iTC Edge Controller

The iTC Controller is a microcontroller-based device designed to offer comprehensive monitoring and control functionality for the MULTI TENANT DC POWER SYSTEM. It serves as the central hub for overseeing various system parameters, including DC voltage, rectifier performance, temperature, system capacity, battery status, and alarm conditions.

Alarm and warning notifications are conveyed via front panel LEDs and potential-free alarm contacts, enabling remote signaling. External monitoring capabilities for alarms and overall system status are facilitated through a Remote Monitoring Interface. Moreover, the controller features an Ethernet port, enabling control over a TCP/IP network.

The iTC Edge Controller serves as the core component of the system, facilitating communication with connected devices through multiple comm ports like:

- Communication with SMPS rectifier via the CAN bus port.
- Li-ion battery communication through the RS485 Serial Modbus port.
- Communication with the RMS unit on TCP/IP, SNMP V3 Interface on Ethernet port.
- Interaction with the DCEM through the RS485 Modbus port.

Features

This is the main unit of the system, communicating with all the modules (rectifiers, batteries, RMS). It is hot-pluggable and work in fail safe mode.

Features include visual alarm indication, Graphic display, menu keys, USB, RS485 communication port and ethernet port for web interface.

Technical Specifications

Input Voltage	20-60V DC
Current	120 mA at 48V
Power consumption	0-6W
Indication	Green LED - Power ON,
	Yellow - Message warning
	Red - Alarm
Internal Communications device	CAN Data Bus for rectifiers and RS485 for any other
MicroSD Card	8GB (Optional)
External communications	USB for direct communication with a PC
	RS485 interface for LiB
	Ethernet port allowing monitoring and control via
	TCP/IP, SNMP network
Signal Inputs	Battery current reading
	System voltage reading, Battery temperature sensor
	Load fuse failure
	8 x Digital inputs like door, smoke etc.
	Signal Outputs for LVD
	4x alarm relays (additional 4 alarms with Relay Card)
	Fan On/OFF Control
Functions	1) Simple menu-guided operation
	2) User-selectable alarm set parameters
	3) Web interface for remote operation via PC
	4) Temperature compensated battery charging
	5) Boost charging
	6) Battery charging current
	7) LVD control (voltage controlled)
	8) Peak load display and data log
	9) Real time clock with battery backup
	10) MicroSD card with data logging function (optional)

Alarms	
	1) 4 Nos PFC (additional 6 PFCs with Relay Board)
	2) Rectifier fail (PFC)
	3) Grid Fail (PFC)
	4) Low Volt / Low SOC (PFC)
	5) High Temp (PFC)
	6) Smoke (PFC)
	7) High system voltage
	8) Battery disconnection
	9) Load MCB trip
	10) Mains Abnormal Low
	11) Mains abnormal High
	12) High battery temperature
	13) Rectifier Communication failure
	14) Battery Communication failure
	15) Temp. probe failure
	16) Main on Battery Discharge