Kearney fuse links

General

Eaton's Cooper Power™ series Kearney™ fuse links can be applied to a variety of applications requiring overcurrent protection of distribution systems and equipment. When properly coordinated with other overcurrent protective devices, sectionalizing to isolate faulted feeder branches or equipment can be accomplished.

Kearney fuse links are available in a variety of types offering a wide selection of operating characteristics. The links incorporate low melting temperature elements, captive washers, high-resistance strain wires, and color-coded high strength tubes. The low temperature melting tin elements enhance overload capability by guaranteeing non-damageability of the fuse tubes. These elements are capable of absorbing vibration as well as thermal shock due to current surges and heating and cooling throughout the daily load cycle. They can be further distinguished by their years of superior service proven by Time Current Characteristic (TCC) Curve verification of aged fuse links. Consult your Eaton representative for more details.

The fuse links have been designed and tested to the IEEE Std C37.42™.

The following are the types of fuse links offered:

- Type K
- Type T
- Type 200™ (N)
- Type KS
- Type SQ
- Type QA™
- Type X
- Secondary Indicating Fuses

Internal construction

All Kearney fuse links are designed with low melting temperature element components of either tin or solder filled dual element construction. Each element material shipment from our supplier is accompanied with a certification of quality and composition. The diameter is verified in incoming inspection. Low melting temperature fuse links Types K, T, 200, X and KS have exceptional overload capability. They are designed to carry 150% of their continuous current rating continuously without damage to the fuse link itself or to the cutout fuseholder in which they are installed. (Care should be exercised so that the current rating of the cutout is not exceeded.)

Tin element

Links using pure tin elements have a precision gauged strain wire crimped in parallel to provide tension loading properties. The tin element is soldered into position providing the industry's best possible electrical connection between the element and its terminals. The low melting temperature of the tin allows all of the fuse link components to operate at a lower temperature while providing long term reliable TCC.

Dual element

There are two dual element designs. The dual element design for 1 and 2 A K, KS, X, T, 200 (N), QA, and SQ 0.2 A - 1.45 A link assemblies is composed of a heater coil mounted around a solder pot that is soldered to a fuse element. Types KS and X links above 2 A and SQ links above 1.4 A have two wire elements in series which are axially inserted into a soldered coil.

Dual element links which use solder coils are mechanically crimped to the body and screw terminals. The elements are inserted into the coil and meticulously gauged to assure that active element lengths are maintained. The soldering process then permanently sets the active elements to the proper TCC curve and guarantees positive electrical continuity.

Dual elements allow the fuse to respond as low temperature single element fuses for long time overloads, yet have superior lightning surge withstand capability. Both types of links have up to 26 times more surge withstand capability than single element fuse links.

Final construction

After passing in-process QA checks, high strength color coded tubes are swaged to both the single and dual element fuse links. A unique self locking washer and button is attached to the screw terminal. Every fuse link is axial pull tested to verify mechanical strength before packaging in the Kearney unique "lineman friendly" pull-tab fuse packs.

Fuse link selection

Type K (tube color brown)

Kearney Type K fuse links have been tested to the IEEE Std C37.42™ requirements for a "fast" fuse. The nominal speed ratio of Type K fuse links is 7. Type K fuse links are well suited where "fast" time-current characteristics are desired such as for capacitor protection.

Type 200 (N) (tube color green)

Kearney Type 200 fuse links are classified as "medium" speed fuses, with a nominal speed ratio of 10. Type 200 fuse links provide more surge withstand capability than Type K links, and provide good coordination possibilities with relays and reclosers.

