8.4.2 Main ITC components

The most important components of the Intelligent Torque Control system developed by SME are the following:

- The control unit, which is made of a panel assembly containing the power inverter and a control board; main board, wired directly to the power modules and can manage up to 4 inverters. The presence of the DSP (Digital Signal Processors) guarantees powerful software performance and high dynamic performance in vector torque control.
- An asynchronous three-phase drive motor equipped with a speed sensor (64 impulses/rotation)
- The compact display.

The software control algorithm can be customized and a wide range of parameters can be set to optimize system performance and to adjust the settings of the main functions according to the user's needs.

The user can interact with the control board by making use of a software application (named SME GUI) developed by SME, or through the LIN display, a complete console capable of diagnostic function engineered by SME. In both cases, you can obtain an exhaustive "on line" diagnostic of all the lift truck functional parameters and adjust them too.

The control board can be upgraded by connecting a PC through the serial port (or through the USB 1.x or higher by inserting the appropriate UART-USB adapter); indeed the SME GUI application permits you to load and upgrade the firmware of the control panel in any working conditions.

8.4.3 Basic ITC functions

The following basic hardware and software functions characterize the SME system:

- protection against reverse battery polarity;
- anti-roll-back, with adjustable deceleration rates;
- anti-roll-off;
- regenerative braking;
- electrically assisted braking;
- management of Static Return to Off function (SRO);
- speed compensation (load/unload);
- speed acceleration/deceleration;
- speed reduction;
- redundant control of acceleration pedal (applying a control switch or a double potentiometer);
- continuous control of main contactor applied to DC power line;

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