

PCLT-2A protects your sensor interface

Dual current-limited protected digital termination for industrial automation



As industrial automation demands ever more computing power, smaller size and reduced consumption, it has led to the emergence of low dissipative and EMI-proof input terminations within distributed and PLC I/O modules.

STMicroelectronics has responded to this demand by extending its CLT family with a new device, the PCLT.

The PCLT-2A is a dual sensor termination device specifically developed for incorporation into the design of the front-end of a 24V DC digital input module in factory automation. Its flexibility allows designers to develop a large variety of input types in isolated and un-isolated versions.

With its robust protection and current limiter, the PCLT-2A is a low-loss EMI-proof solution for highly-integrated module interfacing with proximity detectors.

Main features

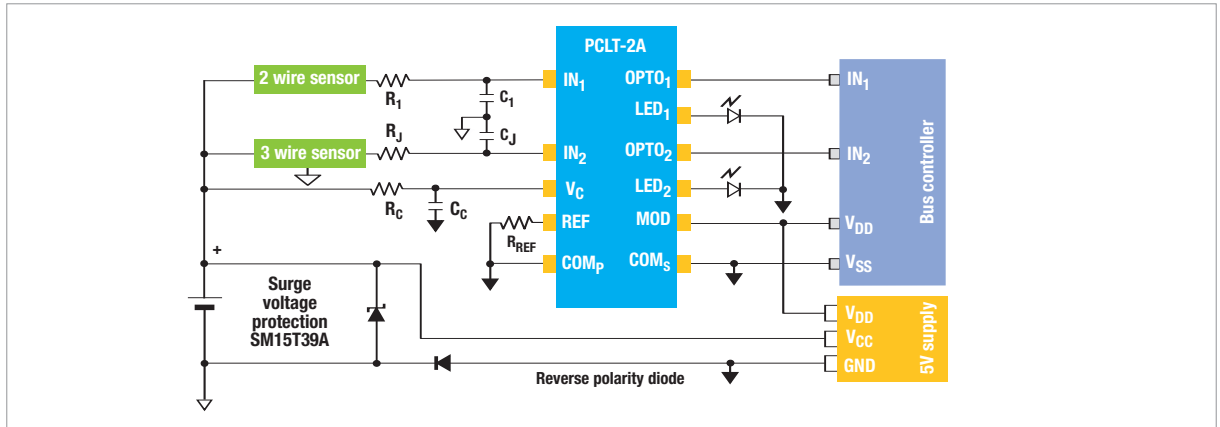
- Dual input channel
- Robust and EMC:
 - IEC61000-4-4: 4kV fast transient burst
 - IEC61000-4-5: 0.5 to 1kV surge voltage
 - IEC61000-4-2: 15kV air ESD
- Wide range of operation:
 - -30 to 35V input voltage ($R_I = 750\Omega$)
 - -0.3 to 35V supply voltage ($R_C = 2.2k\Omega$)
 - -25 to 85°C ambient temperature
- Exposed pad TSSOP14:
 - $R_{TH(j-a)} < 100^\circ\text{C/W}$
- Flexible current limiter:
 - Programmable input current limiter from 3 to 7.5mA
 - Narrow spread of limitation < 18%
- Output drive:
 - Opto-transistor disabled for $I_{IN} < 2\text{mA}$
 - 3.3 to 12V CMOS compatible output option
 - Visual sensor status by LED

Benefits

- Flexible logic input solution:
 - Selectable input type 1, 2, 3 described in IEC61131-2
 - CMOS or photo-transistor output drive
- Reduced dissipation:
 - 45 to 60% in the whole chain
 - 36 to 67% in the CLT module
- Increased reliability:
 - Over-voltage and EMI robust
 - Limitation of current and dissipation
 - Reverse input polarity
- Enhanced operation: LED gives true logic sensors state
- Compact SMD module

PCLT-2A applications

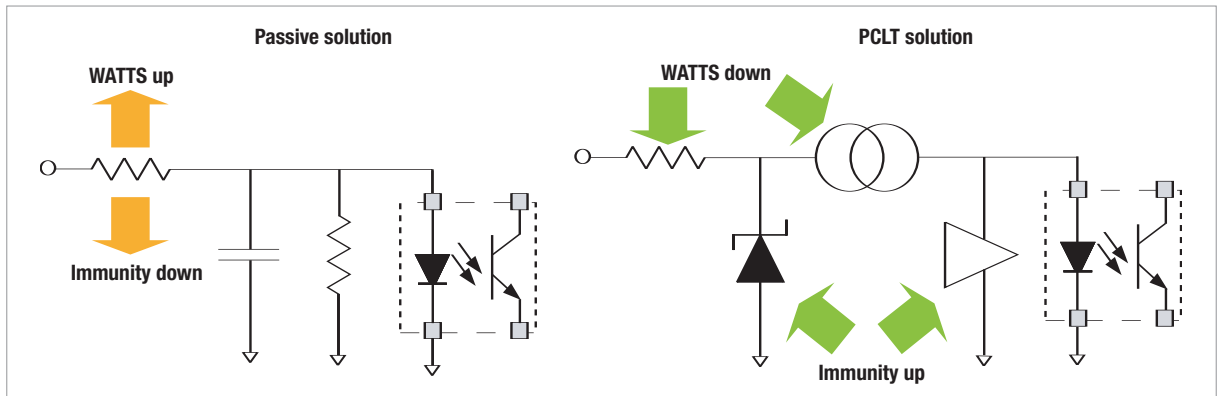
- Type 1, 2 and 3 logic input termination for industrial automation
- Decentralized input/output modules
- Proximity detector interface
- AS-interface bus input termination
- I/O termination in programmable logic controller



IEC 61131-2		Input type		
Setting	Unit	1	2	3
R_{REF}	k Ω	22	22	10
R_i	k Ω	2.2	1.2	0.75
Performance				
$I_{IN\ min}$	mA	3	3	6.1
I_{IN}	mA	3.6	3.6	7.5
$I_{IN\ max}$	mA	4.2	4.2	8.8
I_{LED}	mA	1.9	1.9	4
Application surge	kV	1.5	1	0.5
Application ESD	kV	15 air; 8 contact (class 4)		

PCLT-2A: a flexible and robust solution

The PCLT's sensor termination has been specifically designed for I/O modules in factory automation. While its flexibility enables designers to develop a large variety of input types in isolated and non-isolated versions, its robust protection and current limiter means the PCLT represents a low-loss EMI-proof solution for highly-integrated module interfacing with proximity sensors.



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