RELIABLE SOFTWARE SOLUTIONS

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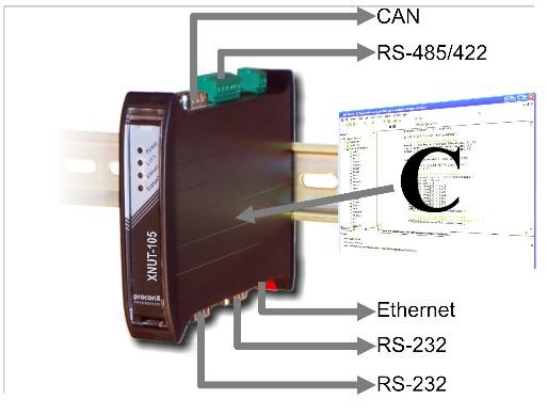
Protocol Converter

What is a Protocol Converter?

A Protocol Converter is a bit like a language translation. Often times proprietary equipment (like generators, or mining machines) may have the required functionality to inter operate with other control systems or data loggers on the site, but do not have the same communications interface. A protocol converter allows real-time translation of communication interfaces.



How can it help you?

We feel providing a case study of a practical implementation might best illustrate if a protocol converter can assist you.

Challenge

A large multinational mining operation with a fleet of haul trucks in the Pilbara, was struggling to obtain production information from their haul truck's on-board weigh systems. This was a major impediment to measuring key performance indicators for their business operations, as this information would normally feed into their mine management data capture system after every haul truck load.

The haul trucks have an onboard weigh system, manufactured by Supplier A, and a real time dispatch system for networking real-time information to central control from Supplier B. These systems have incompatible data communication protocols, but they both have interfaces defined to source (i.e. the truck side) and consume (the database side) weight data.

Solution

Reliable Software Solutions embarked upon developing custom 'C' code for a "Protocol Converter" that would translate the information from the Haul truck on-board weigh system and format it to a compatible serial string for the Dispatch system.

The code is custom developed embedded firmware to convert the dispatch interface (CAN) to the existing MMS "SLIP" protocol (RS-232). This firmware was built for the "Xnut" hardware.

Results

The entire Haul truck fleet was made to transmit real-time weight data to central control, for each and every haul truck load.

This now enables the client to assess operations with their integrated reporting systems across the business unit.

Contact our sales team
sales@reliablesoftware.com.au

Reliable Software Solutions Pty Ltd
ABN 62 588 496 672

The Hardware

Features

- 12 MIPS AVR processor
- Support for up to 15 message objects on CAN bus
- 10 kV ESD Protection on RS-232 port
- 6 kV ESD Protection on CAN port
- LED Status Indicators
- Wide input voltage range 10-30 VDC
- Low power consumption – 750mW
- Light weight and compact to allow versatile installation.

Software

The Xnut device uses the “Nut/OS” Real time Operating System. This allows rapid development of code to achieve the desired outcomes, in this case;

RS232 Port

Programmed to support “SLIP” Protocol, 9600 Baud 8,N,1 RS232.

- Compatible with existing Haul Truck configuration in network hub

Supports transmission of the following RPC’s over slip protocol

- Bucket Weight
- Fly Weight
- Leaving Shovel Weight

CAN 2.0 Bus

- Direct connection to Truck “Dispatch” port via CAN 2.0B