RINGLINE 4 CHANNEL DIGITAL TIME DELAY TRANSMITTER

RLTX4PTD

Ringway

Features

- Integrates time-delayed trips into the Ringline Safety function
- Easy configuration (hard-wired) of auto/manual resetting
- Push button 'override' function to facilitate re-alignment work or diagnostic operation (manual reset mode)
- Intrinsically Safe (Ex ia I)
- Built in surge / lightning protection
- Programmable address/es) and time-delay
- Dual output mode provides trip discrimination
- Single output mode minimises consumption of Ringline addresses

Detailed information

The Ringline 2/4-channel Time-Delay Transmitter (RLTX4PTD) is designed to monitor limit switches or safety devices in processes where a time delayed response to a switch operation is desired. The transmitter output moves to the trip state only after a change-over (C/O) input switch has been operated continuously for the programmed time-interval.

RLTX4PTD modes interlock 1 or 2 C/O inputs to 1 or 2 C/O addresses on the Ringline safety system as follows –

Mode 1: Input 1 assigned to Address 'X' & Input 2 assigned to Address 'Y', with a common (0-20s) time delay before trip
Mode 2: Input 1 & Input 2 assigned to Address 'X', with a common (0-20s) time delay before trip
Mode 3: Input 1 assigned to Address 'X' (Input 2 ignored), with a time delay (0-20s) before trip

Mode, address & delay selections are made via a standard Ringline Programmer[1].

The transmitter is encapsulated in a foot mounted plastic housing with flying leads for circuit connection. Monitored interlocks should be high quality – preferably gold plated.

Intrinsically safe applications require a minimum housing protection of IP54 and at least 500V isolation from earth for monitored interlocks.

Applications

Typical applications include conveyor belt drift switch and blocked chute switch monitoring. The transmitter can monitor up to two C/O switch inputs and can provide a unique failsafe output in the Ringline system for each, or create a single output for any trip. This means that time-delay inputs can control the Ringline safety function outputs to achieve safety integrity that cannot be matched by normal PLC monitoring. Reset can be either 'Auto' or 'Manual' after a trip (see Operation).

Operation

Trip: While the changeover contacts of a transmitter (Tx) input are tripped the Tx runs a timer for that input. If the inputs remain tripped for the 'programmed' (0 - 20 sec) period the Tx will invert the programmed Ringline address from healthy [A Ch=On, B Ch=Off] to the tripped state [A Ch=Off, B Ch=On]. If the Ringline address is assigned to control a system 'Safety Card', the Safety Function outputs will trip in response. Input recovery prior to tripping resets the delay timer.

Auto Mode: If the Auto input (violet) is tied to Common (black) of a 'tripped' transmitter the output Ringline address will return to 'healthy' (1:0) if / when its' assigned changeover input returns to the healthy state (1:0). Commonly used for chute probes.

Manual Mode: If the violet wire is not connected to black any trip will 'latch' and require a local manual reset effected by the momentary connection (>1s) of the override input (pink wire) to black. This forces the Ringline address assigned to the tripped input to the healthy state (1:0) for 2 minutes, allowing time for re-alignment or diagnostics to be performed. Unless the over-ride input is re-asserted before the 2 minute delay is up the transmitter will revert to normal operation (based on the status of its' inputs and the programmed time delay). The operation precludes permanent jamming of the override pushbutton.

Programming

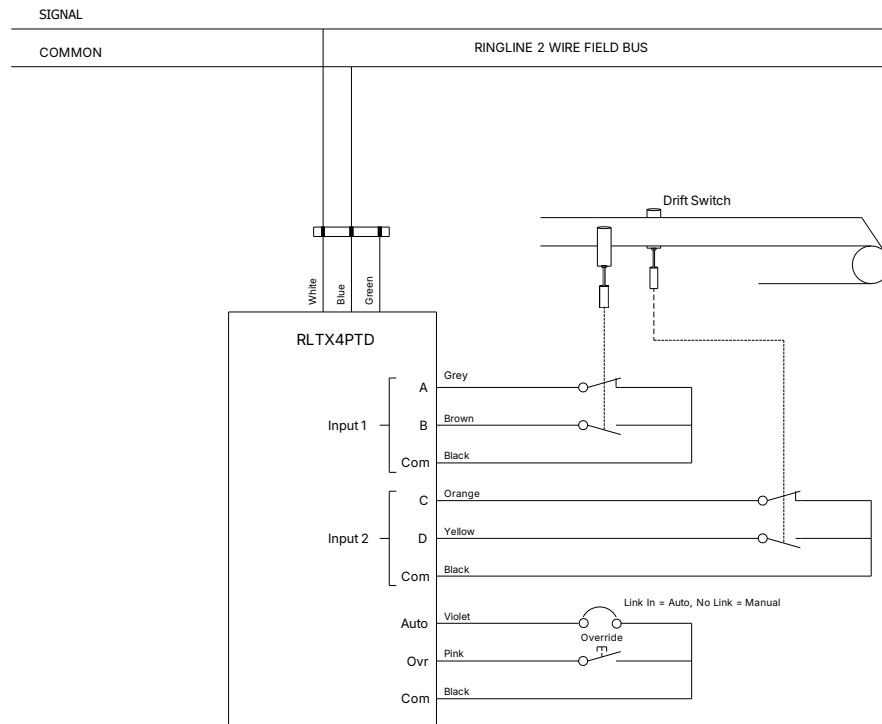| CONFIGURATION MODES – set using Ringline Programmer	PROGRAMMER PARAMETERS		
	ADD1	ADD2	DELAY
1: Input 1 (Grey-Brown) @ Addr X; **Input 2** (Orange-Yellow) @ Addr Y *(TWO-IN:TWO-OUT)*	X	Y	0...20
2: Input 1 (Grey-Brown) @ Addr X; **Input 2** (Orange-Yellow) @ Addr X *(TWO-IN: ONE-OUT)**	X	X	0...20
3: Input 1 (Grey-Brown) @ Addr X; **Input 2 Disabled** (Orange-Yellow) (*ONE-IN: ONE-OUT*)	X	DISB**	0...20

*A potential hazard may arise if a transmitter intended for a Mode 2 (Two-In One-Out) installation is erroneously programmed for Mode 3 (One-In One-Out) - i.e. Input 2 (Orange-Yellow) is disabled. *Commissioning must confirm that every input controls the safety function as expected!!!*

**DISB is located between the highest & lowest address option on the Programmer. If the DISB option is selected for ADD1 then both inputs will be 'disabled'. This is a safety measure to ensure that for Mode 3 (One-In One-Out) only Input 1 (Grey-Brown) is used.

Technical Specifications

Power supply	7.4V RMS from the Ringline field bus
Input	2 x 1 voltage free changeover contacts
Output	2 or 1 Addresses, encoded onto the Ringline field bus
Addressing	Electronic transfer via Ringline Programmer
Operating Temperature Range	-30 — +75 ºC
Dimensions	70 (w tabs) / 50 (w body) x 30(h) x 25(d) mm Ø3mm mounting holes - 60mm apart
I.S. Certification	Ex ia – IECEx TSA 08.0031X

Diagram

SIGNAL

COMMON

RINGLINE 2 WIRE FIELD BUS

Drift Switch

White Blue Green

RLTX4PTD

Input 1
- A — Grey
- B — Brown
- Com — Black

Input 2
- C — Orange
- D — Yellow
- Com — Black

Link In = Auto, No Link = Manual

- Auto — Violet
- Ovr — Pink (Override)
- Com — Black

Conveyor Belt Drift