# Self-Healing Multi-Drop Fiber Optic Multiplexer (w/VCM)

# TC2850/51

- **Virtual Channel Mapping (VCM Enables Concurrent Applications, Cost-Saving Benefits & Reduces Polling Time**
- **Sophisticated Self-Healing Ring**
- **All Digital Design**
- **Hardened Temperature version exceeds NEMA & CALTRANS specs**
- **Protocol Transparent**
- **RS-232, RS-422, RS-485 (2/4-wire)**
- **Data rates up to 120 Kbps**
- **Multimode (1300nm) or Single Mode (1300/1550nm)**
- **Built-In Power Redundancy**
- **Optical Loop Integrity Test**
- **Local Dry Contact Alarm Relay**
- **Rackmount or Standalone**


TC2850S Standalone/Wallmount Unit

The TC2850 Fiber Optic Self-Healing Ring Multiplexer features the potential benefits of Channel Mapping:

- Two independent communications networks (e.g. SCADA networks)
- In one self-healing ring topology
- Cost savings through flexible channel configurations
- Faster polling rates.

Channel Mapping enables users to configure specific channels from the Master (TC2850) to designated Slave units (TC2851) on a fiber ring. Designated channels could include both a dedicated virtual point-to point channel and a broadcast poll-response channel on each Slave.

The TC2850 offers a sophisticated Self-Healing Ring scheme and is available with dual masters for maximum reliability. Fault conditions are detected both Tx and Rx, upstream and downstream of each unit, and automatically re-routed to maintain Ring integrity. Dry contact alarms can be connected to RTUs/PLCs to help pinpoint the location of a fault.

It is transparent to all protocols, supports data rates up to 120 Kbps and is compatible with RS-232, RS-422 or RS-485 (2- or 4-wire) interfaces over single mode or multimode fiber. Options include Hardened temperature versions (-20°C to 70°C & -40°C to 80°C) for extreme environments and Conformal Coating to prevent corrosion, etc.

The Master (TC2850) and Slave (TC2851) units each have two pairs of fiber optic ports, one primary and one secondary. On the electrical side, the Master(s) can have 4, 8 or 12 ports; each TC2851 Slave has two pairs of RJ11 ports. Optical signals are regenerated at each Slave (drop).

The TC2850 is compatible with all popular types and sizes of fiber optic cable. Fiber connectors are ST or FC. Electrical connectors are RJ11 female. Standard power is 12 VDC. Optional power sources are 24VDC, 125VDC or 115/230VAC with an external power cube.

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## Applications

Because the TC2850 effectively enables two independent communications networks in one self-healing ring topology, it can be used to run multiple applications concurrently. For example, it enables virtual point-to point configurations, such as a dedicated telephone circuit, within a Self-Healing Ring network (See diagram on back page).

It is also used in larger networks, with multiple port SCADA Host Controllers, to speed up polling times. Typical application environments include SCADA, Traffic Control, Process Control, Security, Oil & Gas, and Energy Management.

