

Flexible Heaters

Line Heating

Modular Pump Line Heaters

The tight contact fit of Watlow's pump line heaters provide superior, uniform heating of transfer lines.

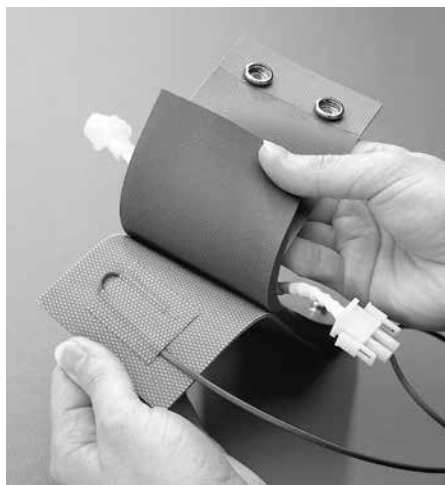
Agency Certification, Recognition Compliance and Approvals

- Complies with SEMI S2-93 standards
- UL® recognized for U.S. and Canadian safety standards
- CE, VDE
- National Electrical Code (NEC), Article #427-23
- UL® Listed available

Contact your Watlow representative for specific applications and approvals.

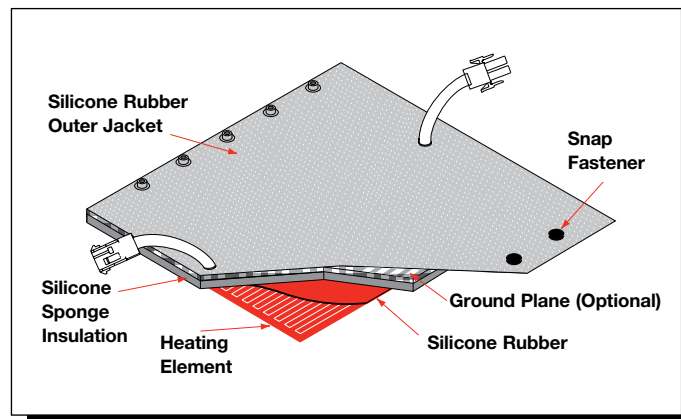
General Specifications

- The heater and jacket material are constructed using reinforced silicone rubber fabric.
- Insulation and outer jacket are gray. The heater is red-orange in color.



Sensor Pocket Built-in to all Straight Length Heaters 3 in. (76 mm) Long and Greater; One Per Heater

- Snap type fasteners are ½ in. (13 mm) with a nominal diameter metal construction and a nylon cover. The maximum operating temperature is 392°F (200°C).
- Hook and latch fasteners are available.
- 120 and 208VAC are standard. Contact your Watlow representative for other voltages.
- Power lead wires are 3 in. (76 mm) #18 AWG UL® 1180/ CSA PTFE insulated and rated 10A. The lead wire pair is encapsulated in reinforced silicone rubber sleeving.
- Heaters are interconnectable up to a 10A circuit.
- Low watt density:
 - 1.5-2 in. (38-51 mm) diameter, 1.5 W/in² (0.23 W/cm²)
 - 3-4 in. (76-102 mm) diameter, 1.25 W/in² (0.19 W/cm²)



