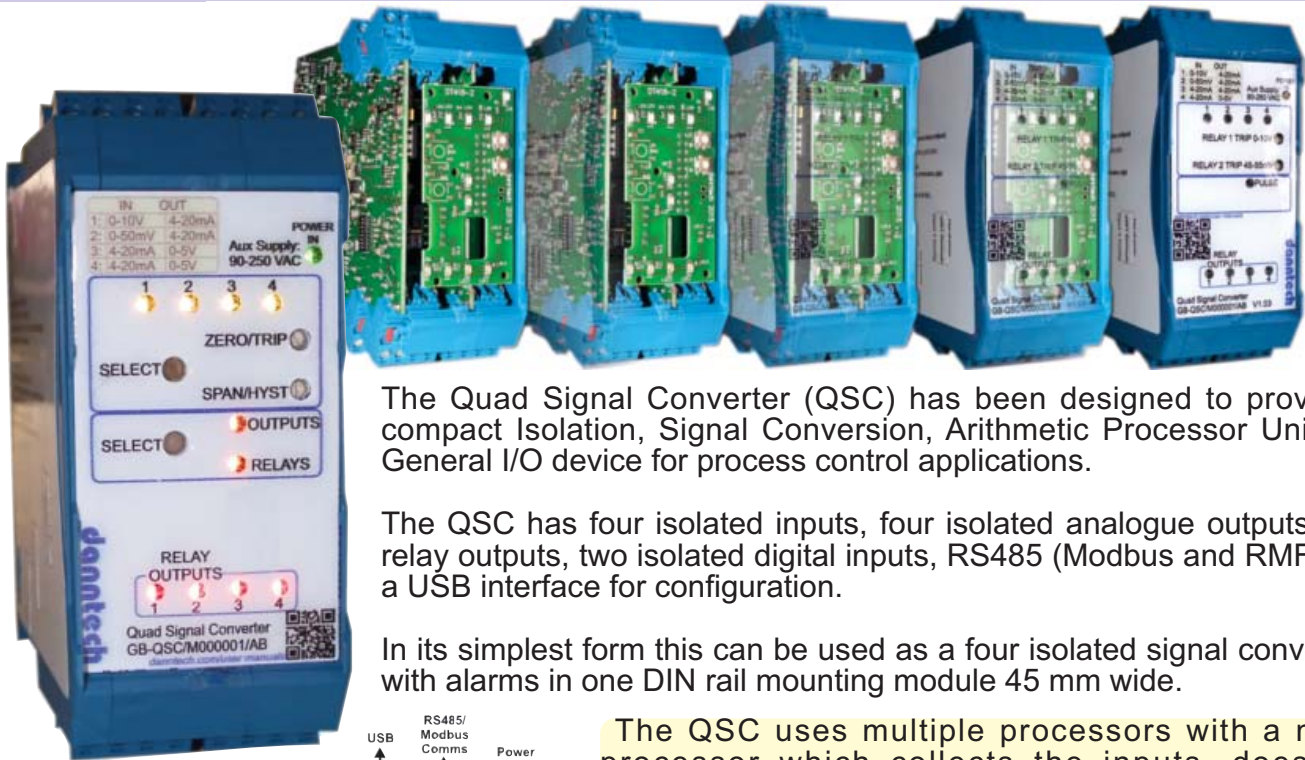


# Quad Signal Converter (QSC)

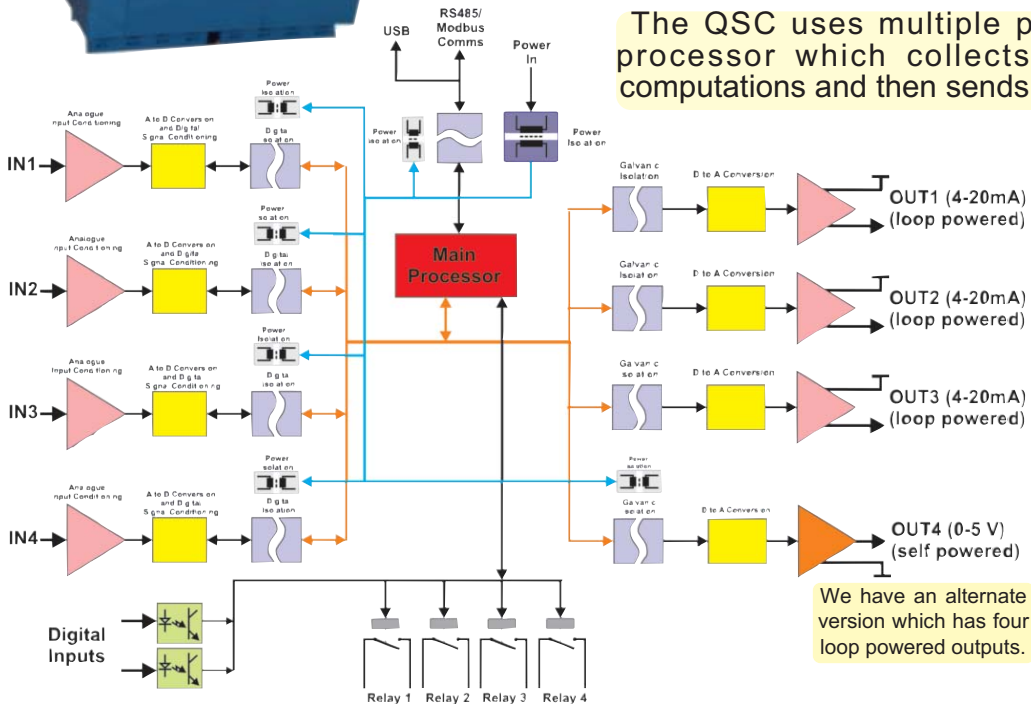


The Quad Signal Converter (QSC) has been designed to provide a compact Isolation, Signal Conversion, Arithmetic Processor Unit and General I/O device for process control applications.

The QSC has four isolated inputs, four isolated analogue outputs, four relay outputs, two isolated digital inputs, RS485 (Modbus and RMF) and a USB interface for configuration.

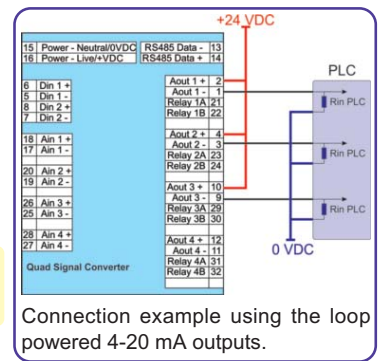
In its simplest form this can be used as a four isolated signal converters with alarms in one DIN rail mounting module 45 mm wide.

The QSC uses multiple processors with a main processor which collects the inputs, does any computations and then sends the values to the outputs.



Each analogue input is user configurable and there are four (main switching) relay outputs which can be configured as alarm outputs.

