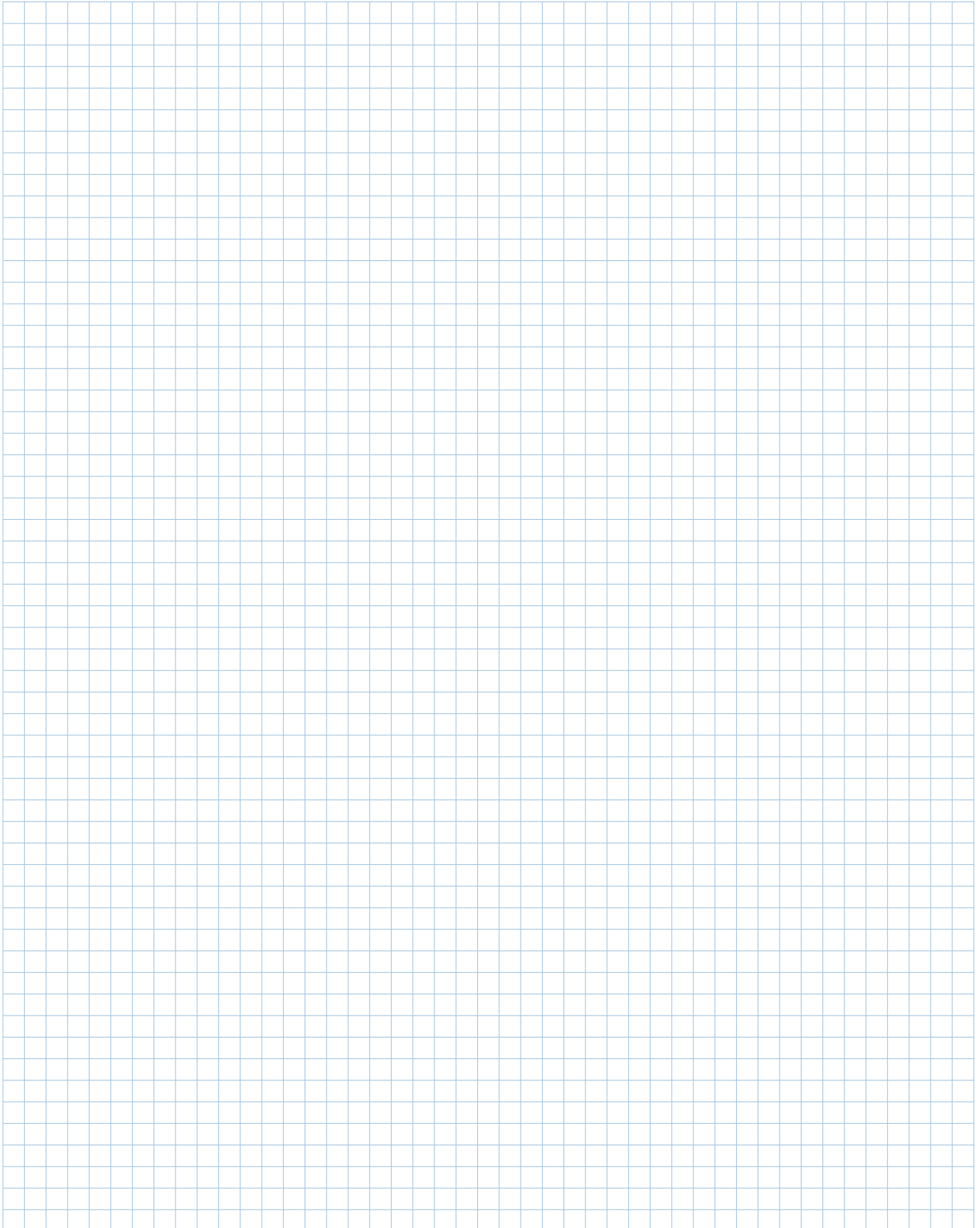


Standard Terminals & Splices

Pre-Insulated Euro-Crimp

Engineering Notes



Contents

	Page
Introduction.....	4
Performance Specifications.....	5
Table Listing: Circular Mil Area (CMA) for Popular Wire Sizes.....	6-7
Terminal Stud Hole Size.....	8
Tooling.....	9
Product Facts.....	11
Products.....	12-25
Part Number Index.....	26
Global Contacts.....	27

Products

Ring Tongue
Page 12

**Ring Tongue
DIN 46237**
Page 13

Fork Tongue
Page 14

Blade Tongue
Page 15

**Hooked
Blade Tongue**
Page 16

Wire Pin
Page 17

**Female
Push-On**
Page 18

**Female Push-On
Fully Insulated**
Page 19

**Male
Push-On**
Page 20

Piggy Back
Page 21

Male Bullet
Page 22

Female Bullet
Page 22

Butt
Page 23

Parallel
Page 24

Closed End
Page 25

Terminals available in other colour coded wire sizes. See product pages for more information.

Introduction

This Tyco Electronics family of Euro-Crimp Terminals and Splices provides reliable, low cost terminations for wire sizes 0.5sqm – 6.0sqm (22AWG – 10AWG). The Euro-Crimp terminals are ideally suited to meet the cost / performance needs of commercial applications.

The terminals and splices consist of precision formed metal wire barrel insulated with PVC and have a continuous maximum operating temperature of 75°C.

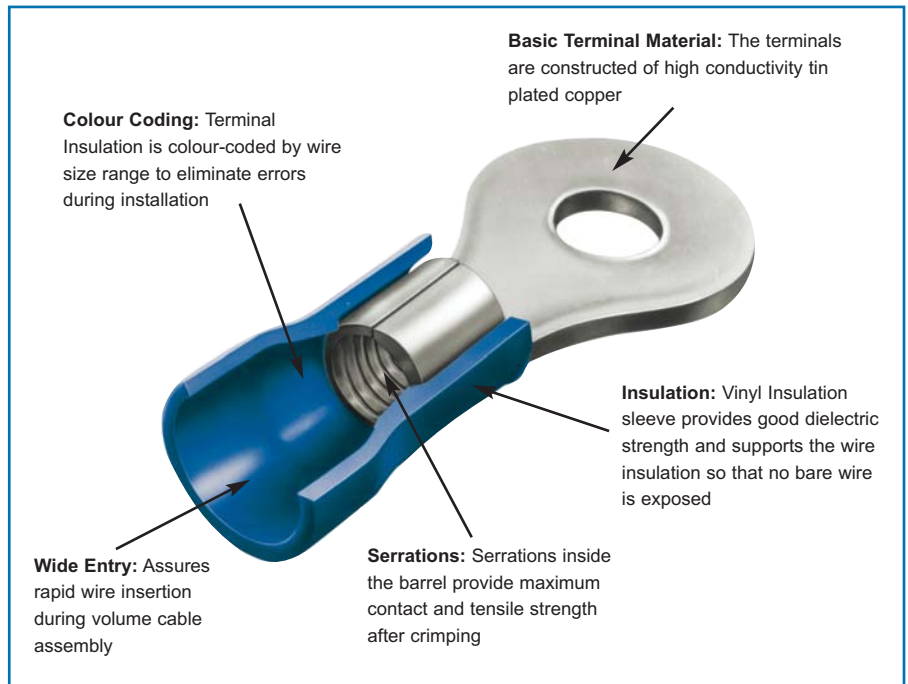
The terminals and splices accept solid or stranded wire for single applications. The insulation allows insertion of wires that meet maximum voltage rating of 600 V.

The terminals and splices are colour coded to provide a visual reference applicable to the wire size range suitable for the terminal or splice.

In addition, terminals are marked on the tongue with the wire size range. The serrations inside the wire barrel provide maximum contact and tensile strength after crimping.

The terminals suitable for mounting accept stud sizes M3 through M12.

The terminals and splices are available in loose-piece for terminating with manual hand held tools, packed either in bulk or re-sealable dispensing plastic containers for in-field installation.



