

Raychem Heat-shrinkable Medium Voltage Terminations IXSU-F/OXSU-F

Raychem
from TE Connectivity

Raychem Heat-shrinkable Medium Voltage Terminations IXSU-F/OXSU-F for Indoor and Outdoor Applications for Polymeric Cables up to 24 kV

Raychem heat-shrinkable medium voltage terminations IXSU-F/OXSU-F are widely acknowledged in the industry and feature an unique integrated ZnO-based stress control system, flexibility of usage for crimp or mechanical lugs, unlimited shelf life and range-taking kits.

The material makes the difference

TE Connectivity Raychem cable accessories have been used by utilities and industrial companies around the world for more than 35 years. Our continuing experience in the field has made TE Energy a leader in materials science and technology for medium-voltage cable accessories applications. Our materials technology is at the core in the development of our range of heat shrink terminations. The materials used in Raychem cable accessories have been extensively optimized for design and function, manufacturing and the wide range of possible service environments.

Designed for both indoor and outdoor applications

The components combine to provide the important functions required for all medium voltage products: electrical performance, stress control and moisture sealing. The proprietary materials used in our cable accessories are designed for optimized manufacturing, and to provide exceptional product performance in the harshest of service environments.

Variations and differences can exist amongst base polymer grades and additives. Compounds consist of polymers, additives and fillers that highly influence the properties of the base material. The formulation, the compounding procedures, material processing, product design and assembly all contribute to the overall product performance.

Polymeric insulation

The materials used in the Raychem termination generation of products have undergone many years of development, yielding a polymeric material with outstanding electrical and weathering properties. The formulation is based on polymer compounds, and has proven to be stable and functional over several decades under severe environmental conditions. The formulation offers exceptional tracking and erosion resistance, mechanical strength, weatherability and dielectric properties.

One piece termination

The Raychem stress control material IXSU-F/OXSU-F is a recently formulated electrical stress control compound, that is based on extensive experience with Raychem ceramic semiconductor technology (ZnO). The ZnO-based stress control system is integrated in heat-shrinkable insulating tubing. This stress control system fills any irregularities, bonds to the insulation and provides superb electrical performance.

Product range

The product line is designed for polymer cables from 10 to 1200 mm² and up to 24 kV. This coverage is achieved with a minimum number of design variants.

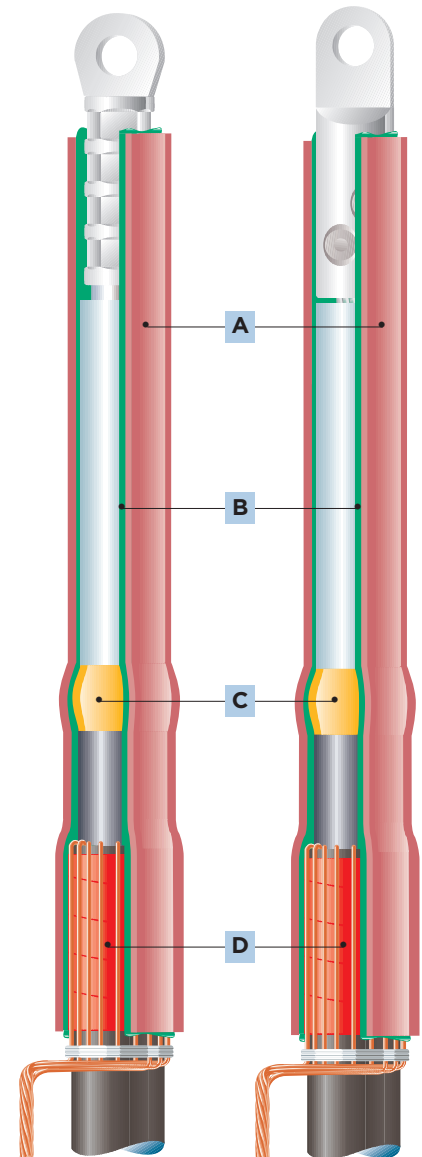
The products are fully tested in accordance with IEEE-48, IEC 60502-4 and the CENELEC HD629.1S1 specification.

For cable box applications, the Raychem termination IXSU-F can be combined with either Raychem elastomeric bushing boot (RCAB) or Raychem insulated connection system (RICS) to fit most types of switchgear bushing currently available.

