

Insulated Terminals and Disconnects

SolderGrip self-fixturing insulated terminals

Fax-on-Demand: (800) 260-9099
(650) 361-6523

FAX ID	Description
5900	Data sheet

Before ordering check with factory for most current data.



Applications

Used for terminating multiple wires to terminals.

Features/Benefits

- Transparent Kynar insulation sleeve provides encapsulation, inspectability, strain relief, and insulation.
- Spiral copper coil grips and compresses the conductors for optimum solder connection.
- Prefluxed solder preform provides a controlled soldering process.
- One-piece design for easy installation.
- Accommodates a wide variety of conductor types, quantities, sizes, and plating types unmatched by any other termination technique.
- UL and CUL recognized.



Product Option

Product series	Environmental protection
SGRT	Splashproof

Product Selection Process

1. Determine the wire combination (number of wires and size) of the wire bundle you wish to terminate.
2. Use Table C to select the correct terminal for AWG wire combination.*
Example: For connecting a bundle with one 12 AWG wire (1 #12) and two 18 AWG wires (+ 2 #18) to a terminal, you need an SGRT-4-XX terminal.
3. Determine the correct stud size.
4. Select the correct part number from Table A for that stud size in the terminal series and size you selected in Step 2. Example: If the stud size is 1/4, select part number SGRT-4-06.
5. Verify that the wire bundle (with wire insulation) does not exceed the maximum diameter allowed for the part you selected. Simply check the bundle's diameter against the maximum diameter that Table A lists for that part.
6. Verify that the total amperage to be applied does not exceed the maximum amp rating for the part as specified in Table A.

*If the wire combination is not listed in Table B, use the CMA (mm²) method of determining wire bundle size (see "CMA/mm² Calculation" on page 9-27). Using Table B, select the smallest size part that will fit your total wire CMA (mm²) value.

Table A. Part Number Selection (mm/in)

SolderGrip part number	Stud size	Maximum bundle diameter†	Maximum amp rating	Wire range (min.–max.) CMA/mm ²	Typical length (mm/in)
SGRT-1-02	2 (2)	4.1 (.161)	12.5 A	1400–5000 (0.7–2.5)	38 (1 1/2)
SGRT-2-03	3 (6)	5.0 (.195)	15 A	2400–6000 (1.2–3.0)	38 (1 1/2)
SGRT-2-04	4 (8)		15 A	2400–6000 (1.2–3.0)	38 (1 1/2)
SGRT-2-05	5 (10)		15 A	2400–6000 (1.2–3.0)	38 (1 1/2)
SGRT-2-06	6 (1/4)		15 A	2400–6000 (1.2–3.0)	38 (1 1/2)
SGRT-3-06	6 (1/4)	6.5 (.255)	33 A	5000–13,200 (2.5–6.6)	44.5 (1 3/4)
SGRT-3-08	8 (5/16)	9.0 (.355)	33 A	5000–13,200 (2.5–6.6)	51.0 (2)
SGRT-4-06	6 (1/4)		56 A	12,000–22,400 (6.0–11.2)	44.5 (1 3/4)
SGRT-4-08	8 (5/16)	56 A	12,000–22,400 (6.0–11.2)	51 (2)	

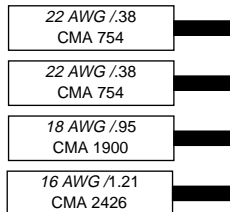
†Maximum bundle diameter is measured over wire insulation.

CMA/mm² Calculation

To calculate the total CMA or mm² area of the wire bundle to be terminated, follow these steps:

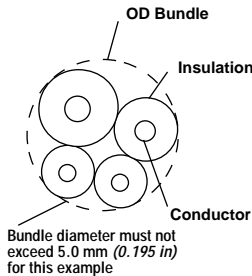
1. Choose either CMA or mm² as your unit of measure for selection purposes and continue to use it for all your selection criteria. (Both measures provide the same results.)
2. In the workspace below, list the CMA or mm² for each conductor in the bundle. (Table B provides the CMA of typical conductors.)
3. Add together the values you list in the workspace below to obtain the total area.
4. Use Table A to select the smallest terminal that will fit the total CMA (mm²).

