



ELECTRIC AND PHOTOVOLTAIC CHART

NTNU UNIVERSITY

TEAM NORGE

**GENERAL ELECTRICAL AND PHOTOVOLTAIC INSTALLATIONS**

Electrical supply voltage (phase-neutral) for which both installations have been designed	v	230
Electrical supply frequency for which both installations have been designed	Hz	50

**ELECTRICAL INSTALLATION**

No details are required in this document about interior circuits, due to the fact that these shall adapt to the minimum requirements given by the Spanish standard REBT for a highly electrified house.

The Organisation will supply the teams with a one-line diagram with the distribution and protections of the interior circuits, according to the Spanish REBT.

Teams are reminded of The fact that The Electrical installations shall be designed for a single-phase supply with a maximum power of 15 kW, equivalent to 63 A (230 V / 50 Hz). For other voltages and/or frequencies the equivalent limit shall apply, by making use of the corresponding transformation relation.

House inner surface	(m <sup>2</sup> )	63.2
Expected maximum power	(W)	10-12 KW
Individual branch:		HO7RN-F
o Type of cable		3 x 10
o Cross-section	(mm <sup>2</sup> )	5 x 10
General magnetothermic protection:		
o Nominal current (unit: A)		50 A
o Circuit-breaking capacity (unit: A)		6 KA
General differential protection:		
o Nominal current (unit: A)		16 A
o Sensibility / Trip value (unit: mA)		30 mA
Use of DC loads:		
o DC operating voltage (unit: V)		12 V
o Rated power of aggregated DC loads (unit: W)		

**PHOTOVOLTAIC INSTALLATIONS**

[Note: Teams are reminded of the fact that the PV installations size is limited by the following rule: the maximum power of all power conditioning equipment connected to PV generation (DC/DC and/or DC/AC) is limited to 10 kW. For DC/AC power conditioning (inverters), the maximum power to be considered is the nominal power, defined as the maximum output power without time limitations/ constraints.]

Nominal power of the inverter, or sum of the nominal power of inverters in case several inverters are used	(W)	9900
[Note: nominal power of the inverter is the maximum output power without time limitations]		
- Brand and model of inverter(s).	6p. SMA Solar Technology AG _ Sunny boy SB 2100TL 2.0KW	

**HARD-WIRED BATTERY BANK + BATTERY INVERTER**

Nominal operation DC voltage of The battery bank (unit: V)	none	The +hytte will not require The use of any additional battery. The team is considering the possibility of using an electric car battery as accumulator.
Nominal capacity of The battery bank (unit: Ah)	none	
Nominal power of The battery inverter (unit: W)	none	
[maximum output power at the AC side without time limitations]	none	
Brand and model of The battery inverter.	none	