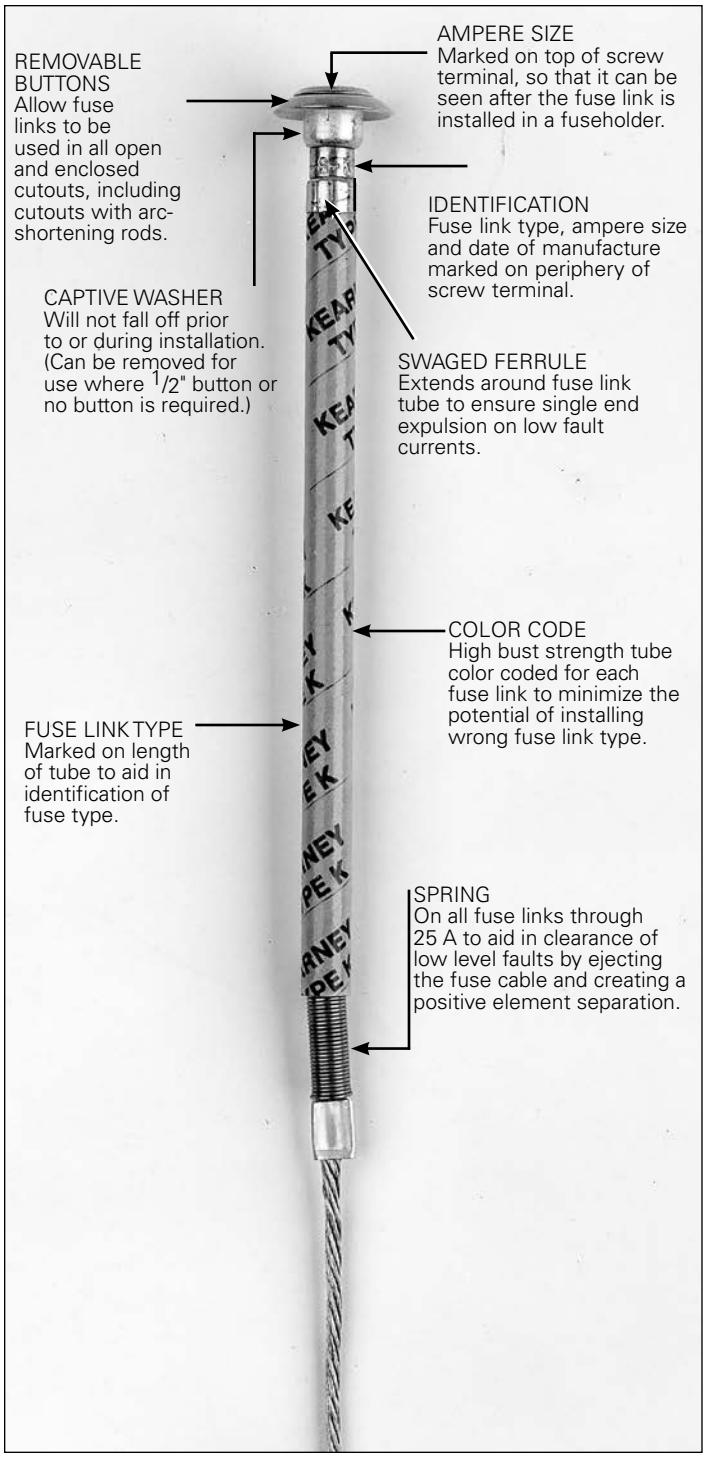


Figure 1. Fuse link features

Type QA (tube color yellow)

Kearney Type QA fuse links are classified as "medium" speed fuse links with a nominal speed ratio of 10. Type QA fuse links will carry 100% of the rated current continuously without damage, and provide good coordination possibilities with relays and reclosers.

Type T (tube color white)

Kearney Type T fuse links have been tested to the IEEE Std C37.42™ requirements for a "slow" fuse link. The nominal speed ratio of Type T fuse links is 12. Type T fuse links provide slower time-current characteristics than Types K, 200, and QA, and coordinate well with relays and reclosers.

Type KS (tube color light-blue)

Kearney Type KS fuse links employ dual element construction which gives the Type KS high surge withstand capability, and a nominal speed ratio of 20. Classified as "very slow" fuse links, the Type KS has greater surge current withstand capability than the Type T, and is a good choice for line fusing and transformer protection.

Type X (tube color orange) and Type SQ (tube color brown)

Kearney Type X and SQ fuse links are specially designed for transformer protection. Type X and SQ fuse links employ dual element construction, which allows the time-current characteristic to be carefully shaped to closely match the IEEE Std C57.91™ loading curve for transformers while providing excellent surge withstand to avoid nuisance blowing from lightning and switching surges. The nominal speed ratio of the Type X and SQ fuse links is 32.

Packaging

All fuse links are packed in individual cartons for the maximum protection and ease of use. Cartons are perforated for easy opening. Fuse links can be removed with gloves on. Fuse Link Type and Ampere Ratings are clearly marked on the carton. The print will not smear or run.

