices before installing the Rectangular Slaved-VAV/Zone Damper Kit. The Rectangular Slaved-VAV/Zone Damper Kit is simply slid over the damper shaft, the actuator shaft collar setscrews tightened and the supplied self tapping screws are used to mount the enclosure to the ductwork. Detailed mounting and installation instructions are provided with each kit. A knockout is provided in the front access cover, which can be punched out for damper shaft lengths which extend past the enclosure depth. When mounting the Rectangular Slaved-VAV/Zone Damper Kit, be sure to allow clearance for removal of the access cover. Conduit knockouts are provided in the top and bottom of the enclosure for simplified wiring installation.

Technical Data		OE 738 Rectangular Slaved-Zone Damper Kit	
Actuator:		OE 738 Damper Kit Features:	
Supply Power	24 Volt AC	Enclosure Base	22 Ga. Galv. Steel
Power Consumption	3.4 VA Maximum	Enclosure Cover	22 Ga. Galv. Steel
Operating Temperature	10°F to 149°F	Conduit Openings	Top - (2) ½ & ¾" Comb. Knockouts Bottom - (2) ½ & ¾" Comb. Knockouts
Operating Humidity	90% RH Non-Condensing	Shaft Clearance	Front - (1) ½ & ¾" Comb. Knockout
Inputs:		Controls	Factory Mounted inside the Enclosure
Actuator Position Feedback		Mounting Hardware	Supplied with (4) Self Tapping Screws
		Instructions	Included with Each Kit
		Controls Access	Cover is Removable by Loosening 2 Screws
		Actuator Rating	35 in/lbs (6 ft ² Damper Area Max.)
WattMaster reserves the right to change specifications without notice			
Three Year Warranty			

Description

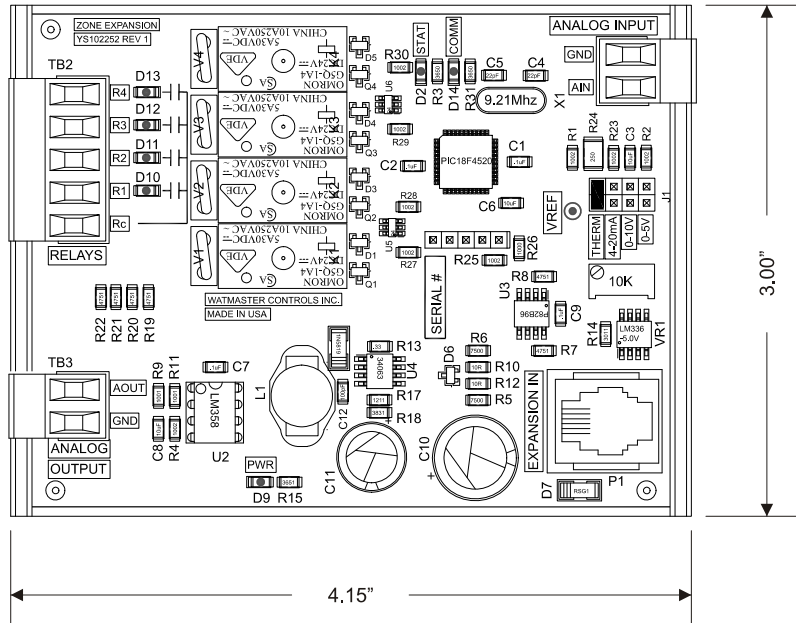
The OE325-01 4 Relay with Analog Output Expansion board is used in conjunction with the OE324-02-VAVZ Zone Controller board to allow for control of VAV and Zoned terminal units, including series and parallel fan terminal units with up to 3 stages of electric heat, SCR electric heat or with modulating hot water heat. The OE325-01 Analog Output Expansion board provides 4 relay outputs for pilot duty switching control, (1 fan, 2 heat and 1 auxiliary) relay output and 1 Analog output for control of a 0-10V modulating hot water valve or SCR controlled electric heating coil.

