TrackCoach™ ProShift 4-Channel Relay Module User Guide

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Table of Contents

CHAPTER 1 WELCOME!

While designed specifically to work with the FES TrackCoach™ ProShift I/O Shift Light, the 4-Channel Relay Module can be used as a stand-alone module for controlling accessories as well. This compact module contains some of the latest compact automotive relay technology, able to control up to 60 Amps of accessory load, with integrated fuses as well.

FEATURES

- 4 independent 15 amp relays.
- Each relay has its own fuse.
- Mates directly with the ProShift I/0 & ProShift CAN I/O Shift Lights.
- Channels can be configured for manual operation as well.

USER GUIDE ORGANIZATION

This guide covers how to wire the TrackCoach™ ProShift 4-Channel Relay Module.

WHAT'S IN THE BOX

All TrackCoach™ ProShift 4-Channel Relay Module packages contain the following items:

- 1 TrackCoach™ ProShift 4-Channel Relay Module
- 4 Spare 15 Amp Fuses (Littlefuse 297 Series)
- Users Manual

CHAPTER 2 DISCLAIMER

TrackCoach™ ProShift 4-Channel Relay Module DISCLAIMER

THIS IS A HIGH PERFORMANCE PRODUCT, USE AT YOUR OWN RISK

Do not use this product until you have carefully read the following agreement. This sets forth the terms and conditions for the use of this product. The installation of this product indicates the BUYER has read and understands this agreement and accepts its terms and conditions. This agreement takes precedence.

DISCLAIMER OF LIABILITY

FES, LLC (hereafter SELLER) shall in no way be responsible for the product's proper use and service. **THE BUYER HEREBY WAIVES ALL LIABILITY CLAIMS.**

The BUYER acknowledges that he/she is not relying on the SELLER's skill or judgment to select or furnish goods suitable for any particular purpose and that there are no liabilities which extend beyond the description on the face hereof and the BUYER hereby waives all remedies or liabilities, expressed or implied, arising by law or otherwise, (including without any obligations of the SELLER with respect to fitness, merchantability, and consequential damages) or whether or not occasioned by the SELLER's negligence.

The SELLER disclaims any warranty and expressly disclaims any liability for personal injury or damages. The BUYER acknowledges and agrees that the disclaimer of any liability for person injury is a material term for this agreement and the BUYER agrees to indemnify the SELLER and to hold the SELLER harmless from any claim related to the item of the equipment purchased. Under no circumstances will the SELLER be liable for damages or expenses by reason of use or sale of any such equipment.

The SELLER assumes no liability regarding the improper installation or misapplication of its products. It is the installer's responsibility to check for proper installation and if in doubt, contact the manufacturer.

LIMITATION OF WARRANTY

FES, LLC (hereafter "SELLER") gives Limited Warranty as to description, quality, merchantability, fitness for any product's purpose, productiveness, or any other matter of SELLER's product sold herewith. The SELLER shall be in no way responsible for the product's open use and service and the BUYER hereby waives all rights other than those expressly written herein. This Warranty shall not be extended or varied except by written instrument signed by SELLER and BUYER.

The Warranty is Limited to one (1) year from the date of sale and limited solely to the parts contained in within the product's kit. All products that are in question of Warranty must be returned shipping prepaid to the SELLER and must be accompanied by a dated proof of purchase receipt. All Warranty claims are subject to approval by FES, LLC.

Under no circumstances shall the SELLER be liable for any labor charged or travel time incurred in diagnosis for defects, removal or reinstallation of this product, or any other contingent expenses.

If the BUYER sends back a failed unit that is out of warranty and chooses to buy a refurbished unit, the refurbished unit will only carry a 60 day warranty. If the BUYER purchases a new unit at a predetermined discounted rate, it will have the standard 1 year warranty.

Under no circumstances will the SELLER be liable for any damage or expenses insured by reason of the use or sale of any such equipment.

IN THE EVENT THAT THE BUYER DOES NOT AGREE WITH THIS AGREEMENT: THE BUYER MAY PROMPTLY RETURN THIS PRODUCT, IN A NEW AND UNUSED CONDITION, WITH A DATED PROOF OF PURCHASE, TO THE PLACE OF PURCHASE FOR A FULL REFUND.

