

W4 176 Pin MASS Connector System Technical Data - Crimp Type

Specifications

Materials and Finishes:

- **Contacts:** Copper alloy, hard gold plate over nickel under plate per MIL-G-45204
- **Insulators:** Low temperature elastomer
- **"O" Rings and Seals:** Low temperature elastomer
- **Shells and Covers:** All aluminum alloy, black anodized coating, chain-stainless steel

Mechanical Data:

- **Operating Temperature:**
-40 C to +105 C
-40 F to +221 F

- **Contacts:** #20 AWG Crimp type (7.5 Amp rating)
- **Contact Retention:** 20 lbs. minimum
- **Connector Engagement and Separation Forces:** 50 lbs. maximum
- **Polarization:** Hermaphroditic

Electrical Data:

- **Operating Voltage:** 500 VDC or 400 VAC rms max
- **Insulation Resistance:** 2500 megohm minimum
- **Contact Resistance:** 6 milliohms maximum

The Whirlwind W4RP is a 176 contact version of the virtually indestructible whirlwind Mass Connector. This new design uses crimp type, replaceable pins and sockets. Like all Mass connectors, the W4RP has equal numbers of both pins and sockets within the resilient rubber insert. This arrangement allows two identical contact inserts to mate, requiring only a panel mount or inline housing to complete the assembly. Housings are made from machined aluminum and the threaded locking ring ensures positive connection even under adverse conditions. When mating two inline connectors, one locking ring is merely unscrewed to expose threads, which are gripped by the other locking ring.

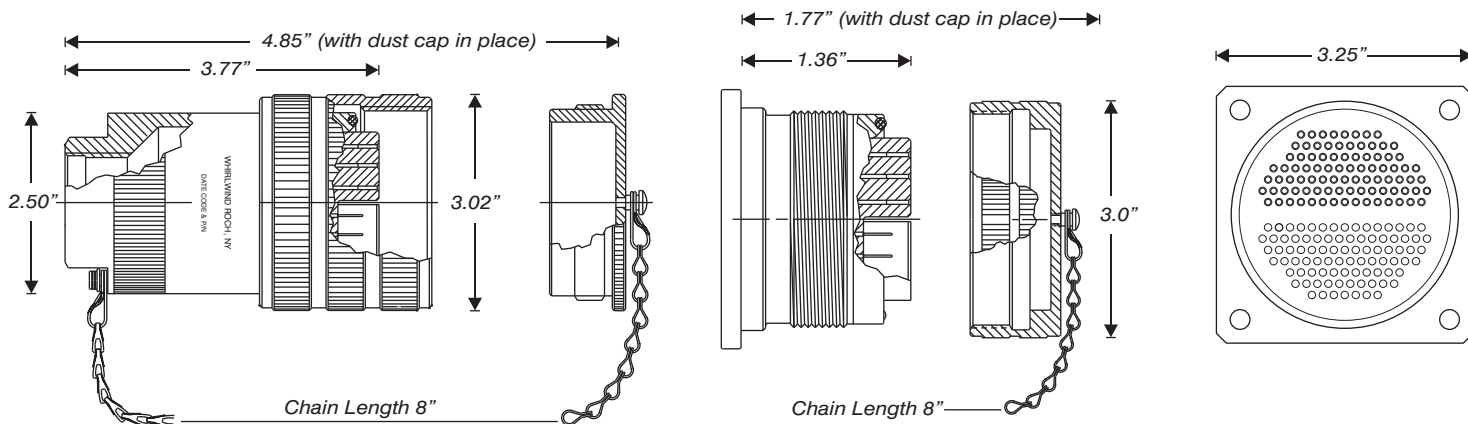
To properly mate Mass connectors, unscrew the locking rings to expose the inserts, align the inserts and push together using only hand pressure and then screw the locking ring on to secure the connection.

Due to the unique hermaphroditic design the usual connector designations of male and female do not apply, therefore Mass connectors are specified as Outputs and Inputs. An Output wired connector must mate with an Input connector configuration. The whirlwind wiring standard is odd numbered cable pairs attached to pins and even numbered cable pairs attached to sockets in the Output connector. Input wiring has odd pairs attached to sockets and even pairs attached to pins. For example, channel one is on pins in the Output connector and mates with channel one on sockets in the Input connector, which maintains color coding throughout the system. For planning system layout, whirlwind standard starts at the stage box and designates the first connector as an Output.