For pole top applications, we can supply Raychem termination OXSU-F along with polymeric support insulators (EPBI), Polygarde metal oxide surge arresters (HDA), and most fittings required for installation.

All raw materials of Raychem IXSU-F/OXSU-F are fully traceable.

Raychem indoor termination IXSU-F



- A** Insulating tubing
- B** Stress control and sealant layer
- C** Stress controlling void filler
- D** Sealant tape

Kit content

Each kit consists of the insulation tubing including coextruded stress control material, sealant tapes and installation instructions.

For 3-core cables, the kit also includes a conductive breakout and tubing for custom core length. For special applications please contact your local sales representative.

Installation

Each kit contains easy-to-follow installation instructions with visuals of the installation steps.

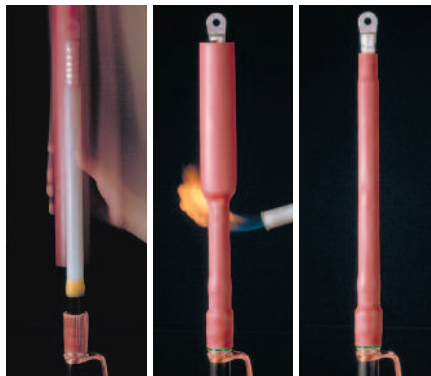
- 1 Raychem terminations IXSU-F with Raychem elastomeric bushing boot (RCAB) connecting 17.5 kV plastic cables to a switchgear substation
- 2 Raychem terminations IXSU-F with Raychem insulated connection system (RICS) connecting 24 kV plastic cables to a switchgear substation
- 3 Installation of 24 kV terminations
- 4 Overhead line connections for 24 kV using Raychem terminations OXSU-F and polymeric support insulators (EPBI)
- 5 Raychem terminations IXSU-F connecting 24 kV plastic cables to a substation transformer
- 6 Raychem terminations IXSU-F for transformer connections
- 7 The slim compact Raychem IXSU-F system in a 12 kV transformer for propulsion motor on a ship



1



2



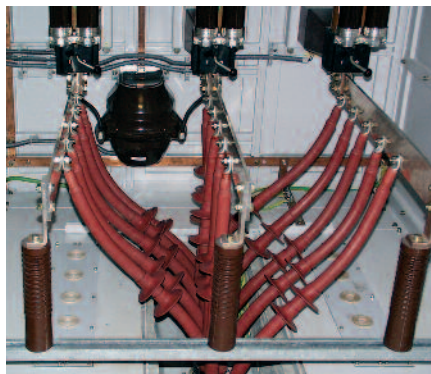
3



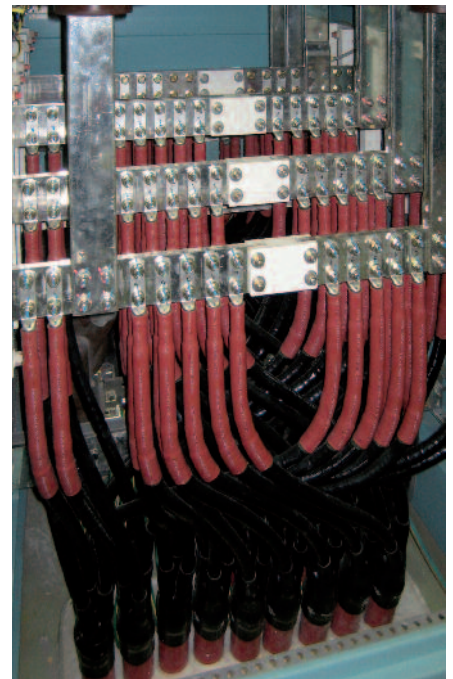
4



5



6



7

12 kV



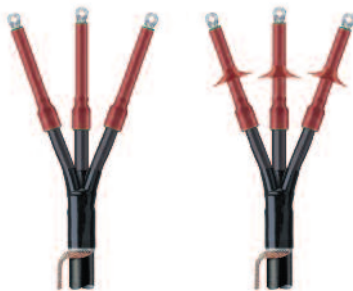
Termination for crimp lug Screened single core plastic and rubber cable