Insulation Colour Code

Insulation Colour	Wire Size Range AWG	Comments
Yellow	0.1/0.41 (26-22)	—
White	0.16/0.65 (24-20)	—
Red	0.26/1.65 (22-16)	—
Blue	1.04/2.62 (16-14)	—
Black	1.04/2.62 (16-14)	Heavy Duty
Yellow	2.62/6.64 (12-10)	—
Red	6.64/10.5 (8)	—
Blue	10.5/16.8 (6)	—
Yellow	16.8/26.7 (4)	—
Red	26.7/42.4 (2)	—
Blue	42.4/60.6 (1/0)	—
Yellow	60.6/76.3 (2/0)	—
Red	76.3/96.3 (3/0)	—
Blue	96.3/117 (4/0)	—

Packaging Quantities

Wire Size Range mm ² / AWG	Packaging Type	
	Small Pack	Bulk Pack
0.26/1.65 (22-16)	100	1000
1.04/2.62 (16-14)	100	1000
2.62/6.64 (12-10)	50	500

Performance Specifications: Typical Results

Tensile Test Results

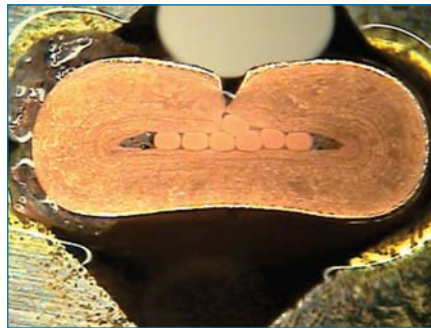
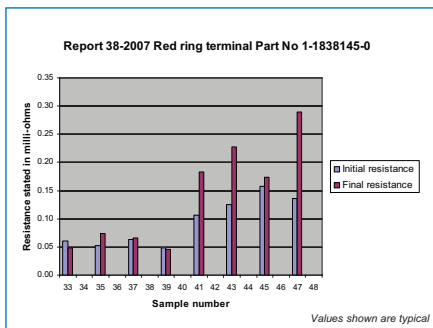
Crimped terminals or splices must hold the wire firmly and have a crimp pull-out test value meeting that is specified in Figure 1.

Figure 1.

Wire Size (AWG)	Wire Size Eqv (mm ²)	Tensile Force (N Min)
22	0.33	35.6
20	0.52	57.9
18	0.82	89
16	1.31	133.5
14	2.08	222.5
12	3.31	311.5
10	5.26	356

Voltage Drop (Resistance) Results

Wire Size 0.26 / 1.65 (22-16AWG)

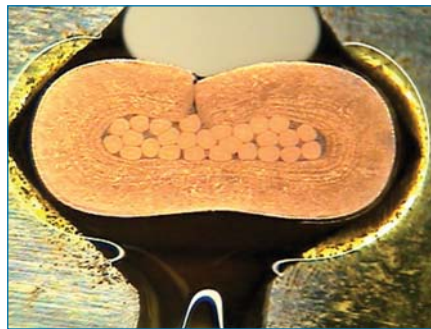
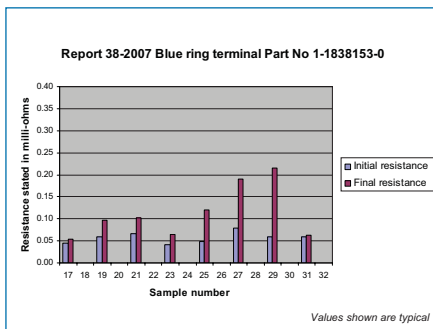


22 AWG

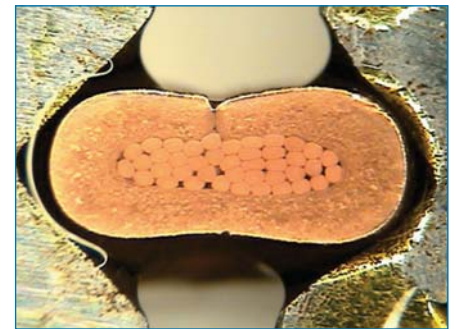


16 AWG

Wire Size 1.04 / 2.62 (16-14AWG)

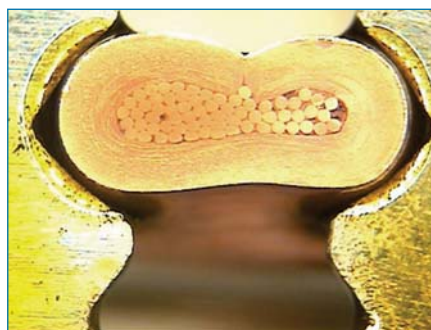
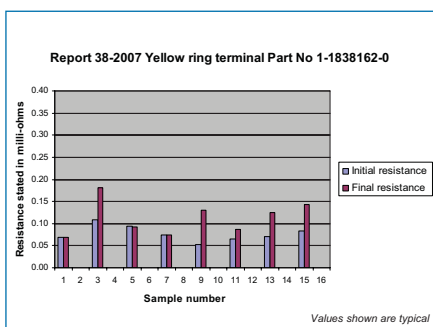


16 AWG

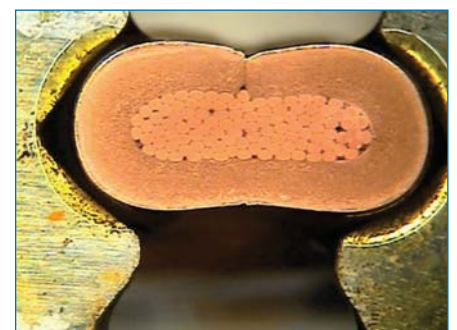


14 AWG

Wire Size 2.62 / 6.64 (12-10AWG)



12 AWG



10 AWG

Table Listing: Circular Mil Area for common wire sizes

Computing Circular Mil Area

This table has been included into this publication to assist in selecting the appropriate terminal where multiple cables require to be terminated.

For best results, the correct Tyco Electronics terminal or splice must be selected not by the "fit" of wire or wires in the terminal barrel, but by the total Circular Mil Area (CMA) in cross section of the wires used. For this purpose Tyco Electronics has prepared convenient tables to assist in the calculation of Circular Mil Area (CMA). When the totals are known, the correct Tyco Electronics terminal or splice can be determined quickly.

Unusual combinations or special applications should be submitted to Tyco Electronics engineering department for size recommendation. In any application, the careful selection of terminals by the Circular Mil Area (CMA) method will insure the highest possible performance, both electrically and mechanically, in your Tyco Electronics terminations.

CMA	Nominal Wire Size		No.	Strands Diameter		Approximate Conductor Diameter	
	AWG	mm ²		Inch	mm	Inch	mm
634	22	0.321	8	0.0089	0.226	0.029	0.737
635	22	0.322	16	0.0063	0.160	0.029	0.737
640	22	0.324	10	0.0080	0.203	0.029	0.737
640	22	0.324	1	0.0253	0.643	0.025	0.635
650	22	0.329	26	0.0050	0.127	0.033	0.838
700	22	0.355	7	0.0100	0.254	0.030	0.762
754	22	0.382	19	0.0063	0.160	0.033	0.838
812	21	0.411	1	0.0285	0.724	0.029	0.737
992	20	0.503	1	0.0315	0.800	0.032	0.813
1000	20	0.507	10	0.0100	0.254	0.038	0.965
1008	20	0.511	20	0.0071	0.180	0.039	0.991
1024	20	0.519	16	0.0080	0.203	0.039	0.991
1024	20	0.519	1	0.0320	0.813	0.032	0.813
1024	20	0.519	256	0.0020	0.051	0.039	0.991
1025	20	0.519	41	0.0050	0.127	0.038	0.965
1032	20	0.523	26	0.0063	0.160	0.039	0.991
1111	20	0.563	7	0.0126	0.320	0.039	0.991
1186	20	0.601	19	0.0079	0.201	0.041	1.041
1289	19	0.653	1	0.0359	0.912	0.036	0.914
1492	18.5	0.756	7	0.0146	0.371	0.047	1.194
1512	18.5	0.766	30	0.0071	0.180	0.047	1.194
1536	18.5	0.778	384	0.0020	0.051	0.047	1.194
1536	18.5	0.778	24	0.0080	0.203	0.047	1.194
1600	18	0.811	16	0.0100	0.254	0.049	1.245
1608	18	0.815	19	0.0092	0.234	0.049	1.245
1617	18	0.819	7	0.0152	0.386	0.042	1.067
1624	18	0.823	1	0.0403	1.024	0.040	1.016
1525	18	0.823	65	0.0050	0.127	0.040	1.016
1627	18	0.824	41	0.0063	0.016	0.049	1.245
1639	18	0.830	7	0.0153	0.389	0.042	1.067
1770	18	0.897	7	0.0159	0.404	0.048	1.219
1900	18	0.963	19	0.0100	0.254	0.052	1.321
1980	17	1.003	1	0.0445	1.130	0.045	1.143
1999	17	1.013	7	0.0169	0.429	0.047	1.194
2048	17	1.038	32	0.0080	0.203	0.047	1.194
2048	17	1.038	512	0.0020	0.051	0.049	1.245
2052	17	1.040	1	0.0453	1.151	0.045	1.143
2426	16	1.229	19	0.0113	0.287	0.061	1.549
2521	16	1.277	50	0.0071	0.180	0.059	1.499
2540	16	1.287	16	0.0126	0.320	0.059	1.499
2580	16	1.307	65	0.0063	0.160	0.059	1.499
2581	16	1.308	1	0.0508	1.290	0.051	1.295
2600	16	1.317	26	0.0100	0.254	0.061	1.549
2625	16	1.330	105	0.0050	0.127	0.059	1.499
2800	16	1.419	7	0.0200	0.508	0.061	1.549
2942	15.5	1.491	7	0.0205	0.521	0.059	1.499
2948	15.5	1.494	1	0.0543	1.379	0.054	1.372

