



STANDARD POWER TIMER CONTACT

CONTENT

INTRODUCTION.....2

REFERENCED DOCUMENTS

Customer Drawings.....2
Product Specifications.....2
Application Specification2
Instruction Material.....2
National / International Standards.....3

DESCRIPTION

Contacts for Wires.....4
Contacts for Single-Wire Sealing.....5

REQUIREMENTS.....6

Wires.....6
Cutoff and Burr.....6
Wire Crimp.....6
Insulation Crimp or Single-Wire Seal Crimp.....7
Contact Area.....7
Shape and Position Tolerances.....8

TABLES / FIGURES

.....
Table 1 Crimping Data for Standard Power Timer Contacts with Wires.....11
Table 2 Crimping Data for Standard Power Timer Contacts with Single Wire Seals.....12
Table 3 Crimping Data for Standard Power Timer Contacts “Type A” with Wires.....13
Table 4 Crimping Data for Standard Power Timer Contacts “Type A” with Single Wire Seals.....13

Fig. 1 Contacts with Wires.....4
Fig. 2 Contacts with Single Wire Seals.....5
Fig. 3 Shape and Position Tolerances.....8
Fig. 4 Shape and Position Tolerances.....9
Fig. 5 Gauge Representation10

Extention I AWG/ISO Comparison in addition to Appl. Spec. 114-18037.....14



1. Introduction

This specification covers the special guidelines for the application of the STANDARD-POWER-TIMER contact system and the STANDARD-POWER-TIMER “ Type A “ contact system.

The instructions are intended primarily for automatic or semi-automatic application of all versions (for both wires and single-wire sealing), but may also be applied, if agreed, to hand tools.

The various contact types are listed in Tables 1 till 4, sorted by their wire ranges and crimping data.

The various STANDARD-POWER-TIMER “ Type A “ contact system are listed in Tables 5 till 8, sorted by their wire ranges and crimping data.

2. Referenced Documents

2.1 Customer Drawings

There is a customer drawing showing the dimensions and materials for each part number.

In the case of a conflict between this document and a customer drawing, the customer drawing takes precedence.

2.2 Product Specification

The Product Specification 108-18025 describes the characteristics of these contacts, together with the electrical and mechanical requirements.

2.3 Application Specifications

The general guidelines laid down in Application Specifications 114-18022 and 114-18018 also apply to the crimp quality.

2.4 Instructional Material

CM 5128	Contains information about crimping machines for MQC crimping tools.
AI 8025	Describes the MQC crimping tool.
IS 6764	Instruction sheet for AMP CERTI-LOK* hand tool.
IS 7424	Explains how to measure the crimp height.



2.5 National / International Standards

DIN 72 551 T5/05.92	Unscreened low tension cables (FLR)
DIN 72 551 T6/01.92	Unscreened low tension cables (FLR)
DIN ISO 6722 T1/04.85	Unscreened low tension cables (FLK)
DIN ISO 6722 T2/04.84	Unscreened low tension cables (FLK)
DIN ISO 6722 T3/08.87	Unscreened low tension cables (FLK)
DIN IEC 352 T2/04.92	Solderless electrical connections, crimped connections

3. Description

The terms shown below are used in the specification.

