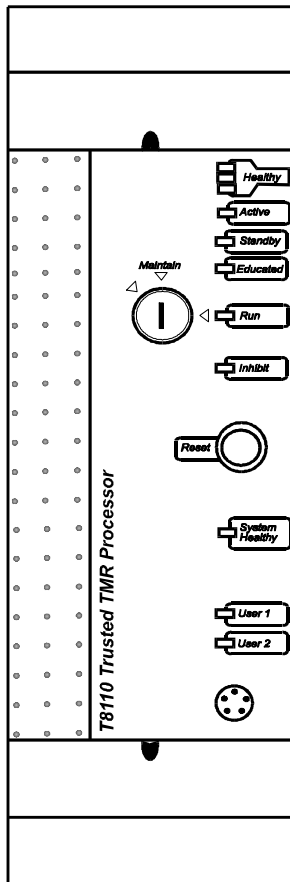


SDS-8110
Trusted™ Industrial Control System

Trusted™ TMR Processor-T8110B

FRONT PANEL



DESCRIPTION

Trusted™ TMR Processors contain and execute the operating and application software programs in a triple redundant, fault tolerant controller system..

The fault tolerant design contains six fault containment regions. The three synchronized processor fault containment regions each contain a 600 series microprocessor, its memory, voter, and associated circuits.

The non-volatile memory is used to store the configuration and application programs for the system.

Each processor has an independent power supply fed from the dual-redundant 24Vdc power supply of the Trusted™ Controller chassis backplane. The processor power supplies provide short circuit protection and regulated power to the module electronics.

The processors operate concurrently to achieve triple modular redundancy and fault tolerance. By providing 2-out-of-3 hardware voting on every inter-processor exchange and memory data retrieval, uncompromised fault detection and error-free operation are assured.

Trusted™ TMR Processors communicate with other modules via a backplane mounted, triplicated Inter-Module Bus. Additionally, interface modules are used to support communication with I/O sub-systems and other equipment.

Module faults are automatically detected, time-stamped, and stored for historical review. Transient faults, once they are recorded, are cleared automatically without nuisance alarming. Permanent faults in a processor are annunciated on the front panel of the module, without disturbing on-going processing in the two remaining processors.

When a failed Trusted™ TMR Processor is replaced, the replacement module is automatically initialized without external loaders or other equipment.

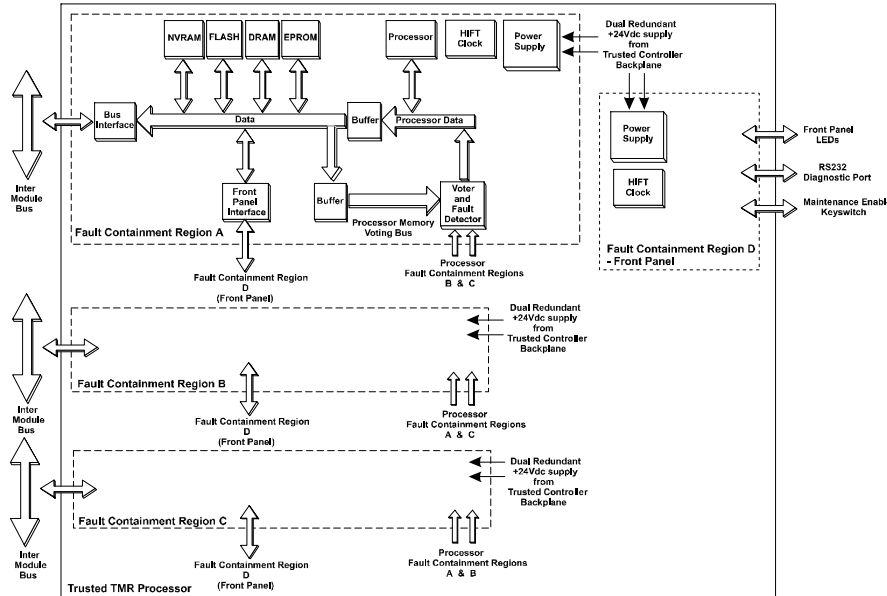
Application programs are developed using the full suite of IEC 1131-3 languages. The user can load, run, stop, single-step or delete the application program. A front panel maintenance enable keyswitch allows the download of application programs.

FEATURES

- Triple modular redundant, fault tolerant 3-2-0 operation
- Two-out-of-three voting on internal operations
- Automatic fault handling without nuisance alarming
- Trusted™ Operating System kernel (IEC 61508 SIL3)
- Time-stamped fault historian
- Module replacement without program down-loading
- Non-volatile memory for program storage
- Full suite of IEC 1131-3 languages
- Multiple process program execution
- TÜV certified for safety, SIL3

Trusted™ TMR Processor-T8110B

BLOCK DIAGRAM



MECHANICAL SPECIFICATION

Dimensions (HxWxD):
241mm x 90mm x 300mm
(9.5ins x 3.6ins x 11.8ins)

Weight:
2.71kg (5.95lbs)

ENVIRONMENTAL

Operating Temperature:

-5°C to 60°C
(23°F to 140°F)

Operating Humidity:
5 to 95%, non-condensing

Vibration:
10 to 57Hz ±0.075mm
57 to 150Hz 1.0g

Shock:
15g, ½ sine wave, 11ms

EMI (IEC 801):
ESD
Air discharge to 15kV
Contact discharge to 8kV

Radiated Fields
10V/m, 27MHz to
500MHz

Transients and Bursts
2kV, 2.5kHz for
t=60 seconds

ELECTRICAL SPECIFICATION

Voltage Range	20 to 32V dc
Maximum Load	75W
Heat Dissipation	70W
Use With Chassis	T8100
Processor Clock	100MHz
Memory Type And Size	
DRAM	16MB EDO 60ns
EPROM	512kB
FLASH	2MB
NVRAM	128kB
I/O Interface	Triple redundant Inter-Module Bus