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Tube O.D. in.	(mm)	Length "L" in.	(mm)	Watts	Amperes @ 120V	Amperes @ 208V	Features	Base Part Number*
1.5	(38)	2	(51)	15	0.13	0.08	—	020050A
1.5	(38)	2T	(51T)	8	0.07	N/A	Trim-to-fit	020050T
1.5	(38)	3	(76)	22	0.19	0.11	Sensor pocket	030050A
1.5	(38)	3T	(76T)	15	0.13	0.08	Trim-to-fit	030050T
1.5	(38)	4	(102)	29	0.25	0.14	Sensor pocket	040050A
1.5	(38)	4T	(102T)	22	0.19	0.11	Trim-to-fit	040050T
1.5	(38)	5	(127)	36	0.30	0.18	Sensor pocket	050050A
1.5	(38)	5T	(127T)	29	0.25	0.14	Trim-to-fit	050050T
1.5	(38)	6	(152)	43	0.36	0.21	Sensor pocket	050060A
1.5	(38)	6T	(152T)	36	0.30	0.17	Trim-to-fit	050060T
1.5	(38)	7	(178)	50	0.42	0.24	Sensor pocket	050070A
1.5	(38)	8	(203)	57	0.48	0.27	Sensor pocket	050080A
1.5	(38)	9	(229)	64	0.53	0.31	Sensor pocket	050090A
1.5	(38)	10	(254)	71	0.59	0.34	Sensor pocket	050100A
1.5	(38)	12	(305)	85	0.71	0.41	Sensor pocket	050120A
1.5	(38)	18	(457)	128	1.07	0.62	Sensor pocket	050180A
1.5	(38)	24	(610)	170	1.42	0.82	Sensor pocket	050240A
1.5	(38)	30	(762)	213	1.78	1.03	Sensor pocket	050300A
1.5	(38)	36	(914)	255	2.13	1.23	Sensor pocket	050360A
1.5	(38)	36	(914)	Insulator	N/A	N/A	—	050360B
2.0	(51)	2	(51)	19	0.16	0.10	—	020066A
2.0	(51)	2T	(51T)	10	0.09	N/A	Trim-to-fit	020066T
2.0	(51)	3	(76)	29	0.25	0.14	Sensor pocket	030066A
2.0	(51)	3T	(76T)	19	0.16	0.10	Trim-to-fit	030066T
2.0	(51)	4	(102)	38	0.32	0.19	Sensor pocket	040066A
2.0	(51)	4T	(102T)	29	0.25	0.14	Trim-to-fit	040066T
2.0	(51)	5	(127)	48	0.40	0.24	Sensor pocket	050066A
2.0	(51)	5T	(127T)	38	0.32	0.19	Trim-to-fit	050066T
2.0	(51)	6	(152)	57	0.48	0.28	Sensor pocket	060066A
2.0	(51)	6T	(152T)	47	0.39	0.23	Trim-to-fit	060066T
2.0	(51)	7	(178)	66	0.55	0.32	Sensor pocket	066070A
2.0	(51)	8	(203)	76	0.63	0.37	Sensor pocket	066080A
2.0	(51)	9	(229)	85	0.71	0.41	Sensor pocket	066090A

CONTINUED

• **M** - Manufacturing lead times

*To complete the part number, please reference the *Ordering Information* on page 147.

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Modular Pump Line Heaters (Continued)

Tube O.D. in. (mm)	Length "L" in. (mm)	Watts	Amperes @ 120V	Amperes @ 208V	Features	Base Part Number*
2.0 (51)	10 (254)	95	0.79	0.46	Sensor pocket	066100A
2.0 (51)	12 (305)	114	0.95	0.55	Sensor pocket	066120A
2.0 (51)	18 (457)	170	1.42	0.82	Sensor pocket	066180A
2.0 (51)	24 (610)	227	1.90	1.10	Sensor pocket	066240A
2.0 (51)	30 (762)	283	2.36	1.37	Sensor pocket	066300A
2.0 (51)	36 (914)	340	2.84	1.64	Sensor pocket	066360A
2.0 (51)	36 (914)	Insulator	N/A	N/A	—	066360B
3 (76)	2 (51)	24	0.20	0.12	—	020096A
3 (76)	2T (51T)	12	0.10	0.06	Trim-to-fit	020096T
3 (76)	3 (76)	36	0.30	0.18	Sensor pocket	030096A
3 (76)	3T (76T)	24	0.20	0.12	Trim-to-fit	030096T
3 (76)	4 (102)	48	0.40	0.24	Sensor pocket	040096A
3 (76)	4T (102T)	36	0.30	0.18	Trim-to-fit	040096T
3 (76)	5 (127)	59	0.50	0.29	Sensor pocket	050096A
3 (76)	5T (127T)	48	0.40	0.24	Trim-to-fit	050096T
3 (76)	6 (152)	71	0.60	0.35	Sensor pocket	060096A
3 (76)	6T (152T)	59	0.49	0.28	Trim-to-fit	060096T
3 (76)	7 (178)	83	0.69	0.4	Sensor pocket	070096A
3 (76)	8 (203)	95	0.79	0.46	Sensor pocket	080096A
3 (76)	9 (229)	106	0.88	0.51	Sensor pocket	090096A
3 (76)	10 (254)	118	0.98	0.57	Sensor pocket	096100A
3 (76)	12 (305)	142	1.19	0.69	Sensor pocket	096120A
3 (76)	18 (457)	213	1.78	1.03	Sensor pocket	096180A
3 (76)	24 (610)	283	2.36	1.37	Sensor pocket	096240A
3 (76)	30 (762)	354	2.95	1.71	Sensor pocket	096300A
3 (76)	36 (914)	425	3.55	2.05	Sensor pocket	096360A
3 (76)	36 (914)	Insulator	N/A	N/A	—	096360B