3.1 Contacts for Wires

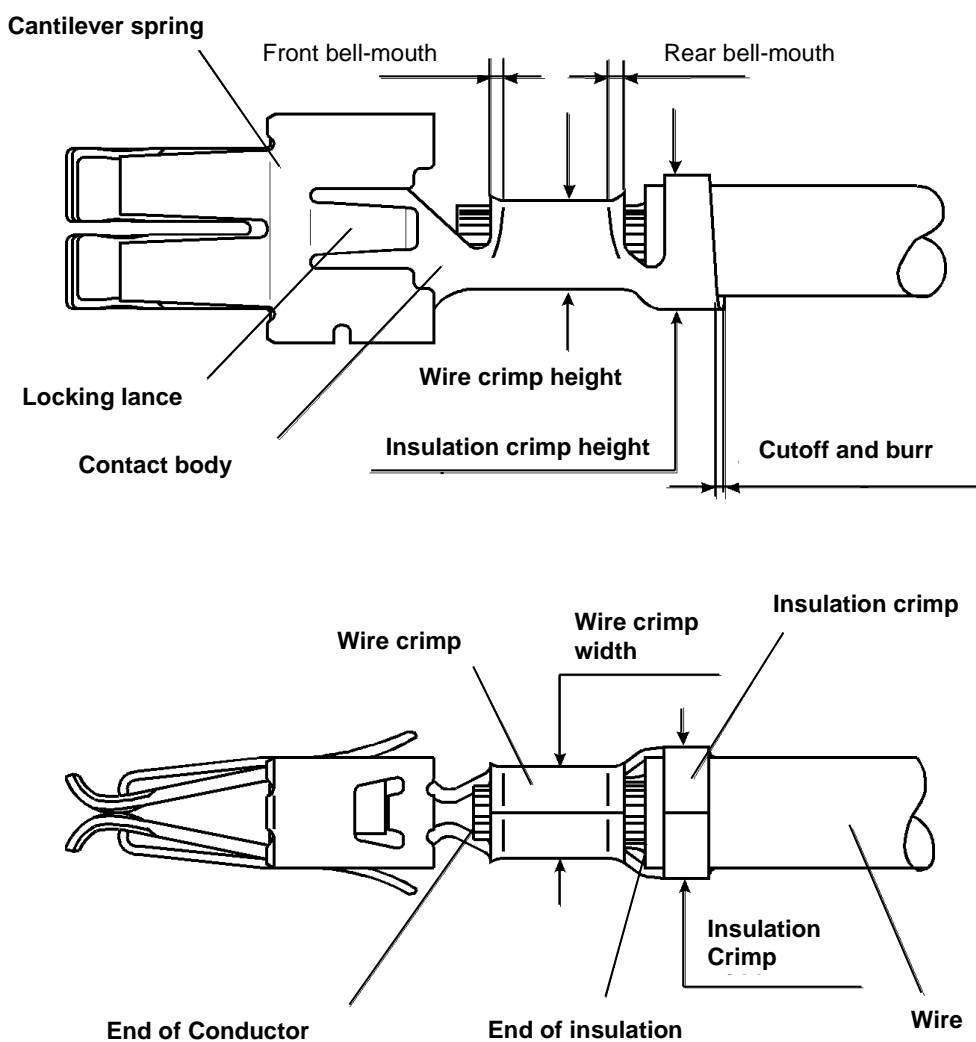


Fig. 1

3.2 Contacts for Single-Wire Sealing

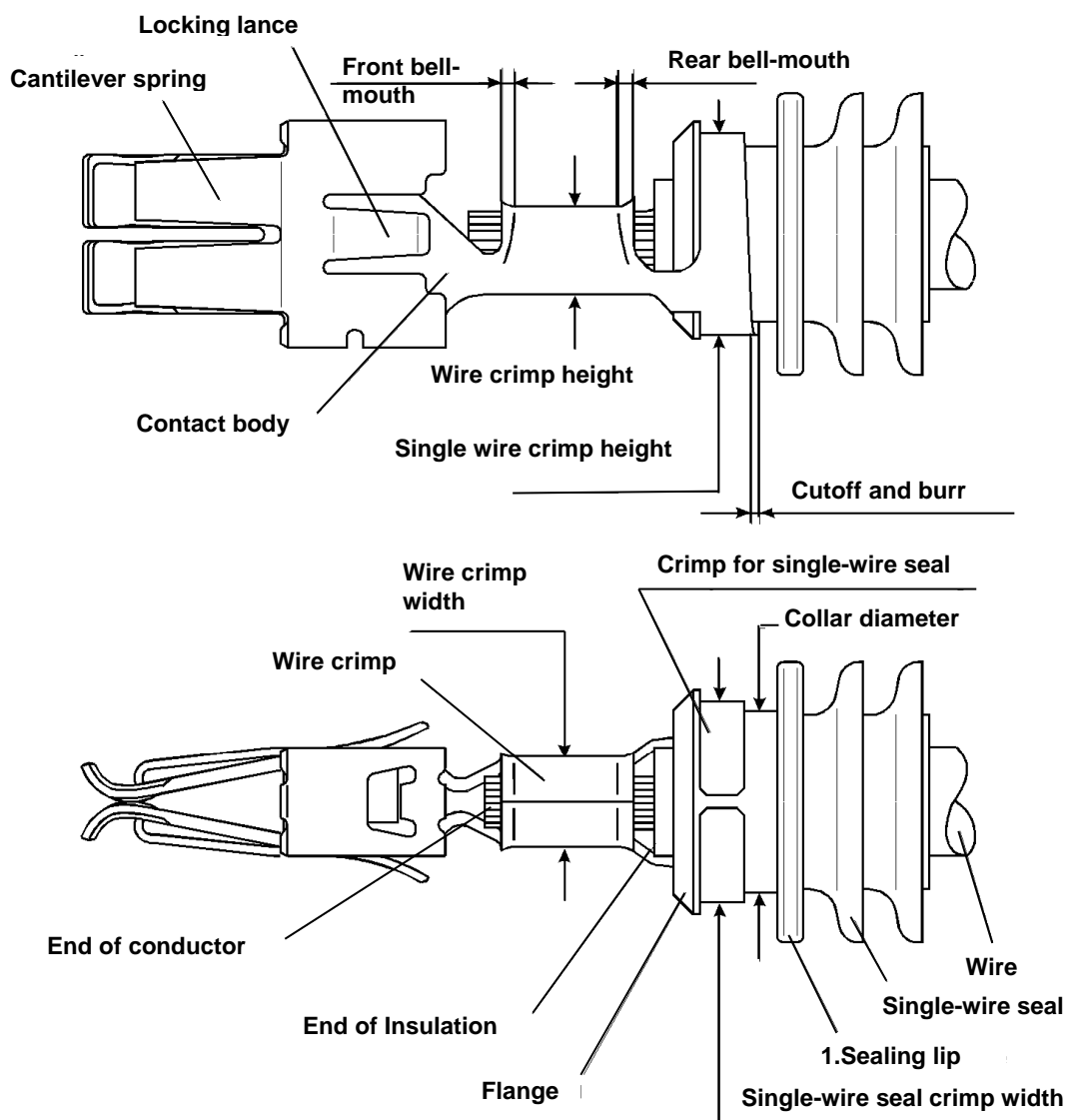


Fig. 2

4. Requirements

4.1 Wires

A Selection

The contacts and single-wire seals are designed for FLR conductors to DIN 72 551 Part 5 and Part 6 or FLK conductors to DIN ISO 6722 Parts 1-3 (formerly DIN 72551 Part 2), as well as FLU wires in accordance with LV112-1.

Other wires require the approval of the Engineering Department. Single termination is preferred. Double termination is possible within the wire range with FLR conductors; with FLK conductors, this is possible only with restrictions. In addition there is a comparison between AWG/ISO wires shown in the extension.

B Preparation

The wire must be stripped to the lengths shown in Tables 1 and 2.

Take care that the individual strands of the wire are not bent or cut off.

For single wire sealing, care must be taken that the insulation of the wire in the sealing area is not damaged, compressed or deformed.

The insulation must be clean and free of contamination.

4.2 Cutoff and Burr

The cut off must be visible after crimping.

The maximum length of the cut off is 0.5 mm.

Any burrs at the shearing point may not exceed 0.08 mm.

4.3 Wire Crimp

A Wire position

After crimping, the end of the wire must extend 0.1 ... 1.0 mm beyond the front end of the wire crimp.

B Crimping data

The shape, height and width of the crimp, and the wire range, are shown in Tables 1 and 2 or 5 and 6.

C Extraction forces

The crimp extraction forces must fulfill the requirements of DIN IEC 352 Part 2.

D Crimp bell-mouth

The size of the rear bell-mouth depends on the wire range:

0.2 - 0.5 mm² : 0.25 ± 0.15 mm

0.5 - 2.5 mm² : 0.40 ± 0.20 mm

2.5 - 6.0 mm² : 0.60 ± 0.30 mm

A front bell-mouth is permissible.

4.4 Insulation crimp or Crimp for Single-Wire Seal

A Position of the end of the insulation

In the case of contacts for crimping on wire, the end of the insulation must be visible in the transition between the wire crimp and the insulation crimp.