Table Listing: Circular Mil Area for common wire sizes

Example of Multiple Wire Configurations Used In One Termination

ALWAYS SELECT TERMINALS BY THE CIRCULAR MIL AREA METHOD. For example, a No. 18 AWG 16-strand conductor (1600 CMA) and a No. 16 AWG 19-strand conductor (2426 CMA) will have a combined total of 4026 CMA. This total CMA is equivalent to a No. 14 AWG conductor.

Wire Sizes in AWG and mm² to CMA

Note: The following tables are applicable to single and multiple strand, round, conductors only.

















CMA	Nominal Wire Size		No.	Strands Diameter		Approximate Conductor Diameter	
	AWG	mm ²		Inch	mm	Inch	mm
3000	15.5	1.520	30	0.0100	0.254	0.059	1.499
3073	15.5	1.557	392	0.0028	0.071	0.061	1.549
3260	15	1.652	1	0.0571	1.450	0.057	1.448
3831	14	1.941	19	0.0142	0.361	0.076	1.930
3899	14	1.976	7	0.0236	0.599	0.071	1.803
4079	14	2.067	37	0.0105	0.267	0.073	1.854
4099	14	2.077	7	0.0242	0.615	0.076	1.930
4100	14	2.077	41	0.0100	0.254	0.077	1.956
4106	14	2.081	19	0.0147	0.373	0.076	1.930
4109	14	2.082	1	0.0641	1.628	0.064	1.626
4128	14	2.092	26	0.0126	0.320	0.075	1.905
4167	14	2.111	105	0.0063	0.160	0.073	1.854
4234	14	2.145	84	0.0071	0.180	0.074	1.880
4802	13.5	2.433	50	0.0098	0.249	0.087	2.210
4842	13.5	2.453	7	0.0263	0.668	0.079	2.007
4914	13.5	2.490	1	0.0701	1.781	0.070	1.778
5184	13	2.627	1	0.0720	1.829	0.072	1.829
6088	12	3.085	19	0.0179	0.455	0.096	2.438
6343	12	3.214	165	0.0062	0.157	0.095	2.413
6475	12	3.281	259	0.0050	0.127	0.105	2.667
6500	12	3.294	65	0.0100	0.254	0.096	2.438
6503	12	3.295	19	0.0185	0.470	0.092	2.337
6509	12	3.298	41	0.0126	0.320	0.094	2.388
6512	12	3.300	7	0.0305	0.775	0.086	2.184
6529	12	3.308	1	0.0808	2.052	0.081	2.057
6545	12	3.316	37	0.0133	0.338	0.093	2.362
6654	12	3.372	84	0.0089	0.226	0.094	2.388
6946	11.5	3.520	7	0.0315	0.800	0.094	2.388
7856	11.5	3.981	7	0.0335	0.851	0.100	2.540
7985	11.5	4.046	19	0.0205	0.521	0.101	2.565
8064	11.5	4.086	56	0.0120	0.305	0.102	2.591
8226	11	4.168	1	0.0907	2.304	0.091	2.311
9072	10	4.597	7	0.0360	0.914	0.096	2.438
9472	10	4.799	37	0.0160	0.406	0.109	2.769
10080	10	5.108	1	0.1004	2.550	0.100	2.540
10319	10	5.229	37	0.0167	0.424	0.109	2.769
10319	10	5.229	65	0.0126	0.320	0.118	2.997
10365	10	5.252	41	0.0159	0.404	0.122	3.099
10376	10	5.258	7	0.0385	0.978	0.096	2.438
10384	10	5.262	1	0.1019	2.588	0.102	2.591
10404	10	5.272	19	0.0234	0.594	0.117	2.972
10500	10	5.320	105	0.0100	0.254	0.116	2.946
10867	10	5.506	7	0.0394	1.001	0.118	2.997
11696	10	5.926	84	0.0118	0.300	0.130	3.302
11710	10	5.933	7	0.0409	1.039	0.128	3.251
11816	10	5.987	1	0.1087	2.761	0.109	2.769
12066	10	6.114	19	0.0252	0.640	0.126	3.200

Terminal Stud Hole Size

Use to Select Proper Size Terminal

This chart shows sizes and dimensions of various studs and the corresponding terminal stud hole sizes used with Tyco Electronics crimp devices.

Terminal stud hole sizes may easily be checked by fitting sample terminal to black circle.

Metric	Stud Size		Stud Dia mm	Minimum Terminal Hole Diameter	
		U.S.			
-		#0	1.52		1.63
-		#1	1.85		1.96
M2		#2	2.18		2.29
-		#3	2.52		2.62
-		#4	2.85		2.95
M3		#5	3.18		3.28
M3.5		#6	3.51		3.61
M4		#8	4.17		4.27
-		#10	4.83		4.93
-		#12	5.49		5.59
-		#14	6.15		6.22
M6		1/4"	6.35		6.60
M8		5/16"	7.93		8.20
-		3/8"	9.53		9.78
-		7/16"	11.10		11.38
M12		1/2"	12.70		12.95

All dimensions shown are typical.
Please consult Tyco Electronics Customer Drawing for actual clearance dimensions

Tooling and Wire Preparation

Wire Selection and Preparation

The terminals and splices will accept solid or stranded copper wire sizes 0.5 mm² to 6 mm² [22 to 10 AWG] with an insulation diameter range of 2.03 to 6.35 mm. Correct strip length is necessary to insert the wire into the terminal or splice properly. The strip length of the wire is shown in Figure 2.

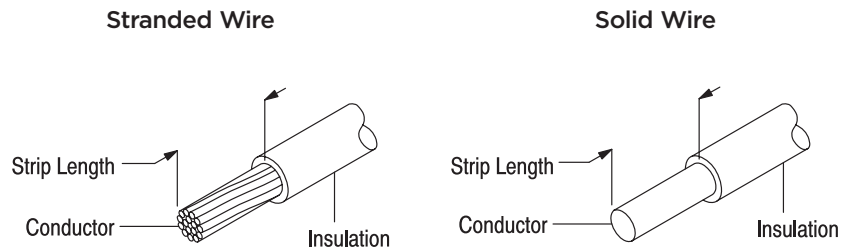


Figure 2

Terminal or Splice Size mm ² AWG	Insulation Colour	Wire Insulation Diameter	Wire Strip Length		
			Terminal	Butt Splice	Parallel Splice
0.5-1.5(22-16]	Red	2.03-3.56	5.16-5.94	6.35-7.14	7.87-8.64
1.5-2.5(16-14]	Blue	2.67-4.32	5.16-5.94	6.35-7.14	7.87-8.64
4.0-6.0(12-10]	Yellow	3.81-6.35	7.93-8.73	8.73-4.53	8.73-9.53

For full Application Specification, use Tyco Electronics document 114-13196
For more information, go to tycoelectronics.com

Tooling

Hand tools for manual application of loose piece terminals and splices are available to cover the full wire size range. Tooling part numbers and instructional material packaged with the tooling are shown in Figure 3.

Hand crimping tools consist of a handle assembly with integral fixed jaws or fixed dies, or a head that accepts various die assemblies. The jaws or dies have one or more crimping chambers used to crimp terminals and splices onto pre-stripped wire. The hand tool assemblies have a ratchet, except the hydraulic hand crimping tool which uses hydraulic fluid, to ensure full crimping pressure is applied to the terminal or splice.

Modified designs and additional tooling concepts may be available to meet other application requirements. Tool Engineers have designed machines for a variety of application requirements. For assistance in setting up prototype and production line equipment, contact your local Tyco Electronics Representative.

