



Absolute

Powering The Future

Design and Equipment Specification

Hough End Leisure Centre



Description of System

There is existing solar at this site so the phase 2 proposal is for a new Energy Storage System (ESS) only. Originally it was proposed that the equipment could be installed in the plantroom however this would take up all of the available space in the room and would make it difficult for maintenance of the ESS and some of the existing plant. Due to the restricted space it is proposed that the ESS should be a containerised solution mounted outside the plantroom.

This would be a 10ft container complete with HVAC and fire suppression system. The output from the system would be 100kVA/257kWh

DNO

The DNO offer has not been provided at this stage.

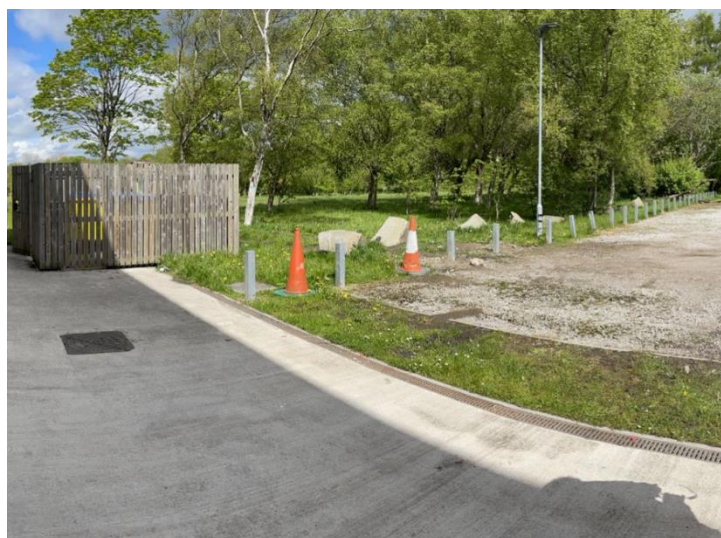
Equipment Schedule

Description	Manufacturer	Model
ESS	Alpha	T100
Generation meter	Elster	A1100
Cable Tray	TBC	Medium duty (covered when external)

Location of equipment

Energy Storage System (ESS)

Proposed location for the batteries outside in the gravel area beside the plant room. This would provide the shortest cable run without taking up any spaces in the main car park.





Point of Connection

The ESS will connect into the existing solar DB in the plantroom. There are spare ways available that will require to be fitted out with a new 200A MCCB. SWA cable will be terminated onto the bottom of the panel to match the existing installation.

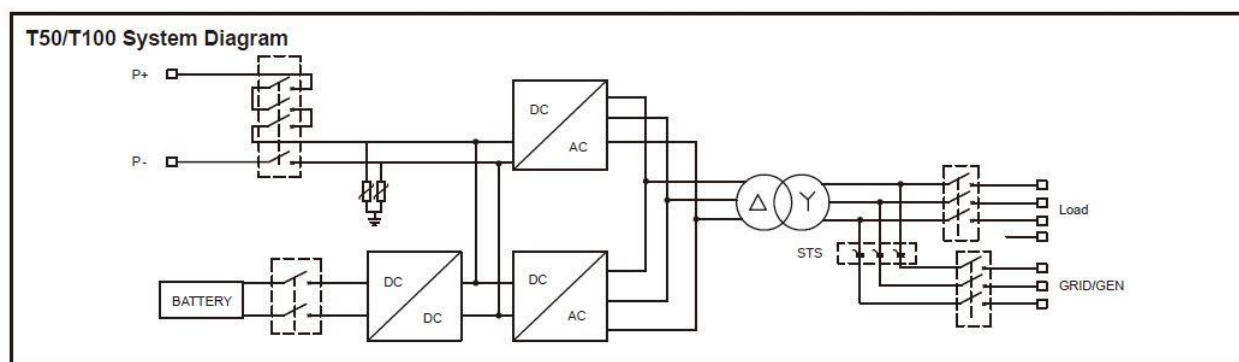




ESS Control and interface

With regard to integration into future Building management systems, the manufacturer is able to release their open-source Modbus control protocols to any of your system integrators. The latest code sheet is included in the supporting documents for the ESS.

For standard settings the system can be controlled, if required, for time of use/ charge rates and SOC limits etc over the Alpha Portal. The system is controlled primarily by the grid meter and CT's. This needs to be installed in the main incoming tails to the main panel board. This monitors whether there is any import or export and reacts accordingly. Export=charge: Import = discharge. Where there is no export, the system can be configured to charge from green band times and discharge at red band, for example. The solar output is monitored directly via the PV combiner boxes and uploaded to the portal.



Cable Schedule

DESCRIPTION	No. of CORES	CABLE SIZE (mm ²)	CABLE TYPE
T100 Supply Cable	4c	70	XLPE/LSF/SWA
CPC	1c	35	6491B (H07Z-R) - LSZH





Cable Runs

AC Cabling

- AC cable from ESS will be buried in the ground in ducting across the pavement then a hole will be cored through the floor of the plant room.
- To run through the plant room the tray will be suspended from the ceiling (see figure 12)
- Metal Cable ties will be used every 1m of cable run.

Building Penetrations

- Holes will be cored through the floor of the plant room at an angle in order to run the cables outside/inside.
- DC cables will enter the plant room through the wall at high level then run down the inside of the wall to the holes in the floor.
- Once the cables have been installed, the duct will be sealed using fire rated expanding foam.
- Duct openings will be in the building and the container so no rain water can access the duct. The ducting has no holes along the length to prevent water ingress.





Example Diagrams



Figure 1 - Perforated Tray with Cover

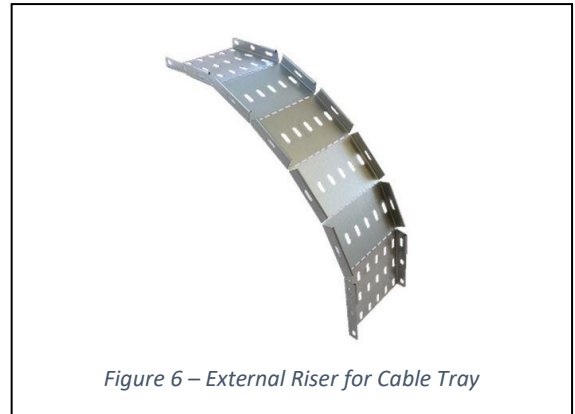


Figure 6 - External Riser for Cable Tray



Figure 12 - Suspended Ladder



Figure 13 - Suspended Tray and Ladder