In no case may the insulation be crimped in the wire crimp; conversely, the insulation must extend at least to the front edge of the insulation crimp.

In the case of contacts for single-wire sealing, the end of the insulation must be flush with the front edge of the single-wire seal or may project by up to 1 mm from this seal.

B Crimping data for wires

The shape and width of the crimp are shown, are shown in Table 1 and 5.

The crimp height is adjusted either after the bending test to DIN 41611 Part 1 or after the wrapping test to DIN 41640 Part 66.

C Crimping data for single-wire seals

The shape and width of the crimp, and the part number of the single-wire seal, are shown in Table 2 and 4 or 6 and 8.

The crimp height is correctly adjusted if the crimp encloses the seal in the shape of a circle.

Oval enclosure as the result of differing insulation diameters is permissible.

D Position of the single-wire seal

Single-wire seals without a collar on the sleeve must be flush with the front edge of the crimp or may project up to 1 mm from the crimp.

In the case of single-wire seals with a collar on the sleeve, this collar is positioned in front of the front edge of the crimp.

The collar must be centered within the window on the bottom of the crimp.

The distance between the end of the seal and the tip of the locking lance must be $16 \pm 0,6$ mm see fig.4 (valid for contacts with total length of 20mm and seals with flange).

4.5 Contact Area

After crimping, neither the cantilever spring, the locking lances nor the contact body may be bent or deformed.

4.6 Shape and Position Tolerances

A Contacts for crimping on wire (see Fig. 3)

Parallelism

The bottom of the wire crimp or of the insulation crimp must be parallel with the contact body, with a tolerance of 0,3 mm.

Symmetry

The width of the insulation crimp must be symmetrical with the contact body, with a tolerance of 0,6 mm.

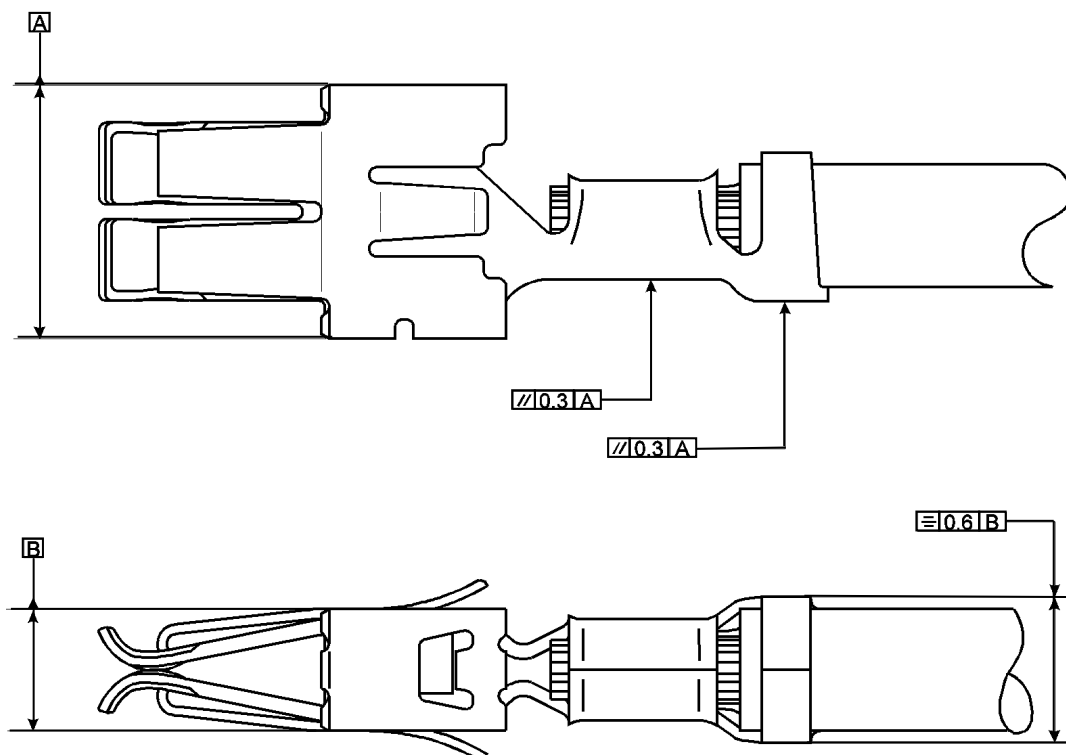


Fig. 3

B Contacts for single-wire seals (Fig. 4)

Parallelism

The bottom of the wire crimp or of the insulation crimp must be parallel with the contact body, with a tolerance of 0.3 mm.