CONTINUED

• **M** - Manufacturing lead times

*To complete the part number, please reference the *Ordering Information* on page 147.

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Modular Pump Line Heaters (Continued)

Tube O.D. in. (mm)	Length "L" in. (mm)	Watts	Amperes @ 120V	Amperes @ 208V	Features	Base Part Number*
4 (102)	2 (51)	32	0.27	0.16	—	020128A
4 (102)	2T (51T)	16	0.14	0.08	Trim-to-fit	020128T
4 (102)	3 (76)	48	0.40	0.24	Sensor pocket	030128A
4 (102)	3T (76T)	32	0.27	0.16	Trim-to-fit	030128T
4 (102)	4 (102)	63	0.53	0.31	Sensor pocket	040128A
4 (102)	4T (102T)	48	0.40	0.24	Trim-to-fit	040128T
4 (102)	5 (127)	79	0.66	0.38	Sensor pocket	050128A
4 (102)	5T (127T)	63	0.53	0.31	Trim-to-fit	050128T
4 (102)	6 (152)	95	0.80	0.46	Sensor pocket	060128A
4 (102)	6T (152T)	79	0.66	0.38	Trim-to-fit	060128T
4 (102)	7 (178)	110	0.92	0.53	Sensor pocket	070128A
4 (102)	8 (203)	126	1.05	0.61	Sensor pocket	080128A
4 (102)	9 (229)	142	1.18	0.68	Sensor pocket	090128A
4 (102)	10 (254)	157	1.31	0.75	Sensor pocket	100128A
4 (102)	12 (305)	189	1.58	0.91	Sensor pocket	120128A
4 (102)	18 (457)	283	2.36	1.37	Sensor pocket	128180A
4 (102)	24 (610)	377	3.15	1.82	Sensor pocket	128240A
4 (102)	30 (762)	472	3.94	2.27	Sensor pocket	128300A
4 (102)	36 (914)	566	4.72	2.73	Sensor pocket	128360A
4 (102)	36 (914)	Insulator	N/A	N/A	—	128360B

• **M** - Manufacturing lead times

*To complete the part number, please reference the *Ordering Information* on page 147.

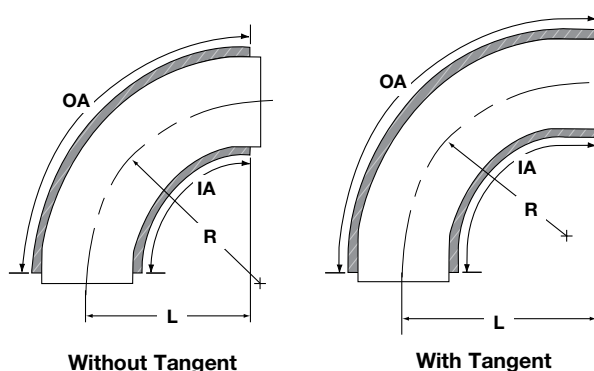
Flexible Heaters

Line Heating

Modular Pump Line Heaters (Continued)