Cross section [mm²]	Kit number Indoor	Kit number Outdoor	Diameter over insulation HD 620 A2 [mm]
10 - 35	IXSU-F 3111	OXSU-F 3111	13.7 - 16.3
25 - 95	IXSU-F 3121	OXSU-F 3121	13.7 - 20.8
95 - 240	IXSU-F 3131	OXSU-F 3131	18.6 - 28.4
240 - 500	IXSU-F 3141	OXSU-F 3141	25.7 - 36.2
500 - 800	IXSU-F 3151	OXSU-F 3151	34.0 - 42.2
800 - 1200	IXSU-F 3161	OXSU-F 3161	39.5 - 50.0

Termination with mechanical lug BLMT Screened single core plastic and rubber cable

Cross section [mm²]	Kit number Indoor	Kit number Outdoor	Diameter over insulation HD 620 A2 [mm]
25 - 35	IXSU-F3111-ML-1-13 IXSU-F3111-ML-1-17	OXSU-F3111-ML-1-13 OXSU-F3111-ML-1-17	13.7 - 16.3
25 - 95	IXSU-F3121-ML-1-13 IXSU-F3121-ML-1-17	OXSU-F3121-ML-1-13 OXSU-F3121-ML-1-17	13.7 - 20.8
95 - 240	IXSU-F3131-ML-4-13 IXSU-F3131-ML-4-17	OXSU-F3131-ML-4-13 OXSU-F3131-ML-4-17	18.6 - 28.4
120 - 300	IXSU-F3131-ML-5-13 IXSU-F3131-ML-5-17	OXSU-F3131-ML-5-13 OXSU-F3131-ML-5-17	20.1 - 30.4
185 - 400	IXSU-F3141-ML-6-13 IXSU-F3141-ML-6-17	OXSU-F3141-ML-6-13 OXSU-F3141-ML-6-17	23.2 - 33.6
500 - 630	IXSU-F3151-ML-7-17 IXSU-F3151-ML-7-21	OXSU-F3151-ML-7-17 OXSU-F3151-ML-7-21	34.4 - 40.0

12 kV



Termination for crimp lug Screened 3-core plastic and rubber cable without armour

Cross section [mm²]	Tail Length [mm]	Kit number Indoor	Kit number Outdoor
10 - 16	450 1200	IXSU-F 3301 IXSU-F 3304	OXSU-F 3301 OXSU-F 3304
16 - 35	450 1200	IXSU-F 3311 IXSU-F 3314	OXSU-F 3311 OXSU-F 3314
25 - 70	450 1200	IXSU-F 3321 IXSU-F 3324	OXSU-F 3321 OXSU-F 3324
95 - 240	450 1200	IXSU-F 3331 IXSU-F 3334	OXSU-F 3331 OXSU-F 3334
240 - 500	450 1200	IXSU-F 3341 IXSU-F 3344	OXSU-F 3341 OXSU-F 3344

Termination with mechanical lug BLMT Screened 3-core plastic and rubber cable without armour

Cross section [mm²]	Tail Length [mm]	Kit number Indoor	Kit number Outdoor
25 - 35	450 1200	IXSU-F3311-ML-1-13 IXSU-F3311-ML-1-17 IXSU-F3314-ML-1-13 IXSU-F3314-ML-1-17	OXSU-F3311-ML-1-13 OXSU-F3311-ML-1-17 OXSU-F3314-ML-1-13 OXSU-F3314-ML-1-17
25 - 70	450 1200	IXSU-F3321-ML-1-13 IXSU-F3321-ML-1-17 IXSU-F3324-ML-1-13 IXSU-F3324-ML-1-17	OXSU-F3321-ML-1-13 OXSU-F3321-ML-1-17 OXSU-F3324-ML-1-13 OXSU-F3324-ML-1-17
95 - 240	450 1200	IXSU-F3331-ML-4-13 IXSU-F3331-ML-4-17 IXSU-F3334-ML-4-13 IXSU-F3334-ML-4-17	OXSU-F3331-ML-4-13 OXSU-F3331-ML-4-17 OXSU-F3334-ML-4-13 OXSU-F3334-ML-4-17
300 - 400	450 1200	IXSU-F3341-ML-6-13 IXSU-F3341-ML-6-17 IXSU-F3341-ML-6-21 IXSU-F3344-ML-6-13 IXSU-F3344-ML-6-17 IXSU-F3344-ML-6-21	OXSU-F3341-ML-6-13 OXSU-F3341-ML-6-17 OXSU-F3341-ML-6-21 OXSU-F3344-ML-6-13 OXSU-F3344-ML-6-17 OXSU-F3344-ML-6-21