CMA/mm² Example



Total CMA = 5834
Total mm² = 2.92

Correct part number (based on CMA of 5834 or 2.92 mm²):
SGRT-2-XX if bundle OD is less than 5.0 mm (0.195 in)



Wire number	CMA	mm ²	SolderGrip part number
1	_____	_____	
2	_____	_____	
3	_____	_____	
4	_____	_____	
5	_____	_____	
6	_____	_____	
7	_____	_____	
8	_____	_____	
9	_____	_____	
10	_____	_____	
Total	_____	_____	_____

Table B. CMA of Typical Copper Conductors

Strands	7	19	19	19	19	19	19	19	37
AWG	28	26	24	22	20	18	16	14	12
CMA	177	304	475	754	1216	1900	2426	3831	5874
mm ²	0.09	0.15	0.24	0.38	0.61	0.95	1.21	1.92	2.94

Table C. SolderGrip Wire Combinations (see Table A for terminal size [-XX])

Wire combinations	Part number	Wire combinations	Part number	Wire combinations	Part number
1 # 8	SGRT-4-XX	1 # 12 + 1 # 16 + 4 # 18	SGRT-4-XX	1 # 14 + 4 # 20	SGRT-3-XX
1 # 8 + 1 # 16	SGRT-4-XX	1 # 12 + 2 # 16	SGRT-3-XX	1 # 14 + 1 # 18	SGRT-2-XX
2 # 8 + 2 # 16	SGRT-4-XX	1 # 12 + 2 # 16 + 1 # 18	SGRT-3-XX	1 # 14 + 1 # 18 + 1 # 20	SGRT-3-XX
1 # 8 + 1 # 14	SGRT-4-XX	1 # 12 + 2 # 16 + 2 # 18	SGRT-4-XX	1 # 14 + 2 # 18	SGRT-3-XX
1 # 10	SGRT-3-XX	1 # 12 + 3 # 16	SGRT-4-XX	1 # 14 + 3 # 18	SGRT-3-XX
1 # 10 + 1 to 3 # 18	SGRT-3-XX	1 # 12 + 4 # 16	SGRT-4-XX	1 # 14 + 4 # 18	SGRT-3-XX
1 # 10 + 2 # 18	SGRT-3-XX	1 # 12 + 5 # 16	SGRT-4-XX	1 # 14 + 5 # 18	SGRT-4-XX
1 # 10 + 3 # 18	SGRT-4-XX	1 # 12 + 1 # 14 + 1 # 18	SGRT-3-XX	1 # 14 + 1 # 16	SGRT-3-XX
1 # 10 + 1 # 16	SGRT-3-XX	1 # 12 + 1 # 14 + 2 # 18	SGRT-4-XX	1 # 14 + 1 # 16 + 1 # 20	SGRT-3-XX
1 # 10 + 1 # 16 + 1 # 18	SGRT-4-XX	1 # 12 + 1 # 14 + 3 # 18	SGRT-4-XX	1 # 14 + 1 # 16 + 1 # 18	SGRT-3-XX
1 # 10 + 1 # 16 + 2 # 18	SGRT-4-XX	1 # 12 + 1 # 14 + 1 # 16	SGRT-3-XX	1 # 14 + 1 # 16 + 2 # 18	SGRT-3-XX
1 # 10 + 2 # 16	SGRT-4-XX	1 # 12 + 1 # 14 + 2 # 16	SGRT-4-XX	1 # 14 + 1 # 16 + 3 # 18	SGRT-3-XX
1 # 10 + 3 # 16	SGRT-4-XX	1 # 12 + 1 # 14 + 3 # 16	SGRT-4-XX	1 # 14 + 1 # 16 + 4 # 18	SGRT-4-XX
1 # 10 + 4 # 16	SGRT-4-XX	1 # 12 + 1 # 14 + 4 # 16	SGRT-4-XX	1 # 14 + 2 # 16	SGRT-3-XX