Cables with Mass connectors at both ends require one end to be wired as an Output and the other wired as Input. Each wire must connect to a pin at one end and the same numbered socket at the other. The W4RP will accommodate up to 58 balanced, shielded signal lines.



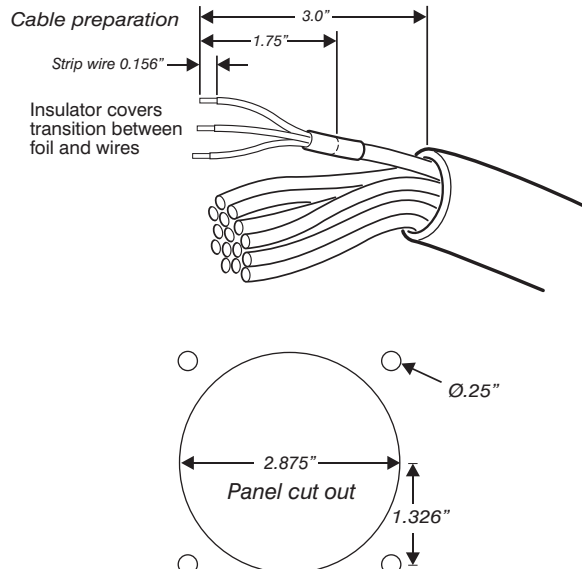
(Strain relief Bushing adds approximately 2" to Inline)



Parts

W4CRP	Panel Connector / Cap, Wiring Kit Complete	1
M176-CHSQ	Mass 176 Chassis Flange Black	1
M176-CHCAP	Mass 176 Chassis Dust Cap	1
M176R-INS	Mass 176 Pin and Socket Insert Black	1
PT1-16BK-1.5	Drain Wire Insulator 1/16" Blk Shrink Tube 1.5"	58
PT3-16BK-1.0	Mylar / Foil Insulator 3/16" Blk Shrink Tube 1.0"	58
M1RPIN	Mass Gold Pins Male	88
M1RSKT	Mass Gold Sockets Female	88
M1R-TOOL KIT	Tool Kit - Crimper, Locater, and Extractor	1
MANW3W4RP	Wiring Diagram for 176 Pin	1
W4IRP	Inline Connector / Cap, Wiring Kit Complete	1
M176R-INS	Mass 176 Pin and Socket Insert Black	1
M176-IL	Mass 176 Inline Housing with Ring	1
M176-ILCAP	Mass 176 Inline Dust Cap Blk	1
M176-G	122-176 Inline Strain Relief Grip Range .75"-.875"	1
PT1-16BK-1.5	Drain Wire Insulator 1/16" Blk Shrink Tube 1.5"	58
PT3-16BK-1.0	Mylar / Foil Insulator 3/16" Blk Shrink Tube 1.0"	58
SCR8-32X1/2PH	Chain Screw 8-32X1/2 Pan Head Phillips Blk	1

