## **Specifications**

#### **Conditions of Sale**

STANDARD: The seller's standard conditions of sale set forth in Price Sheet 150 apply.

#### SPECIAL TO THIS PRODUCT:

**INCLUSIONS:** The Fault Tamer Fuse Limiter consists of a mounting, backup limiter, and fuse tube.

**EXCLUSIONS:** Fault Tamer Fuse Limiters do not include fuse cartridges.

Fault Tamer Fuse Limiters for use in new installations do not include mounting brackets, which are available, as listed in Table 2 on page 3. Various connectors are also available as listed in Table 3 on page 3.

**APPLICATION NOTE:** Fault Tamer Fuse Limiters are ideally suited for single-phase transformers, for three-phase banks of single-phase transformers, and for three-phase transformers.

The Fault Tamer Fuse Limiter has been tested to and is in compliance with Spark Production Class A in Australian Standard AS 1033.1-1990. To be in compliance with Spark Production Class A, no sparks may be produced during a fault-clearing operation (an extremely significant reduction in fire hazard as compared to fuse cutouts).

The Fault Tamer Fuse Limiter should be selected to have a system maximum three-phase voltage rating equal to—or greater than—the system line-to-line voltage. To ensure proper coordination of a Fault Tamer Fuse Limiter with system surge arresters, it is also important that the system voltage is not too low relative to the Fault Tamer Fuse Limiter's system voltage class rating. To satisfy both of these requirements, the following specific system-voltage and minimum surge arrester recommendations should be observed:

Fault Tamer System Voltage Class Rating kV, ANSI (IEC)	Applicable 60-Hz System Voltage, kV	Applicable 50-Hz System Voltage, kV	Minimum Surge Arrester Rating, kV	
15 (12)	12 through 15	10 through 15	9	
25 (24)	22 through 29	20 through 26	18	

# How to Order a Complete Fault Tamer Fuse Limiter—for New Installation

Complete the following steps for a complete Fault Tamer Fuse Limiter order:

#### For a new installation:

STEP 1.	Obtain the catalog number of the desired Fault
	Tamer Fuse Limiter from Table 1 on page 3,
	taking care to match the system voltage class
	rating to that of your system.

Cululog 114	moor.
STEP 2.	Select the mounting bracket (if desired) and connector arrangement (if desired) from Table 2 on page 3 and Table 3 on page 3, and add the indicated suffix letter(s) to the catalog number selected in Step 1. Fault Tamer Fuse Limiters ordered without connector suffix will be assembled with a 3/8–16-inch bolt and nut, no connector.

STEP 3. Obtain the catalog number of the desired Fault Tamer fuse cartridge from Table 6 on page 6.

Catalog Number:		]

Suffixes:

**Example:** The catalog number for a new-installation Fault Tamer Fuse Limiter rated 15 kV nominal, 110 BIL, with a polymer insulator, including an S&C Extended

★ Fault Tamer Fuse Limiter is manufactured in accordance with a quality system certified to ISO 9001:2000.



#### Fault Tamer® Fuse Limiter

Mounting Bracket, for crossarm, pole, or wall mounting of Fault Tamer Fuse Limiter mountings and parallel-groove connectors to accommodate No. 6 solid (13.3 mm<sup>2</sup>) through No. 2 stranded (44.4 mm<sup>2</sup>) copper or aluminum in one groove, No. 2 solid (33.6 mm²) through 250 kc mil (168 mm²) stranded copper or aluminum or 4/0 ACSR (161 mm<sup>2</sup>) in the other groove (two-piece design), and with a 5-Ampere Fault Tamer fuse cartridge (TCC Number 450-8) is:

FT Catalog. Number: 98021-P-B-D25 Ampere Cartridge: 5 2 6 0 0 5

## For retrofit into existing cutout mountings:

**Note:** Fault Tamer Fuse Limiters are designed to fit into all vintages of Type XS Fuse Cutout Mountings.

Obtain the catalog number of the desired Fault Tamer backup limiter from Table 4 on page 4, making sure to match the systemvoltage class rating of the limiter to that of the system.

Catalog Number:

From Table 4 on page 4, obtain the catalog number of the desired Fault Tamer fuse tube, making sure to match the system-voltage class rating of the fuse tube to that of the system.

Catalog Number:

Obtain the catalog number of the desired Fault Tamer fuse cartridge from Table 6 on page 6.

Catalog Number:

Note: Fault Tamer backup limiters and Fault Tamer fuse tubes can be purchased in a combined package, if desired. Refer to Table 4 on page 5. Obtain the catalog number of the desired combined package, making sure to match the system-voltage class rating of the package to that of the system.