The OE325 4 Relay W/ Analog Output Expansion board connects to the OE324-00-VAVZ Zone Controller board by means of a modular cable provided with the board. Power is supplied to the board by means of this modular cable. Screw terminals are provided for connection of field wiring to the relay and analog outputs.

The relay outputs are N.O. contacts with one common terminal. All outputs and the relay common are electrically isolated from all other circuitry on the board. All relay outputs are supplied with transient suppression devices across each set of contacts to reduce EMI and arcing. The relay output contacts are rated for pilot duty control of a maximum of 2 Amps @ 24 VAC or 24 VDC. The analog output provides a 0 – 10 VDC modulating signal output into a 1k Ohm minimum load.

Mounting

The OE325 4 Relay W/ Analog Output Expansion Board is supplied mounted on a plastic snap track channel. The snap track channel has two mounting holes which are used to field mount the board with the provided screws. The board should be mounted in close proximity to the OE324-02-VAVZ Zone Controller board to allow for connection of the modular cable.



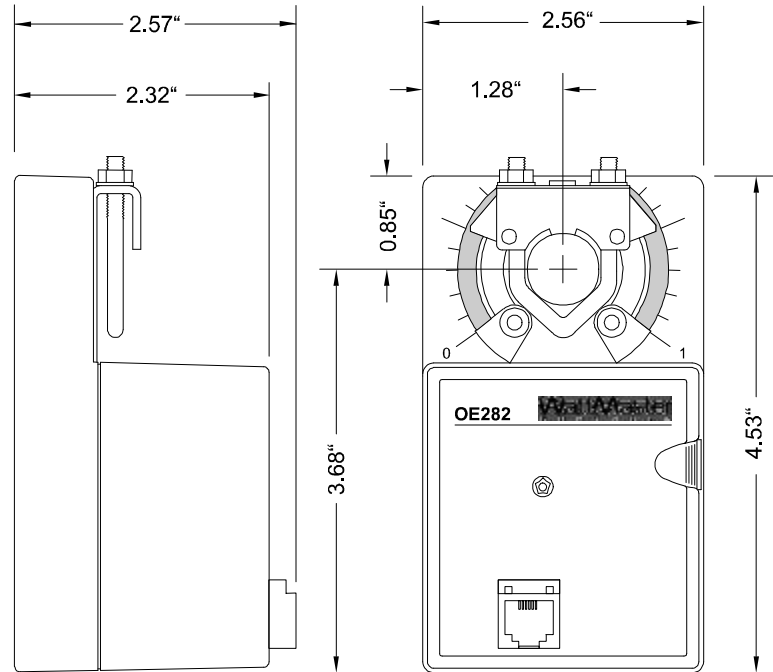
Technical Data		OE325-01 4 Relay W/ Analog Output Expansion board	
Operating Temp	10°F to 149°F	Operating Humidity	90% RH Non-Condensing
Weight	4 oz	Connection to Controller:	Modular Cable
Outputs:		Inputs:	
Analog Output Qty & Rating	(1) 0-10 VDC @ 1k Ohm Minimum load	Analog Input	Application Specific Universal Input
Relay Output Qty.	4 – Electrically Isolated		
Relay Contact Rating	2 Amp @ 24 VAC		
Three Year Warranty		WattMaster reserves the right to change specifications without notice	

Description

The Orion OE282 Damper Actuator is a shaft mounted, floating point control actuator. Actuators are 24VAC/24VDC with a 10K ohm feedback signal for position monitoring. Wiring connection to the actuator is by means of a modular phone cable connector located on the actuator cover. The actuator is rated for 35 in-lb of torque. All actuators are electronically protected against overload. The angle of rotation is mechanically limited to 95°. When the end position of the actuator or damper is reached, the actuator automatically stops. For adjustment purposes, the gears can be manually disengaged by pushing the manual override button on the actuator cover.

Applications

The OE282 Damper Actuator is used to provide control of air volume dampers in an Orion VAV or zoning systems. When used in VAV and Zoning applications it is typically used in conjunction with an OE324-00-VAVZ Zone controller board.