THE INSTALLATION OF THIS PRODUCT INDICATES THAT THE BUYER HAS READ AND UNDERSTANDS THIS AGREEMENT AND ACCEPTS ITS TERMS AND CONDITION

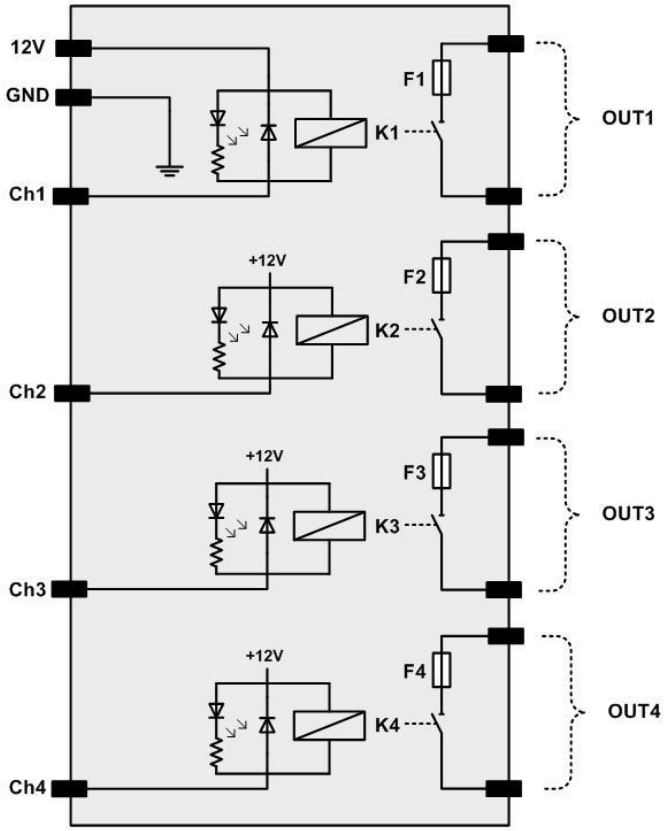
CHAPTER 3 INSTALLATION

PHYSICAL INSTALLATION

This is really up to you! The one thing to keep in mind is that it should not be located where it can get wet.

The base-plate is 76mm by 58mm. There are four 5mm holes that are spaced 66mm by 48mm. There is a dimensional drawing at the end of this document with both metric and English units included for reference.

GENERAL SCEMATIC



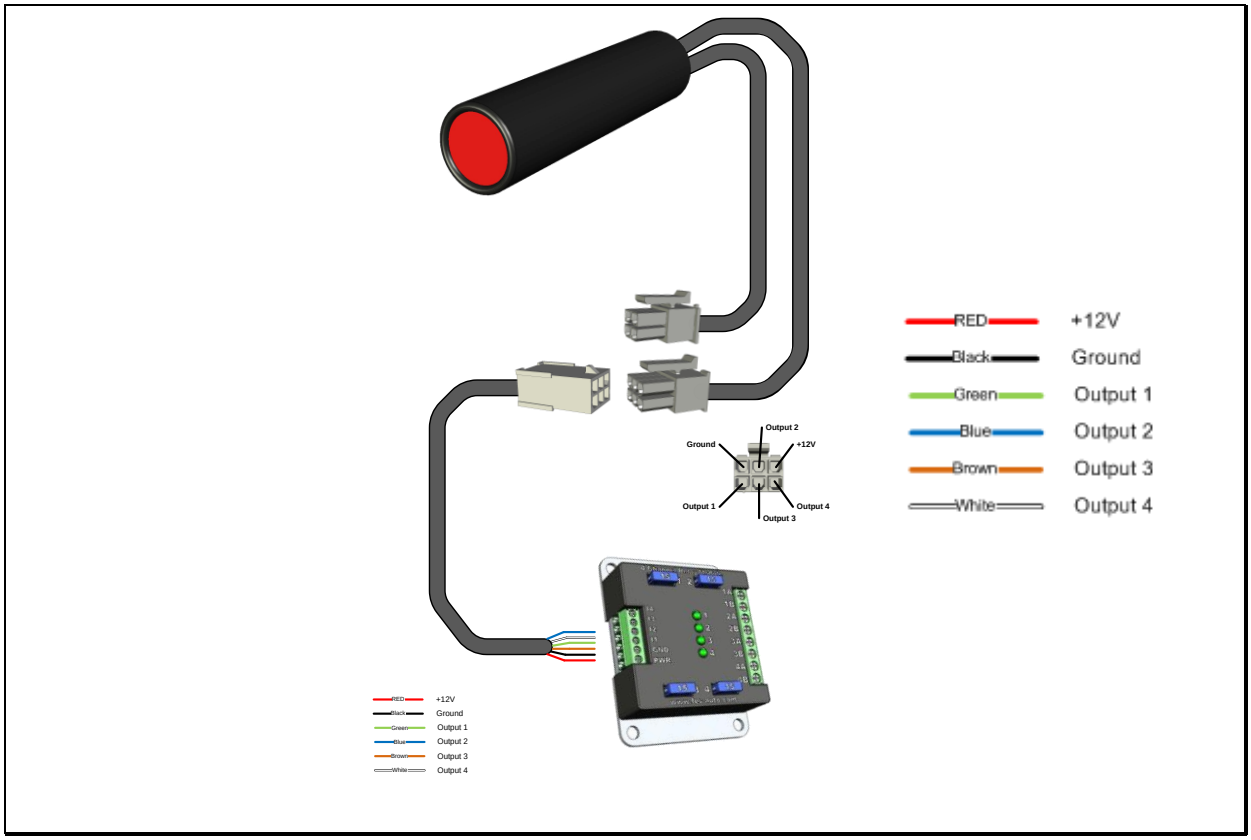
Some general points:

