European Project Dispatch Function User Manual V1.1

ALPHA ESS STORION-T50/100 SYSTEM

ALPHA ESS PRODUCT DEPARTMENT

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1. Introduction

The purpose of this document is to describe the logic related to the current EMS version for dispatch functionality and how to use it.

EMS V5.11.09 is the software version for the EU dispatch projects, which supports three topologies: DC, AC, and Hybrid. Please be aware that the extra PV inverter of these three topologies is connected to the grid side without communication with AlphaESS system.

2. Wiring

The dispatch communication port is the EMS **Trip** port in Fig. 1. The pin sequence is **3-B, 6-A**, which is shown in the schematic in Fig. 2.

Fig. 1. EMS communication board schematic image

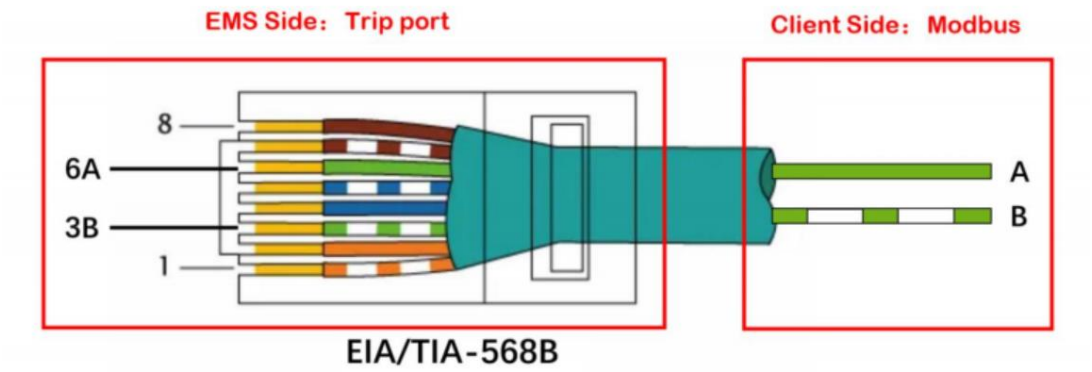

Fig. 2. EMS-Modbus communication wiring schematic image

3. Main functions

3.1 General Information

Please find the "**CtrlMode**" in setting-function-Dispatch in the screen manual. You can choose "**Local**" to set the system to on/off-grid operation mode or choose "Remote" to set the system to Modbus dispatch mode.

Remote Mode: this option is the Modbus dispatch mode. In this mode, the user can not only read some system-related data but also set parameters to control the system. The settable values are introduced in the next capital.

3.2 Remote functions

3.1.1 Interface Settings

Please set as following in the interface setting-function-Dispatch:

CtrlMode	Remote
Protocol	Alpha
Dev_addr	1
ComMode	RS485
Modbus Communication Baud	19200 / 9600

3.1.2 Read & Write Functions

Please refer to the detailed parameters for the Modbus protocol, the user can read the relevant data and set parameters. The PCS's settable parameters (R/W) are **AC Power, Switch ON/OFF, Fault Clear, and Local/Remote Mode.**

The parameters to set are controlled by the user and not by the local EMS, but the local EMS will do protection restrictions, such as a system with a PCS failure, battery communication loss, fire alarm, battery upgrade, PCS communication loss, etc., the local EMS has the priority to shut down the PCS.

When the local EMS receives the command of turning on the PCS remotely, it will check whether the current system meets the following conditions then the PCS could be turned on:

a). PCS without faults and alarms.

b). Communication from batteries or between batteries is normal.

c). Communication between PCS and EMS is normal.

d). No fire alarm.

e). Batteries are not in updating status

The AC power could be controlled as follows:

Term	Power setting
Alpha ESS storage system charges	Positive
Alpha ESS storage system discharges	Negative

3.1.3 Issues for attention

1. In the Modbus dispatch protocol **Note 4**: **SOC calibration mode** in the **Topbmu status flag** will be activated once every two weeks. The battery needs to be fully charged every certain period, otherwise, the system SOC deviation would increase; when the **Charge flag** shows **10 (force charge)**, the battery should be charged urgently.

2. The system inverter controls the system charging or discharging power; however, the power is restricted by the maximum chargeable and dischargeable power of the battery, **refer to address 540BH** for the current battery's maximum chargeable current, and address **540CH** for the current battery maximum dischargeable current. If the battery is under voltage and receives no instruction for charging, the system will also automatically turn on and force battery charging in 24 hours. If the battery is disconnected, the local EMS will force the relay to close and connect the battery.

3. When the system does not respond to the dispatch command, please refer to **08D4H~08D5H,** for the system working status:

52EDH~52F0H	inverter fault status
5424H~5427H	battery fault status
540DH	battery working status

When there is an alarm, the system can be restored to normal by timely eliminating the problem.

5. If the EMS has not received any instructions for a specific time, the system will terminate the dispatch mode and the PCS will stop running. The time at which the external controller sends the command needs to be referenced to the EMS timeout (Setting->Function->Dispatch->EMS_timeout), which is settable. The suggested value is between 1 to 60 seconds and the default value is 10 seconds. The time at which the external controller sends the command needs to be referenced to the EMS timeout.