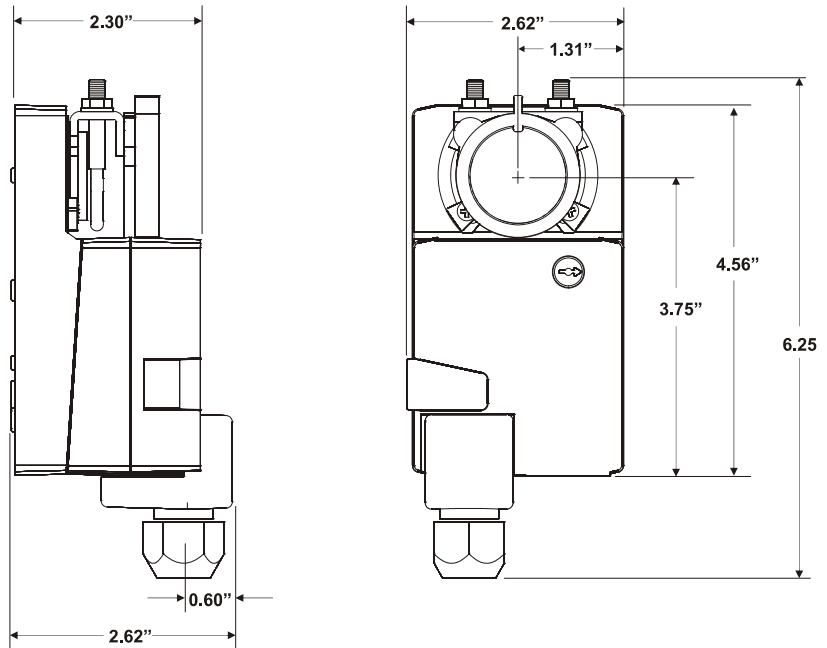
Technical Data		OE282 Damper Actuator	
Power Supply	24VAC ± 20% 50/60HZ	Angle of Rotation	Max. 95°, Adjustable with Mechanical Stops
Life Cycle Rating	2.5 Million Cycles	Power Connection	RJ-11 Modular Jack
Power Consumption	3 VA Maximum	Servicing	Maintenance Free
Operating Temp	-22°F to 122°F	Quality Standard	ISO 9001
Operating Humidity	5 to 95% RH Non-Condensing	Agency Listings	UL873 listed CSA 4813 02 Certified
Overload Protection	Electronic Throughout 0 to 95° Rotation	Torque	Minimum 35 in-lb
Feedback Signal	10K ohm 1W Potentiometer	Weight	1.2 lb.
Running Time	80-110 Seconds.	WattMaster reserves the right to change specifications without notice	
Three Year Warranty			

Description

The OE281-04 Proportional Control Damper Actuator is a shaft mounted, direct coupled actuator. The Damper Actuators utilize a 24VAC/24VDC power supply. Wiring connection to the actuator is by means of screw wiring terminals located on the actuator cover. The actuator is rated for 35 in-lb of torque. All actuators are electronically protected against overload. The angle of rotation is mechanically limited to 95°. When the end position of the actuator or damper is reached, the actuator automatically stops. For adjustment purposes, the gears can be manually disengaged by pushing the manual override button on the actuator cover. A visual pointer on the actuator indicates the position of the actuator.

Applications

The OE281-04 Damper Actuator is used to provide control of bypass air dampers in an Orion zoning system. When used in zoning applications with a bypass damper, it is wired to the air handling unit controller boards 0-10VDC analog output.