Oversize and non-wire mesh strain relief available upon request



Output

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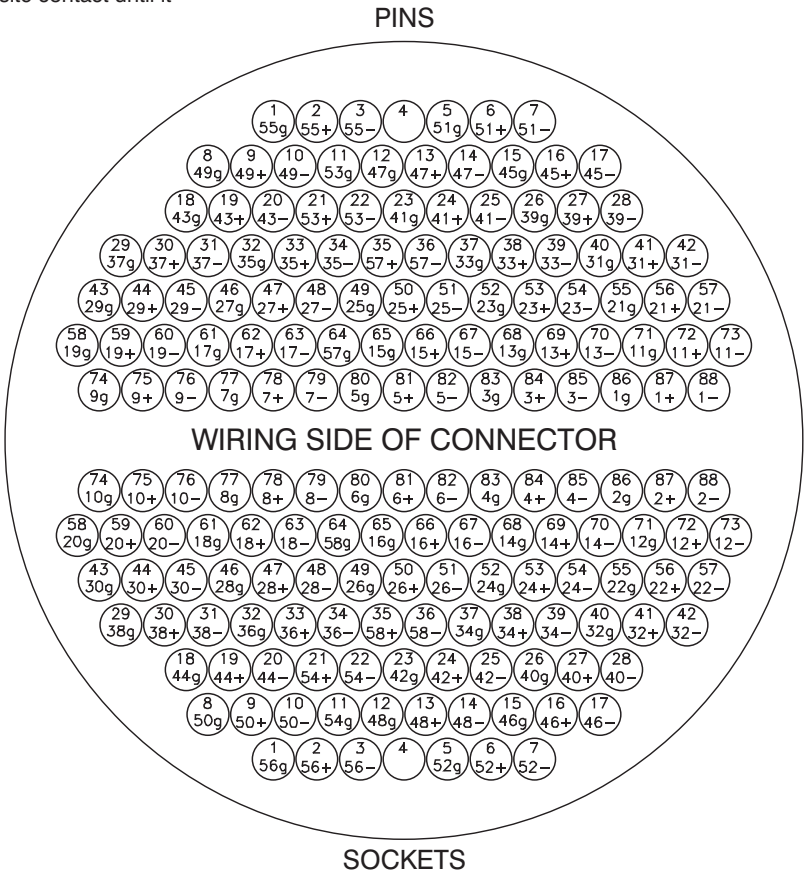
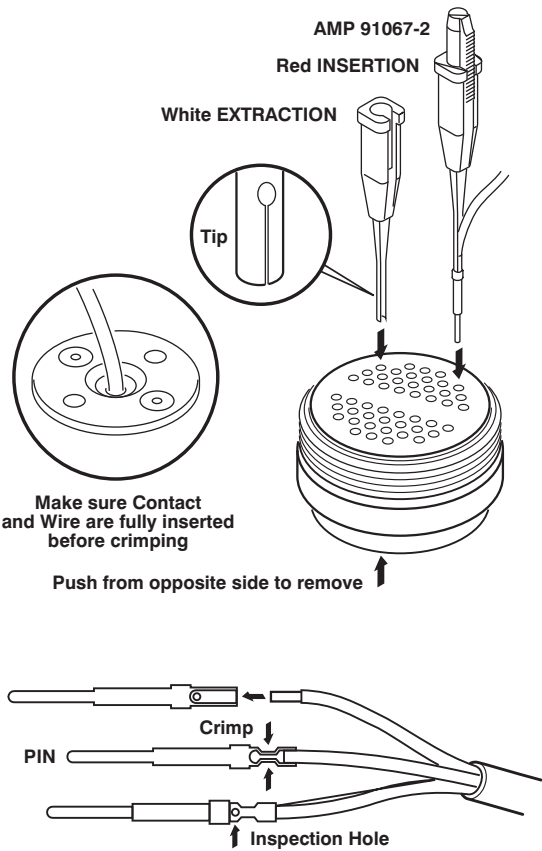
58 Pair color code

Odd # = Pins
Even # = Sockets
Pin 1 = Shield

XLR Pair #	Pin 3 (-)	Pin 2 (+)
1	Black	Red
2	Black	White
3	Black	Green
4	Black	Blue
5	Black	Yellow
6	Black	Brown
7	Black	Orange
8	Red	White
9	Red	Green
10	Red	Blue
11	Red	Yellow
12	Red	Brown
13	Red	Orange
14	Green	White
15	Green	Blue
16	Green	Yellow
17	Green	Brown
18	Green	Orange
19	White	Blue
20	White	Yellow
21	White	Brown
22	White	Orange
23	Blue	Yellow
24	Blue	Brown
25	Blue	Orange
26	Brown	Yellow
27	Brown	Orange
28	Orange	Yellow
29	Purple	Orange
30	Purple	Red
31	Purple	White
32	Purple	Green
33	Purple	Blue
34	Purple	Yellow
35	Purple	Brown
36	Purple	Black
37	Gray	White
38	Gray	Brown
39	Gray	Red
40	Gray	Green
41	Gray	Orange
42	Gray	Yellow
43	Gray	Black
44	Gray	Blue
45	Pink	White
46	Pink	Green
47	Pink	Blue
48	Pink	Yellow
49	Pink	Brown
50	Pink	Orange
51	Pink	Purple
52	Pink	Gray
53	Beige	White
54	Beige	Green
55	Beige	Blue
56	Beige	Yellow
57	Beige	Brown
58	Beige	Orange

Check for proper wire strip length by pushing wire into a contact and looking to see the wire strands through the hole in the side. Load the contact into the crimp tool locator and push the wire into place. Squeeze the handles while making sure that the wire stays in the wire hole. The crimper is a full cycle ratcheting type and can only be released by completing the cycle, at which point the crimp contact will pull freely from the tool. Inspect the connection and continue, following the color code to apply pins and sockets to the proper wire pairs.

