NAPS Power of Light

The photograph above illustrates a NCC11-2. Dimensions of this unit as well as NCC11-1 are 600 x 400 x 230 mm and weight is approximately 13 kg. The dimensions of NCC11-3, 4 and 5 are 700 x 500 x 270 mm.

NCC11 is a modular solid-state series type charge controller for 12, 24 or 48 Volt industrial photovoltaic systems. Up to ten 30 Amp regulator modules can be included in a single system, together with circuit breakers and heavy duty connection terminals as well as monitoring and display unit.

NCC11 Modular Charge Controller for Medium Size Systems

Main features:

- Compatible with 12, 24 or 48 V systems with automatic system voltage detection.
- Automatic boost/equalisation charge function removes battery stratification for longer battery life.
- Solid state series type charge control for fast and accurate battery charging.
- Smart temperature compensation prevents problems caused by broken sensor leads, missing sensors etc..
- Positive grounding scheme for telecommunications system compatibility.
- Modular construction allows one or more controller modules to be used.
- In larger systems, load circuits of regulator modules can be connected in parallel redundant mode for increased system reliability.
- Monitor unit with an alphanumeric LCD display and LED status indicators for system supervision.
- Monitor has fully adjustable high voltage and low voltage alarms and auxiliary control output for e.g. back-up generator control.
- Controller setpoints are easily changed either with the monitor or PC.
- IP65 (NEMA12) grade industrial wall-mounting enclosure, complete with magnetic circuit breakers and heavy duty terminals.
- New cassette-type mechanical construction of regulator modules with quick connectors provides easy installation and maintenance.
- Control board has LED indication for charging, battery status and LVD status.
- RS485 and RS232 connections for set-up and supervision.
- Plant operation data logging.

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Possible NCC11 systems:

System	Charge Max. A	Load Max. A
NCC11-1	30	30
NCC11-2	60	2 x 30
NCC11-3	90	2 x 30
NCC11-4	120	2 x 30
NCC11-5	150	2 x 30
NCC11-6	180	2 x 30
NCC11-7	210	2 x 30
NCC11-8	240	2 x 30
NCC11-9	270	2 x 30
NCC11-10	300	2 x 30

For higher load currents please consult Naps.

NCC11 Regulator Module

Charge control circuit

Max continuous charging current:	30 A
Charge termination:	2.35 V / cell*
Boost charge termination:	2.45 V / cell*
(vented battery only)	

Load circuit

Continuous current:	30 A
Low voltage disconnect (LVD):	1.9 V / cell*
Load reconnect:	2.13 V / cell*

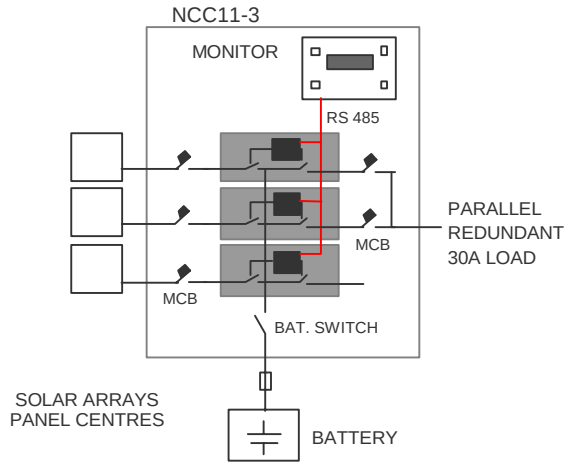
*Note all V/cell figures are for lead-acid batteries at 25 °C. Charge termination and LVD settings are field adjustable using the monitor or a PC.

General

Operating temperature range:	-20 °C to +55 °C
Minimum operating voltage:	< 8 V
Maximum array voltage:	100 V
Current consumption	
Per regulator module:	< 15 mA
Monitor, typical	< 35 mA

Reliability:

- Robust design and ample component derating help to give the controller an MTBF in excess of 400,000 hours (Telcordia/Bellcore Issue 6).
- For increased system reliability, in larger units, load circuits of two regulators can be connected in parallel redundant mode as a single 30 A load circuit.
- Maintenance-friendly quick connectors help to achieve very low MTTR value and high system availability.



Example of a NCC11-3 with three regulator modules, monitor and two load circuits wired in parallel redundant mode.

NCC11 Monitor

- Backlit LCD display displays system data and measurement data of individual regulator modules
- Easy-to-read LED status display
- Fully adjustable alarm outputs for high and low battery voltage
- Auxiliary control output for e.g. generator start
- RS485 and RS232 ports for PC connection
- Field test mode for checking regulator modules
- Regulator setpoint change mode
- Display of system status:
  - Battery voltage
  - Photovoltaic array current
  - Load current
  - Battery current
  - Battery temperature
  - Alarms
  - Daily and monthly battery charge balance

EMC

NCC11 controller complies with the requirements of the 89/336/EEC Electromagnetic Compatibility Directive, amended by 93/95/EEC, 96/58/EC, by meeting the following standards:

Generic standard	EN 50082-1
Conducted Emission	EN 50081-1 Class B
Radiated Emission	EN55022
RF Radiated Immunity	IEC 1000-4-3 3 V / m
Fast Transient	IEC 1000-4-4 0.5 kV +/-
Surge	IEC 1000-4-5 1.0 kV