Technical Data		OE281-04 Damper Actuator	
Power Supply	24VAC ± 20% 50/60HZ	Angle of Rotation	Max. 95°, Adjustable with Mechanical Stops
Life Cycle Rating	2.5 Million Cycles	Power Connection	(4) Screw Wiring Terminals for 26 to 14 Gauge Wire
Power Consumption	3 VA Maximum	Servicing	Maintenance Free
Operating Temp	-22°F to 122°F	Quality Standard	ISO 9001
Operating Humidity	5 to 95% RH Non-Condensing	Agency Listings	UL873 listed CSA 4813 02 Certified
Overload Protection	Electronic Throughout 0 to 95° Rotation	Torque	Minimum 35 in-lb
Operating Range	2 to 10 VDC	Weight	1.2 lb.
Running Time	80-110 Seconds.	WattMaster reserves the right to change specifications without notice	
Three Year Warranty			

Project Name: _____ Local Loop Number: _____

Directions: Estimate cable lengths from building mechanical plans and place in estimated cable length column beside each VAV/Zone controller or Power/Comm board on loop. Select available cable lengths closest to estimated cable lengths and extensions for each controller or Power/Comm board on list and place checkmarks in these columns. Also Use this information for ordering correct quantity and length of modular or digital cables and extensions. Total each cable length column on each page and add both page totals together.

VAV/Zone Address	VAV/Zone Controller Or Power/Comm Board Description, Location Or Tag Number	Estimated Incoming Power/Comm Cable Length	Available Power/Comm Cable Length							Estimated Incoming Modular Or Digital Room Sensor Cable Length	Available Modular Or Digital Room Sensor Cable Length See Notes Below						
			3 Ft.	25 Ft.	40 Ft.	80 Ft.	120 Ft.	E-10 Ft.	E-20 Ft.		5 Ft.	10 Ft.	25 Ft.	40 Ft.	80 Ft.	120 Ft.	160 Ft.
N/A	Power Comm Board 1									Caution: Each Power/Comm board has a total of 4 branch circuits. No more than 6 modular devices are allowed per branch circuit. No more than 16 modular devices total can be connected to each Power/Comm board. The longest total run per branch circuit is 240 Feet.							
N/A	Power Comm Board 2																
N/A	Power Comm Board 3																
N/A	Power Comm Board 4																
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
Page Totals																	

- Notes:
- Available Power/Comm cable lengths with the prefix "E" (E-10 Ft. or E-20 Ft.) are extensions to be used in conjunction with another standard Power/Comm cable length to extend it to a desired length, they cannot be used by themselves without connection to a standard cable.
 - Available Modular Sensor cable lengths are provided in 5 Ft, 10 Ft., 25 Ft., 40 Ft. and 80 Ft. Lengths. To get longer lengths you can join 2 Modular cables together using the MS000029 Modular Room Sensor Cable Coupler to extend the cables to a desired length in between or greater than the standard cable sizes. Available Digital Sensor cable lengths are provided in 5 Ft., 10 Ft., 25 Ft., 40 Ft., 80 Ft., 120 Ft. and 160 Ft. sizes. You can join 2 Modular cables together using the MS000029 Modular Room Sensor Cable Coupler to extend the cables to a desired length in between the available sizes. It is recommended that you avoid this when using the Digital Sensor cable. The maximum allowable total cable length for Digital Sensor cables is 160 Ft. and should never be exceeded.

Project Name: _____ **Local Loop Number:** _____

Directions: Estimate cable lengths from building mechanical plans and place in estimated cable length column beside each VAV/Zone controller or Power/Comm board on loop. Select available cable lengths closest to estimated cable lengths and extensions for each controller or Power/Comm board on list and place checkmarks in these columns. Also Use this information for ordering correct quantity and length of modular or digital cables and extensions. Total each cable length column on each page and add both page totals together.