17.5 kV

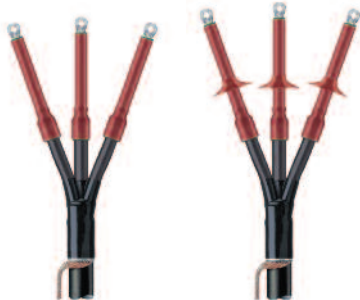

Termination for crimp lug
Screened single core plastic and rubber cable

Cross section [mm²]	Kit number Indoor	Kit number Outdoor	Diameter over insulation HD 620 A2 [mm]
25	IXSU-F 4111	OXSU-F 4111	15.7
35 - 95	IXSU-F 4121	OXSU-F 4121	16.8 - 22.8
95 - 240	IXSU-F 4131	OXSU-F 4131	20.7 - 30.4
240 - 400	IXSU-F 4141	OXSU-F 4141	27.7 - 35.6
400 - 800	IXSU-F 4151	OXSU-F 4151	33.1 - 44.5

Termination with mechanical lug BLMT
Screened single core plastic and rubber cable

Cross section [mm²]	Kit number Indoor	Kit number Outdoor	Diameter over insulation HD 620 A2 [mm]
25	IXSU-F4111-ML-1-13 IXSU-F4111-ML-1-17	OXSU-F4111-ML-1-13 OXSU-F4111-ML-1-17	15.7
25 - 95	IXSU-F4121-ML-1-13 IXSU-F4121-ML-1-17	OXSU-F4121-ML-1-13 OXSU-F4121-ML-1-17	15.7 - 22.8
95 - 240	IXSU-F4131-ML-4-13 IXSU-F4131-ML-4-17	OXSU-F4131-ML-4-13 OXSU-F4131-ML-4-17	20.7 - 30.4
185 - 400	IXSU-F4141-ML-6-13 IXSU-F4141-ML-6-17 IXSU-F4141-ML-6-21	OXSU-F4141-ML-6-13 OXSU-F4141-ML-6-17 OXSU-F4141-ML-6-21	25.2 - 35.6
500 - 630	IXSU-F4151-ML-7-17 IXSU-F4151-ML-7-21	OXSU-F4151-ML-7-17 OXSU-F4151-ML-7-21	35.9 - 41.9

17.5 kV

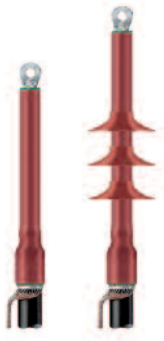

Termination for crimp lug
Screened 3-core plastic and rubber cable without armour

Cross section [mm²]	Tail Length [mm]	Kit number Indoor	Kit number Outdoor
25 - 50	450 1200	IXSU-F 4321 IXSU-F 4324	OXSU-F 4321 OXSU-F 4324
70 - 185	450 1200	IXSU-F 4331 IXSU-F 4334	OXSU-F 4331 OXSU-F 4334
185 - 400	450 1200	IXSU-F 4341 IXSU-F 4344	OXSU-F 4341 OXSU-F 4344

Termination with mechanical lug BLMT
Screened 3-core plastic and rubber cable without armour

Cross section [mm²]	Tail Length [mm]	Kit number Indoor	Kit number Outdoor
25 - 50	450	IXSU-F4321-ML-1-13 IXSU-F4321-ML-1-17	OXSU-F4321-ML-1-13 OXSU-F4321-ML-1-17
	1200	IXSU-F4324-ML-1-13 IXSU-F4324-ML-1-17	OXSU-F4324-ML-1-13 OXSU-F4324-ML-1-17
70 - 185	450	IXSU-F4331-ML-4-13 IXSU-F4331-ML-4-17	OXSU-F4331-ML-4-13 OXSU-F4331-ML-4-17
	1200	IXSU-F4334-ML-4-13 IXSU-F4334-ML-4-17	OXSU-F4334-ML-4-13 OXSU-F4334-ML-4-17
185 - 400	450	IXSU-F4341-ML-6-13 IXSU-F4341-ML-6-17 IXSU-F4341-ML-6-21	OXSU-F4341-ML-6-13 OXSU-F4341-ML-6-17 OXSU-F4341-ML-6-21
	1200	IXSU-F4344-ML-6-13 IXSU-F4344-ML-6-17 IXSU-F4344-ML-6-21	OXSU-F4344-ML-6-13 OXSU-F4344-ML-6-17 OXSU-F4344-ML-6-21