1 # 10 + 5 # 16	SGRT-4-XX	1 # 12 + 2 # 14	SGRT-4-XX	1 # 14 + 2 # 16 + 1 # 18	SGRT-3-XX
1 # 10 + 1 # 14	SGRT-3-XX	1 # 12 + 2 # 14 + 1 # 18	SGRT-4-XX	1 # 14 + 2 # 16 + 2 # 18	SGRT-3-XX
1 # 10 + 1 # 14 + 1 # 18	SGRT-4-XX	1 # 12 + 2 # 14 + 1 # 16	SGRT-4-XX	1 # 14 + 2 # 16 + 3 # 18	SGRT-4-XX
1 # 10 + 1 # 14 + 1 # 16	SGRT-4-XX	1 # 12 + 2 # 14 + 2 # 16	SGRT-4-XX	1 # 14 + 3 # 16	SGRT-3-XX
1 # 10 + 1 # 14 + 2 # 16	SGRT-3-XX	1 # 12 + 2 # 14 + 3 # 16	SGRT-4-XX	1 # 14 + 3 # 16 + 1 # 18	SGRT-3-XX
1 # 10 + 1 # 14 + 3 # 16	SGRT-4-XX	1 # 12 + 3 # 14	SGRT-4-XX	1 # 14 + 3 # 16 + 2 # 18	SGRT-4-XX
1 # 10 + 2 # 14	SGRT-4-XX	1 # 12 + 3 # 14 + 1 # 16	SGRT-4-XX	1 # 14 + 4 # 16	SGRT-4-XX
1 # 10 + 3 # 14	SGRT-4-XX	1 # 12 + 4 # 14	SGRT-4-XX	1 # 14 + 4 # 16 + 1 # 18	SGRT-4-XX
1 # 10 + 1 # 12	SGRT-4-XX	2 # 12 + 1 # 18	SGRT-4-XX	1 # 14 + 5 # 16	SGRT-4-XX
1 # 10 + 1 # 12 + 1 # 14	SGRT-4-XX	2 # 12 + 1 # 16	SGRT-4-XX	2 # 14	SGRT-3-XX
1 # 10 + 2 # 12	SGRT-4-XX	2 # 12 + 2 # 16 + 1 # 18	SGRT-4-XX	2 # 14	SGRT-3-XX
2 # 10	SGRT-4-XX	2 # 12 + 3 # 16	SGRT-4-XX	2 # 14	SGRT-3-XX
2 # 10 + 1 # 16	SGRT-4-XX	2 # 12 + 1 # 14 + 1 # 18	SGRT-4-XX	2 # 14	SGRT-3-XX
1 # 12	SGRT-3-XX	2 # 12 + 1 # 14 + 1 # 16	SGRT-4-XX	2 # 14	SGRT-3-XX
1 # 12 + 1 # 18	SGRT-3-XX	2 # 12 + 2 # 14	SGRT-4-XX	2 # 14 + 1 # 16	SGRT-3-XX
1 # 12 + 2 # 18	SGRT-3-XX	3 # 12 + 1 # 18	SGRT-4-XX	2 # 14 + 1 # 16	SGRT-3-XX
1 # 12 + 3 # 18	SGRT-3-XX	3 # 12 + 1 # 16	SGRT-4-XX	2 # 14 + 1 # 16	SGRT-3-XX
1 # 12 + 4 # 18	SGRT-4-XX	3 # 12 + 1 # 14	SGRT-4-XX	2 # 14 + 2 # 16	SGRT-3-XX
1 # 12 + 5 # 18	SGRT-4-XX	1 # 14	SGRT-2-XX	2 # 14 + 2 # 16	SGRT-3-XX
1 # 12 + 1 # 16	SGRT-3-XX	1 # 14 + 1 # 22	SGRT-2-XX	2 # 14 + 2 # 16	SGRT-3-XX
1 # 12 + 1 # 16 + 1 # 18	SGRT-3-XX	1 # 14 + 1 # 20	SGRT-2-XX	2 # 14 + 3 # 16	SGRT-4-XX
1 # 12 + 1 # 16 + 2 # 18	SGRT-3-XX	1 # 14 + 2 # 20	SGRT-3-XX	2 # 14 + 4 # 16	SGRT-4-XX
1 # 12 + 1 # 16 + 3 # 18	SGRT-4-XX	1 # 14 + 3 # 20	SGRT-3-XX	3 # 14	SGRT-3-XX