**Example:** The catalog number for a Fault Tamer Fuse Limiter backup limiter, for retrofit into existing cutout mountings, rated 25 kV nominal, 150 kV BIL, compatible with fuse cartridge (TCC Number 450-8) as a singular component, is:

FT Backup Limiter Catalog Number: 98252

The catalog number for a Fault Tamer Fuse Limiter fuse tube, for retrofit into existing cutout mountings, rated 25 kV nominal, 150 kV BIL, compatible with (TCC Number 450-8) fuse cartridges as a singular component, including a trunnion, is:

FT Fuse Tube Catalog. Number.: 98522

Note: If this same backup limiter and fuse tube are ordered as a package, the catalog number for the combination, and with a 5-Ampere Fault Tamer fuse cartridge (TCC Number 450-8) is:

FT Backup Limiter and Fuse Tube Combined Package Catalog Number:

9 8 7 2 2

FT 5 Ampere Cartridge: 5 2 6 0 0 5

### **How to Order Handling Tools**

Obtain the catalog number of the recommended handling tool(s) from Table 7 on page 6. Refer to Specification Bulletin 851-31.

**Example:** The catalog number for a Talon Handling Tool fitting, to be attached to an existing S&C Universal Pole, is:

Catalog Number: 4 4 4 0

For a new S&C Universal Pole, 20 feet (610 cm) in length, the catalog number per Specification Bulletin 851-31 is:

Catalog Number: 447982

Fault Tamer fuse cartridges are sold in packs of five, or over packs of 25. Minimum ordering quantity is five.

Table 1. Fault Tamer Fuse Limiter—For New Installations. Includes Mounting, Backup Limiter①, and Fuse Tube (Less Mounting Bracket, Connectors, and Fault Tamer Fuse Cartridge)

				Ratings	\$			Leakage Distance		Catalog Number			
		Voltage, kV						Amperes, RMS		to Ground Minimum, Inches (mm)			Page
Illustration			System I	Vaximum					(	<i>,</i>	Porcelain	Polymer	Reference for
	System Class,			50 Hz				Interr.,	Porce-		Insulator	Insulator	Dimensional
	ANSI (IEC)	Three- Phase ②	Phase- to- Neutral	Three- Phase ②	Phase- to-Neu- tral	BIL	Max	Sym.	lain	Polymer			Information
	15 (12)	15	8.7	15	8.7	110	20	12 000	8½ (216)	14¾ (375)	98021	98021-P	6
	15 (12)	15	8.7	15	8.7	125	20	12 000	11 (279)	_	98072●	_	6
	15 (12)	15	8.7	15	8.7	150	20	12 000	17 (432)	26½ (673)	98073■	98073-P▲	6
	25 (24)	29	16.8	26	15.1	125	20	12 000	11 (279)	_	98022	_	7
	25 (24)	29	16.8	26	15.1	150	20	12 000	17 (432)	26½ (673)	98052	98052-P	7
	25 (24)	29	16.8	26	15.1	150	20	12 000	26 (660)	37½ (953)	98053◆▼	98053-P□	8

- ① TCC No. 450-8.
- ② Also applies to phase-to-phase applications. Applications involving single-phase transformers connected phase to phase as well as threephase applications require the use of a Fault Tamer Fuse Limiter in each lead.
- Includes extension adapter for use in mounting with porcelain insulator having 11-inch (279-mm) leakage distance to ground.
- Includes extension adapter for use in mounting with porcelain insulator having 17-inch (432-mm) leakage distance to ground.
- ▲ Includes extension adapter for use in mounting with polymer insulator having a 26½-inch (673-mm) leakage distance to ground.
- ◆ Meets 170-kV BIL rating requirement of IEC Publication 60282-2.
- ▼ Includes an extension adapter for use in mounting with a porcelain insulator having a 26-inch (660-mm) leakage distance to ground.
- $\hfill \square$  Includes extension adapter for use in mounting with polymer insulator having 37½-inch (953-mm) leakage distance to ground.