90° Radius Elbow Heaters

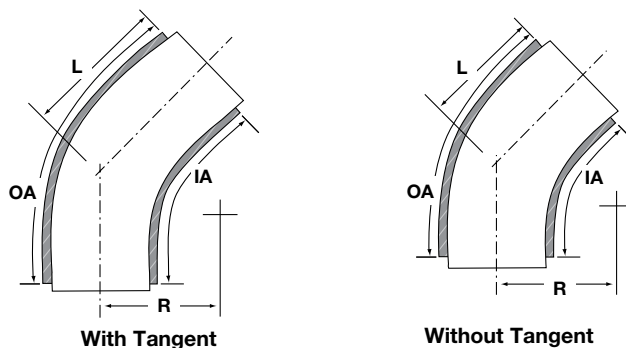
- 0.25 in. (6 mm) or 0.5 in. (13 mm) silicone rubber sponge insulation is available
- With or without tangents
- Will fit both butt-weld and flanged style tubing elbows



Tube O.D. in. (mm)	Length "L" in. (mm)	Radius (R) in. (mm)	Watts	Outer Arc Length (OA)	Inside Arc Length (IA)	Amperes @120V	Amperes @208V	Base Part Number*
1.5 (38)	2.00 (51.0)	2.25 (57)	26	4.21	1.85	0.22	0.13	042050A
1.5 (38)	2.68 (68.1)	2.25 (57)	36	5.58	3.22	0.30	0.18	050055A
2.0 (51)	2.75 (70.0)	3.00 (76)	45	5.78	2.64	0.38	0.22	057066A
2.0 (51)	3.81 (96.8)	3.00 (76)	65	7.91	4.77	0.55	0.32	066079A
3.0 (76)	4.00 (102.0)	4.50 (114)	84	8.42	3.71	0.70	0.41	089097A
3.0 (76)	5.81 (147.6)	4.50 (114)	127	12.05	7.33	1.06	0.62	097125A
4.0 (102)	5.50 (140.0)	6.00 (152)	149	11.56	5.28	1.25	0.72	116128A
4.0 (102)	7.81 (198.4)	6.00 (152)	222	16.18	9.00	1.85	1.07	128166A

45° Radius Elbow Heaters

- 0.25 in. (6.4 mm) or 0.5 in. (13 mm) silicone rubber sponge insulation is available
- With or without tangents
- Will fit both butt-weld and flanged style tubing elbows



Tube O.D. in. (mm)	Length "L" in. (mm)	Radius (R) in. (mm)	Watts	Outer Arc Length (OA)	Inside Arc Length (IA)	Amperes @120V	Amperes @208V	Base Part Number*
1.5 (38)	0.69 (17.5)	2.25 (57)	14	1.85	0.67	0.12	NA	018050A
1.5 (38)	1.38 (35.1)	2.25 (57)	23	3.23	2.04	0.20	0.12	032050A
2.0 (51)	1.00 (25.0)	3.00 (76)	23	2.64	1.07	0.20	0.12	026066A
2.0 (51)	2.06 (52.3)	3.00 (76)	44	4.77	3.20	0.37	0.22	047066A
3.0 (76)	1.37 (34.8)	4.50 (114)	43	3.71	1.35	0.36	0.21	042097A
3.0 (76)	3.18 (80.8)	4.50 (114)	85	7.33	4.97	0.71	0.41	078097A
4.0 (102)	2.00 (51.0)	6.00 (152)	75	5.28	2.14	0.63	0.37	057128A
4.0 (102)	4.31 (109.5)	6.00 (152)	148	9.90	6.76	1.24	0.72	104128A

- M - Manufacturing lead times

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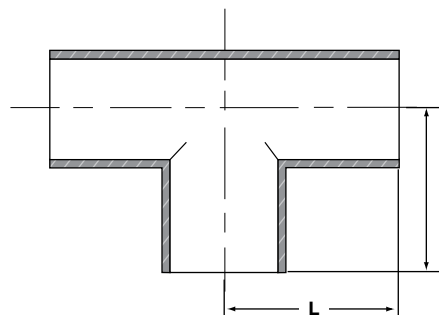
Flexible Heaters

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Modular Pump Line Heaters (Continued)

Tee Section Heaters

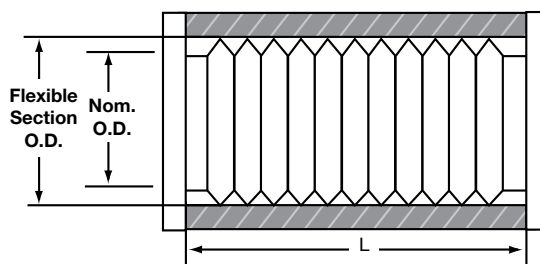
- 0.25 in. (6 mm) or 0.5 in. (13 mm) silicone rubber sponge insulation is available
- Will fit both butt-weld and flanged style tee sections