Table C. SolderGrip Wire Combinations (see Table A for terminal size [-XX]) (continued)

Wire combinations	Part number	Wire combinations	Part number	Wire combinations	Part number
3 # 14 + 1 # 16	SGRT-4-XX	2 # 16 + 4 # 20	SGRT-3-XX	1 # 18 + 1 # 20 + 2 # 22	SGRT-2-XX
3 # 14 + 2 # 16	SGRT-4-XX	2 # 16 + 1 # 18	SGRT-3-XX	1 # 18 + 2 # 20	SGRT-2-XX
3 # 14 + 3 # 16	SGRT-4-XX	2 # 16 + 1 # 18 + 1 # 20	SGRT-3-XX	1 # 18 + 3 # 20	SGRT-2-XX
4 # 14	SGRT-4-XX	2 # 16 + 1 # 18 + 2 # 20	SGRT-3-XX	1 # 18 + 4 # 20	SGRT-3-XX
4 # 14 + 1 # 16	SGRT-4-XX	2 # 16 + 1 # 18 + 3 # 20	SGRT-3-XX	1 # 18 + 5 # 20	SGRT-3-XX
4 # 14 + 2 # 16	SGRT-4-XX	2 # 16 + 2 # 18	SGRT-3-XX	2 # 18	SGRT-2-XX
5 # 14	SGRT-4-XX	2 # 16 + 2 # 18 + 1 # 20	SGRT-3-XX	2 # 18 + 1 # 22	SGRT-2-XX
5 # 14 + 1 # 16	SGRT-4-XX	2 # 16 + 2 # 18 + 2 # 20	SGRT-3-XX	2 # 18 + 1 # 20	SGRT-2-XX
1 # 16	SGRT-2-XX	2 # 16 + 3 # 18	SGRT-3-XX	2 # 18 + 2 # 20	SGRT-3-XX
1 # 16 + 1 # 22	SGRT-2-XX	2 # 16 + 3 # 18 + 1 # 20	SGRT-3-XX	2 # 18 + 3 # 20	SGRT-3-XX
1 # 16 + 2 # 22	SGRT-2-XX	2 # 16 + 4 # 18	SGRT-3-XX	2 # 18 + 4 # 20	SGRT-3-XX
1 # 16 + 3 # 22	SGRT-2-XX	3 # 16	SGRT-3-XX	3 # 18	SGRT-2-XX
1 # 16 + 1 # 20	SGRT-2-XX	3 # 16 + 1 # 20	SGRT-3-XX	3 # 18 + 1 # 20	SGRT-3-XX
1 # 16 + 1 # 20 + 1 # 22	SGRT-2-XX	3 # 16 + 2 # 20	SGRT-3-XX	3 # 18 + 2 # 20	SGRT-3-XX
1 # 16 + 2 # 20	SGRT-2-XX	3 # 16 + 3 # 20	SGRT-3-XX	3 # 18 + 3 # 20	SGRT-3-XX
1 # 16 + 3 # 20	SGRT-3-XX	3 # 16 + 1 # 18	SGRT-3-XX	4 # 18	SGRT-3-XX
1 # 16 + 4 # 20	SGRT-3-XX	3 # 16 + 1 # 18 + 1 # 20	SGRT-3-XX	4 # 18 + 1 # 20	SGRT-3-XX
1 # 16 + 5 # 20	SGRT-3-XX	3 # 16 + 1 # 18 + 2 # 20	SGRT-3-XX	4 # 18 + 2 # 20	SGRT-3-XX
1 # 16 + 1 # 18	SGRT-2-XX	3 # 16 + 2 # 18	SGRT-3-XX	5 # 18	SGRT-3-XX
1 # 16 + 1 # 18 + 1 # 20	SGRT-2-XX	3 # 16 + 2 # 18 + 1 # 20	SGRT-3-XX	5 # 18 + 1 # 20	SGRT-3-XX
1 # 16 + 1 # 18 + 2 # 20	SGRT-3-XX	3 # 16 + 3 # 18	SGRT-3-XX	6 # 18	SGRT-3-XX
1 # 16 + 1 # 18 + 3 # 20	SGRT-3-XX	4 # 16	SGRT-3-XX	1 # 20 + 2 # 22	SGRT-2-XX
1 # 16 + 1 # 18 + 4 # 20	SGRT-3-XX	4 # 16 + 1 # 20	SGRT-3-XX	1 # 20 + 3 # 22	SGRT-2-XX