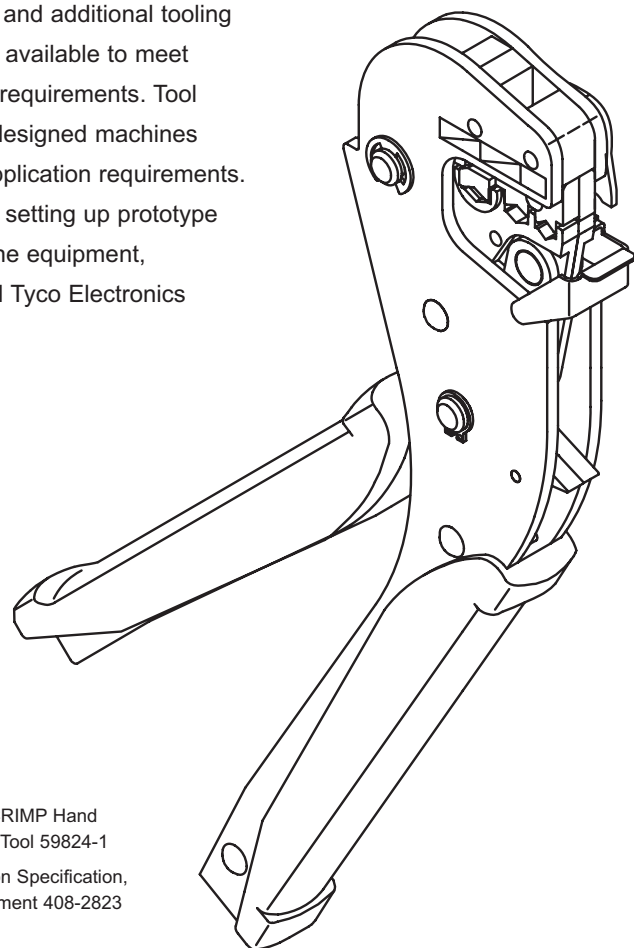
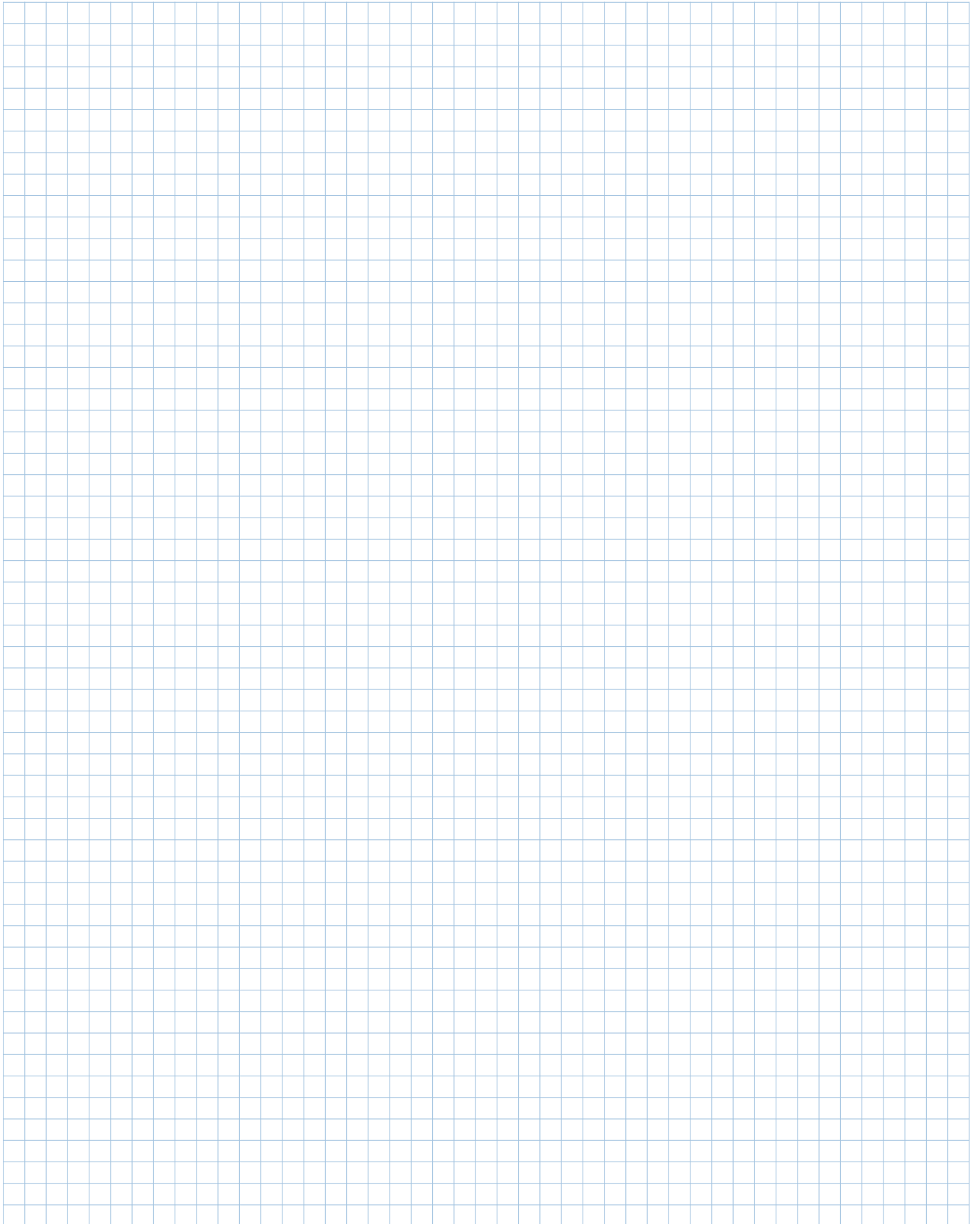


Figure 3.
TETRA-CRIMP Hand Crimping Tool 59824-1
Application Specification, see document 408-2823

* Tooling for Ring Tongue Terminals according to DIN 46237, use CERTI-CRIMP Hand Tool:
- Red terminals: 47386-4
- Blue terminals: 47387-7
- Yellow terminals: 59239-4

Engineering Notes



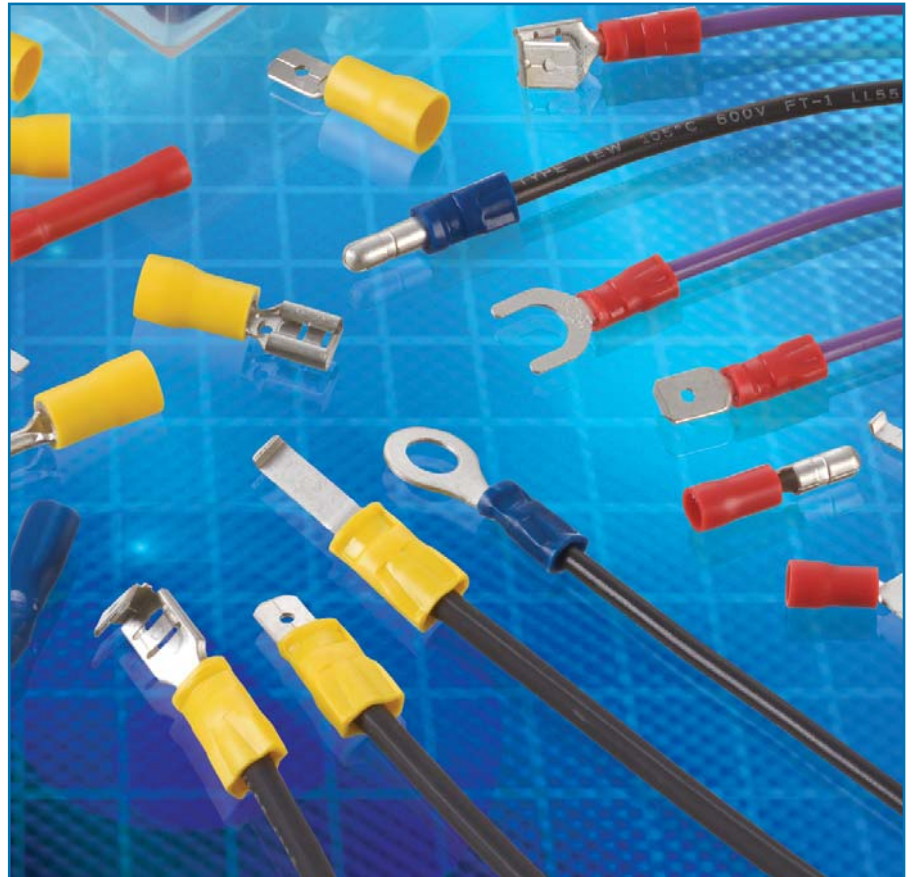
Product Facts

Product Facts

- Pre-Insulated EURO-CRIMP solderless terminals and splices
- Designed to meet the cost/performance needs of insulated electrical terminations
- Wide and varied use for almost all commercial applications
- Re-sealable packaging for ease of infield termination