- The ground connection has no internal connection in the relay module. It is there so that the ground wire from the ProShift harness has a home, and to provide a convenient location for a ground mecca if used in stand-alone mode.
- All the relays share the same +12V line.

- Because the fuse is in the relay module, it is best practice to bring the 12 V to the output, then from the relay to the load (See below).
- We have provided 15 Amp fuses. But one should really select a fuse that is appropriate to the load. Other values of fuse can be purchased from places like Radio Shack, most auto parts stores, or electronics distributors like Mouser and Digi-Key.
- If higher currents are required, just run two (or more) relays in parallel.

CONNECTING TO THE TRACKCOACH™ PROSHIFT

This is very straight forward. There are six inputs on the Module and 6 wires that come from the ProShift. Just hook them up as indicated in the graphic below!

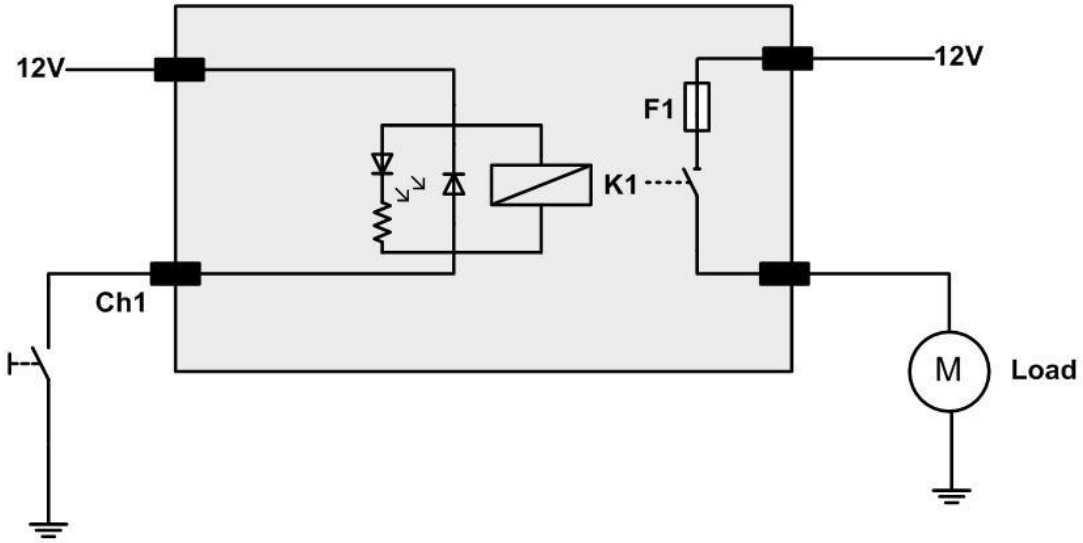


STAND-ALONE INSTALLATION

While the module can be wired to a +12V supply that is always on, we recommend that it be wired to a switched power source. This will eliminate any possibility of accidently draining the battery by leaving some accessory on when the key is removed from the ignition. But this is only a

recommendation. The +12V can be always live if required by the application.