24 kV

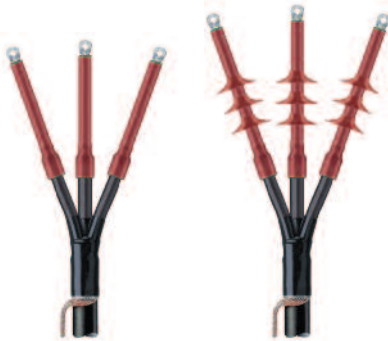

Termination for crimp lug
Screened single core plastic and rubber cable

Cross section [mm²]	Kit number Indoor	Kit number Outdoor	Diameter over insulation HD 620 A2 [mm]
25 - 70	IXSU-F 5121	OXSU-F 5121	17.9 - 23.4
70 - 240	IXSU-F 5131	OXSU-F 5131	21.9 - 32.6
185 - 400	IXSU-F 5141	OXSU-F 5141	27.4 - 37.8
400 - 800	IXSU-F 5151	OXSU-F 5151	35.1 - 46.9
1000 - 1200	IXSU-F 5161	OXSU-F 5161	49.4 - 56.0

Termination with mechanical lug BLMT
Screened single core plastic and rubber cable

Cross section [mm²]	Kit number Indoor	Kit number Outdoor	Diameter over insulation HD 620 A2 [mm]
25 - 95	IXSU-F5121-ML-1-13	OXSU-F5121-ML-1-13	17.9 - 25.0
	IXSU-F5121-ML-1-17	OXSU-F5121-ML-1-17	
95 - 240	IXSU-F5131-ML-4-13	OXSU-F5131-ML-4-13	23.0 - 32.6
	IXSU-F5131-ML-4-17	OXSU-F5131-ML-4-17	
120 - 300	IXSU-F5131-ML-5-13	OXSU-F5131-ML-5-13	24.3 - 34.6
	IXSU-F5131-ML-5-17	OXSU-F5131-ML-5-17	
185 - 400	IXSU-F5141-ML-6-13	OXSU-F5141-ML-6-13	27.4 - 37.8
	IXSU-F5141-ML-6-17	OXSU-F5141-ML-6-17	
	IXSU-F5141-ML-6-21	OXSU-F5141-ML-6-21	
500 - 630	IXSU-F5151-ML-7-17	OXSU-F5151-ML-7-17	37.9 - 44.0
	IXSU-F5151-ML-7-21	OXSU-F5151-ML-7-21	

24 kV


Termination for crimp lug
Screened 3-core plastic and rubber cable without armour

Cross section [mm²]	Tail Length [mm]	Kit number Indoor	Kit number Outdoor
10 - 25	450	IXSU-F 5311	OXSU-F 5311
	1200	IXSU-F 5314	OXSU-F 5314
25 - 50	450	IXSU-F 5321	OXSU-F 5321
	1200	IXSU-F 5324	OXSU-F 5324
70 - 185	450	IXSU-F 5331	OXSU-F 5331
	1200	IXSU-F 5334	OXSU-F 5334
185 - 400	450	IXSU-F 5341	OXSU-F 5341
	1200	IXSU-F 5344	OXSU-F 5344

Termination with mechanical lug BLMT
Screened 3-core plastic and rubber cable without armour

Cross section [mm²]	Tail Length [mm]	Kit number Indoor	Kit number Outdoor
25 - 50	450	IXSU-F5321-ML-1-13	OXSU-F5321-ML-1-13
		IXSU-F5321-ML-1-17	OXSU-F5321-ML-1-17
	1200	IXSU-F5324-ML-1-13	OXSU-F5324-ML-1-13
		IXSU-F5324-ML-1-17	OXSU-F5324-ML-1-17
95 - 185	450	IXSU-F5331-ML-4-13	OXSU-F5331-ML-4-13
		IXSU-F5331-ML-4-17	OXSU-F5331-ML-4-17
	1200	IXSU-F5334-ML-4-13	OXSU-F5334-ML-4-13
		IXSU-F5334-ML-4-17	OXSU-F5334-ML-4-17
185 - 400	450	IXSU-F5341-ML-6-13	OXSU-F5341-ML-6-13
		IXSU-F5341-ML-6-17	OXSU-F5341-ML-6-17
	1200	IXSU-F5341-ML-6-21	OXSU-F5341-ML-6-21
		IXSU-F5344-ML-6-13	OXSU-F5344-ML-6-13
		IXSU-F5344-ML-6-17	OXSU-F5344-ML-6-17
		IXSU-F5344-ML-6-21	OXSU-F5344-ML-6-21