**Table 2. Mounting Brackets and Other Options** 

Item	Add Catalog Number Suffix
S&C extended mounting bracket, for crossarm, pole, or wall mounting of Fault Tamer Fuse Limiter mountings	-B
NEMA Type B mounting bracket, for crossarm mounting of Fault Tamer Fuse Limiter mountings	-C
Harsh-environment design—all galvanized steel components and hardware replaced with stainless steel to provide enhanced corrosion resistance in a coastal or high-contamination environment	-S

Table 3. Connector Options ①

Itam		Accommodating Conductors	Position	Add Catalog	
Item	Quantity	Position	Number Suffix		
Parallel-groove	Two conductors	No. 6 solid (13.3 mm²) through No. 2 stranded (44.4 mm²) copper or aluminum in one groove; No. 2 solid (33.6 mm²) through 250 kc mil (168 mm²) stranded copper or aluminum or 4/0 ACSR (161 mm²) in the other groove (one-piece design)	Standard orientation	-D	
connectors	Two conductors	No. 6 solid (13.3 mm²) through No. 2 stranded (44.4 mm²) copper or aluminum in one groove; No. 2 solid (33.6 mm²) through 250 kc mil (168 mm²) stranded copper or aluminum or 4/0 ACSR (161 mm²) in the other groove (two-piece design)	Standard orientation	-D2	
Eye-bolt connectors	One conductor	No. 8 solid (8.4 mm²) through 250 kc mil (168 mm²) stranded copper or aluminum or 4/0 ACSR (161 mm²)	Standard orientation	-M	

① Connectors for Fault Tamer Fuse Limiters cannot be sold separately.

**Table 4. Fault Tamer Fuse Limiter Components** 

		F			Voltage, k	V		
		For use with Type XS Fuse Cutouts and	System					
Illustration	Item	Fault Tamer Fuse	Ćlass,	60	) Hz	50 Hz		Catalog Number
		Limiter Basic Catalog Numbers	ANSI (IEC)	Three Phase 1	Phase to Neutral	Three Phase 1	Phase to Neutral	
		89021, 89031, 89071, 89221, 89022•, 89032•, 89042•, 89052•, 89072•, 89092•, 89222•, 98021, 98052•, 98072•, 98073•	15 (12)	15	8.7	15	8.7	98251
	Backup limiter②	89022, 89032, 89042, 89052, 89072, 89092, 89222, 89033■, 89223■, 98022, 98052	25 (24)	29	16.8	26	15.1	98252
		89053■, 89253■, 98053■	25 (24)	29	16.8	26	15.1	98253
	Fuse tube®	89021, 89031, 89071, 89221, 98021	15 (12)	15	8.7	15	8.7	98521
	Fuse tube including extension adapter ③ ④	89022, 89032, 89042, 89052, 89072, 89092, 89222, 98052, 98072, 98073	15 (12)	15	8.7	15	8.7	98572
	Fuse tube③	9022, 89032, 89042, 89052, 89072, 89092, 89222, 98022, 98052	25 (24)	29	16.8	26	15.1	98522
	Fuse tube including extension adapter ③ ⑤	89033, 89053, 89223, 89253, 98053	25 (24)	29	16.8	26	15.1	98553

- ① Also applies to phase-to-phase applications. Applications involving single-phase transformers connected phase to phase, as well as three-phase applications require the use of a Fault Tamer Fuse Limiter in each lead.
- ② TCC No. 450-8.
- 3 Includes trunnion.
- $\ \,$  Can only be used on 50-Hz systems rated 10 kV through 15 kV and on 60-Hz systems rated 12 kV through 15 kV.
- Requires use of fuse tube with extension adapter, catalog number 98572.
- Requires use of fuse tube with extension adapter, catalog number 98553.

TABLE CONTINUED ▶

Table 4. Fault Tamer Fuse Limiter Components—Continued

		For use with Type VS						
Basic Catalog		For use with Type XS Fuse Cutouts and	System			Catalog Number		
Number	Item	Fault Tamer Fuse Limiter Basic	Class,	60 Hz			50 Hz	
		Catalog Numbers	ANSI (IEC)	Three Phase 1	Phase to Neutral	Three Phase①	Phase to Neutral	
Backup Limiter and Fuse T	ube Combined Package	)						
98251 and 98521	Backup limiter② and fuse tube③	89021, 89031, 89071, 89221, 98021	15 (12)	15	8.7	15	8.7	98721
98251 and 98572	Backup limiter② and fuse tube, including extension adapter③④	89022, 89032, 89042, 89052, 89072, 89092, 89222, 98052, 98072, 98073	15 (12)	15	8.7	15	8.7	98772
98252 and 98522	Backup limiter② and fuse tube③	89022, 89032, 89042, 89052, 89072, 89092, 89222, 98022, 98052	25 (24)	29	16.8	26	15.1	98722
98252 and 98553	Backup limiter② and fuse tube, including extension adapter③⑤	89033, 89223, 89053, 89253, 98053	25 (24)	29	16.8	26	15.1	98753

① Also applies to phase-to-phase applications. Applications involving single-phase transformers connected phase-to-phase, as well as threephase applications require the use of a Fault Tamer Fuse Limiter in each lead.