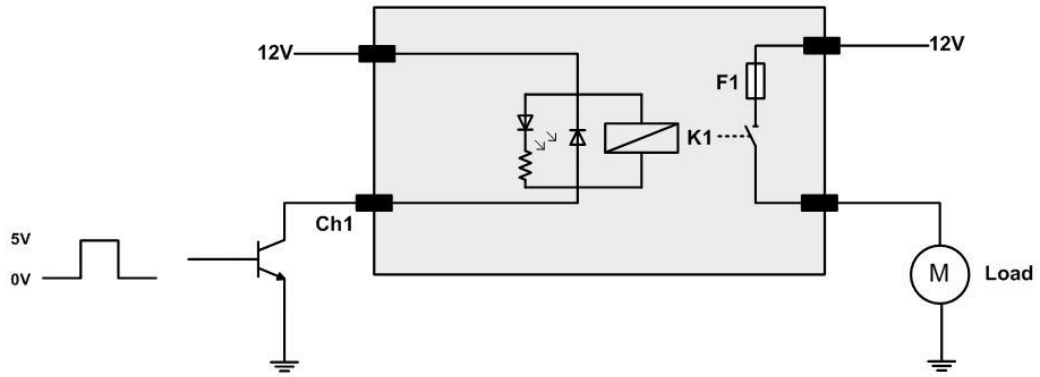
Using a manual switch:



Because all channels share the same +12V line, the switch should be between the channel input and ground.

Connecting to other (non-FES) digital outputs:

This isn't a very likely deployment scenario, but is included for completeness. Depending on the configuration of the digital output (check product documentation for details), a transistor may be required.



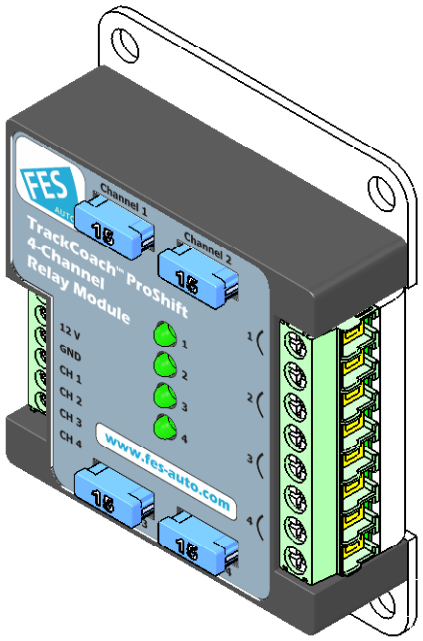
Mixing and Matching:

It is fine to "mix and match" control strategies. That is, have two channels controlled by the ProShift, and two controlled manually. Or one by the ProShift, and 3 manually. Also, not all channels need to be used. If the other channels aren't required, just don't hook them up. When and if another channel is needed, just wire it up and you're ready to go!