1 # 16 + 2 # 18	SGRT-3-XX	4 # 16 + 2 # 20	SGRT-3-XX	1 # 20 + 4 # 22	SGRT-2-XX
1 # 16 + 2 # 18 + 1 # 20	SGRT-3-XX	4 # 16 + 1 # 18	SGRT-3-XX	2 # 20	SGRT-2-XX
1 # 16 + 2 # 18 + 2 # 20	SGRT-3-XX	4 # 16 + 1 # 18 + 1 # 20	SGRT-3-XX	2 # 20 + 1 # 22	SGRT-2-XX
1 # 16 + 2 # 18 + 3 # 20	SGRT-3-XX	4 # 16 + 2 # 18	SGRT-4-XX	2 # 20 + 2 # 22	SGRT-2-XX
1 # 16 + 3 # 18	SGRT-3-XX	5 # 16	SGRT-3-XX	2 # 20 + 3 # 22	SGRT-2-XX
1 # 16 + 3 # 18 + 1 # 20	SGRT-3-XX	5 # 16 + 1 # 20	SGRT-4-XX	3 # 20	SGRT-2-XX
1 # 16 + 3 # 18 + 2 # 20	SGRT-3-XX	5 # 16 + 1 # 18	SGRT-4-XX	3 # 20 + 1 # 22	SGRT-2-XX
1 # 16 + 4 # 18	SGRT-3-XX	6 # 16	SGRT-4-XX	4 # 20	SGRT-2-XX
1 # 16 + 4 # 18 + 1 # 20	SGRT-3-XX	1 # 18 + 1 # 22	SGRT-2-XX	5 # 20	SGRT-3-XX
1 # 16 + 5 # 18	SGRT-3-XX	1 # 18 + 2 # 22	SGRT-2-XX	6 # 20	SGRT-3-XX
2 # 16	SGRT-2-XX	1 # 18 + 3 # 22	SGRT-2-XX	4 # 22	SGRT-2-XX
2 # 16 + 1 # 20	SGRT-3-XX	1 # 18 + 1 # 20	SGRT-2-XX	5 # 22	SGRT-2-XX
2 # 16 + 2 # 20	SGRT-3-XX	1 # 18 + 1 # 20 + 1 # 22	SGRT-2-XX	6 # 22	SGRT-2-XX
2 # 16 + 3 # 20	SGRT-3-XX				

Product Characteristics

Material

Insulation	Radiation-crosslinked, heat-shrinkable polyvinylidene fluoride (Kynar)
Solder and flux	Sn60 Pb40 with RA flux

Typical performance

Contact resistance	4 mΩ after exposure
Tensile strength	Exceeds strength of individual wires
Temperature rating	-55°C to +125°C
Insulation resistance	100 megohms

Specifications/Approvals

Series	Agency	Raychem
SGRT	UL and CUL E87681	RB-120

Installation

The SolderGrip product is pushed onto the conductors with a twisting motion. With the product in place, installation can be completed with the proper selection and use of heating tools and reflectors.

Either of the following Raychem heating tools is recommended:

- HL1802E
- CV-1981

Refer to Raychem installation procedure RPIP 820-01 for detailed instructions and recommended reflector attachments.

You will find ordering information for these tools in the Application Equipment section of this catalog.