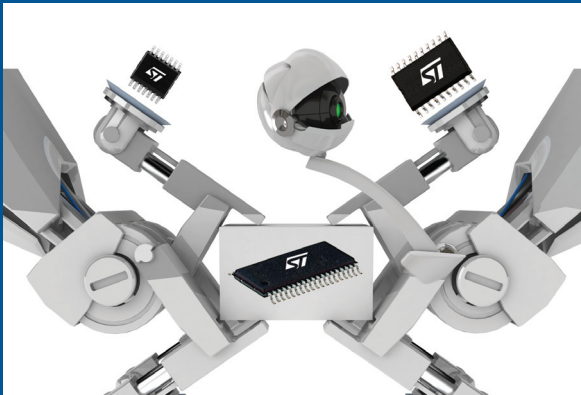


# Current-limiting terminations for automation digital inputs

Shrink the I/O module size and increase its EMI immunity



CLT devices form a new series of intelligent protected terminations designed for digital-input modules and proximity-sensor interfaces in industrial and building automation systems. Today's designers face the challenge of increasing the number of I/Os per volume unit and increasing the I/O-interface features. The CLT series offers compact, highly-immune solutions which resist transient disturbances such as those described in the IEC 61000-4 standard. As a result, the CLT series cuts losses of the digital input by more than 2.

The SCLT3-8B, a serialized 8-input termination circuit, is a new addition to the CLT3-4B and PCLT-2A range.

The CLT3-4B is a quad termination circuit that runs as type 1 or 3, limiting its current to 2.7 mA typical, and transfers its logic state to an opto-transistor.

The PCLT-2A is a dual termination circuit able to run as type 2 or 3 by its programmable limiting current from 2.5 mA to 7.5 mA. Its output is CMOS compatible.

## Key features

- Multi-channel IEC 61131-2 type 1, 2, 3 inputs
- EN60947-5-2 sensor interface
- Active current-limiting input
  - Fixed or adjustable current setting
  - Low limitation tolerance: 25% to 10%
- Front-end on-chip LED visual status driver
- Settable input digital-noise filter, SCLT3-8
- Several output configurations:
  - Opto-coupler drive: CLT3-4 and PCLT-2
  - CMOS compatible: PCLT-2
  - 2 MHz SPI serial interface: SCLT3-8
- Wide input voltage range:
  - -30 to +35 V
  - Activated input above 11 V
- Wide temperature range: -25 to +85 °C

The SCLT3-8B device further enhances system integration by cutting dissipation (1 W saved per SCLT) and reducing the count of opto-transistors on board. For its eight type 3 input sections, the SCLT3-8B embeds one adjustable digital filter and a LED status driver per input. It also serializes the input-state transfer using a 2 MHz SPI peripheral and a 5 V voltage regulator that supplies the three SPI transferring isolators.

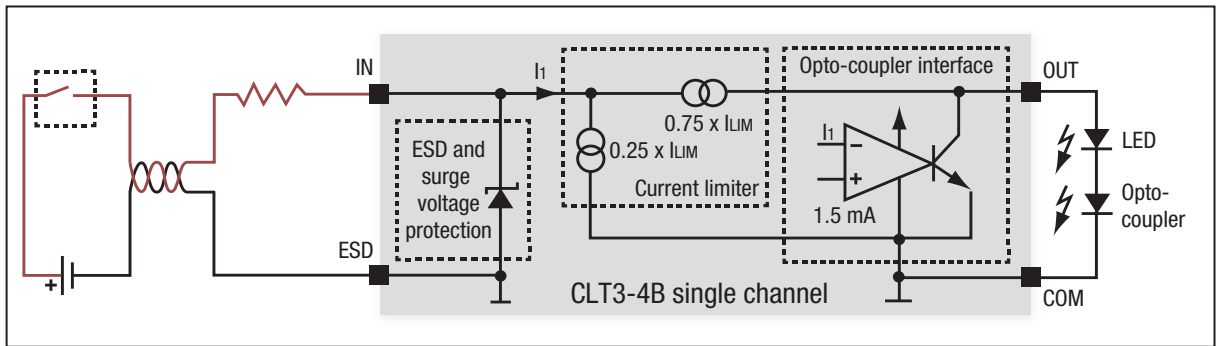
## Key benefits

- At least 65% dissipation reduction
- 50% fewer components on I/O board
- Fully EMC compliant
  - Surge IEC 61000-4-5: 1 kV
  - ESD IEC 61000-4-2: 15 kV
  - EFT burst IEC 61000-4-4: 4 kV
- Robust to reverse-polarity connection
- Compact and surface mount devices