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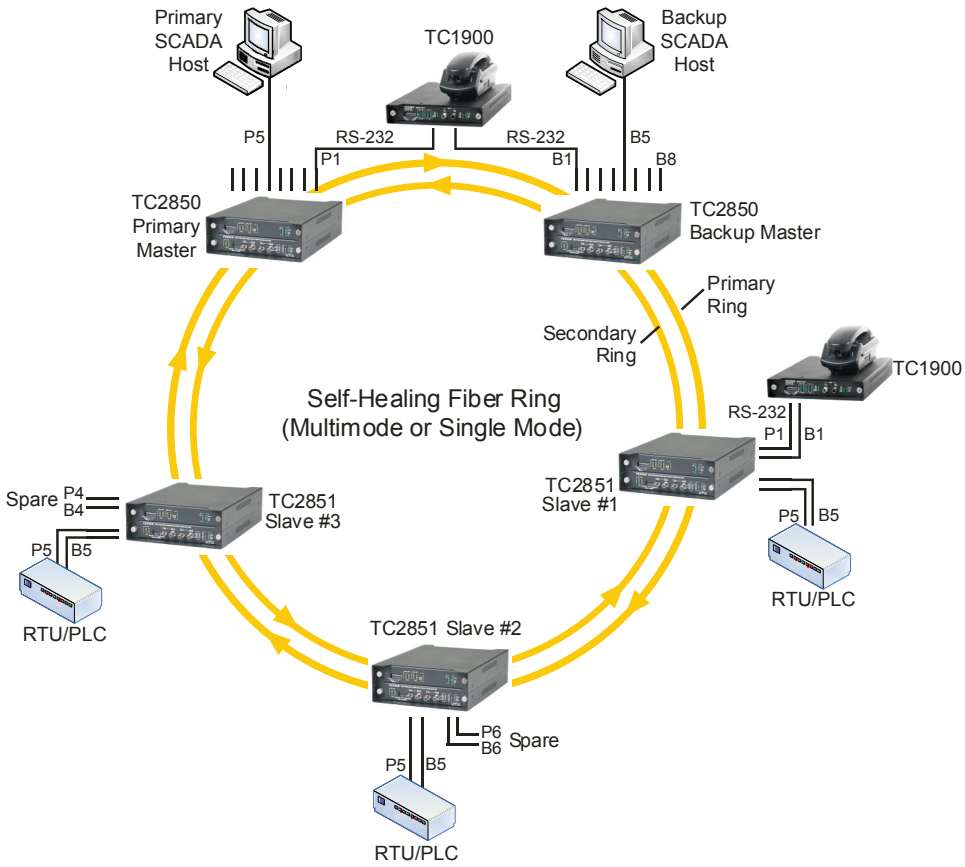


## Example of Channel Mapping:

The communication channels (1-8) between the Master and Slaves are mapped by the user. In this example, the RTUs communicate back to the Primary Master and Backup Master on channels P5 and B5, respectively. The telephone circuit is mapped on channels P1 and B1. Various channels can be mapped independently at each location.

## Note:

The virtual point-to-point channels on Slaves (TC2851) are mapped to the Master (TC2850) via internal dipswitches. Available with single or dual masters, each master can have up to 12 physical/virtual RJ11F ports. Each Slave has 4 physical/virtual RJ11F ports. Two of the virtual channels are mapped to the Primary Master and 2 to the Backup Master.

### Data Rates
Async RS-232, RS-422, RS-485 .....up to 120 Kbps*

### Optical
Transmitter.....LED/ELED/LASER*
Receiver.....PIN Diode
Wavelength.....1300nm MM
.....1300/1550nm SM
Fiber Optic Connectors
.....ST, Optional FC
Loss Budget* - 1300/1550nm
Multimode @62.5/125µm.....15dB
Single Mode @9/125µm.....20dB

### Electrical
Connector.....RJ11 Female
Interface.....RS-232, RS-422,
.....or RS-485 (2 or 4-wire)

### Diagnostic Functions
.....Local & Remote Loopback,
.....Signal Generator, Disable Alarm,
.....Enable Anti-Streaming (TC2851)

### Power
Standard.....12VDC @500mA
Optional.....24VDC, –48VDC, 125VDC,
.....or 115/230VAC w/ power cube

### System
Bit Error Rate.....1 in $10^9$ or better

### Alarm
Dry Contact.....Normal OPEN

### Visual Indicators
System.....PWR A, PWR B, VccA, VccB
Electrical Signal.....BRD & RSP (for each channel), AST (TC2851 only)
Optic Signal .....RxA, TxB, RxB,
.....SYNCA, SYNCB, A2B (TC2851 only), B2A (TC2851 only), LPA, LPB
Alarm.....PWRA, PWRB, OPTIC,
.....AST (TC2851 only)

### Temperature
Operating .....–10°C to 50°C
Hi-Temp1 (optional)...–20°C to 70°C
Hi-Temp2 (optional)...–40°C to 80°C
Storage .....–40°C to 90°C
Humidity .....95% non-condensing

### Physical (Standalone Unit)
Height.....(6.71 cm) 2.64"
Width.....(18.13 cm) 7.14"
Depth.....(24.89 cm) 9.80"
Weight.....(1.20 kg) 2.66 lbs

**Contact factory for higher requirements (LASER*

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Certified System™
ISO 9001
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