Solderless earthing connection EAKT-16xx for single and 3-core polymeric cables up to 24 kV (set of 3)

Diameter over metal tape shield [mm]	Application range [mm ²]			Kit number	Mod. code number
	12 kV	17.5 kV	24 kV		
12 - 18	16 - 50	16 - 25	-	EAKT-1655	G55
19 - 24	70 - 150	35 - 95	25 - 70	EAKT-1656	G56
25 - 30	185 - 240	120 - 185	95 - 150	EAKT-1657	G57
31 - 44	300 - 630	240 - 500	185 - 500	EAKT-1658	G58
41 - 65	800 - 1000	630 - 1000	630 - 1000	EAKT-1659	G59

The accessory kit can be ordered individually by using the Raychem part number EAKT-16xx, or in conjunction with the termination kit by adding the Mod. code number Gxx to the appropriate termination kit number.

Example:

Raychem termination IXSU-F5331-G58 for 3-core polymeric cables 24 kV with solderless earthing connection.

Armour earthing assemblies (clamping ring) EAKT-16xx for single core polymeric cables up to 24 kV (set of 3)

Diameter over armour [mm]	Application range [mm ²]			Kit number	Mod. code number
	12 kV	17.5 kV	24 kV		
21 - 32	16 - 70	16 - 50	16 - 50	EAKT-1636	G36
33 - 50	95 - 400	70 - 400	70 - 300	EAKT-1637	G37
51 - 67	500 - 800	500 - 800	400 - 800	EAKT-1638	G38

Armour earthing assemblies (clamping ring) EAKT-16xx for 3-core polymeric cables up to 24 kV

Diameter over armour [mm]	Application range [mm ²]			Kit number	Mod. code number
	12 kV	17.5 kV	24 kV		
40 - 67	16 - 120	16 - 95	16 - 35	EAKT-1642	G42
50 - 86	150 - 240	120 - 185	50 - 120	EAKT-1643	G43
60 - 94	300 - 400	240 - 300	150 - 185	EAKT-1644	G44
70 - 110	-	-	240 - 300	EAKT 1645	G45

The accessory kit can be ordered individually by using the Raychem part number EAKT-16xx, or in conjunction with the termination kit by adding the Mod. code number Gxx to the appropriate termination kit number.

Example:

Raychem termination IXSU-F5331-G43 for 3-core polymeric cables 24 kV with armour earthing assembly.

Features	Benefits
High-quality termination material	Outstanding UV properties Exceptional track and erosion resistance Extremely hydrophobic High-quality, high-voltage insulation material
Unique zinc oxide-based stress control system	Superb high-impulse withstand performance
Integrated stress control over entire termination length	Ensures stress control system is correctly positioned
Designed for crimp and mechanical lugs	Flexibility
Compact design	Space saving
Range taking kit	Fewer kits for a wide range of cable sizes
No shelf life time limitation	Inventory reduction

While TE Connectivity (TE) has made every reasonable effort to ensure the accuracy of the information in this catalog, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this catalog are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE for the latest dimensions and design specifications. Raychem, TE Connectivity and TE Connectivity (logo) are trademarks. Other logos, product and company names mentioned herein may be trademarks of their respective owners.

TE Energy - innovative and economical solutions for the electrical power industry: cable accessories, connectors & fittings, insulators & insulation, surge arresters, switching equipment, lighting controls, power measurement and control.

Tyco Electronics Raychem GmbH
a TE Connectivity Ltd. Company
TE Energy
Finsinger Feld 1
85521 Ottobrunn/Munich, Germany

Phone: +49-89-6089-0
Fax: +49-89-6096345

energy.te.com