Design Features

- Accommodates wire sizes 0.5sqm – 6.0sqm (22AWG – 10AWG)
- Colour coded vinyl insulation by wire size for easy identification
- Easy wire insertion for low cost termination
- Tyco Electronics F crimp termination provides long life performance
- Standard Tyco Electronics hand crimp tool and die set ensure uniform high quality crimp
- UL Listed under File E13288
CSA Certified*
VDE Approved*



Terminals

Page

Ring Tongue.....	12
Ring Tongue according to DIN 46237.....	13
Fork Tongue.....	14
Blade Tongue.....	15
Hooked Blade Tongue.....	16
Wire Pin.....	17
Female Push-On.....	18
Female Push-On Fully Insulated.....	19
Male Push-On.....	20
Piggy Back.....	21
Male Bullet.....	22
Female Bullet.....	22

Splices

Butt	23
Parallel.....	24
Closed End.....	25

* Approval Pending

Ring Tongue Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Tongue Material Thickness Max	Stud Size	Dimensions			Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
			W	E Max	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16 0.26-1.65	0.75	M3	5.50	10.50	17.50	●	4.30	1-1838142-0	100	2-1838142-0	1,000
	0.75	M3.5	5.50	10.50	17.50	●	4.30	1-1838143-0	100	2-1838143-0	1,000
	0.75	M4	6.60	10.50	20.40	●	4.30	1-1838144-0	100	2-1838144-0	1,000
	0.75	M5	8.00	10.50	21.70	●	4.30	1-1838145-0	100	2-1838145-0	1,000
	0.75	M6	11.60	10.50	27.60	●	4.30	1-1838146-0	100	2-1838146-0	1,000
	0.75	M8	11.60	10.50	27.60	●	4.30	1-1838147-0	100	2-1838147-0	1,000
	0.75	M10	13.70	10.50	31.50	●	4.30	1-1838148-0	100	2-1838148-0	1,000
	0.75	M12	19.00	10.50	35.00	●	4.30	1-1838149-0	50	2-1838149-0	1,000
16-14 1.04-2.62	0.80	M3	6.60	11.00	20.60	●	4.70	1-1838150-0	100	2-1838150-0	1,000
	0.80	M3.5	6.60	11.00	20.60	●	4.70	1-1838151-0	100	2-1838151-0	1,000
	0.80	M4	6.60	11.00	20.80	●	4.70	1-1838152-0	100	2-1838152-0	1,000
	0.80	M5	8.50	11.00	23.00	●	4.70	1-1838153-0	100	2-1838153-0	1,000
	0.80	M6	12.00	11.00	28.10	●	4.70	1-1838154-0	100	2-1838154-0	1,000
	0.80	M8	12.00	11.00	28.10	●	4.70	1-1838155-0	100	2-1838155-0	1,000
	0.80	M10	13.70	11.00	31.90	●	4.70	1-1838156-0	100	2-1838156-0	1,000
	0.80	M12	19.00	11.00	35.50	●	4.70	1-1838157-0	50	2-1838157-0	1,000
12-10 2.62-6.64	1.00	M3	9.50	14.00	26.70	●	6.70	1-1838158-0	50	2-1838158-0	500
	1.00	M3.5	9.50	14.00	26.70	●	6.70	1-1838159-0	50	2-1838159-0	500
	1.00	M4	9.50	14.00	26.70	●	6.70	1-1838160-0	50	2-1838160-0	500
	1.00	M5	9.50	14.00	26.70	●	6.70	1-1838161-0	50	2-1838161-0	500
	1.00	M6	12.00	14.00	32.70	●	6.70	1-1838162-0	50	2-1838162-0	500
	1.00	M8	15.00	14.00	34.90	●	6.70	1-1838163-0	50	2-1838163-0	500
	1.00	M10	15.00	14.00	34.90	●	6.70	1-1838164-0	50	2-1838164-0	500
	1.00	M12	19.20	14.00	39.90	●	6.70	1-1838165-0	25	2-1838165-0	500

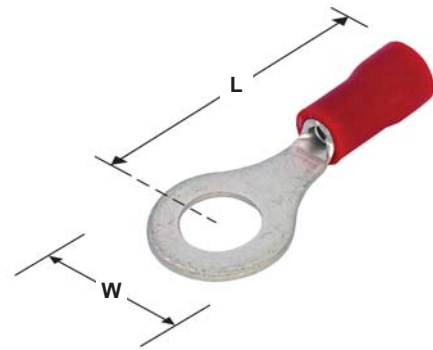
Ring Tongue Terminal according to DIN 46237

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9*



Wire Size mm ²	Tongue Material Thickness Max	Stud Size	Dimensions		Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
			W	L			Small Pack	Box Qty	Bulk Pack	Bag Qty
0.5-1.0	0.8	M2.5	6.0	16.0	●	3.1	165401	100	165401-1	1000
	0.8	M3	6.0	16.0	●	3.1	165402	100	165402-1	1000
	0.8	M3.5	6.0	16.0	●	3.1	165403	100	165403-1	1000
	0.8	M4	8.0	17.0	●	3.1	165404	100	165404-1	1000
	0.8	M5	10.0	18.0	●	3.1	165405	100	165405-1	1000
1.5-2.5	0.8	M3	6.0	17.0	●	3.9	165406	100	165406-1	1000
	0.8	M3.5	6.0	17.0	●	3.9	165407	100	165407-1	1000
	0.8	M4	8.0	18.0	●	3.9	165408	100	165408-1	1000
	0.8	M5	10.0	20.0	●	3.9	165409	100	165409-1	1000
	0.8	M6	11.0	22.0	●	3.9	165410	100	165410-1	1000
4.0-6.0	1.0	M4	8.0	20.0	●	5.6	165412	50	165412-1	500
	1.0	M5	10.0	21.0	●	5.6	165413	50	165413-1	500
	1.0	M6	11.0	22.0	●	5.6	165414	50	165414-1	500
	1.0	M8	14.0	25.0	●	5.6	165415	50	165415-1	500
	1.0	M10	18.0	27.0	●	5.6	165416	50	165416-1	500

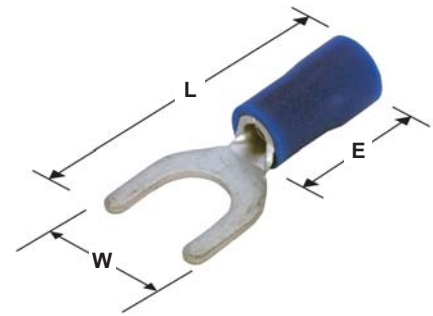
Fork Tongue Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Tongue Material Thickness Max	Stud Size	Dimensions			Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
			W	E Max	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16 0.26-1.65	0.75	M3	5.70	10.50	22.00	●	4.30	1-1838166-0	100	2-1838166-0	1,000
	0.75	M3.5	5.70	10.50	22.00	●	4.30	1-1838167-0	100	2-1838167-0	1,000
	0.75	M4	7.20	10.50	22.00	●	4.30	1-1838168-0	100	2-1838168-0	1,000
	0.75	M4	6.40	10.50	22.00	●	4.30	1-1838169-0	100	2-1838169-0	1,000
	0.75	M5	8.00	10.50	22.00	●	4.30	1-1838170-0	100	2-1838170-0	1,000
	0.75	M6	10.70	10.50	23.00	●	4.30	1-1838171-0	100	2-1838171-0	1,000
16-14 1.04-2.62	0.80	M3	5.70	11.00	22.50	●	4.70	1-1838172-0	100	2-1838172-0	1,000
	0.80	M3.5	5.70	11.00	22.50	●	4.70	1-1838173-0	100	2-1838173-0	1,000
	0.80	M4	7.20	11.00	22.50	●	4.70	1-1838174-0	100	2-1838174-0	1,000
	0.80	M4	6.40	11.00	22.50	●	4.70	1-1838175-0	100	2-1838175-0	1,000
	0.80	M5	8.00	11.00	22.50	●	4.70	1-1838176-0	100	2-1838176-0	1,000
	0.80	M6	10.70	11.00	23.50	●	4.70	1-1838177-0	100	2-1838177-0	1,000
12-10 2.62-6.64	0.80	M3.5	8.10	14.00	26.70	●	6.70	1-1838178-0	50	2-1838178-0	500
	1.00	M4	8.20	14.00	26.70	●	6.70	1-1838179-0	50	2-1838179-0	500
	1.00	M5	9.00	14.00	26.70	●	6.70	1-1838180-0	50	2-1838180-0	500
	1.00	M6	12.00	14.00	30.70	●	6.70	1-1838181-0	50	2-1838181-0	500