Five Pack Sleeves: Fuse Link Type and Ampere Rating are clearly marked on box front and end of cartons. Individual cartons are tabbed so that remaining fuses stay securely in the carton as others are removed.

Overcartons: All fuse links 100 A and below are packed in protective overcartons 25 per box. Catalog Number, Fuse Link Type, Ampere Rating, and Date of Manufacture are marked on the label for ease of selection.

Note: SQ links are individually packaged in transparent plastic bags. Bagged fuses are packed in an overcarton for protection and ease of handling. The catalog number, fuse type and amp rating are clearly marked on each bag and on all cartons.

Comparative melting speed ratio chart

Electrical equipment such as transformers, switches, relays, and conductors are exposed to various levels of current during normal operation. Generally, electrical devices can withstand high currents for a short period of time and low current for longer periods of time without thermal or mechanical damage. The ability to withstand various levels of current for various periods of time is referred to as time-current characteristics.

Coordination of power systems involves the selection of fuse links to protect equipment with various time-current characteristics while coordinating with reclosers, circuit breakers, sectionalizers, relays, and other fuses. Kearney offers six types of fuse links with a wide range of time-current characteristics (refer to Table 1).

The speed ratio of all fuse link sizes 100 A and below is the ratio between the current that melts the fuse in 0.1 seconds to the current that melts the fuse in 300 seconds. The higher the ratio, the slower the speed of melting. For fuses rated above 100 A, the speed ratio is between the melting currents at 0.1 second and 600 seconds.

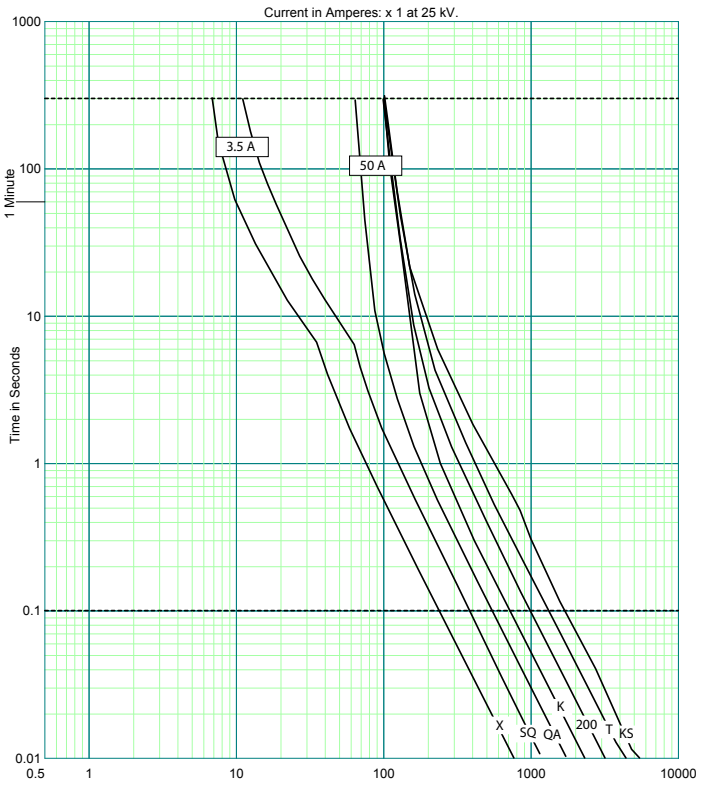


Figure 2. This chart compares the six speed ratios available with standard fuse link types which are fully adaptable to various coordination needs

Table 1. Speed Ratio

	Tin Element(s) Slow T			Dual Element	
Designation	**Fast**	**Medium**	**Slow**	**Very Slow**	**Extra Slow**
Type	K	200, QA	T	KS	X, SQ
Speed Ratio	6-8	7-11	10-13	20	32