- ③ Includes trunnion.
- 4 Can only be used on 50-Hz systems rated 10 kV through 15 kV and on 60-Hz systems rated 12 kV through 15 kV.

TABLE CONTINUED ▶

② TCC No. 450-8.

Table 4. Fault Tamer Fuse Limiter Components—Continued

			Voltage Rati	ng, kV	Leakage Di		Catalog Number①		
Illustrations	Item	Basic Catalog Number	System		Ground Minim (mm	*	Porcelain	Polymer	
		Number	Class, ANSI (IEC)	BIL	Porcelain	Polymer	Insulator	Insulator	
San	Overhead— pole-top cutout, less fuse tube	89021, 89031, 89071, 89221, 98021	15 (12)	110	8½ (216)	14¾ (375)	89811R10	89811R10-P	
		89022, 89032, 89072, 89222, 98022, 98072	15, 25 (12), (24)	125	11 (279)	_	89812R10	_	
		89042, 89052, 89092, 98052, 98072, 98073	15, 25 (12), (24)	150	17 (432)	26½ (673)	89802R10	89802R10-P	
*\*\\\		89053, 89253, 98053	15, 25, 38 (12), (24), (36)	150	26 (660)	37½ (953)	89823R10●	89823R10-P	

① Specify mounting bracket, if desired, and connector option (required) by adding suffix letter(s) to catalog number. For example, 89811R10-BD. See Table 2 on page 3.

**Table 5. Other Options** 

Item	Add Catalog Number Suffix
High-visibility label on insulator①	-L1

① Not available on polymer insulators.

Table 6. Fault Tamer Fuse Limiter Cartridge (TCC Number 450-8)①

Illustration	Ratings, Amperes	Catalog Number
	3	526003
	5	526005
	7	526007
	10	526010
	15	526015
	20	526020

① Fault Tamer Fuse Limiter cartridges are sold only in single packs of five or as five combined packs totaling 25 cartridges. Minimum ordering quantity is five.

#### Table 7. Recommended Fuse Handling Tools—For Use With Fault Tamer Fuse Limiters

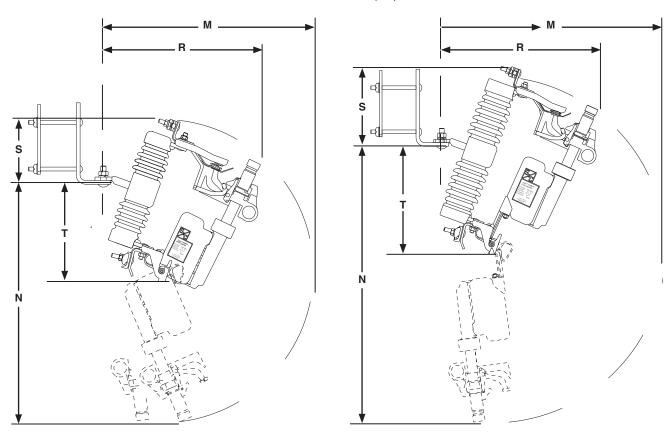
Item	Catalog Number
Talon™ Handling Tool, for use on overhead distribution systems to securely install and remove distribution fuses from their mountings	4440
Universal pole	•

Select to match height of installation. Refer to Specification Bulletin 851-31.

<sup>•</sup> Meets 170-kV BIL rating requirement of IEC Publication 60282-2.