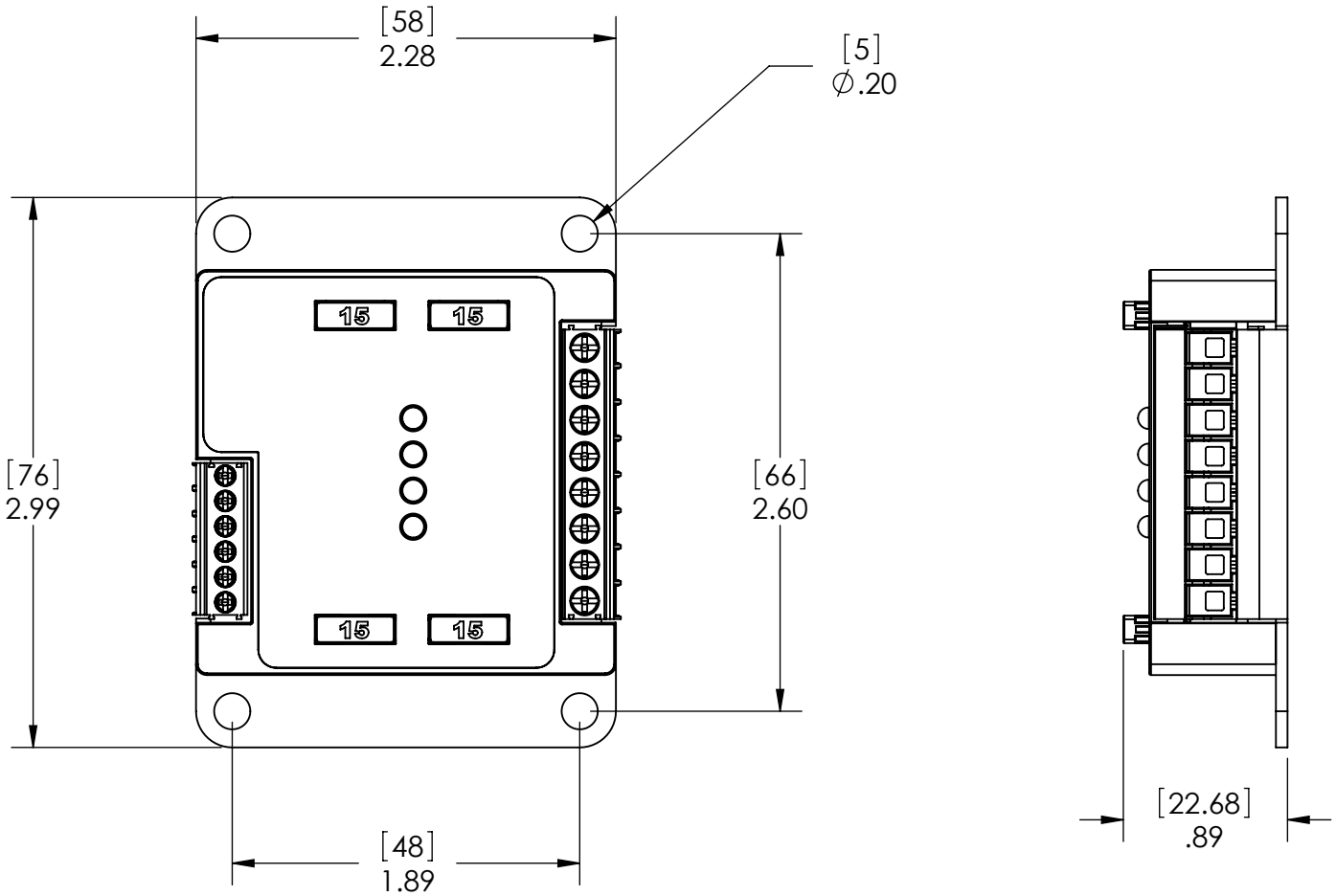
APPENDIX A TECHNICAL SPECIFICATIONS

Length	76 mm (2.99")
Width	58 mm (2.28")
Height (with fuses)	22.68 mm (0.89")
Mounting Holes	5 mm (0.2")
Control Current Per Channel	70 milliamps
Load Limits Per Channel	15 amps @ 25% duty cycle
	10 amps @ 50% duty cycle
	8 amps or less @ 100% duty cycle

APPENDIX B PHYSICAL DIMENSIONS



Upper number is in mm.
Lower number is in in.



SIZE	DWG. NO.	REV.
A	Populated Relay Assy v3p4	
SCALE:1:1	WEIGHT:	SHEET 1 OF 1

MINI® Blade Fuse Rated 32V

RoHS

Specifications

Interrupting Rating: 1000A @ 32 VDC
Voltage Rating: 32 VDC
Operating Temperature Range: -40˚C to +125˚C

The MINI Fuse is quickly becoming the new standard for vehicle circuit protection. Its miniature design meets the need for more circuits to be protected while utilizing less space, and its ability to cope with high temperatures in adverse environments makes the MINI Fuse the recommended choice for protection.

Die MINI®-Sicherung entwickelt sich rasch zum neuen Standard für den Schaltungsschutz in Fahrzeugen. Ihr Miniatur-Design ermöglicht es, mehr Schaltkreise bei insgesamt geringerem Platzbedarf zu schützen. Kleinste Abmessungen in Kombination mit der für raue Umgebungsbedingungen erforderlichen hohen Temperaturbelastbarkeit machen die MINI®-Sicherung besonders empfehlenswert.