Symmetry

The crimp for the single-wire seal must lie within a symmetrical tolerance of 0,6 mm width and 0,8 mm height relative to the longitudinal axis of the contact.

The single-wire seal must be symmetrical in both directions with the longitudinal axis of the contact, with a tolerance of 1 mm.

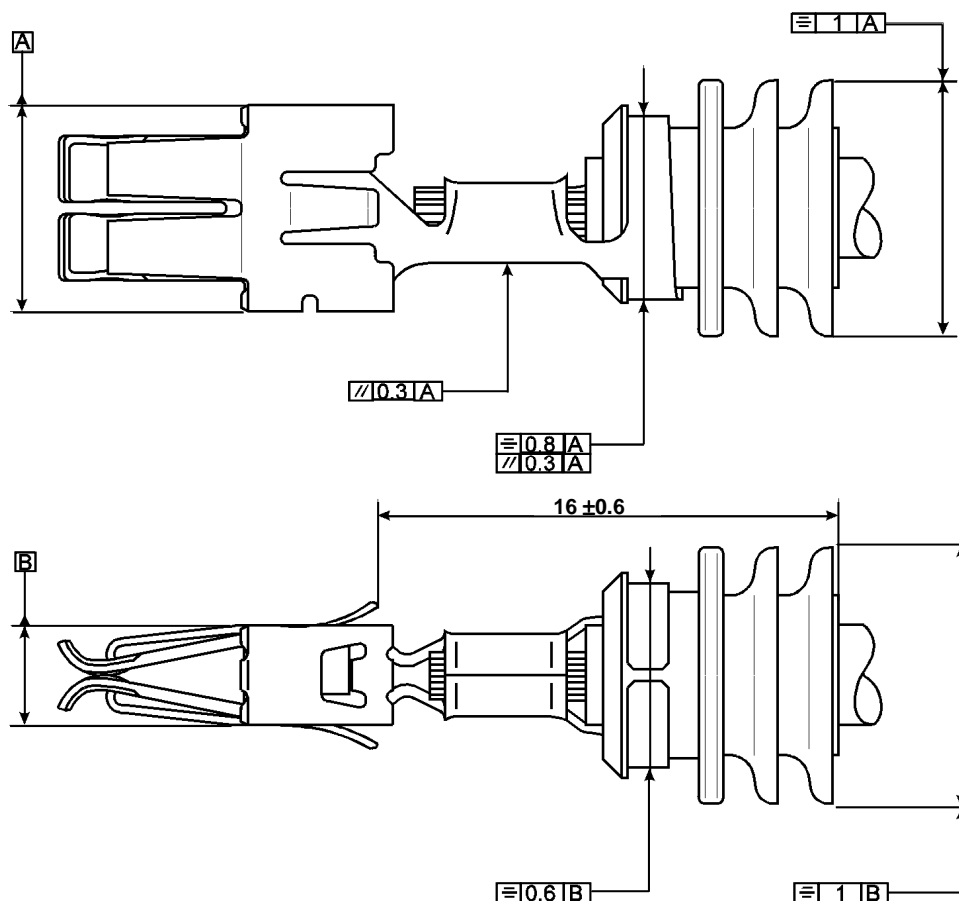


Fig. 4

Inspection

The symmetry of the crimp of the single-wire seal must be checked in addition using the gauge show in Fig.5. The contact is to be inserted into the gauge as far as the first lip, whereby the crimp should not touch the inner wall of the gauge.