Load the pins and sockets into the insert housing according to the pin out color code. Contacts are inserted into the hard plastic wafer and pushed into place with the red handled end of the insertion tool or small needle nose pliers. Fully inserted contacts are locked in place by spring metal retention clips embedded in the plastic wafer. In the event a contact must be removed from the insert use the white handled, extraction end of the contact tool. Carefully slip the tool into the plastic wafer until the small hole in the end of the extractor is even with the surface of the wafer. Do not force the tool in as it is easily deformed. Only when the tool is properly seated will the spring fingers release, allowing the contact to be removed. If the wire is still attached, gently pull the wire to remove it. If the wire is broken, push the contact from the rubber face side with an opposite contact until it is exposed in the back.



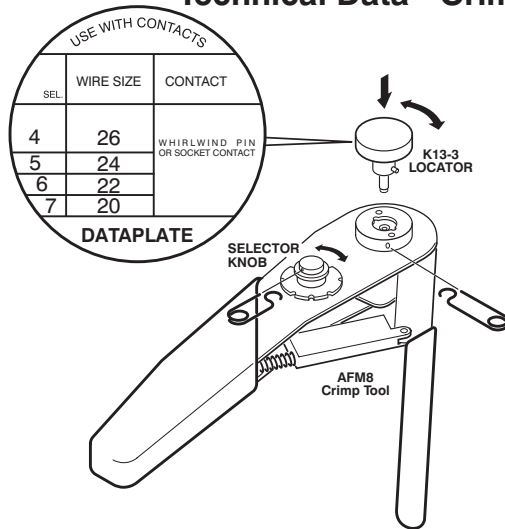
Input

58 Pair color code

Odd # = Sockets
Even # = Pins
Pin 1 = Shield

XLN Pair #	Pin 3 (-)	Pin 2 (+)
1	Black	Red
2	Black	White
3	Black	Green
4	Black	Blue
5	Black	Yellow
6	Black	Brown
7	Black	Orange
8	Red	White
9	Red	Green
10	Red	Blue
11	Red	Yellow
12	Red	Brown
13	Red	Orange
14	Green	White
15	Green	Blue
16	Green	Yellow
17	Green	Brown
18	Green	Orange
19	White	Blue
20	White	Yellow
21	White	Brown
22	White	Orange
23	Blue	Yellow
24	Blue	Brown
25	Blue	Orange
26	Brown	Yellow
27	Brown	Orange
28	Orange	Yellow
29	Purple	Orange
30	Purple	Red
31	Purple	White
32	Purple	Green
33	Purple	Blue
34	Purple	Yellow
35	Purple	Brown
36	Purple	Black
37	Gray	White
38	Gray	Brown
39	Gray	Red
40	Gray	Green
41	Gray	Orange
42	Gray	Yellow
43	Gray	Black
44	Gray	Blue
45	Pink	White
46	Pink	Green
47	Pink	Blue
48	Pink	Yellow
49	Pink	Brown
50	Pink	Orange
51	Pink	Purple
52	Pink	Gray
53	Beige	White
54	Beige	Green
55	Beige	Blue
56	Beige	Yellow
57	Beige	Brown
58	Beige	Orange

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The W4RP is a rear insert, rear release crimp type connector. Contacts are loaded into the insert body and removed from the rear (wiring side) of the housing. To prepare the wires for use follow the diagram for removing the jacket and the foil shield from the cable pair. Be careful not to nick and do not tin the ends of the wire being stripped. Insulate the drain wires with the clear PVC tubing and use the heat shrink tubing over the foil of each pair.

The whirlwind M1R-Tool Kit contains the required tools to attach the contacts to the wires and to load or remove them from the insert housing. The crimp tool body is a mil spec Daniels AFM8 with a whirlwind K13-3 contact locator. The contact insertion/extraction tool is an AMP 91067-2.

Before attaching contacts to the wires, the selector knob on the top of the crimp tool must be set for the proper gauge. Setting 5 is for 24 AWG such as whirlwind multipair cable and setting 6 is for 22 AWG such as Belden 8451 and 1266A.