Time-Current Characteristics / Schmelzzeit-Grenzwerte

% of Rating % des Nennstromes	Opening Time Min / Max (s) Schmelzcharakteristik Min / Max (s)
110	100 hrs. / –
135	0.75 s / 600 s
200	0.15 s / 5 s
350	0.080 s / 0.250 s
600	0.030 s / 0.100 s

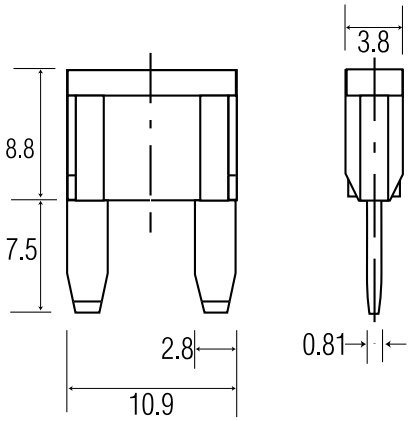
Meets SAE J2077

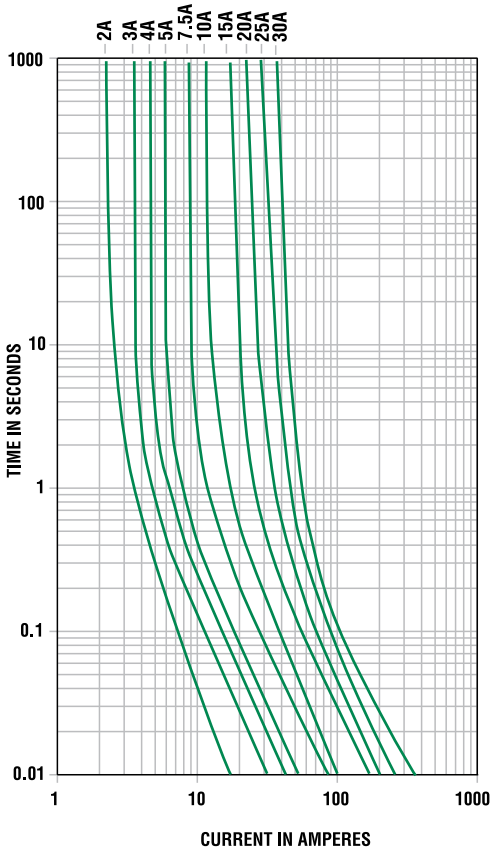
Part Number Artikel-Nr.	Current Rating Nennstrom	Housing Color Kennfarbe	Typ. Voltage Drop Typ. Spannungsfall	Cold Resistance Kaltwiderstand	I^2t
0297002_	2 A		171 mV	55.60 mΩ	2.8 A^2s
0297003_	3 A		153 mV	33.75 mΩ	9.4 A^2s
0297004_	4 A		121 mV	23.48 mΩ	17 A^2s
0297005_	5 A		129 mV	17.75 mΩ	25 A^2s
029707.5_	7.5 A		135 mV	10.85 mΩ	68 A^2s
0297010_	10 A		108 mV	7.42 mΩ	93 A^2s
0297015_	15 A		98 mV	4.58 mΩ	270 A^2s
0297020_	20 A		96 mV	3.21 mΩ	380 A^2s
0297025_	25 A		86 mV	2.36 mΩ	625 A^2s
0297030_	30 A		87 mV	1.85 mΩ	1130 A^2s

Last figure of part number = packaging code, see Section "Packaging Index," pg. 157.
Corresponding holder see Section "Fuse Holders."

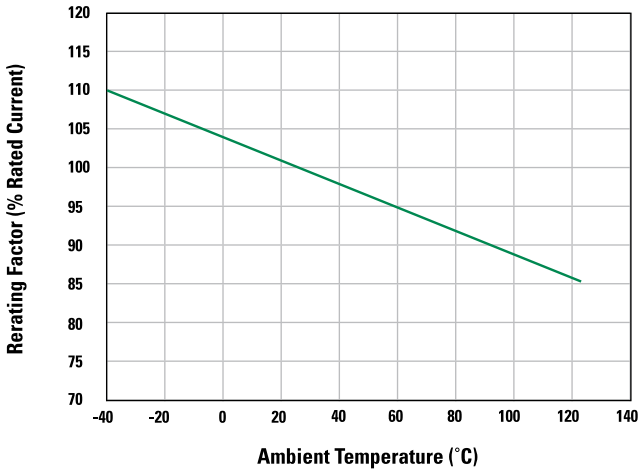
MINI® Blade Fuse Rated 32V

Dimensions in mm / Maße in mm





MINI Fuse Temperature Rerating Curve



Blade Fuses

See Section Specialty Products for Resistors, Diodes, and Shunts.