SIEMENS

TELEPERM M

AS 235 H Automation System

Description C79000-T8076-C484-04

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5.2 Testable Relay Output Module (PRA) 6DS1606-8BA

In contrast to other modules from the TELEPERM M module range, the PRA module offers special functions that enable complete detection of module faults, including contact monitoring functions.

The module may be used in a 1–out–of–1, 1–out–of–2, or 2–out–of–2 structure. The module's relay outputs must be wired to the actuators according to the application.

– The 1–out–of–1 structure enables hardware defects to be detected immediately and thus to be eliminated rapidly.
– The 1–out–of–2 structure additionally makes it possible that the discrete value "1" or ON can always be issued to the actuator, even if there is a hardware defect on **one** module.

  This means:

  One module controls the actuator correctly if the incorrect output signal from the other module is "0" or OFF.

  If, in contrast, the incorrect output signal from a module is "1" or ON, the actuator is set to "1" or ON irrespective of the state of the related output signal from the faultless module.



Caution

If a channel is used in a 1–out–of–2 structure, a fault value of 0B must be selected if the freeze bit of the master driver (EINF = 0B) has been reset.
This means: The bit that has been allocated to this channel in the corresponding fault default value (VWF1, VWF2, VWF3, VWF4) of the master driver must be reset.

– In addition to immediate fault detection, the 2–out–of–2 structure guarantees that outputting a binary value "0" or OFF to the actuator is always possible after a hardware malfunction has occurred on **one** module.

  This means:

  The actuator position is "0" or OFF if an incorrect output signal from a module is "0" or OFF, irrespective of the state of the related output signal from the faultless module.

  If, in contrast, the incorrect output signal from a module is "1" or ON, the other module sets the actuator to the correct position.

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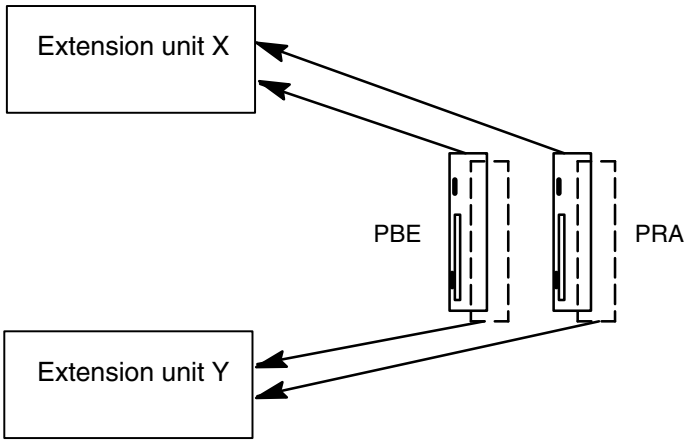
The interconnection structures 1–out–of–2 and 2–out–of–2 require the output signal from a user structure to be issued via two driver blocks on two PRA modules that must be installed in two different extension units. The connection instructions for the individual connection types are contained in the Instructions of the testable relay output module (PRA), Order No. C79000–B8076–C160.

Please observe the instructions regarding jumper setting that are also given in these Instructions.

The following jumper settings are required if the modules are used in AS 235/AS 235 H systems:

–	Plug–in jumper X29:		inserted	Watchdog circuit active
–	Plug–in jumper X11:	1 – 2	inserted	Load current must flow from the common contact to the NC or NO contact
		:		
		31 – 32	inserted	
–	Plug–in jumper X4:	2 – 3	inserted	Tripped fuse monitoring ON
–	Plug–in jumper X7:	2 – 3	inserted	
–	Plug–in jumper X31:	1 – 2	inserted	Only valid for 2–out–of–2 structure **and** utilization as a slave module
	:	:	:	
	:	:	:	
	X46:	1 – 2	inserted	
–	Plug–in jumper X31:	2 – 3	inserted	Valid for any other utilization
	:	:	:	
	:	:	:	
	X46:	2 – 3	inserted	

5.3 Redundant Utilization of the Modules



In redundant applications, PBE and PRA **must** both be installed in **different** extension units.

Fig. 5.1 Redundant utilization of PBE and PRA

If two PBE modules are used in a redundant structure, a transducer in the process must be connected to one channel of each PBE module. The driver blocks must also exist twice.

It two PRA modules are used in a redundant structure, two driver blocks issue an output signal to the two modules.

The wiring instructions are contained in the above–mentioned PRA Instructions.

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