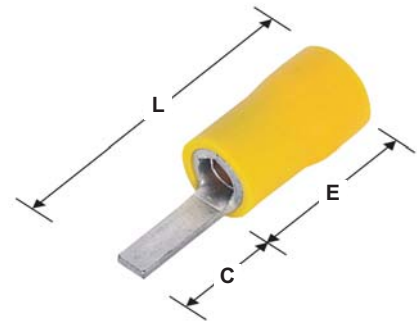
Blade Tongue Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Tongue Material Thickness Max	Blade Width	Dimensions			Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
			C Min	E Max	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16	0.75	2.80	9.00	10.50	19.50	●	4.30	1-1838182-0	100	2-1838182-0	1,000
	0.75	3.00	14.50	10.50	25.00	●	4.30	1-1838183-0	100	2-1838183-0	1,000
0.26-1.65	0.75	2.45	18.00	10.50	28.50	●	4.30	1-1838184-0	100	2-1838184-0	1,000
16-14	0.80	2.80	9.00	11.00	20.00	●	4.70	1-1838185-0	100	2-1838185-0	1,000
1.04-2.62	0.80	2.45	18.00	11.00	29.00	●	4.70	1-1838186-0	100	2-1838186-0	1,000
12-10	1.00	2.80	10.00	14.00	24.00	●	6.70	1-1838187-0	50	2-1838187-0	500
2.62-6.64	1.00	4.50	18.00	14.00	32.00	●	6.70	1-1838188-0	50	2-1838188-0	500



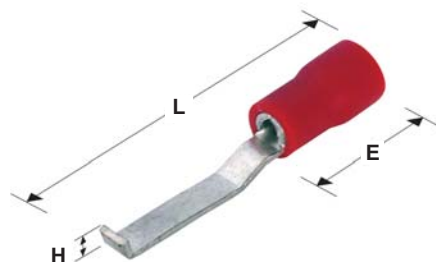
Hooked Blade Tongue Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Tongue Material Thickness Max	Blade Width	Dimensions			Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
			H	E Max	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16	0.80	2.80	2.20	10.50	28.30	●	4.30	1-1838189-0	100	2-1838189-0	1,000
0.26-1.65	0.80	4.60	4.60	10.50	28.30	●	4.30	1-1838190-0	100	2-1838190-0	1,000
16-14	0.80	2.80	2.80	11.00	28.80	●	4.70	1-1838191-0	100	2-1838191-0	1,000
1.04-2.62	0.80	4.60	4.60	11.00	28.80	●	4.70	1-1838192-0	100	2-1838192-0	1,000
12-10 2.62-6.64	1.00	4.60	3.00	14.00	31.80	●	6.70	1-1838193-0	50	2-1838193-0	500



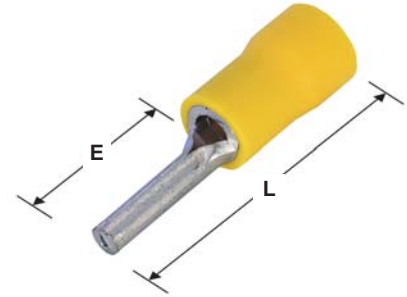
Wire Pin Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Tongue Material Thickness Max	Pin Length	Dimensions		Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
			E Max	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16	2.00	9.00	10.50	19.50	●	4.30	1-1838194-0	100	2-1838194-0	1,000
0.26-1.65	2.00	12.00	10.50	22.50	●	4.30	1-1838195-0	100	2-1838195-0	1,000
16-14	2.00	9.00	11.00	20.00	●	4.70	1-1838196-0	100	2-1838196-0	1,000
1.04-2.62	2.00	12.00	11.00	23.00	●	4.70	1-1838197-0	100	2-1838197-0	1,000
12-10 2.62-6.64	2.70	13.50	14.00	27.50	●	6.70	1-1838198-0	50	2-18381998-0	500



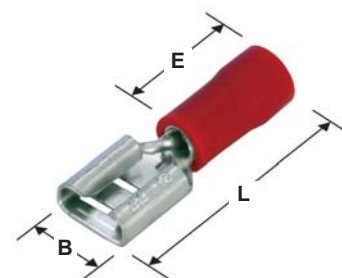
Female Push-On Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Max Tongue Width	Max Tongue Thickness	Dimensions			Terminal Colour	Wire Insulation		Part Numbers			
			B	E Max	L Max		Diameter Max	Small Pack	Box Qty	Bulk Pack	Bag Qty	
22-16 0.26-1.65	2.80	0.50	3.20	10.50	19.00	●	4.10	1-1838208-0	100	2-1838208-0	1,000	
	2.80	0.80	3.20	10.50	19.00	●	4.10	1-1838209-0	100	2-1838209-0	1,000	
	4.80	0.50	5.00	10.50	19.50	●	4.10	1-1838210-0	100	2-1838210-0	1,000	
	4.80	0.80	5.00	10.50	19.50	●	4.10	1-1838211-0	100	2-1838211-0	1,000	
16-14 1.04-2.62	6.40	0.80	6.70	10.50	21.50	●	4.10	1-1838212-0	100	2-1838212-0	1,000	
	4.80	0.50	5.00	11.00	20.00	●	4.90	1-1838213-0	100	2-1838213-0	1,000	
	4.80	0.80	5.00	11.00	20.00	●	4.90	1-1838214-0	100	2-1838214-0	1,000	
12-10 2.62-6.64	6.40	0.80	6.70	11.00	22.00	●	4.90	1-1838215-0	100	2-1838215-0	1,000	
	6.40	0.80	6.70	14.00	25.00	●	6.50	1-1838216-0	50	2-1838216-0	500	
	9.40	1.20	9.90	14.00	30.10	●	6.50	1-1838217-0	50	2-1838217-0	500	



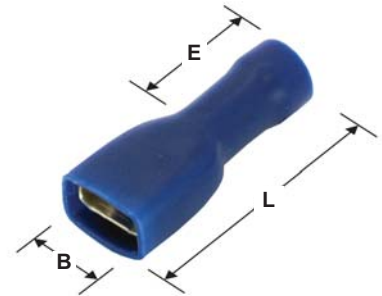
Female Push-On Terminal Fully Insulated

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Max Tongue Width	Max Tongue Thickness	Dimensions			Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
			B	E Max	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16 0.26-1.65	4.80	0.50	5.00	10.50	20.50	●	4.10	1-1838218-0	100	2-1838218-0	1,000
	4.80	0.80	5.00	10.50	20.50	●	4.10	1-1838219-0	100	2-1838219-0	1,000
	6.40	0.80	6.70	10.50	22.00	●	4.10	1-1838220-0	50	2-1838220-0	500
16-14 1.04-2.62	4.80	0.50	5.00	11.00	21.50	●	4.90	1-1838221-0	100	2-1838221-0	1,000
	4.80	0.80	5.00	11.00	21.50	●	4.90	1-1838222-0	100	2-1838222-0	1,000
	6.40	0.80	6.70	11.00	22.50	●	4.90	1-1838223-0	50	2-1838223-0	500
12-10 2.62-6.64	6.40	0.80	6.70	12.50	25.00	●	6.70	1-1838224-0	50	2-1838224-0	500



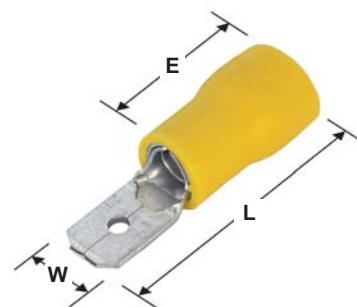
Male Push-On Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Max Tongue Width	Max Tongue Thickness	Dimensions			Terminal Colour	Wire Insulation		Part Numbers			
			W	E Max	L Max		Diameter Max	Small Pack	Box Qty	Bulk Pack	Bag Qty	
22-16 0.26-1.65	6.40	0.80	6.35	10.50	22.00	●	4.10	1-1838225-0	100	2-1838225-0	1,000	
16-14 1.04-2.62	6.40	0.80	6.35	10.50	22.50	●	4.90	1-1838226-0	100	2-1838226-0	1,000	
12-10 2.62-6.64	6.40	0.80	6.35	14.00	–	●	6.50	1-1838227-0	50	2-1838227-0	500	



