



# RINGWAY

## Control & Automation

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# RINGLINE<sup>M</sup> II

## I.S. SAFETY FUNCTION/S, CONTROL & MONITORING IECEX TSA 09.0010X, TSA 08.0031X, .. .

### DESCRIPTION:

The Ringline 2 Intrinsically Safe system is a line-powered monitoring and control system primarily designed for the fail-safe distributed emergency stopping and control of long conveyors. The system provides dual (redundant) electrical Safety Outputs that are controlled by the dual-channel status of a nominated combination of safety devices e.g. lanyard switches, stop switches, tracking switches, temperature switches, chute probes etc, which are the system inputs. The dual-channel status of each safety device is encoded onto the Ringline field bus (two-wire) via field transmitters (see Fig. 2) for reception by the Safety Function Card/s. The field bus circuit is fully down-line powered, can be up to 12km long and can interlock 96 or more safety devices to the Safety Outputs.

An additional feature of the system is that it is Certified 'intrinsically safe' (Ex ia) to IEC Standards, which means that it can be used for the control and or monitoring of conveyors or other machinery in specific hazardous atmospheres and environments (usually coal mining or coal handling applications where there is a threat of methane gas or coal dust ignition).

### THE FOLLOWING FEATURES DIFFERENTIATE RINGLINE FROM ITS COMPETITORS:

- Fail-safe and self fault-determining.
- Up to **12km** coverage.
- Only 2 wires used
- Earth faults cannot reduce safety.
- System channel no. is adjustable (response time can be minimised).
- Dedicated status display C/W stoppage history & diagnostics
- User messages in Display
- Trips on, and locates any system open circuit fault.
- No 'end of line' unit.
- Built-in sequence commands (3 of).
- Communicates to any PLC using a variety of serial protocols (Modbus standard).
- Unused channels can be remote PLC inputs (in combination with above).
- Multiple failsafe functions over the same two wires – e.g. Conveyor Remote Isolation as well as Emergency stopping – each with redundant uPs and outputs.
- No repeaters or boosters of any kind, for any configuration.

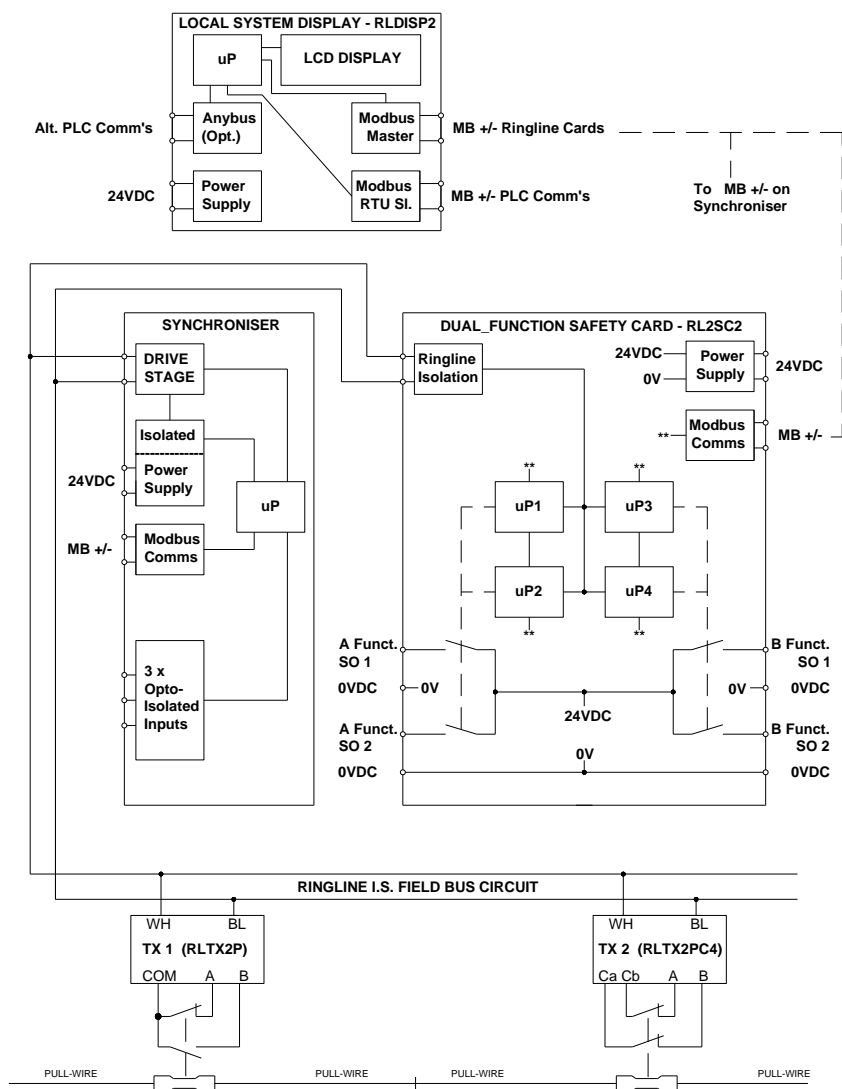
**APPLICATIONS:**

**1: Conveyor / Machinery Distributed Emergency Stopping**

Ringline can be used on any machine or conveyor that requires a distributed network of emergency stop switches or devices to be interlocked to a control system in a failsafe manner. Ringline has a history of reliable performance since 1996 as an emergency stop signal line and remote whole-current isolation controller for conveyors up to 7klms long in harsh environments (12klms possible). Any Ringline transmitters that are not allocated to the safety function can be used to provide blocked chute, belt tracking, bearing monitoring or any other remote PLC input requirements (analogue and digital).

**2: Condition / Environmental Monitoring**

Signals such as temperature, pressure, flow, speed, gas levels etc can be gathered centrally from a wide area (12km radius) and/or can be shared with any number of PLCs over the same area. Available monitoring includes line powered temperature transmitters (10-bit resolution) and digital transmitters for voltage-free contact monitoring. Each analogue signal consumes only 1 Ringline channel out of 192; this is achieved by sending the 10-bit signal one bit at a time over a series of cycles.



**BRIEF SPECIFICATIONS**

**No of Points:** up to 96 Emergency Stop (2 channel) or 192 single channels or combinations of both

**Supply:** 110@180mA / 240Vac@90mA

**Field Bus:** 7.4V RMS

**Display:** Modbus Master - Comm's & power direct from Synchroniser or Safety Function Card.

**Remote Comm's:** Modbus RTU 19.2k/9600 no parity, 1 or 2 stop bits (standard). Optional 'Anybus' comm's.

**Operating Temperature Range:**

-20 → +75 °C

**Dimensions:**

200(w) x 265(h) x 190(d) mm