

PSR-TRISAFE-S and Safety Relay Expansion Modules

Adding Safety Relay Expansion Contacts to the PSR-TRISAFE-S Safety Controller

INTERFACE

Application Note

2791B

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1 Introduction

The PSR-TRISAFE-S is a standalone safety controller with 20 safe inputs, four safe outputs and two safe ground-switching outputs. If additional safe outputs or safe relay outputs are needed, standard safety relay expansion modules can be hard-wired to the safe outputs of the PSR-TRISAFE-S module.

System designers should consider adding a safety expansion relay for one of two reasons:

1. The PSR-TRISAFE-S module does not have enough safe outputs.
2. A safe relay circuit is needed to switch a voltage other than 24 V DC. The PSR-TRISAFE-S module is a 24 V solid-state device.

2 Expanding the PSR-TRISAFE-S

The PSR-TRISAFE-S safety module provides four safe outputs based on 24 V DC. These are O0, O1, O2 and O3. Additionally, there are two, safe ground-switching outputs based on the 24 V DC return or "0 V DC." These two outputs have the designation "O0-" (O0 minus) and "O1-" (O1 minus). If the ground-switching outputs are to be used, the O0- and O1- connections must be used in conjunction with their 24 V DC-based counterparts, i.e., O0 must be used with O0- and O1 must be used with O1-.

Two safe outputs can be used to control a safety relay expansion module. Figure 2 shows how to wire the

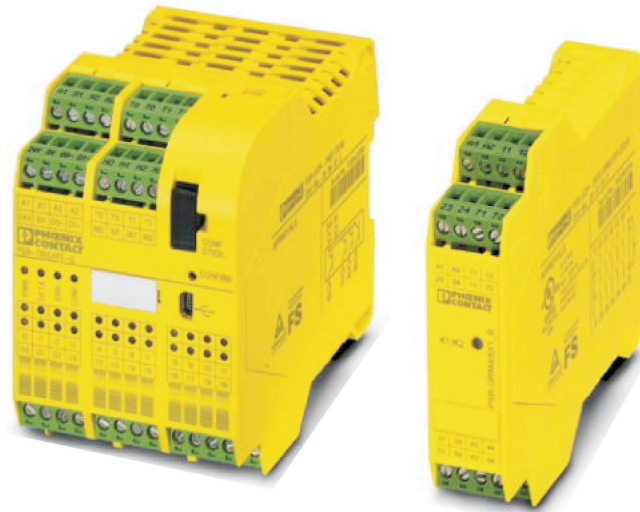


Figure 1. PSR-TRISAFE-S Module and Safe Contact Expansion Module

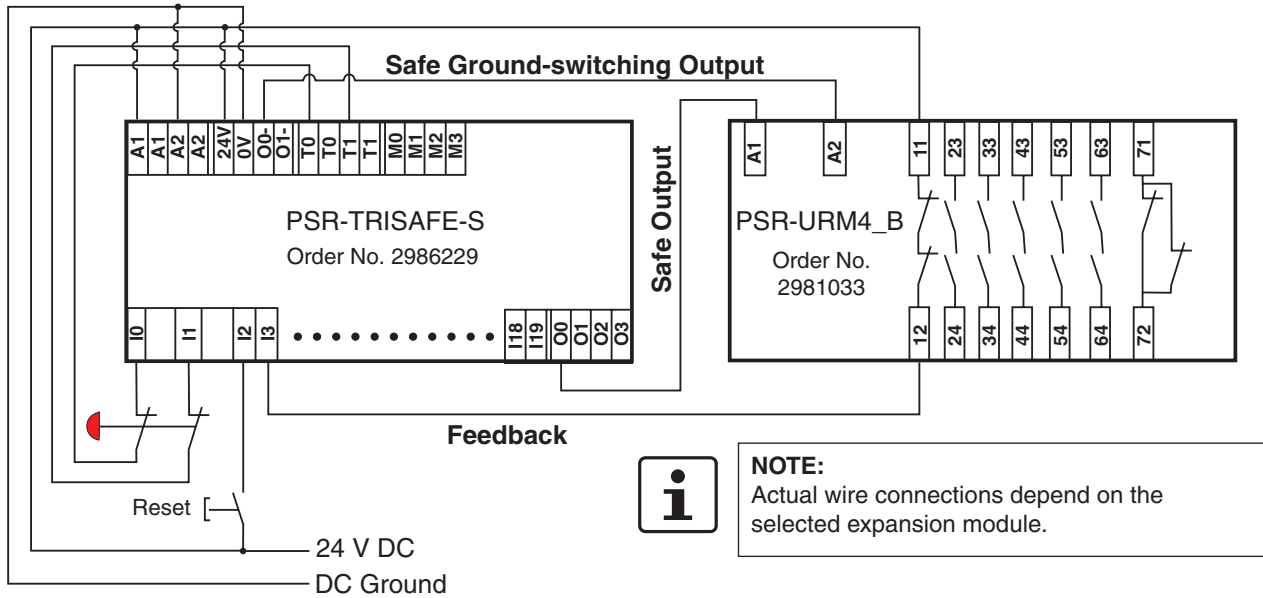


Figure 2. Typical Expansion Module Connection Schematic

safe relay expansion module PSR-URM4_B (Order No. 2981033). PSR-URM4_B has five redundant, normally-open safe relay channels, one normally-closed status contact set and one normally-closed “feedback” relay

NOTE:
Actual wire connections depend on the selected expansion module.

channel. The feedback channel must be connected to the PSR-TRISAFE-S to monitor the status of the safe relay expansion module.

Other safe relay expansion modules that have been tested for use with the PSR-TRISAFE-S are:

Type Code	Part Number	Type Code	Part Number
PSR-SCP-24DC/URM4/4x1/2x2/B	2981677	PSR-SPP-24UC/URM4/5x1/2x2	2964005
PSR-SPP-24DC/URM4/4x1/2x2/B	2981680	PSR-SCP-24UC/URM4/5x1/2x2/B	2981033
PSR-SCP-24DC/URD3/4x1/2x2/3	2981732	PSR-SPP-24UC/URM4/5x1/2x2/B	2981046
PSR-SPP-24DC/URD3/4x1/2x2/3	2981745	PSR-SCP-24UC/URM/5x1/2x2	2963747
PSR-SCP-24DC/URD3/4x1/2x2	2981512	PSR-SPP-24UC/URM/5x1/2x2	2963970
PSR-SPP-24DC/URD3/4x1/2x2	2981525	PSR-SCF-24UC/URM/4x1/2x2	2981444
PSR-SCP-24DC/URD3/4x1/2x2/T2	2981703	PSR-SPF-24UC/URM/4x1/2x2	2981457
PSR-SPP-24DC/URD3/4x1/2x2/T2	2981729	PSR-SCF-24UC/URM/2x21	2981363
PSR-SCP-24DC/ESP4/2x1/1x2	2981020	PSR-SCP-24UC/URM/3x1/3x2	2981839
PSR-SPP-24DC/ESP4/2x1/1x2	2981017	PSR-SPP-24UC/URM/3x1/3x2	2981842
PSR-SCP-24DC/FSP/1x1/1x2	2981978	PSR-SCP-24UC/URM/5x1/1x2	2981952
PSR-SPP-24DC/FSP/1x1/1x2	2981981	PSR-SPP-24UC/URM/5x1/1x2	2981965
PSR-SCP-24UC/URM4/5x1/2x2	2963734		