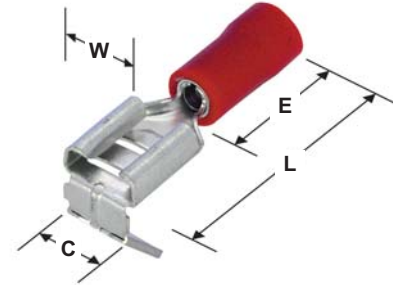
Piggy Back Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Max Tongue Width	Max Tongue Thickness	Dimensions				Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
			W	C Min	E Max	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16 0.26-1.65	6.40	0.80	6.80	6.35	10.50	22.50	●	4.10	1-1838228-0	50	2-1838228-0	500
16-14 1.04-2.62	6.40	0.80	6.80	6.35	11.00	23.00	●	4.90	1-1838229-0	50	2-1838229-0	500
12-10 2.62-6.64	6.40	0.80	6.80	6.35	14.00	25.00	●	6.50	1-1838230-0	50	2-1838230-0	500



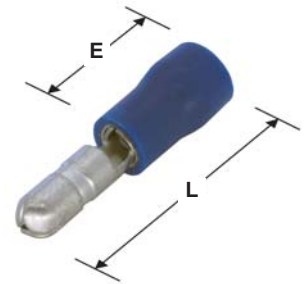
Male Bullet Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Contact Diameter	Dimensions		Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
		E Max	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16 0.26-1.65	4.00	10.50	21.50	●	4.10	1-1838231-0	100	2-1838231-0	1,000
16-14 1.04-2.62	4.00	11.00	22.00	●	4.90	1-1838232-0	100	2-1838232-0	1,000

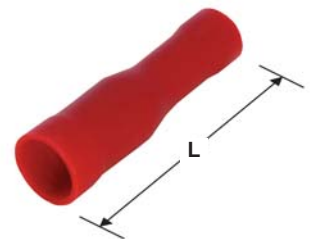
Female Bullet Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Contact Diameter	Dimensions	Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
		L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16 0.26-1.65	4.00	24.50	●	4.30	1-1838233-0	100	2-1838233-0	1,000
16-14 1.04-2.62	4.00	24.50	●	4.90	1-1838234-0	100	2-1838234-0	1,000

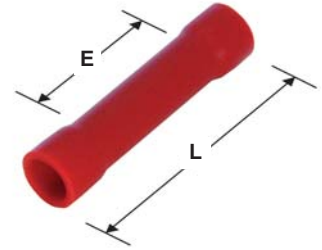
Butt Splice Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Dimensions		Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
	E Max	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16 0.26-1.65	15.00	25.00	●	4.30	1-1838199-0	100	2-1838199-0	1,000
16-14 1.04-2.62	15.00	25.00	●	4.50	1-1838200-0	100	2-1838200-0	1,000
12-10 2.62-6.64	15.00	27.00	●	6.50	1-1838201-0	50	2-1838201-0	500



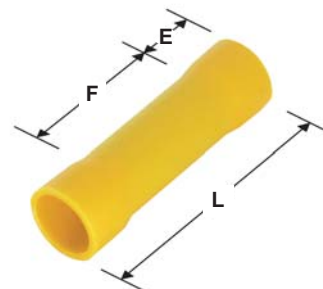
Parallel Splice Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ²	Dimensions			Terminal Colour	Wire Insulation Diameter Max	Part Numbers			
	F	E Max	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16 0.26-1.65	8.00	5.00	18.00	●	4.30	1-1838202-0	100	2-1838202-0	1,000
16-14 1.04-2.62	8.00	5.00	18.00	●	5.00	1-1838203-0	100	2-1838203-0	1,000
12-10 2.62-6.64	8.50	6.50	21.50	●	6.70	1-1838204-0	50	2-1838204-0	500



Closed End Connector Terminal

Material

Insulation: Vinyl, UL94V-0
 Terminal Body: Copper
 Plating: Tin

Related Product Data

Insulation Colour Code: pg 4
 Packaging Quantities: pg 4
 Performance Specifications: pg 5
 Application Tooling: pg 9



Wire Size mm ² Circular Mils	Dimensions		Wire Insulation Terminal Colour	Diameter Max	Part Numbers			
	W	L Max			Small Pack	Box Qty	Bulk Pack	Bag Qty
22-16 0.26-1.65 513-3256	5.00	18.10	○	6.00	1-1838205-0	100	2-1838205-0	1,000
16-14 1.04-2.62 2052-5170	5.80	21.00	○	6.00	1-1838206-0	100	2-1838206-0	1,000
12-10 2.62-6.64 5170-13104	7.10	25.50	○	10.50	1-1838207-0	25	2-1838207-0	500



Part Number Index

Part No.	Page No.	Part No.	Page No.	Part No.	Page No.	Part No.	Page No.
165401	13	1-1838177-0	14	1-1838228-0	21	2-1838186-0	15
165402	13	1-1838178-0	14	1-1838229-0	21	2-1838187-0	15
165403	13	1-1838179-0	14	1-1838230-0	21	2-1838188-0	15
165404	13	1-1838180-0	14	1-1838231-0	22	2-1838189-0	16
165405	13	1-1838181-0	14	1-1838232-0	22	2-1838190-0	16
165406	13	1-1838182-0	15	1-1838233-0	22	2-1838191-0	16
165407	13	1-1838183-0	15	1-1838234-0	22	2-1838192-0	16
165408	13	1-1838184-0	15	2-1838142-0	12	2-1838193-0	16
165409	13	1-1838185-0	15	2-1838143-0	12	2-1838194-0	17
165410	13	1-1838186-0	15	2-1838144-0	12	2-1838195-0	17
165411	13	1-1838187-0	15	2-1838145-0	12	2-1838196-0	17
165412	13	1-1838188-0	15	2-1838146-0	12	2-1838197-0	17
165413	13	1-1838189-0	16	2-1838147-0	12	2-1838198-0	17
165414	13	1-1838190-0	16	2-1838148-0	12	2-1838199-0	23
165415	13	1-1838191-0	16	2-1838149-0	12	2-1838200-0	23
165416	13	1-1838192-0	16	2-1838150-0	12	2-1838201-0	23
1-1838142-0	12	1-1838193-0	16	2-1838151-0	12	2-1838202-0	24
1-1838143-0	12	1-1838194-0	17	2-1838152-0	12	2-1838203-0	24
1-1838144-0	12	1-1838195-0	17	2-1838153-0	12	2-1838204-0	24
1-1838145-0	12	1-1838196-0	17	2-1838154-0	12	2-1838205-0	25
1-1838146-0	12	1-1838197-0	17	2-1838155-0	12	2-1838206-0	25
1-1838147-0	12	1-1838198-0	17	2-1838156-0	12	2-1838207-0	25
1-1838148-0	12	1-1838199-0	23	2-1838157-0	12	2-1838208-0	18
1-1838149-0	12	1-1838200-0	23	2-1838158-0	12	2-1838209-0	18
1-1838150-0	12	1-1838201-0	23	2-1838159-0	12	2-1838210-0	18
1-1838151-0	12	1-1838202-0	24	2-1838160-0	12	2-1838211-0	18
1-1838152-0	12	1-1838203-0	24	2-1838161-0	12	2-1838212-0	18
1-1838153-0	12	1-1838204-0	24	2-1838162-0	12	2-1838213-0	18
1-1838154-0	12	1-1838205-0	25	2-1838163-0	12	2-1838214-0	18
1-1838155-0	12	1-1838206-0	25	2-1838164-0	12	2-1838215-0	18
1-1838156-0	12	1-1838207-0	25	2-1838165-0	12	2-1838216-0	18
1-1838157-0	12	1-1838208-0	18	2-1838166-0	14	2-1838217-0	18
1-1838158-0	12	1-1838209-0	18	2-1838167-0	14	2-1838218-0	19
1-1838159-0	12	1-1838210-0	18	2-1838168-0	14	2-1838219-0	19
1-1838160-0	12	1-1838211-0	18	2-1838169-0	14	2-1838220-0	19
1-1838161-0	12	1-1838212-0	18	2-1838170-0	14	2-1838221-0	19
1-1838162-0	12	1-1838213-0	18	2-1838171-0	14	2-1838222-0	19
1-1838163-0	12	1-1838214-0	18	2-1838172-0	14	2-1838223-0	19
1-1838164-0	12	1-1838215-0	18	2-1838173-0	14	2-1838224-0	19
1-1838165-0	12	1-1838216-0	18	2-1838174-0	14	2-1838225-0	20
1-1838166-0	14	1-1838217-0	18	2-1838175-0	14	2-1838226-0	20
1-1838167-0	14	1-1838218-0	19	2-1838176-0	14	2-1838227-0	20
1-1838168-0	14	1-1838219-0	19	2-1838177-0	14	2-1838228-0	21
1-1838169-0	14	1-1838220-0	19	2-1838178-0	14	2-1838229-0	21
1-1838170-0	14	1-1838221-0	19	2-1838179-0	14	2-1838230-0	21
1-1838171-0	14	1-1838222-0	19	2-1838180-0	14	2-1838231-0	22
1-1838172-0	14	1-1838223-0	19	2-1838181-0	14	2-1838232-0	22
1-1838173-0	14	1-1838224-0	19	2-1838182-0	15	2-1838233-0	22
1-1838174-0	14	1-1838225-0	20	2-1838183-0	15	2-1838234-0	22
1-1838175-0	14	1-1838226-0	20	2-1838184-0	15		
1-1838176-0	14	1-1838227-0	20	2-1838185-0	15		