VAV/Zone Address	VAV/Zone Controller Or Power/Comm Board Description, Location Or Tag Number	Estimated Incoming Power/Comm Cable Length	Available Power/Comm Cable Length						Estimated Incoming Modular Or Digital Room Sensor Cable Length	Available Modular Or Digital Room Sensor Cable Length See Notes Below							
			3 Ft.	25 Ft.	40 Ft.	80 Ft.	120 Ft.	E-10 Ft.		E-20 Ft.	5 Ft.	10 Ft.	25 Ft.	40 Ft.	80 Ft.	120 Ft.	160 Ft.
29																	
30																	
31																	
32																	
33																	
34																	
35																	
36																	
37																	
38																	
39																	
40																	
41																	
42																	
43																	
44																	
45																	
46																	
47																	
48																	
49																	
50																	
51																	
52																	
53																	
54																	
55																	
56																	
57																	
58																	
Page Totals																	
Totals For Both Pages																	

- Notes:
- 1.) Available Power/Comm cable lengths with the prefix "E" (E-10 Ft. or E-20 Ft.) are extensions to be used in conjunction with another standard Power/Comm cable length to extend it to a desired length, they cannot be used by themselves without connection to a standard cable.
 - 2.) Available Modular Sensor cable lengths are provided in 5 Ft., 10 Ft., 25 Ft., 40 Ft. and 80 Ft. Lengths. To get longer lengths you can join 2 Modular cables together using the MS000029 Modular Room Sensor Cable Coupler to extend the cables to a desired length in between or greater than the standard cable sizes. Available Digital Sensor cable lengths are provided in 5 Ft., 10 Ft., 25 Ft., 40 Ft., 80 Ft., 120 Ft. and 160 Ft. sizes. You can join 2 Modular cables together using the MS000029 Modular Room Sensor Cable Coupler to extend the cables to a desired length in between the available sizes. It is recommended that you avoid this when using the Digital Sensor cable. The maximum allowable total cable length for Digital Sensor cables is 160 Ft. and should never be exceeded.

VAV/Zone Worksheet

Project Name: _____ Local Loop Number: _____ Total Qty. Of VAV/Zone Controllers on Loop: _____

MiniLink PD Address For This Loop: _____ Total Number Of Power/Comm Boards On Loop: _____ Note: See End Of VAV/Zone Controller Address List For Power/Comm Board Cable Selection.

VAV/Zone Address	VAV/Zone Controller Description, Location Or Tag Number	Estimated Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Selected Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Estimated Power/Comm Cable Length To Next Controller	Selected Power/Comm Cable Length To Next Controller	Selected Room Sensor Modular Cable Length	Type Of Terminal Unit	Type Of Heat
1			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
2			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
3			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
4			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
5			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
6			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
7			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
8			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>

NF = Non Fan Terminal] [SF = Series Flow Fan Terminal] [PF = Parallel Flow Fan Terminal]

[EL-STGD = Electric Heat - Staged] [EL-SCR = Electric Heat - SCR Controller] [HW-ON-OFF = Hot water Heat - On/Off Control] [HW-MOD = Hot Water - Modulating Control]

VAV/Zone Worksheet

Project Name: _____ Local Loop Number: _____ Total Qty. Of VAV/Zone Controllers on Loop: _____

MiniLink PD Address For This Loop: _____ Total Number Of Power/Comm Boards On Loop: _____ Note: See End Of VAV/Zone Controller Address List For Power/Comm Board Cable Selection.

VAV/Zone Address	VAV/Zone Controller Description, Location Or Tag Number	Estimated Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Selected Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Estimated Power/Comm Cable Length To Next Controller	Selected Power/Comm Cable Length To Next Controller	Selected Room Sensor Modular or Digital Cable Length	Type Of Terminal Unit	Type Of Heat
9			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
10			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
11			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
12			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
13			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
14			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
15			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
16			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>

NF = Non Fan Terminal] [SF = Series Flow Fan Terminal] [PF = Parallel Flow Fan Terminal]
[EL-STGD = Electric Heat - Staged] [EL-SCR = Electric Heat - SCR Controller] [HW-ON-OFF = Hot water Heat - On/Off Control] [HW-MOD = Hot Water - Modulating Control]

VAV/Zone Worksheet

Project Name: _____ Local Loop Number: _____ Total Qty. Of VAV/Zone Controllers on Loop: _____

MiniLink PD Address For This Loop: _____ Total Number Of Power/Comm Boards On Loop: _____ Note: See End Of VAV/Zone Controller Address List For Power/Comm Board Cable Selection.