Tube O.D. in. (mm)	Length "L" in. (mm)	Watts	Amperes @120V	Amperes @208V	Base Part Number*
1.5 (38)	2.00 (51)	38	0.32	0.19	047064A
2.0 (51)	2.75 (70)	69	0.58	0.34	062081A
3.0 (76)	3.00 (76)	89	0.75	0.43	095120A
4.0 (102)	3.63 (92)	140	1.17	0.69	125155A

Bellows Section Heaters

- 0.25 in. (6 mm) or 0.5 in. (13 mm) silicone rubber sponge insulation is available
- Will fit both butt-weld and flanged style flexible sections



Tube O.D. in. (mm)	Bellows Section O.D. in. (mm)	Length "L" in. (mm)	Watts	Amperes @120V	Amperes @208V	Base Part Number*
1.5 (38)	1.92 (48.9)	3 (76)	26	0.22	0.13	030056A
1.5 (38)	1.92 (48.9)	3T (76T)	18	0.15	0.09	030056T
1.5 (38)	1.92 (48.9)	6 (152)	51	0.43	0.25	056060A
1.5 (38)	1.92 (48.9)	6T (152T)	44	0.37	0.21	056060T
2.0 (51)	2.47 (62.7)	3 (76)	34	0.29	0.17	030077A
2.0 (51)	2.47 (62.7)	3T (76T)	24	0.2	0.12	030077T
2.0 (51)	2.47 (62.7)	6 (152)	68	0.57	0.33	060077A
2.0 (51)	2.47 (62.7)	6T (152T)	59	0.49	0.28	060077T
3.0 (76)	3.77 (95.8)	3 (76)	44	0.37	0.22	030117A
3.0 (76)	3.77 (95.8)	3T (76T)	30	0.25	0.14	030117T
3.0 (76)	3.77 (95.8)	6 (152)	88	0.74	0.43	060117A
3.0 (76)	3.77 (95.8)	6T (152T)	74	0.62	0.36	060117T
3.0 (76)	3.77 (95.8)	12 (305)	175	1.46	0.85	117120A
4.0 (102)	4.75 (121.0)	3 (76)	56	0.47	0.27	030149A
4.0 (102)	4.75 (121.0)	3T (76T)	38	0.32	0.18	030149T
4.0 (102)	4.75 (121.0)	6 (152)	111	0.93	0.54	060149A
4.0 (102)	4.75 (121.0)	6T (152T)	94	0.78	0.45	060149T
4.0 (102)	4.75 (121.0)	12 (305)	222	1.85	1.07	120149A

• **M** - Manufacturing lead times

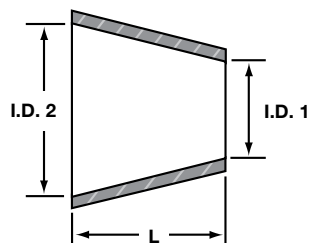
*To complete the part number, please reference the *Ordering Information* on page 147.

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Modular Pump Line Heaters (Continued)

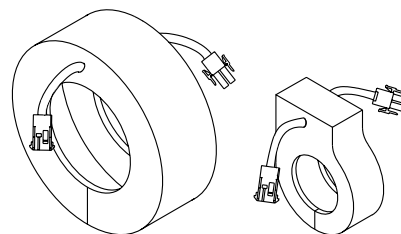
Reducers



Tube I.D. 2 to I.D. 1 in. (mm)	Length "L" in. (mm)	Watts	Amperes @120V	Amperes @208V	Base Part Number*
2 (51) to 1.5 (38)	1.38 (35.1)	12	0.10	0.06	020062A
3 (76) to 2.0 (51)	2.42 (61.5)	24	0.20	0.12	034090A
4 (102) to 2.0 (51)	2.63 (66.8)	31	0.26	0.15	044103A
4 (102) to 3.0 (76)	2.60 (66.0)	36	0.30	0.18	040121A