Global Contacts
Americas

Argentina – Buenos Aires
Phone: +54-11-4733-2200
Fax: +54-11-4733-2211

Brasil – São Paulo
Phone: +55-11-3611-1311
Fax: +55-11-3611-0397

Canada – Toronto
Phone: +905-475-6222
Fax: +905-474-5520
Product Information Center:
Phone: +905-470-4425
Fax: +905-474-5525

Colombia – Bogota
Phone: +57-1-231-9398
Fax: +57-1-660-0206

Mexico – Mexico City
Phone: +52-55-1106-0800
+01-800-733-8926
Fax: +52-55-1106-0901

For Latin/South American
Countries not shown
Phone: +54-11-4733-2015
Fax: +54-11-4733-2083

United States
Harrisburg, PA
Phone: +1-717-564-0100
Fax: +1-717-986-7575
Product Information Center:
Phone: +1-800-522-6752
Fax: +1-717-986-7575

Troy, MI
Phone: +1-248-273-3359
Fax: +1-248-273-3322

Asia/Pacific

Australia – Sydney
Phone: +61-2-9554-2600
Fax: +61-2-9502-2556
Product Information Center:
Phone: +61-2-9840-8200
Fax: +61-2-9634-6188

India – Bangalore
Phone: +91-80-285-40800
Fax: +91-80-285-40820

Indonesia – Jakarta
Phone: +65-6482-0311
Fax: +65-6482-1012

Japan – Kawasaki, Kanagawa
Phone: +81-44-844-8111
Fax: +81-44-812-3207
Product Information Center:
Phone: +81-44-844-8013
Fax: +81-44-812-3200

Korea – Seoul
Phone: +82-2-3415-4500
Fax: +82-2-3486-3810

Malaysia – Selangor
Phone: +60-3-7805-3055
Fax: +60-3-7805-3066

New Zealand – Auckland
Phone: +64-9-634-4580
Fax: +64-9-634-4586

Philippines – Makati City
Phone: +632-848-0171
Fax: +632-867-8661

People's Republic of China
Hong Kong
Phone: +852-2735-1628
Fax: +852-2735-0243

Shanghai
Phone: +86-21-2407-1588
Fax: +86-21-2407-1599

Singapore – Singapore
Phone: +65-6482-0311
Fax: +65-6482-1012

Taiwan – Taipei
Phone: +886-2-8768-2788
Fax: +886-2-8768-2268

Thailand – Bangkok
Phone: +66-2-955-0500
Fax: +66-2-955-0505

Vietnam – Ho Chi Minh City
Phone: +84-8-930-5546
Fax: +84-8-930-3443

Europe/Middle East/Africa

Austria – Vienna
Phone: +43-1-905-60-0
Fax: +43-1-905-60-1333
Product Information Center:
Phone: +43-1-905-60-1249
Fax: +43-1-905-60-1251

Belgium – Kessel-Lo
Phone: +32-16-352-300
Fax: +32-16-352-352

Bulgaria – Sofia
Phone: +359-2-971-2152
Fax: +359-2-971-2153

Czech Republic and Slovakia
Czech Republic – Kurim
Phone: +420-541-162-111
Fax: +420-541-162-223
Product Information Center:
Phone: +420-541-162-113
Fax: +420-541-162-132

Denmark – Glostrup
Phone: +45-43-48-04-00
Fax: +45-43-44-14-14

Egypt – Cairo
Phone: +202-419-2334
Fax: +202-417-7647

Estonia – Tartu
Phone: +372-5138-274
Fax: +372-7400-779

Finland – Helsinki
Phone: +358-95-12-34-20
Fax: +358-95-12-34-250

France – Cergy-Pontoise Cedex
Phone: +33-1-3420-8888
Fax: +33-1-3420-8600

Product Information Center:
Phone: +33-1-3420-8686
Fax: +33-1-3420-8623

France Export Divisions –
Cergy-Pontoise Cedex
Phone: +33-1-3420-8804
Fax: +33-1-3420-8699

Germany – Bensheim
Phone: +49-6251-133-0
Fax: +49-6251-133-1600
Product Information Center:
Phone: +49-6251-133-1999
Fax: +49-6251-133-1988

Greece – Athens
Phone: +30-210-9370-396/397
Fax: +30-210-9370-655

Hungary – Budapest
Phone: +36-1-289-1000
Fax: +36-1-289-1010
Product Information Center:
Phone: +36-1-289-1016
Fax: +36-1-289-1017

Ireland – Dublin
Phone: +353-1-866-5612
Fax: +353-1-866-5714

Israel – Petach-Tikva
Phone: +972-3-929-0999
Fax: +972-3-919-1088

Italy – Collegno (Torino)
Phone: +39-011-4012-111
Fax: +39-011-4031-116
Product Information Center:
Phone: +39-011-4012-428
Fax: +39-011-4028-7428

Lithuania and Latvia
Lithuania – Vilnius
Phone: +370-5-213-1402
Fax: +370-5-213-1403
Product Information Center:
Phone: +370-5-211-3016
Fax: +370-5-213-1403

Netherlands – 's-Hertogenbosch
Phone: +31-73-6246-246
Fax: +31-73-6212-365
Product Information Center:
Phone: +31-73-6246-999
Fax: +31-73-6246-998

Norway – Nesbru
Phone: +47-66-77-88-50
Fax: +47-66-77-88-55

Poland – Warsaw
Phone: +48-22-4576-700
Fax: +48-22-4576-720
Product Information Center:
Phone: +48-22-4576-704
Fax: +48-22-4576-720

Romania – Bucharest
Phone: +40-21-311-3479/3596
Fax: +40-21-312-0574

Russia – Moscow
Phone: +7-495-790-7902
Fax: +7-495-721-1893
Product Information Center:
Phone: +7-495-790-7902-404
Fax: +7-495-790-7902-401

Russia – St.Petersburg
Phone: +7-812-718-8192
Fax: +7-812-718-8193

Slovenia – Ljubljana
Phone: +386-1561-3270
Fax: +386-1561-3240

South Africa – Port Elizabeth
Phone: +27-41-503-4500
Fax: +27-41-581-0440

Spain – Barcelona
Phone: +34-93-291-0330
Fax: +34-93-201-7879

Sweden – Upplands Väsby
Phone: +46-8-50-72-50-00
Fax: +46-8-50-72-50-01

Switzerland – Steinach
Phone: +41-71-447-0447
Fax: +41-71-447-0444

Turkey – Istanbul
Phone: +90-212-281-8181/2/3
+90-212-282-5130/5430
Fax: +90-212-281-8184

Ukraine – Kiev
Phone: +380-44-206-2265
Fax: +380-44-206-2264
Product Information Center:
Phone: +380-44-206-2265
Fax: +380-44-206-2264

United Kingdom –
Stanmore, Middlesex
Phone: +44-8706-080208
Fax: +44-208-954-6234
Product Information Center:
Freephone (UK only):
0800-267-666
Phone: +44-8706-080208
Fax: +44-208-420-8095

tycoelectronics.com

Catalogue No: 5-1773448-7. January 2008
TE Logo and Tyco Electronics are trademarks

