

MRO CURRENT CHECK | OSDA + GNETEK MRO

XENTRO MALL – MONTALBAN | CURRENT VERIFICATION FOR STRING PARALLELING

Based on actual PV distribution plan, OSDA module datasheet, and GNETEK MRO datasheet/topology.

1) PROJECT BASIS



Total modules

1,412
panels



Total strings

88
strings



Total inverters

8
units



Strings per inverter

11
strings



Core split
per inverter

C1:4, C2:4, C3:3



PV module

OSDA
ODA715-33V-MHD
715 W



Optimizer

Honeybee1600-HPLC
2 modules per
optimizer



Shutdown
controller

Beetrans-Max-M

2) CURRENT BASIS

A. OSDA ODA715-33V-MHD (PV MODULE)



String operating current (Imp) **16.41 A**

String short-circuit current (Isc) **17.55 A**

Conservative high-current
reference (BNPI Imp) **18.09 A**

Conservative high-current
reference (BNPI Isc) **19.36 A**

B. HONEYBEE1600-HPLC (OPTIMIZER)

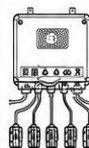


Max input current
per channel **20 A**

Isc per channel **23 A**

Max output current **20 A**

C. BEETRANS-MAX-M (SHUTDOWN CONTROLLER)

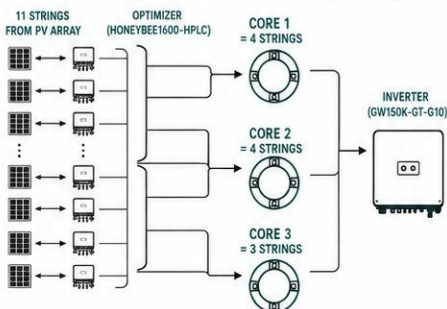


Maximum current per
magnetic ring/core **160 A**

Maximum supported
string count per ring **5**
strings

3) APPLIED CURRENT CHECK PER CORE (ONE INVERTER – 11 STRINGS)

11 STRINGS DISTRIBUTED ACROSS 3 CORES (4 + 4 + 3)



CORE CURRENT CALCULATION (PER CORE)

Core	No. of Strings	Current at Imp (A)	Current at Isc (A)	Current at conservative high-current reference (A)	Status
Core 1	4	65.64 A	70.20 A	77.44 A	PASS
Core 2	4	65.64 A	70.20 A	77.44 A	PASS
Core 3	3	49.23 A	52.65 A	58.08 A	PASS
Max per core allowed	5	82.05 A	87.75 A	96.80 A	PASS vs 160 A limit



4-string core at Isc
= 43.9% of 160 A



5-string maximum at
conservative Isc = 60.5% of 160 A



ALL CALCULATED CURRENTS ARE BELOW THE 160 A PER-CORE LIMIT.

4) PARALLEL STRING NOTE



Parallel strings are additive in current. Therefore, current must be checked per magnetic ring/core based on the number of strings passing through that core. For this project, the 11-string inverter arrangement is split across 3 cores (4 + 4 + 3), so the current on each core remains within the Beetrans-Max-M 160 A per-core limit.

5) OPTIONAL INVERTER CURRENT CHECK



Two parallel strings at one MPPT	$2 \times 16.41 \text{ A} = 32.82 \text{ A}$
Two parallel strings short-circuit current	$2 \times 17.55 \text{ A} = 35.10 \text{ A}$
Project reference inverter limit	42 A per MPPT / 20 A per input
Status	within project reference limit



RESULT: MRO CURRENT REQUIREMENT IS ACCEPTABLE

With the applied 4 + 4 + 3 core split per inverter, Beetrans-Max-M core currents remain below the 160 A per-core limit, and Honeybee1600-HPLC current ratings remain suitable for the OSDA string currents.