Flange Heaters

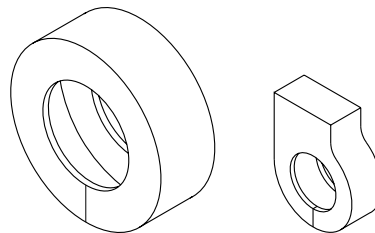
- 0.25 in. (6 mm) or 0.5 in. (13 mm) silicone rubber sponge insulation is available
- For both KF screw flanges and ISO clamp flanges



Tube O.D. in.	Nominal Tube O.D. in. (mm)	Watts @120V	Amperes @120V	Amperes @ 208V	Base Part Number*
KF-40	1.5 (38)	10	0.09	NA	035040A
KF-50	2.0 (51)	15	0.13	0.07	045050A
ISO-80	3.0 (76)	70	0.59	0.34	020176A
ISO-100	4.0 (102)	82	0.69	0.40	020204A
CF 2 ³ / ₄ in.	1.5 (38)	21	0.18	0.10	016089A

Flange Insulators

- 0.25 in. (6 mm) or 0.5 in. (13 mm) silicone rubber sponge insulation is available
- For both KF screw flanges and ISO clamp flanges



Tube O.D. in.	Nominal Tube O.D. in. (mm)	Base Part Number*
KF-40	1.50 (38)	035040B
KF-50	2.00 (51)	045050B
ISO-80	3.00 (76)	020176B
ISO-100	4.00 (102)	020204B
CF 1 ¹ / ₃ in.	0.75 (19)	010044B
CF 2 ³ / ₄ in.	1.50 (38)	016089B

- **M** - Manufacturing lead times

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Ordering Information

Part Number

①	②	③	④	⑤	⑥	⑦	⑧ ⑨	⑩	⑪	⑫	⑬	⑭
Base Code Nbr.	Base Code Nbr.	Base Code Nbr.	Base Code Nbr.	Base Code Nbr.	Base Code Nbr.	Base Code Nbr.	Heater Voltage	Insulation	Connectors	Sensors	Future Option	Future Option
X	X	X	X	X	X	X					0	O

① ② ③ ④ ⑤ ⑥ ⑦ Base Code Number

⑧ ⑨ Heater Voltage

CO =	Insulator
C1 =	120V
C4 =	208V

⑩ Insulation

A =	0.25 in. (6 mm) insulation w/UL® 94-HB jacket
B =	0.5 in. (13 mm) insulation w/UL® 94V-0 jacket
C =	0.25 in. (6 mm) insulation w/UL® 94-HB jacket and ground grid
D =	0.5 in. (13 mm) insulation w/UL® 94V-0 jacket and ground grid

⑪ Connectors

0 =	None (Zero)
A =	AMP Universal MATE-N-LOK™ connector
B =	AMP CPC connector

⑫ Sensors

0 =	None
A =	Thermal fuse 378°F (192°C)
B =	Type J thermocouple
C =	Type K thermocouple
D =	Thermal fuse + Type J thermocouple
E =	Thermal fuse + Type K thermocouple

⑬ Future Option

0 =	None (Zero)
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⑭ Future Option

O =	None (Letter O)
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Note: All options are not available for every base part number.

Description	CE	SEMI S2-93	UL® Listing	NEC	VDE
0.25 in. (6 mm) insulation w/HOT marking	x	x	x		x
0.5 in. (13 mm) insulation	o	o	o		o
Ground grid	o	o	o	x	o
AMP MATE-N-LOK™ connectors ①	x	x	x		x
AMP CPC connectors ②	o	o	o		o
Jacket w/UL® 94V-0 rating	o	o	o		o
Jacket w/UL® 94-HB rating	x	x	x		x
Thermal cut-off	o	x	x		o

x = Min. requirements

o = Optional features

① Male plug: AMP p/n 1-480698-0, w/sockets AMP p/n 350689-1.
Female cap: AMP p/n 1-480699-0, w/pins AMP p/n 350690-1.

② Plug: AMP p/n 206060-1, w/socket AMP p/n 66101-3.
Receptacle: AMP p/n 206153-1, w/pin AMP p/n 66099-3, w/ground pin p/n 164164-2 if ground grid option is chosen.