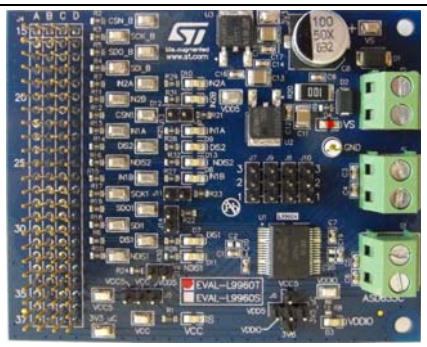
EVAL-L9960,EVAL-L9960T

L9960 Evaluation board for Automotive ETC H-bridge

Data brief



Features

- Wide supply voltage range (VBatt): 4V÷28V
- Current limitation threshold set by SPI:
- 4 levels from 2.5A to 8.6A (Typ.)
- Device controlled and programmed via SPI
- Diagnostic functions accessible via SPI:
  - short circuit to battery,
  - short circuit to ground,
  - short circuit overload,
  - over temperature,
  - open load
- On board 5V, 1.5A Voltage regulator
- 2 LEDs for monitoring VBatt and EN signal.
- Input signal connector compatible with the SPC5 Discovery+ boards.
- Possibility to connect the board to microcontroller boards by a simple adaptor or by wires.
- Test points to monitoring both input signals (SPI, PWM, EN) and outputs
- Flexible driving strategy via configurable pins PWM/DIR (IN1/IN2):
  - No heat-sink is required

Description

The EVAL-L9960 and EVAL-L9960T are the simplest solution to evaluate respectively the L9960 and L9960T functionalities providing all the inputs and outputs capabilities necessary to drive DC motors and monitor diagnostic functions.

The driving strategy is enhanced by configurable PWM / DIR pins as IN1/IN2.The H-Bridge contains integrated free-wheel diodes. In case of freewheeling condition, the low side or the high side transistor is switched on in parallel of its diode to reduce power dissipation.

The integrated Serial Peripheral Interface (SPI) allows device parameters adjustment and to control all operating modes and read out diagnostic information.

Detailed failure diagnostics on each channel is provided via SPI: short circuit to battery, short circuit to ground, short circuit overload, over temperature. Open-load can be detected in ON condition, for the widest application ranges.

The EVAL-L9960 and EVAL-L9960T boards are suitable for both beginners and expert users working in standalone mode connected with any control system or combined with all SPC5 Discovery+ boards through a computer graphic interface or through embedded application examples

The board is compatible with both 5V and 3.3V control systems.

Table 1. Device summary

Order codes	Reference
EVAL-L9960 EVAL-L9960-T	EVAL-L9960 & EVAL-L9960T Evaluation board

1 System requirements

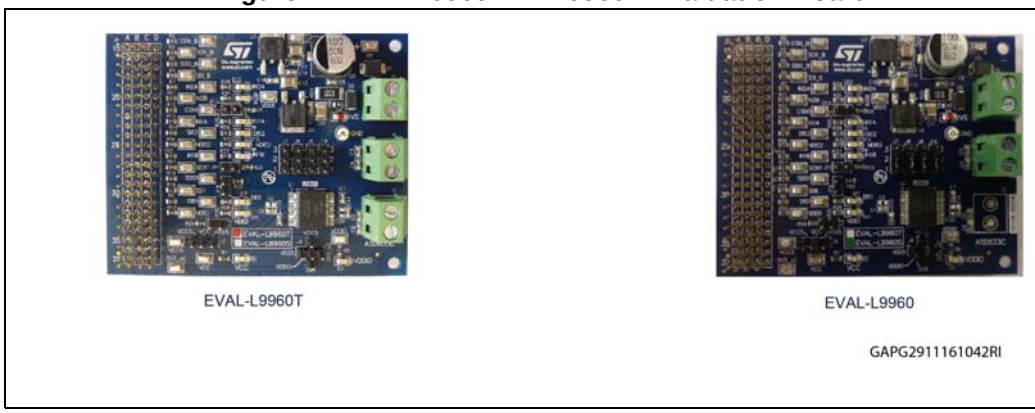
- Power Supply: 4V ÷ 28 V; 9A
- SPC56 discovery board (SPC560P-DISP) or microcontroller board able to offer SPI signals, manage 2 EN and 6 PWM signals, read 2 analogic signals for current sensing and +5V or +3.3V (Vcc)

