

# SyCTRL Latch Current Limiter

## SyCTRL LCL board

- Secured power distribution up to 4 outputs, up to 10A
- With or without current limitation (OCL)
- Local or remote voltage sensing
- OVP / UVP and OCP feature per output line
- Fast reaction time down to 30µs
- Physical separation to Product Under Test
- Interfaces with standard COTS power supplies (Remote inhibit, sense line,...)
- High impedance measurement lines (>1 MΩ)



## Overview

The LCL board dispatches a DC power line to up to 4 secured power lines feeding a product under test.

The voltage sensing is local (at input line) or remote (at each output). The current sensing is performed at each of the 4 output lines. It filters the values and in case of threshold violation, first limits the output current during a predefined period and if the over current remains, shuts down the corresponding output line by opening MOSFETs.

The LCL board is mounted in a rear slot of a Chassis.

The LCL board is managed by a standard Decision board. In order to decrease the reaction time, the comparison to the thresholds is performed by the board itself within its own FPGA.

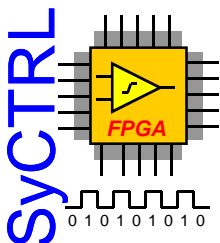
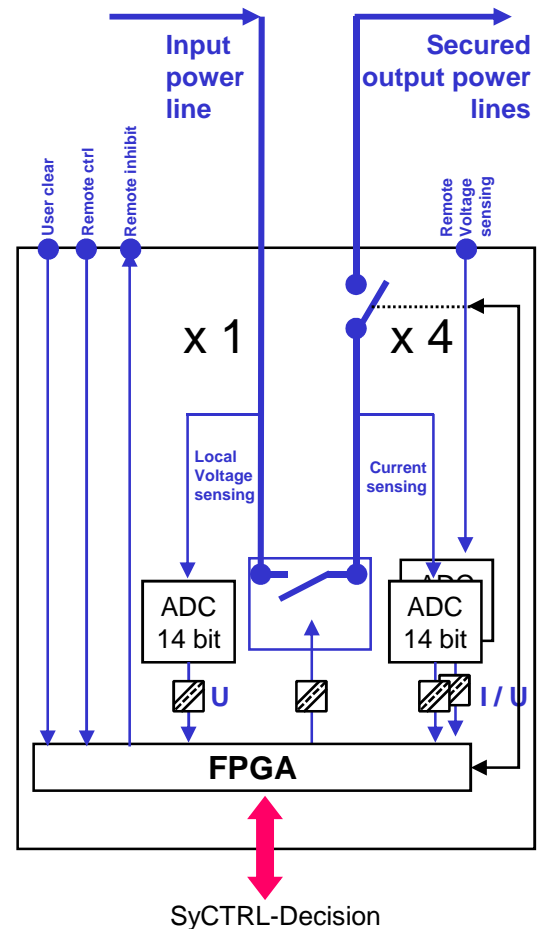
The thresholds and filter parameters are user configurable (via a secured software).

## Downtime optimization

The LCL board embeds its own calibration parameters, minimizing its downtime to the board replacement in case of failure.

## Integrated Built-In self test

The LCL board embeds its own built-in self test which gives a clear status of the acquisition lines, of the MOSFETs and relays health.



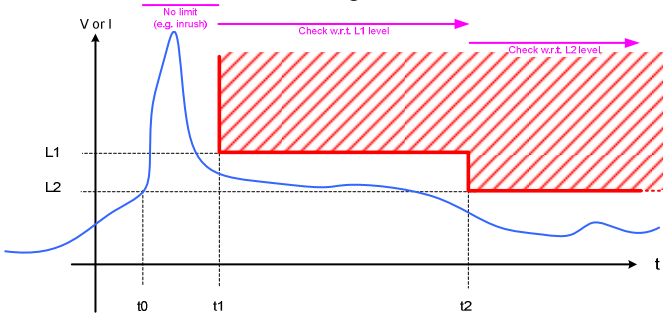
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## Protection features

Two MOSFET switch for each line, interface to power supply (fault detection and inhibition) and to safety loop.

### OVP / UVP / OCP (sc214 and sc215)

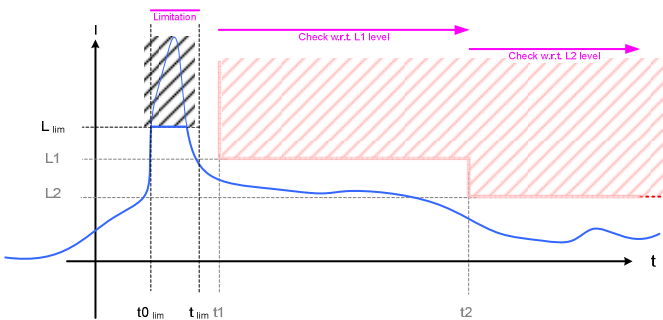
Dead band for inrush filtering



Reaction time down to 30  $\mu$ s

### Over current limitation (sc215)

The output current is limited to  $L_{lim}$  amps by one of the MOSFET switch during a limited time  $t_{lim}$ . If the current remains over  $L_{lim}$  beyond  $t_{lim}$ , the line is opened.



Max limitation time ( $t_{lim}$ ) 15 ms up to 5A  
6 ms up to 10A

### Voltage sensing

sc21x-00 Local (on input)  
sc21x-01 Remote (on outputs)

## Power characteristics

Number of input line 1  
Number of output lines 4 @ up to 5A  
2 @ up to 10A  
Voltage range 0..100 V  
Input current max. 20A  
Output current range 0..10A  
Maximum power 2kW  
Power consumption 17W

## Measurement characteristics

ADC resolution 13 bits + 1 sign bit  
Type of ADC Serial  
Voltage accuracy  $\pm 0.05\%$  FSR (\*)  
Input impedance  $> 1 \text{ M}\Omega$   
Current accuracy  $\pm 0.5\%$  FSR (\*)  
Scan rate 50 kS/s for voltage  
25 kS/s for current  
Filtering characteristics Low pass  $F_c < 2.5 \text{ MHz}$

## Physical isolation

For power lines  $> 10 \text{ M}\Omega$  when open

## Environmental

### Operating environment

Temperature 10 to 40  $^{\circ}\text{C}$   
Humidity 40 to 90% noncondensing  
Pressure 800 to 1050 mbar

### Storage environment

Temperature  $-10^{\circ}\text{C}$  to 60  $^{\circ}\text{C}$   
Humidity up to 90% noncondensing  
Pressure 800 to 1050 mbar

## Mechanical

### Size

sc214 / sc215 3HU x 4HP x 220mm (\*)

### Weight

sc214 / sc215 300 g

### Connector

sc214 / sc215 1x D-Sub 43W2 male

(\*) 1 HU = 44.45 mm, 1 HP = 5.08 mm, FSR: Full Scale Range