## **Catalog Numbers 98021, 98073**





Catalog number 98021

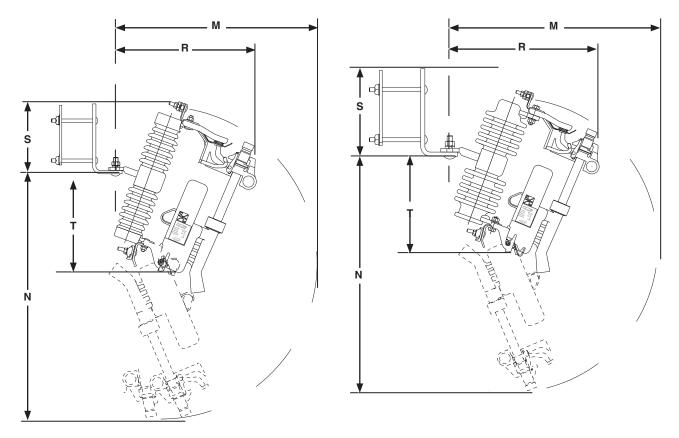
Catalog numbers 98072 and 98073

			Catalog Number (Less Mounting Bracket and Connec- tors)①			Net Wt.,					
System Voltage Class, kV, ANSI (IEC)	Amperes		Porcelain	Polymer						Lbs. (kg)	
	BIL, kV	Max	Interr., Sym	Insulator	Insulator	М	N	R	<b>S</b> ②	Т	
15 (12)	110	20	12 000	98021	-	201/4 (514)	23% (594)	151/8 (384)	6 (152)	9¾ (248)	15¼ (6.9)
15 (12)	110	20	12 000	_	98021-P	201/4 (514)	23% (594)	151/8 (384)	6 (152)	9¾ (248)	10¾ (4.9)
15 (12)	125	20	12 000	98072	_	23 (584)	28% (721)	15% (391)	7¾ (197)	11% (289)	16¾ (7.6)
15 (12)	150	20	12 000	98073	98073-P	23 (584)	28% (721)	15% (391)	7¾ (197)	11% (289)	16¾ (7.6)

① Specify mounting bracket, if desired, and connector option (required) by adding suffix letter(s) to catalog number. For example, 98021-CD. See Table 2 on page 3.

② Dimension applies to a Fault Tamer Fuse Limiter furnished with optional parallel-groove connectors (catalog number suffix "-D"). If a Fault Tamer Fuse Limiter is furnished with optional eye-bolt connectors (catalog number suffix "-M"), the dimension is slightly smaller.

## Catalog Numbers 98022 and 98052



Catalog number 98022

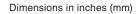
Catalog number 98052

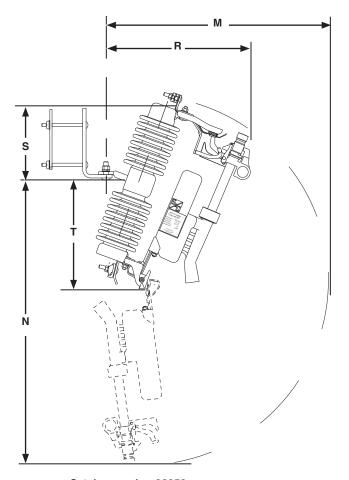
			Catalog Number (Less Mounting Bracket and Connec- tors)①			Net Wt.,					
System Voltage Class, kV, ANSI (IEC)	BIL, kV	Am Max	Interr., Sym	Porcelain Insulator	Polymer Insulator	М	N	R	<b>S</b> ②	Т	Lbs. (kg)
25 (24)	125	20	12 000	98022	_	22½ (572)	27¾ (705)	15½ (394)	7¾ (197)	11% (289)	17½ (7.9)
25 (24)	150	20	12 000	98052	_	22½ (572)	27¾ (705)	15½ (394)	7¾ (197)	11% (289)	22½ (10.2)
25 (24)	150	20	12 000	_	98052-P	22½ (572)	27¾ (705)	15½ (394)	7¾ (197)	11% (289)	12 (5.4)

① Specify mounting bracket, if desired, and connector option (required) by adding suffix letter(s) to catalog number. For example, 98021-CD. See Table 2 on page 3.

② Dimension applies to a Fault Tamer Fuse Limiter furnished with optional parallel-groove connectors (catalog number suffix "-D"). If a Fault Tamer Fuse Limiter is furnished with optional eye-bolt connectors (catalog number suffix "-M"), the dimension is slightly smaller.

## Catalog Number 98053





Catalog number 98053

Rating (Les Bracket					Number punting Dimensions in Inches (mm) d Connec-				Net Wt., Lbs.		
System Voltage Class, kV, ANSI (IEC)	BIL, kV	Am Max	Interr., Sym	Porcelain Insulator	Polymer Insulator	М	N	R	<b>S</b> ②	т	(kg)
25 (24)	150●	20	12 000	98053	_	25 (635)	32% (835)	161/8 (410)	91/4 (235)	13 (330)	25 (11.3)
25 (24)	150	20	12 000	_	98053-P	25 (635)	32% (835)	161/8 (410)	91/4 (235)	13 (330)	14 (6.4)

① Specify mounting bracket, if desired, and connector option (required) by adding suffix letter(s) to catalog number. For example, 98021-CD. See Table 2 on page 3.

② Dimension applies to a Fault Tamer Fuse Limiter furnished with optional parallel-groove connectors (catalog number suffix "-D"). If a Fault Tamer Fuse Limiter is furnished with optional eye-bolt connectors (catalog number suffix "-M"), dimension is slightly smaller.

Meets 170-kV BIL rating requirements of IEC Publication 282-2.