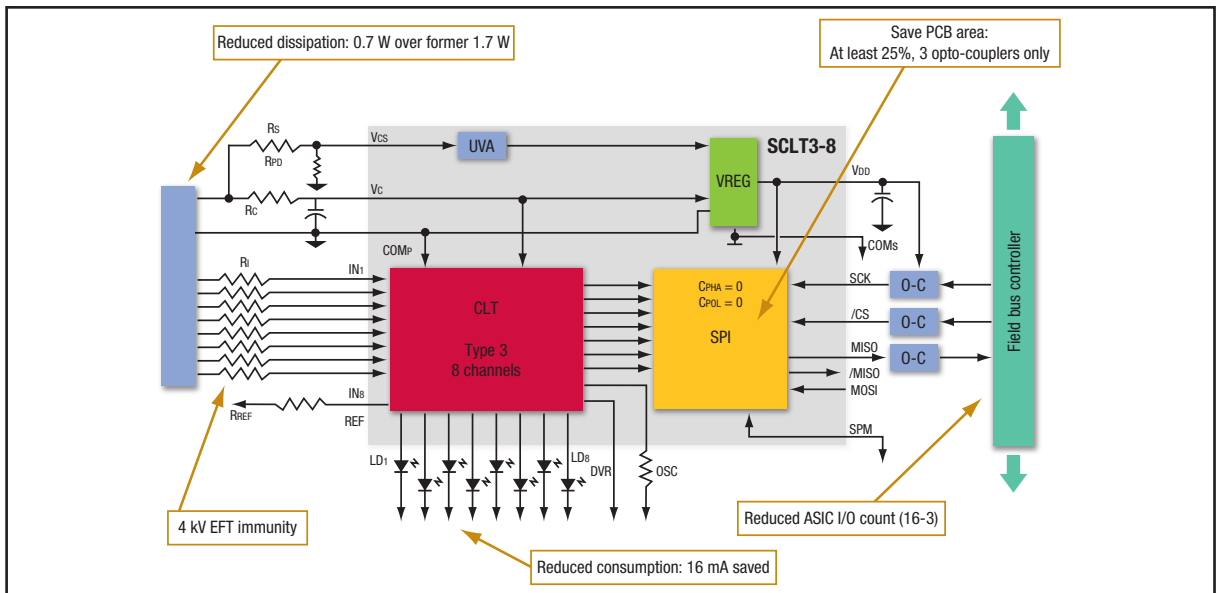
## Main applications

- Building and industrial automation
- Programmable logic controllers
- Remote input/output controllers
- Proximity sensor interfaces

## CLT3-4B single channel diagram



## SCLT3-8B 8-input application diagram



## CLT series summary

CLT product	CLT3-4BT6	PCLT-2AT4	SCLT3-8BT8
Channel count	4	2	8
IEC 61131-2 input	Type 1 and 3	Type 1, 2 or 3	Type 1 and 3
Output type	Isolated	Isolated or non-isolated	Isolated or non-isolated, SPI serialized transfer
Output drive	Opto-transistor	Opto-transistor, CMOS compatible	Opto-transistor, electromagnetic isolator, CMOS compatible
Input current limiter	2.8 mA	2.5 to 7.5 mA	2.35 mA
Current tolerance	25%	18%	10%
Front end LED status	Yes, using type 1	Yes	Yes
1.2/50 $\mu$ s surge level	> 1 kV	Type 3: 1 kV Type 2: 0.5 kV	> 1 kV
ESD level	8 kV	15 kV	15 kV
Package	TSSOP-20	HTSSOP-14	HTSSOP-38



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