Gauge for Standard Power Timer Connectors with Single-wire seal crimp

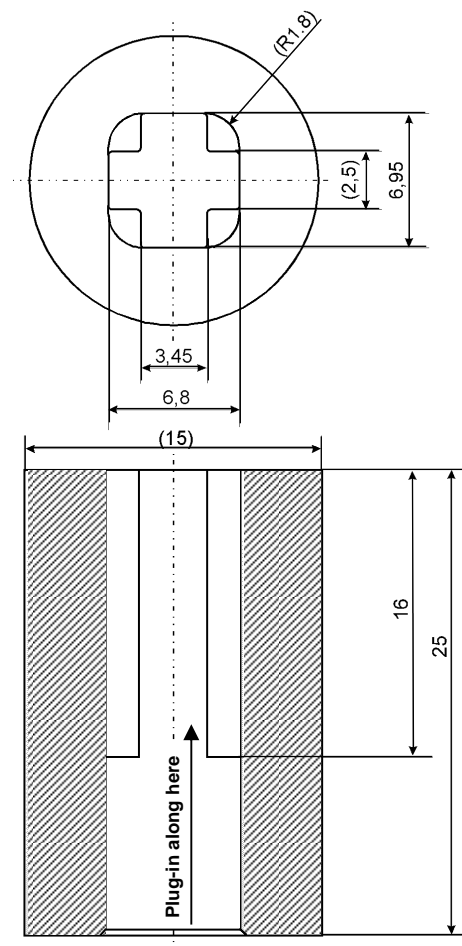


Fig. 5

Table 1

CRIMPING DATA FOR STANDARD POWER TIMER CONTACT WITH WIRES												
Part-No.			Wire - sizes (mm ²)	Insulated Conduct or type	Insulation diameter (mm)	Stripped length (mm) ±0,3	Wire crimp				Insulation crimp	
Strip	Strip ⁽¹⁾	Loose-piece					Width (mm)	Height (mm) ±0,05		Shape	Width (mm) ±0,2	Shape
								(3)	(4)			
927839	963984	928989	0,20 0,25 0,35 0,50	FLK	1,15-2,3	3,2	1,80	1,13 ^(±0,03) 1,15 ^(±0,03) 1,19 ^(±0,03) 1,26 ^(±0,03)	- - - -	F	3,05	Enclosing
927827	963985	927828	0,50 0,75 0,85 1,00	FLK	2,0-2,7	3,7	2,05	1,38	-	F	3,30	F
1241834	-	1241835						1,47 1,51 1,56	- - -			
927833	963986	927834	1,50 2,00 2,50	FLK	2,7-3,7	4,2	2,80	1,76 1,90 2,04	- - -	F	4,10	F
927824	963987	927825	3,00 3,50 4,00	FLK	3,3-4,5	4,7	3,30	2,13 2,24 2,35	- - -	F	4,60 ⁽²⁾	F/Ovl. ⁽²⁾
963709	-	963714	4,00 5,00 6,00	FLK	4,0-5,2	5,5	4,10	2,17 2,36 2,55	- - 2,41	F	5,30	F
927840	963980	928990	0,20 0,25 0,35 0,50	FLR	1,15-1,6	3,2	1,80	1,13 ^(±0,03) 1,15 ^(±0,03) 1,19 ^(±0,03) 1,26 ^(±0,03)	- - - -	F	2,30	Enclosing
			0,35 0,50	FLU	1,10-1,20 1,30-1,40			1,19 ^(±0,03) 1,26 ^(±0,03)	- -			
927831	963981	927832	0,50 0,75 1,00	FLR	1,4-2,1	3,7	2,05	1,43 1,52 1,61	- - -	F	2,80	Ovl.
			0,50 0,75 1,00	FLU	1,30-1,40 1,45-1,60 1,60-1,75			1,43 1,52 1,61	- - -			
927837	963982	927838	1,50 2,00 2,25 2,50	FLR	2,2-3,0	4,2	2,80	1,76 1,90 1,97 2,04	- - - -	F	3,60	F/Ovl.
			1,50 2,50	FLU	1,90-2,10 2,50-2,70			1,76 2,04	- -			
964203	-	-	1,50 2,00 2,25 2,50	FLR	2,2-3,0	4,2	2,80	1,76 1,90 1,97 2,04	- - - -	F	3,60	F/Ovl.
927829	963983	927830	4,00	FLR	2,7-3,7	4,7	3,30	2,35	-	F	4,10	F/Ovl.
1241174	-	1241175	1,50 2,25 2,50 3,00	Special	3,0-3,4	4,3	2,80	1,81	-	F	3,95	F
964052	-	-				5,0		2,01	-			
964204	-	-						2,07 2,20	- -			
1241818	-	1241819	4,00 5,00 6,00	FLK 4-6 FLR>4-6	4,0-5,2	5,5	4,10	2,17 2,36 2,55	- - -	F	5,30	F
1862006	-	-	0,8 1,2	FLK	2,0-2,8	4,2	2,54	1,37 1,49	- -	F	3,95	F/Ovl.

