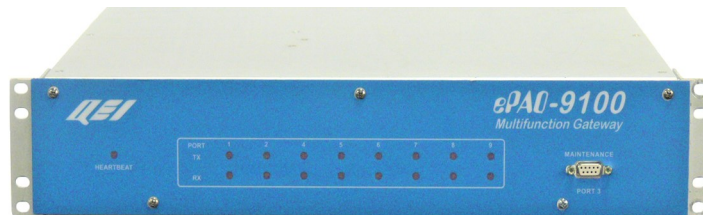




## Alert Operations of Trackside Initiated Trip and the Presence of Workers in the Area



**DIO-9110 Distributed Processing Unit**

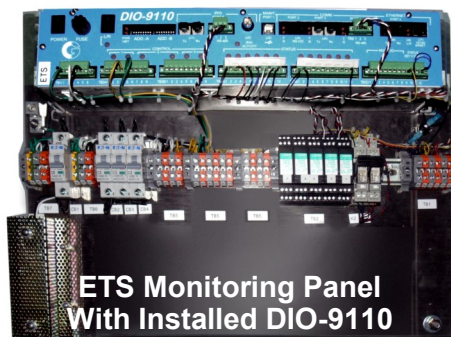
The Emergency Trip System (ETS) is used for monitoring trip conditions by Trip Push Buttons (TPB) at multiple locations along a section of line. The trip condition and the fact that personnel are present on that section of line are relayed to the nearest ePAQ 9100 data concentrator for local display (via touch screen HMI) as well as relaying this information to the central SCADA master station.

Each DIO-9110 I/O units monitors values such as TPB coil voltage, current trip status and the general health of the ETS system. Bright blue LEDs always show the location of the ETS unit along that section.

Additionally, the status of the "work crew present" switch and its associated flashing amber indicator is monitored. The flashing amber LEDs shows drivers and other maintenance personnel that workers are present on that section of track.

Each ePAQ-9100 is provided with a local, touch screen, HMI to report feeder trip conditions, the ongoing status of the ETS, and the status of all amber and blue LED indicators.

If a ETS system failure is detected, the ePAQ data concentrator shows where the failure occurred to facilitate quick diagnosis and repair.



**Works With Distributed DIO Modules for Trip Condition Monitoring, Hardware Fail Alarms and Worker Presence Warnings**

**Monitors Safety Shutdowns of Feeders**

**Local Amber/Blue LED Indicators for Announcing ETS Unit Location and Safety Indication of Personnel Being Present**

**Notifies Nearest Data Concentrator and SCADA Master Station of Current Trip Condition**

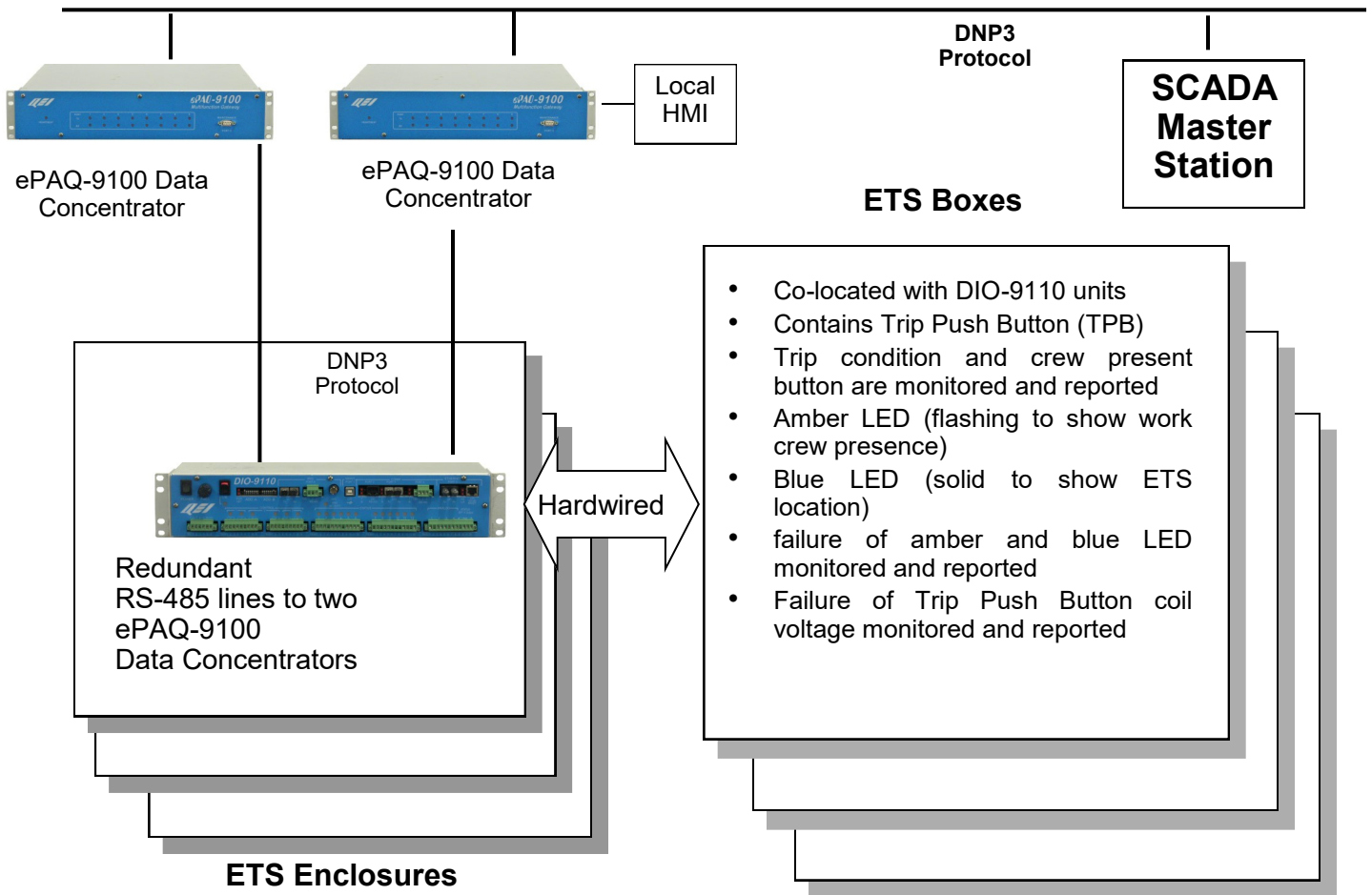
**Redundant RS-485 Communications for High Reliability**

**Supports IEEE Standard DNP3 Protocol**

**Status Changes are Time Stamped via Distributed I/O Clock**

**19" Rack Mount, 277VAC Powered**

# Emergency Trip System (ETS)



Communications from the DIO-9110s to the ePAQ-9100 data concentrator is via redundant RS-485 serial communications lines utilizing the industry standard DNP3 protocol.

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