We have an alternate version which has four loop powered outputs.



Connection example using the loop powered 4-20 mA outputs.

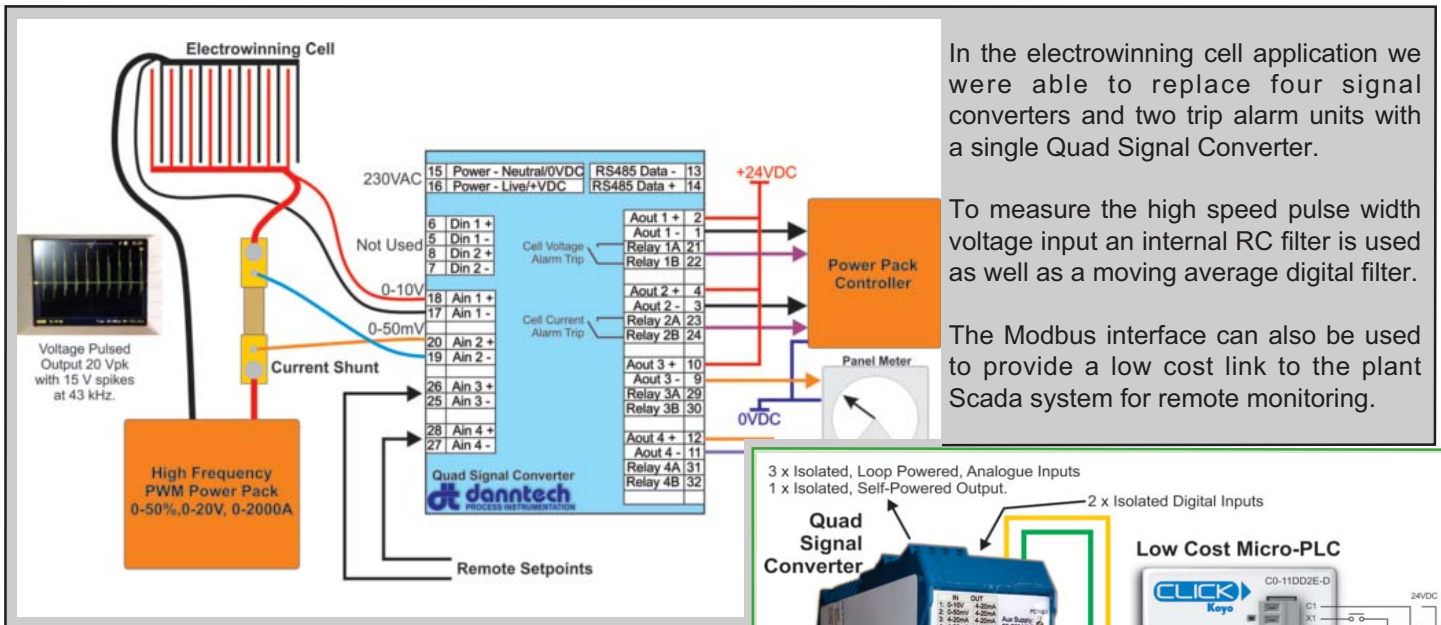
Each analogue input is separately powered and galvanically isolated from everything else. Each input has its own processor so that the inputs can be different and include some pre-processing such as doing RMS to DC conversion, peak detection, input filtering, frequency measurement, linearization and other functions. The QSC has nine processors - one for each input, one for each output and a main processor to link them all together. This means that any arithmetic functions can be implemented using all of the inputs and the outputs can be determined using any of the analogue or digital inputs. The relay outputs can be simply trip alarms or have other, more complicated functions. We can write customized firmware for your application using any or all of the built-in circuit components.

