



250kW/645kWh Li-ion BESS Project in Lebanon

Case Study

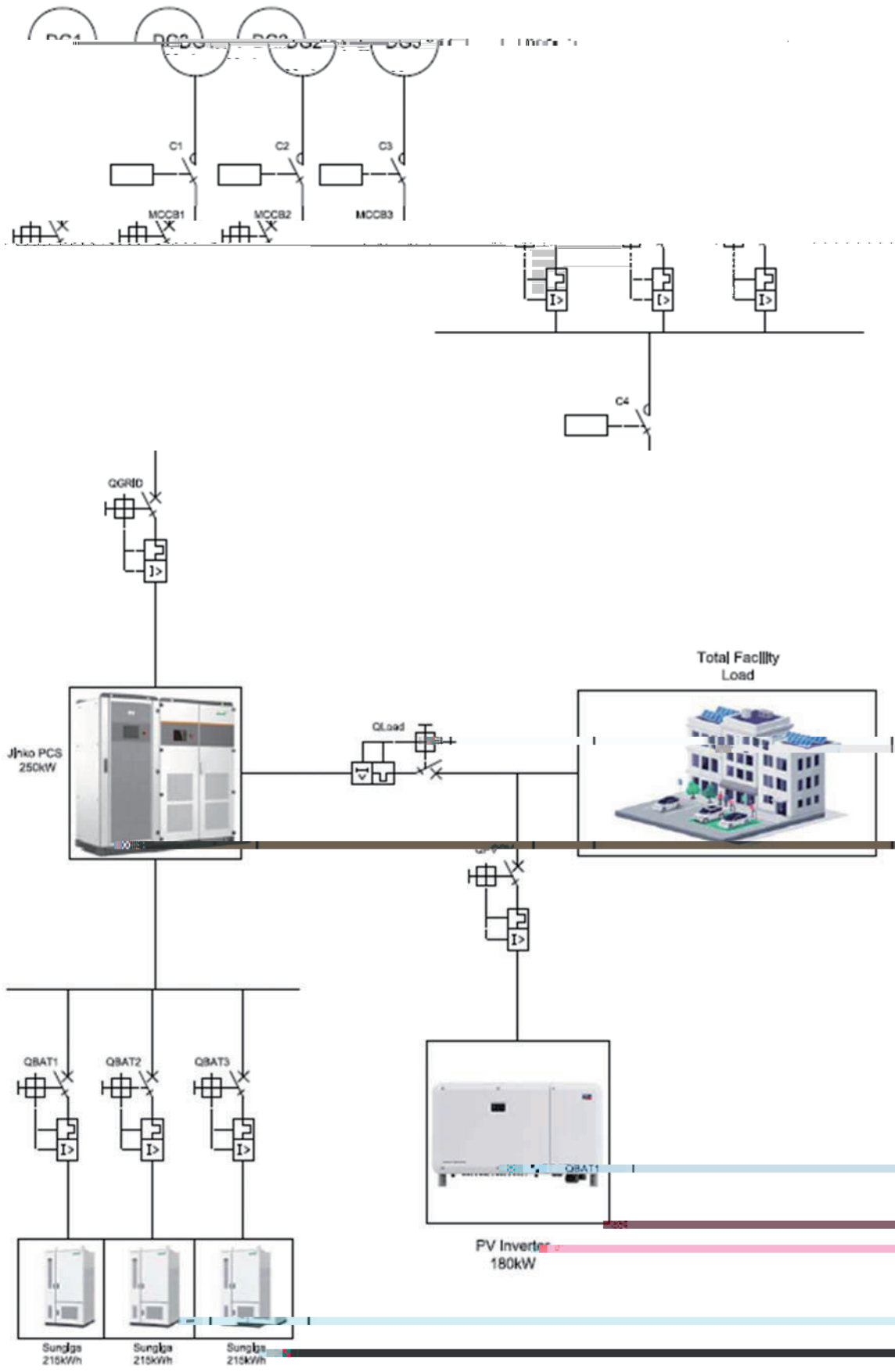


Fig. 1 Single Line Diagram of Micro-grid AC-Coupled System

Devvgt{"Tcem"

"""""""""" Fig. 2 BMS Communication Topology

Devvgt{"Opcig o gpv"U{uv g o "

Nkswkf"Eqqnkpi"U{uv g o "

Hktg"Uwrrtguukqp"U{uv g o "