1.1 Development tool chain

- Graphic User Interface: Labview
- Software development environment (in connection with SPC5 MCUs) : SPC5Studio
- Hardware set-up

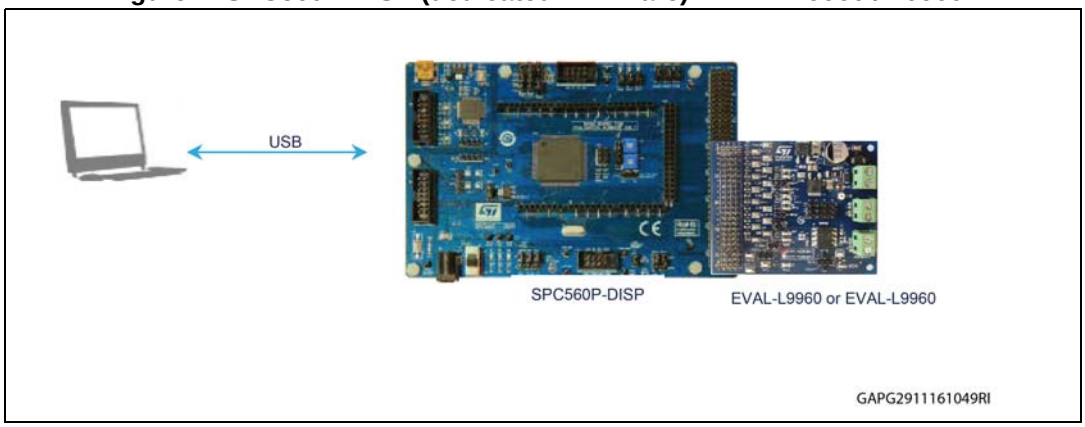
1. Board stand alone

Figure 1. EVAL-L9960-EVAL9960T Evaluation Board



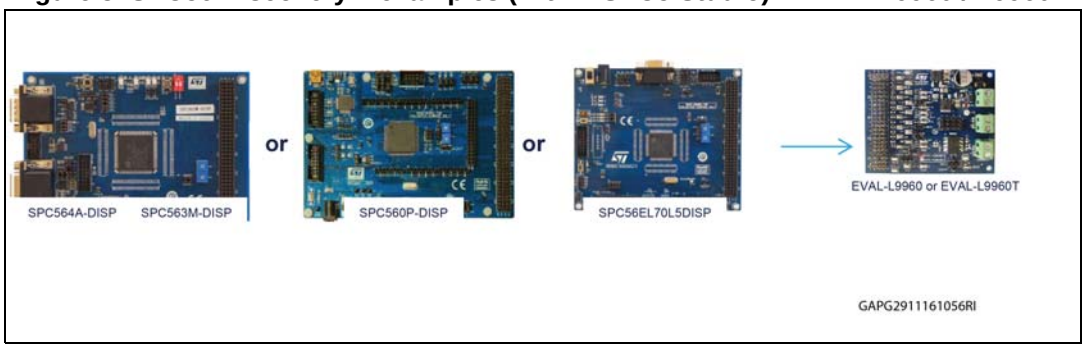
2. PC Graphic User Interface-SPC560P-DISP (dedicated Firmware) - EVAL-L9960 & EVAL-L9960T

Figure 2. SPC560P-DISP (dedicated Firmware) - EVAL-L9960 / L9960T



3. Any SPC56 Discovery + Application Examples (within SPC5 Studio) + EVAL-L9960 & EVAL-L9960T

Figure 3. SPC56 Discovery + examples (within SPC5 Studio) + EVAL-L9960 / L9960T



Appendix A

A.1 Evaluation software

Demonstration software is available on ST web site for free download.

A.2 Application note

AN4867 “L9960 ETC H-bridge”, www.st.com website.

Revision history

Table 2. Document revision history

Date	Revision	Changes
01-Dec-2016	1	Initial release.