(1) Special version with guide and rectangular feed hole on carrier strip

(2) Ovl. crimp is allowed with 4,60 (.180) and 4,06 (.160)

(3) CURRENT STANDARD

(4) PREFERRED STANDARD TO MEET NEW REQUIREMENT @ LV214-2 SLOW MOTION BENDING TEST

Table 2

CRIMPING DATA FOR STANDARD POWER TIMER CONTACT WITH SINGLE-WIRE SEALS											
Part-No.			Wire-sizes (mm) (mm ²)	Insulated Conductor type	Insulation diameter- (mm)	Stripped length (mm) ±0,3 (mm) ±0,3	Wire crimp			Single-Wire seal crimp	
Strip	Strip ⁽¹⁾	Loose piece					Width (mm)	Height (mm) ±0,05	Shape	Width (mm) ±0,2	Shape
927826	963988	929821	0,25	FLK	1,15-1,6	4,2	1,80	1,15 (±0,03)	F	5,85	O
927836	963989	929822	0,50 0,75 1,00	FLK	2,0-2,7	4,7	2,05	1,43 1,52 1,61	F	6,35	O
927835	963990	929923	1,50 2,00 2,50	FLK	2,7-3,7	5,2	2,80	1,76 1,90 2,04	F	6,60 ⁽²⁾	O
968035	-	968036									
927826	963988	929821	0,35 0,50	FLR	1,15-1,6	4,2	1,80	1,19 (±0,03) 1,26 (±0,03)	F	5,85	O
927836	963989	929822	0,50 0,75 1,00	FLR	1,4-2,1	4,7	2,05	1,43 1,52 1,61	F	6,35	O
927835	963990	929923	1,50 2,00 2,50	FLR	2,2-3,0	5,2	2,80	1,76 1,90 2,04	F	6,60 ⁽²⁾	O
968035	-	968036									
928966	963991	929924	4,00	FLR	3,4-3,7	5,3	3,30	2,35	F	6,60 ⁽²⁾	O
968037	-	968038									
1241962	-	1241963	3,00 4,00 5,00	AWG	6,0	5,3	3,30	2,25 2,50 2,75	F	6,86	O

1): Special version with guide and rectangular feed hole on carrier strip

2): Dimension also valid for crimp height

Table 3

CRIMPING DATA FOR STANDARD POWER TIMER CONTACT "TYPE A" WITH WIRES											
Part-No.		Wire - sizes (mm ²)	Insulated Conductor- Type	Insulation- diameter (mm)	Stripped length (mm) ±0,3	Wire crimp				Insulation crimp	
Strip	Loose piece					Width (mm)	Height (mm) ±0,05		Shape	Width (mm) ±0,2	Shape
							(1)	(2)			
964322	964321	0,20	FLR	1,15-1,6	3,2	1,78	1,13 ^(±0,03)	-	F	2,30	Ovl.
		0,25					1,15 ^(±0,03)	-			
		0,35					1,19 ^(±0,03)	-			
		0,50					1,26 ^(±0,03)	-			
964324-	964323	0,50	FLR	1,4-2,17	3,7	2,05	1,43	1,34	F	2,80	Ovl.
		0,75					1,52	1,43			
		1,00					1,61	1,52			
964326-	964325	1,50	FLR	2,2-3,0	4,2	2,80	1,76	1,64	F	3,60	Ovl.
		2,00					1,90	-			
		2,50					2,04	1,89			
964328	964327	3,00	FLK	3,3-4,5	4,7	3,30	2,13	-	F	4,60	Ovl.
		3,50					2,24	-			
		4,00					2,35	2,22			