VAV/Zone Address	VAV/Zone Controller Description, Location Or Tag Number	Estimated Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Selected Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Estimated Power/Comm Cable Length To Next Controller	Selected Power/Comm Cable Length To Next Controller	Selected Room Sensor Modular or Digital Cable Length	Type Of Terminal Unit	Type Of Heat
17			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
18			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
19			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
20			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
21			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
22			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
23			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
24			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>

NF = Non Fan Terminal] [SF = Series Flow Fan Terminal] [PF = Parallel Flow Fan Terminal]
 [EL-STGD = Electric Heat - Staged] [EL-SCR = Electric Heat - SCR Controller] [HW-ON-OFF = Hot water Heat - On/Off Control] [HW-MOD = Hot Water - Modulating Control]

VAV/Zone Worksheet

Project Name: _____ Local Loop Number: _____ Total Qty. Of VAV/Zone Controllers on Loop: _____

MiniLink PD Address For This Loop: _____ Total Number Of Power/Comm Boards On Loop: _____ Note: See End Of VAV/Zone Controller Address List For Power/Comm Board Cable Selection.

VAV/Zone Address	VAV/Zone Controller Description, Location Or Tag Number	Estimated Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Selected Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Estimated Power/Comm Cable Length To Next Controller	Selected Power/Comm Cable Length To Next Controller	Selected Room Sensor Modular or Digital Cable Length	Type Of Terminal Unit	Type Of Heat
25			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
26			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
27			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
28			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
29			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
30			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
31			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
32			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>

NF = Non Fan Terminal] [SF = Series Flow Fan Terminal] [PF = Parallel Flow Fan Terminal]
 [EL-STGD = Electric Heat - Staged] [EL-SCR = Electric Heat - SCR Controller] [HW-ON-OFF = Hot water Heat - On/Off Control] [HW-MOD = Hot Water - Modulating Control]

VAV/Zone Worksheet

Project Name: _____ Local Loop Number: _____ Total Qty. Of VAV/Zone Controllers on Loop: _____

MiniLink PD Address For This Loop: _____ Total Number Of Power/Comm Boards On Loop: _____ Note: See End Of VAV/Zone Controller Address List For Power/Comm Board Cable Selection.

VAV/Zone Address	VAV/Zone Controller Description, Location Or Tag Number	Estimated Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Selected Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Estimated Power/Comm Cable Length To Next Controller	Selected Power/Comm Cable Length To Next Controller	Selected Room Sensor Modular or Digital Cable Length	Type Of Terminal Unit	Type Of Heat
33			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
34			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
35			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
36			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
37			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
38			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
39			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
40			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>

NF = Non Fan Terminal] [SF = Series Flow Fan Terminal] [PF = Parallel Flow Fan Terminal]

[EL-STGD = Electric Heat - Staged] [EL-SCR = Electric Heat - SCR Controller] [HW-ON-OFF = Hot water Heat - On/Off Control] [HW-MOD = Hot Water - Modulating Control]

VAV/Zone Worksheet

Project Name: _____ Local Loop Number: _____ Total Qty. Of VAV/Zone Controllers on Loop: _____

MiniLink PD Address For This Loop: _____ Total Number Of Power/Comm Boards On Loop: _____ Note: See End Of VAV/Zone Controller Address List For Power/Comm Board Cable Selection.

VAV/Zone Address	VAV/Zone Controller Description, Location Or Tag Number	Estimated Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Selected Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Estimated Power/Comm Cable Length To Next Controller	Selected Power/Comm Cable Length To Next Controller	Selected Room Sensor Modular or Digital Cable Length	Type Of Terminal Unit	Type Of Heat
41			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
42			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
43			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
44			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
45			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
46			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
47			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
48			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>

NF = Non Fan Terminal] [SF = Series Flow Fan Terminal] [PF = Parallel Flow Fan Terminal]
 [EL-STGD = Electric Heat - Staged] [EL-SCR = Electric Heat - SCR Controller] [HW-ON-OFF = Hot water Heat - On/Off Control] [HW-MOD = Hot Water - Modulating Control]

VAV/Zone Worksheet

Project Name: _____ Local Loop Number: _____ Total Qty. Of VAV/Zone Controllers on Loop: _____

MiniLink PD Address For This Loop: _____ Total Number Of Power/Comm Boards On Loop: _____ Note: See End Of VAV/Zone Controller Address List For Power/Comm Board Cable Selection.

