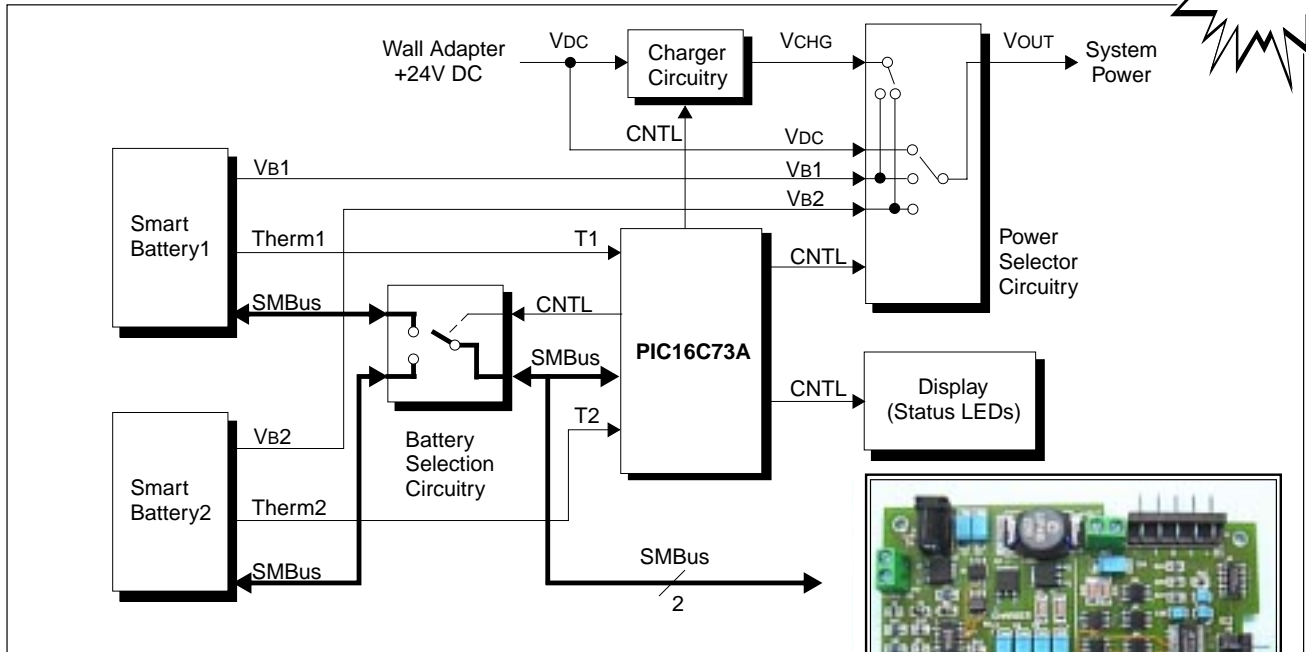
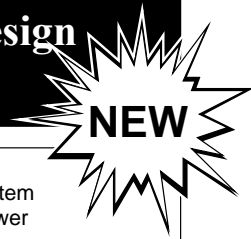


# PICREF-5 SMBus Level-3 Battery Charger/Selector Reference Design Based on the PIC16C73A



## The PICREF-5 Reference Design offers a ready-made SMBus Level-3 battery charger/selector solution.

With the PICREF-5 Reference Design, the design engineer will be able to quickly develop an SMBus Level 3 Smart Battery Charger/Selector.

The design consists of a PIC16C73A microcontroller that handles all the hardware control and communications to meet both the SMBus Level 3 Smart Battery Charger Specification 1.0 and Smart Battery and Smart Battery Selector Specification 1.0. It combines the Smart Battery Charger and Smart Battery Selector under single-chip control.

The hardware supports selection and charging of up to two independent battery packs. The PICREF-5 Reference Design includes many safety features such as PIC16C73A control selection of a single battery pack, so that the unselected battery cannot be active on the bus. This eliminates cross control and cross communication situations, which may lead to unexpected operation. As an added safety feature, thermistor monitoring is always available on both battery packs, regardless of the selected battery pack.

Immediate switching of the power source is implemented by use of three diode mode operation. If AC power or the active battery pack is removed from the system, there is no switch over time. The selector also supports end-of-discharge detection of the battery pack, so that switching to an alternate power source automatically takes place.

The charger can act as a master to initiate charging, which allows the charger to poll batteries for charging information. The PIC16C73A then makes autonomous battery selection decisions.



## PICREF-5 Features:

- Autonomous charging
  - Auto detect AC and battery
  - Immediate power source selection
- Charges battery packs of up to 18V at 3.8A
- 3-diode mode for continuous power output
- Chemistry independence
- "Wake-up" charge
- Thermistor safety monitoring



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# PICREF-5 SMBus Level-3 Battery Charger/Selector Reference Design

## Documentation Included

- Theory and operation of Smart Battery Charger/Selector
- Fully documented source code
- Information on the demo unit
  - Full circuit schematics
  - Bill of materials
  - PCB layout and Fab drawings
  - Unit assembly
  - Test results

## Additional Information

Reference design material is available electronically from the following sources:

- Worldwide Web
  - [www.microchip.com](http://www.microchip.com)
  - [ftp.microchip.com/biz/mchip](ftp://ftp.microchip.com/biz/mchip)
- Microchip Technical Library on CD-ROM

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