(1) CURRENT STANDARD

(2) PREFERRED STANDARD TO MEET NEW REQUIREMENT @ LV214-2 SLOW MOTION BENDING TEST

Table 4

CRIMPING DATA FOR STANDARD POWER TIMER CONTACT "TYPE A" WITH SINGLE-WIRE SEALS											
Part-No.		Wire sizes (mm ²)	Insulated Conductor Type	Insulation diameter (mm)	Stripped length (mm) ±0,3	Wire crimp				Single-wire seal crimp	
Strip	Loose piece					Width (mm)	Height (mm) ±0,05		Shape	Width (mm) ±0,2	Shape
							(2)	(3)			
964330	964329	0,50	FLR / FLK	1,4-2,7	4,7	2,05	1,43	1,34	F	6,35	Ovl.
		0,75					1,52	1,43			
		1,00					1,61	1,52			
964332	964331	1,50	FLR / FLK	2,2-3,7	5,2	2,80	1,76	1,64	F	6,60	Ovl.
		2,00					1,90	-			
		2,50					2,04	1,89			
964334	964333	4,00	FLR/FLK	3,4-4,5	5,3	3,30	2,35	-	F	6,60 ⁽¹⁾	O
969044	969045	4,00	FLR/FLK	3,4-4,5	5,3	3,30	2,35	2,22	F	6,90	Ovl.

(1) Dimension also valid for crimp height

(2) CURRENT STANDARD

(3) PREFERRED STANDARD TO MEET NEW REQUIREMENT @ LV214-2 SLOW MOTION BENDING TEST

Extension I

AWG / ISO Comparison in addition to Appl. Spec.114-18037							
Standard Power Timer Basic part number	Standard Power Timer-- Type A Basic part number	Wire size ISO 6722		USA SAE J1128		Outer Diameter (Insulation)	Single wire seal
		Cross Section	Type	AWG	Type		
927826	----	0,35mm ²	FLR			1,30-1,40mm	963243-1
				22	TXL	1,50-1,75mm	963243-1
927836	969040	0,5mm ²	FLR			1,58-1,70mm	963243-1
				20	TXL	1,68-1,93mm	963243-1
		0,75mm ²	FLR			1,78-1,90mm	963243-1
				18	TXL	1,88-2,13mm	963243-1
		1,0mm ²	FLR			1,98-2,10mm	963244-1
		0,5mm ²	FLK			2,06-2,30mm	963244-1
				20	GXL	2,06-2,41mm	963244-1
		0,75mm ²	FLK			2,26-2,50mm	963244-1
				18	GXL	2,18-2,54mm	963244-1
927835	969042	1,0mm ²	FLK			2,46-2,70mm	963244-1
				16	TXL	2,16-2,41mm	963244-1
		1,5mm ²	FLR			2,28-2,40mm	963244-1
		2,0mm ²	FLR			2,66-2,80mm	963244-1
				14	TXL	2,51-2,77mm	963244-1
		2,5mm ²	FLR			2,86-3,00mm	963244-1
				16	GXL	2,57-2,92mm	963244-1
		1,5mm ²	FLK			2,86-3,00mm	963244-1
		14	GXL	2,82-3,18mm	963244-1		
928966	969044	2,5mm ²	FLK			3,32-3,60mm	963245-1
				12	TXL	3,10-3,35mm	963245-1
		3,0mm ²	FLR			3,24-3,40mm	963245-1
		4,0mm ²	FLR			3,64-3,80mm	967011-1
				12	GXL	3,40-3,81mm	967011-1
		3,0mm ²	FLK			3,82-4,10mm	967011-1
1241962	----	4,0mm ²	FLK			4,08-4,40mm	967011-1
		3,0mm ²		10		-	967011-1
		5,0mm ²		12		-	963245-1



M	Added optimized crimping parameters to meet new requirement @LV214-2 Slow Motion Bending Test	J.Carretero	04MAY2017
L	Insulation Crimp shape of 964204 is changed from F to F/Ovl.	GH	09DEC2016
K	Corrected Wire Crimp Width in Table 3, page 13, for PN 964322	J.Carretero	12/04/2016
J	Added FLU Cables to Table 1 and Section 4.1 of the Application Specification.	J.Carretero	29/01/2015
Rev.	Description	Made by	Date