Ordering information

Table 2. Fit-All™ Fuse Link Ordering Information

Current Rating	Type X	Type SQ	Type KS	Type 200	Type QA	Type K	Type T
0.2	—	02SQ-60	—	—	—	—	—
0.3	—	03SQ-60	—	—	—	—	—
0.33	41033CPS	— —	—	—	—	—	—
0.4	—	04SQ-60	—	—	—	—	—
0.5	41050CPS	—	—	—	—	—	—
0.6	—	06SQ-60	—	—	—	—	—
0.7	—	07SQ-60	—	—	—	—	—
0.75	41075	—	—	—	—	— —	—
1	41100CPS	10SQ-60	21001	11001	6413-2T	31001	51001CPS
1.25	41125	—	—	—	—	—	—
1.3	—	13SQ-60	—	—	—	—	—
1.4	—	14SQ-60	—	—	—	—	—
1.5	41150CPS	—	—	—	—	—	—
1.6	—	16SQ-60	—	—	—	—	—
2	41200	—	21002	11002	6414-2T	31002CPS	51002
2.1	—	21SQ-60	—	—	—	—	—
2.5	41250CPS	—	—	—	—	—	—
2.75	41275CPS	—	—	—	—	—	—
3	—	—	21003	11003	6415-2T	31003CPS	51003
3.1	—	31SQ-60	—	—	—	—	—
3.5	41350	35SQ-60	—	—	—	—	—
4	41400	—	—	—	—	—	—
4.2	—	42SQ-60	—	—	—	—	—
5	—	—	21005	11005	6416-2T	31005	51005CPS
5.2	—	52SQ-60	—	—	—	—	—
5.5	41550	—	—	—	—	—	—
6	—	—	21006	—	—	31006	51006
6.3	—	63SQ-60	—	—	—	—	—
7	41007CPS	70SQ-60	21007	11007	6417-2T	31007	51007
7.8	—	78SQ-60	—	—	—	—	—
8	—	—	—	11008	6417-8-2T	31008	51008CPS
10	41010CPS	—	21010CPS	11010	6418-2T	31010	51010CPS
10.4	—	104SQ-60	—	—	—	—	—
12	—	—	—	—	—	31012	51012
14	—	140SQ-60	—	—	—	—	—
15	41015CPS	—	21015	11015	6419-2T	31015	51015
20	—	—	21020	11020	6420-2T	31020CPS	51020CPS
21	—	210SQ-60	—	—	—	—	—
25	—	—	21025	11025	6421-2T	31025CPS	51025
30	—	—	21030	11030	6422-2T	31030CPS	51030CPS
32	—	320SQ-60	—	—	—	—	—
40	—	—	21040	11040CPS	6423-2T	31040CPS	51040CPS
46	—	460SQ-60	—	—	—	—	—
50	—	—	21050CPS	11050	6424-2T	31050CPS	51050CPS
60	—	—	—	—	6425-2T	—	—
65	—	—	21065	11065	—	31065CPS	51065CPS
75	—	—	—	11075	6426-2T	—	—
80	—	—	21080CPS	11080	—	31080CPS	51080CPS
85	—	—	—	11085	—	—	—
100	—	—	21100CPS	11100	6427-2T	31100CPS	51100
125	—	—	21125	11125	6428-2T	—	—
140	—	—	—	—	—	31140	51140
150	—	—	21150CPS	11150	6429-2T	—	—
175	—	—	—	11175	6724-2T	—	—
200	—	—	21200CPS	11200	6725-2T	31200	51200

Table 3. Trip-O-Link™ Fuse Link Ordering Information

Current Rating	Type X	Type KS	Type 200	Type QA	Type K	Type T
.33	42033CPS	—	—	—	—	—
.50	42050CPS	—	—	—	—	—
.75	42075	—	—	—	—	—
1.00	42100CPS	22001	12001	6813	32001	52001
1.25	42125	—	—	—	—	—
1.50	42150CPS	—	—	—	—	—
2	42200CPS	22002	12002	6814	32002	52002
2.50	42250CPS	—	—	—	—	—
2.75	42275CPS	—	—	—	—	—
3	—	22003	12003	6815	32003	52003
3.50	42350CPS	—	—	—	—	—
4	42400CPS	—	—	—	—	—
5	—	22005	12005	6816	—	—
5.50	42550	—	—	—	—	—
6	—	—	—	—	32006	52006
7	42007	22007	12007	6817	—	—
8	—	—	—	—	32008	52008
10	42010CPS	22010	12010	6818	32010	52010
12	—	—	—	—	32012	52012
15	42015	22015	12015	6819	32015	52015
20	—	22020	12020	6820	32020	52020
25	—	22025	12025	6821	32025	52025
30	—	22030	12030	7482	32030	52030
40	—	22040	12040	7483	32040	52040
50	—	22050	12050	7484	32050	52050