VAV/Zone Address	VAV/Zone Controller Description, Location Or Tag Number	Estimated Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Selected Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Estimated Power/Comm Cable Length To Next Controller	Selected Power/Comm Cable Length To Next Controller	Selected Room Sensor Modular or Digital Cable Length	Type Of Terminal Unit	Type Of Heat
49			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
50			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
51			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
52			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
53			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
54			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
55			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
56			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>

NF = Non Fan Terminal] [SF = Series Flow Fan Terminal] [PF = Parallel Flow Fan Terminal]
 [EL-STGD = Electric Heat - Staged] [EL-SCR = Electric Heat - SCR Controller] [HW-ON-OFF = Hot water Heat - On/Off Control] [HW-MOD = Hot Water - Modulating Control]

VAV/Zone Worksheet

Project Name: _____ Local Loop Number: _____ Total Qty. Of VAV/Zone Controllers on Loop: _____

MiniLink PD Address For This Loop: _____ Total Number Of Power/Comm Boards On Loop: _____ Note: See End Of VAV/Zone Controller Address List For Power/Comm Board Cable Selection.

VAV/Zone Address	VAV/Zone Controller Description, Location Or Tag Number	Estimated Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Selected Power/Comm Cable Length From Power/Comm Board To Controller (If Required)	Estimated Power/Comm Cable Length To Next Controller	Selected Power/Comm Cable Length To Next Controller	Selected Room Sensor Modular or Digital Cable Length	Type Of Terminal Unit	Type Of Heat
57			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>
58			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	5 Ft. <input type="checkbox"/> 10 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> 160 Ft. <input type="checkbox"/>	NF <input type="checkbox"/> SF <input type="checkbox"/> PF <input type="checkbox"/>	EL-STGD <input type="checkbox"/> EL-SCR <input type="checkbox"/> HW-ON-OFF <input type="checkbox"/> HW-MOD <input type="checkbox"/> None <input type="checkbox"/>

59 This Address Is Reserved For The VCM-X Controller That Is Serving The VAV/Zone Controllers

Power/Comm Boards Qty Of Required Power/Comm Boards May Vary Depending On Installation	Estimated Power/Comm Cable Length From Power/Comm Board To MiniLink PD Only Required For First Power/Comm Board On Loop	Selected Power/Comm Cable Length From Power/Comm Board To MiniLink PD	Estimated Power/Comm Cable Length To Next Power/Comm Board (If Required)	Selected Power/Comm Cable Length To Next Power/Comm Board (If Required)	NOTE: Power/Comm Board maximum transformer size = 100VA. This is due to the board circuitry and fusing. Each modular device is to be calculated at 6VA. This allows for a maximum of 16 devices per Power/Comm board. If more than 16 devices are required, multiple Power/Comm boards must be used. No more than 6 modular devices allowed per branch circuit. (The Power/Comm board has a total of 4 branch circuits) The longest total run per branch circuit is 240 Ft. This is due to voltage drop on the prefabricated cable.
Power/Comm Board #1		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>	
Power/Comm Board #2			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		
Power/Comm Board #3			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		
Power/Comm Board #4			3 Ft. <input type="checkbox"/> 25 Ft. <input type="checkbox"/> 40 Ft. <input type="checkbox"/> 80 Ft. <input type="checkbox"/> 120 Ft. <input type="checkbox"/> Ext.-10 Ft. <input type="checkbox"/> 20 Ft. <input type="checkbox"/>		

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