The part numbering is provided in a separate document making this clear and easy to specify and order.



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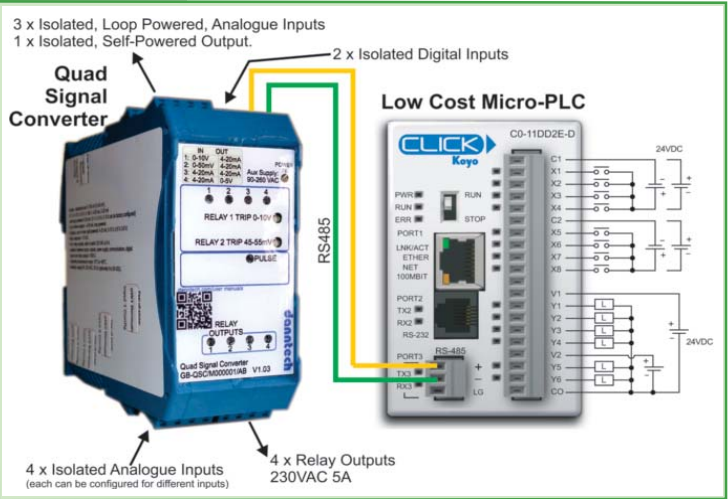


In the electrowinning cell application we were able to replace four signal converters and two trip alarm units with a single Quad Signal Converter.

To measure the high speed pulse width voltage input an internal RC filter is used as well as a moving average digital filter.

The Modbus interface can also be used to provide a low cost link to the plant Scada system for remote monitoring.

Using the QSC, for around US\$1,000 you can get an “easy-to-use” Micro-PLC with the QSC as a basic system with ethernet connectivity, four isolated analogue inputs, four isolated analogue outputs, four mains switching relay outputs, two isolated digital inputs, six digital outputs, eight digital inputs and free programming software.



**SPECIFICATIONS:**

- Four individually isolated inputs - standard types are: 0-100 mV (0-50 mV also possible), 0-1 V, 0-10 V, ±10 V, 0-100 V, 4-20 mA, 0-20 mA and loop powered 4-20 mA.
- Two inputs can be factory configured for DC or AC currents 0-1 A, 0-5 A.
- Input impedance > 100 kΩ for voltage input versions, 50 Ω for mA current inputs.
- Input and output accuracy 0.1 % of ranges. Linearity better than 0.1% of full scale, basic 12 bit accuracy (0.05%).
- Input signal status using LEDs to indicate input “normal” and high or low input levels.
- Two output versions:
  - Four outputs - three of which are 4-20 mA, loop powered, one is a self-powered output: 4-20 mA, 0-10 V, ±10 V, ±5 V, 0-5 V.
  - Four outputs – all four are 4-20 mA, loop powered.
- Trimpot adjustment of all outputs, each output adjustment selectable using recessed push button switch.
- Inputs and outputs can be user configured and ranged using DIP switches.
- Step response around 100 mS or less.
- Four separate relay outputs, able to switch 230 VAC at 5 A. Configurable to switch on each input, can switch going high (high alarm trip) or going low (low alarm trip). Hysteresis also configurable using trimpots.
- Two opto isolated digital inputs.
- ModBus RS485 connection for integration into control systems will be provided in the future.
- Isolation between inputs, outputs, power supply, communications, digital inputs and relay outputs > 1000 V, between each input > 500 V.
- Compact DIN rail mounting with flame proof, high quality enclosure - 45 x 100 x 113 mm (width x length top to bottom x height off DIN rail).
- Up to eight four way plug-in screw terminal connections for wire diameter 2.5 mm<sup>2</sup>.
- All controls can be adjusted on-site using front panel trimpots.
- In the future the unit will be able to be completely configured using the USB connection or the RS485 interface.
- Operating temperature range -10°C to +70°C.
- Auxiliary supply 90 -250 VAC, 50 Hz (optionally 18 to 36 VDC or 9 to 18 VDC).
- High quality, self-extinguishing polyamide enclosure.
- DIN rail mounting enclosure - 45 x 100 x 113 mm (width x length top to bottom x height off DIN rail).
- Approximate weight 200 g.



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