Notes:

1. Fit-All fuse links listed above have removable button heads. For non-removable button heads add "A" in front of the part number. Exceptions: Non-removable button heads are not available for Types X, SQ, QA links or 125 A, 150 A and 200 A Type 200 links.
2. Fit-All fuse links listed above are all 23" (584 mm) long. For 26" (660 mm) long fuses links add -29, except the SQ links. For SQ links replace -60 with -26.

Table 4. Fit-All Fuse Link Dimensions

Current Rating (A)	Fuse Link Types	A* Inches (mm)	B* Inches (mm)	C* Inches (mm)	D* Inches (mm)	F* Inches (mm)	L* Inches (mm)
.50 to 2	X, KS, T, K, 200, QA	.50 (13)	.75 (19)	5.38 (137)	.27 (6.8)	1.13 (29)	23.00 (584)
2.50 to 15	X	.50 (13)	.75 (19)	5.38 (137)	.31 (7.7)	1.13 (29)	23.00 (584)
3 to 20	K	.50 (13)	.75 (19)	5.38 (137)	.31 (7.7)	1.13 (29)	23.00 (584)
3 to 25	200, QA, KS, T	.50 (13)	.75 (19)	5.38 (137)	.31 (7.7)	1.13 (29)	23.00 (584)
.2 to 1.4	SQ	.50 (13)	.75 (19)	5.38 (137)	.27 (6.8)	N/A	23.00 (584)
1.6 to 42	SQ	.50 (13)	.75 (19)	5.38 (137)	.31 (7.7)	N/A	23.00 (584)
25 to 50	K	.50 (13)	.75 (19)	5.38 (137)	.31 (7.7)	N/A	23.00 (584)
30 to 50	T, KS, 200	.50 (13)	.75 (19)	5.38 (137)	.31 (7.7)	N/A	23.00 (584)
30 to 60	QA	.50 (13)	.75 (19)	5.38 (137)	.31 (7.7)	N/A	23.00 (584)
65 to 100	K, T, KS, 200	—	.75 (19)	5.38 (137)	.40 (10)	N/A	23.00 (584)
75 to 150	QA	—	.75 (19)	5.38 (137)	.40 (10)	N/A	23.00 (584)
125 to 200	KS, 200	—	1 (25)	6.38 (162)	.50 (13)	N/A	23.00 (584)
140 to 200	K,T	—	1 (25)	6.38 (162)	.50 (13)	N/A	23.00 (584)
175 to 200	QA	—	1 (25)	6.38 (162)	.50 (13)	N/A	23.00 (584)

*See Figure 4.

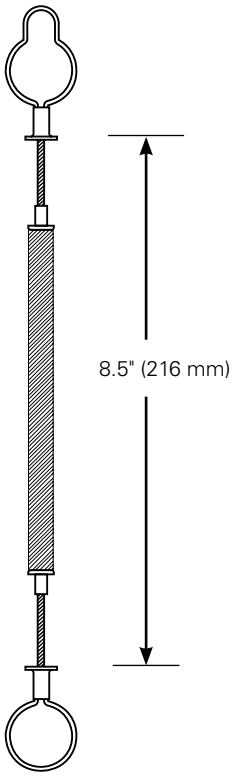


Figure 3. Trip-O-Link fuse links

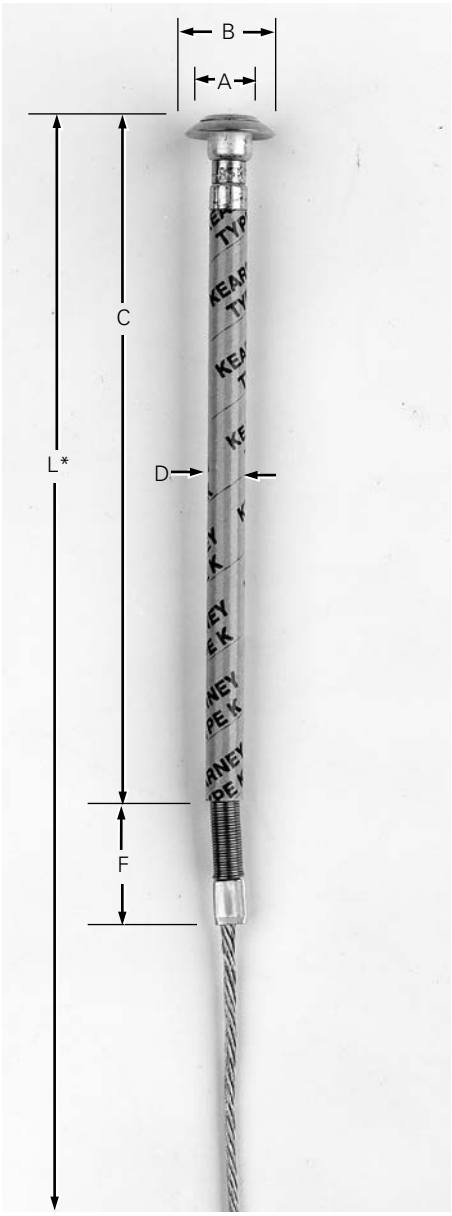
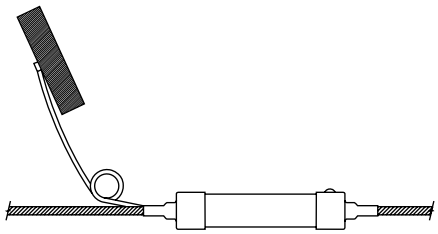


Figure 4. Fit-All fuse links

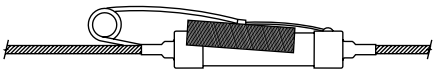
* "L" dimension extends to the end of the fuse leader.

Indicating type tubular secondary fuses

Indicating type tubular secondary fuses protect transformers and capacitors from secondary overloads and faults. Each secondary fuse has a spring locked red plastic flag which springs out from the cartridge when the fuse link melts, indicating an outage. Fuses are available with insulated or non-insulated leads.



– Flag in operated position



– Flag in operational position

Figure 5. Tubular secondary fuses

Table 5. Ordering Information for Indicating Type Tubular Secondary Fuses

Current Rating (A)	Tinned Leads	Insulated Leads
10	8316	8316-5
15	8317	8317-5
20	8318	8318-5
25	8319	8319-5
30	8320	8320-5
40	8321	8321-5
50	8322	8322-5
60	8323	8323-5
75	8324	8324-5
100	8325	8325-5
125	8326	8326-5
150	8327	—
175	8328	—
200	8329	—
300	11405	—

Additional information

Refer to the following literature for more information.

K-11000 AB	Kearney Type N (200) Time Current Characteristic Curves
K-21000 AB	Kearney Type KS Time Current Characteristic Curves
K-31000 AB	Kearney Type K Time Current Characteristic Curves
K-41000 AB	Kearney Type X Time Current Characteristic Curves
K-51000 AB	Kearney Type T Time Current Characteristic Curves
K-6010-32 AB	Kearney Type QA Time Current Characteristic Curves
K-SQ AB	Kearney Type SQ Time Current Characteristic Curves
TD132007EN	Tin vs. Silver Links (PD Update No. 5)
R327-40-3	Kearney Fuse Links-Coordination Chart for Type 200 Fuse Links
R327-40-4	Kearney Fuse Links-Coordination Chart for Type KS Fuse Links
R327-40-5	Kearney Fuse Links-Coordination Chart for Type QA Fuse Links
R327-40-6	Kearney Fuse Links-Coordination Chart for Type T Fuse Links
R327-40-7	Kearney Fuse Links-Coordination Chart for Type T with Type X Fuse Links
R327-40-8	Kearney Fuse Links-Coordination Chart for Type N (200) with Type X Fuse Links
R327-40-9	Kearney Fuse Links-Coordination Chart for Type KS with Type X Fuse Links
R327-40-10	Kearney Fuse Links-Coordination Chart for Type K with Type X Fuse Links
R327-40-11	Kearney Fuse Links-Coordination Chart for Type QA with Type X Fuse Links
R327-40-12	Kearney Fuse Links-Coordination Chart for Type K Fuse Links

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