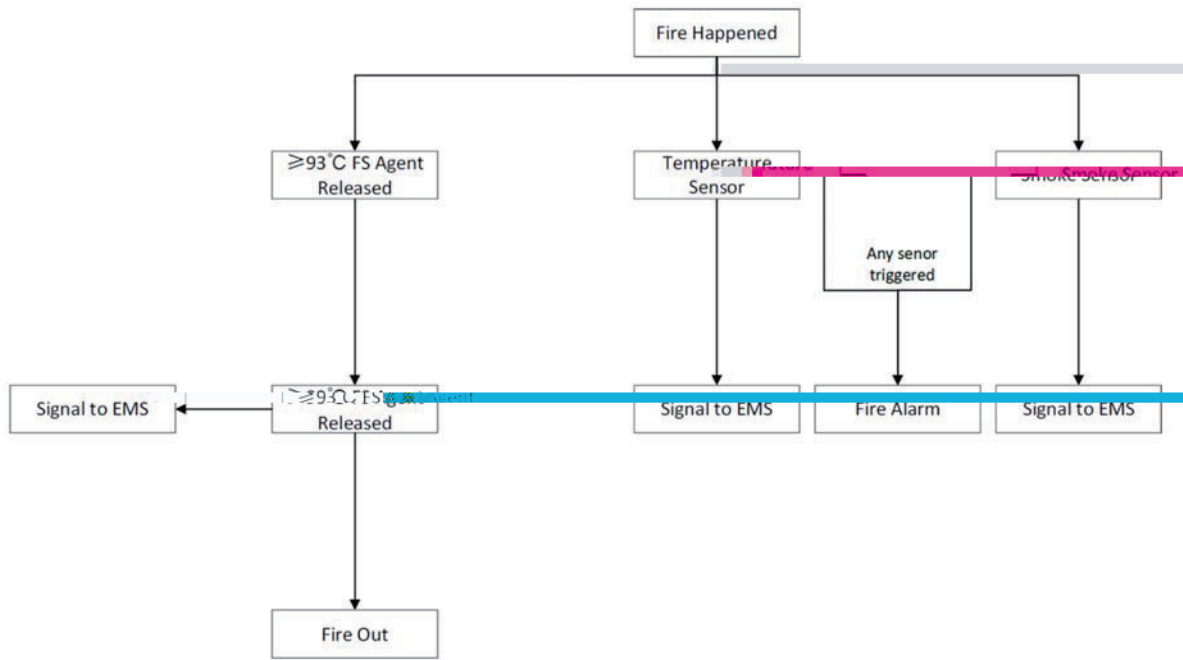


Fig. 3 FSS Workflow

Rq ygt"Eqpxgtukqp"U{uvg o"*REU+"



Fig. 4: PCS Single Line Diagram

Gpgti {"O cpcig o gpv"U {uv g o "*GOU+"}

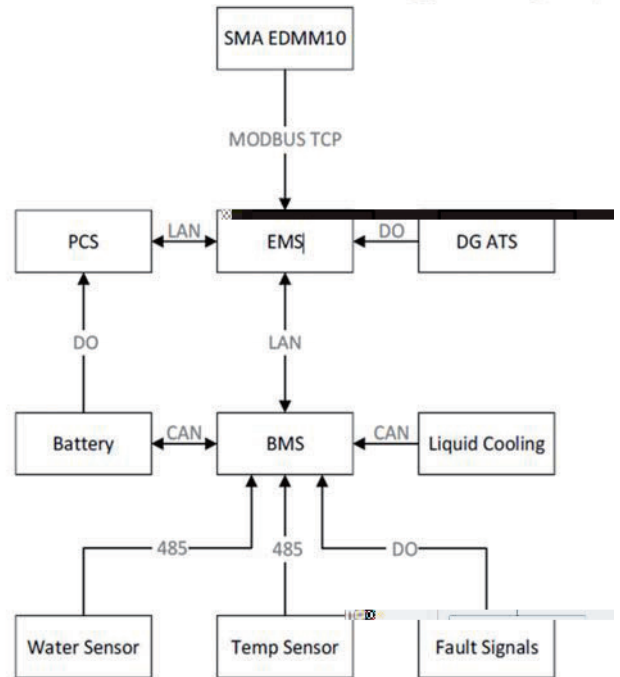


Fig. 5: EMS Communication Topology

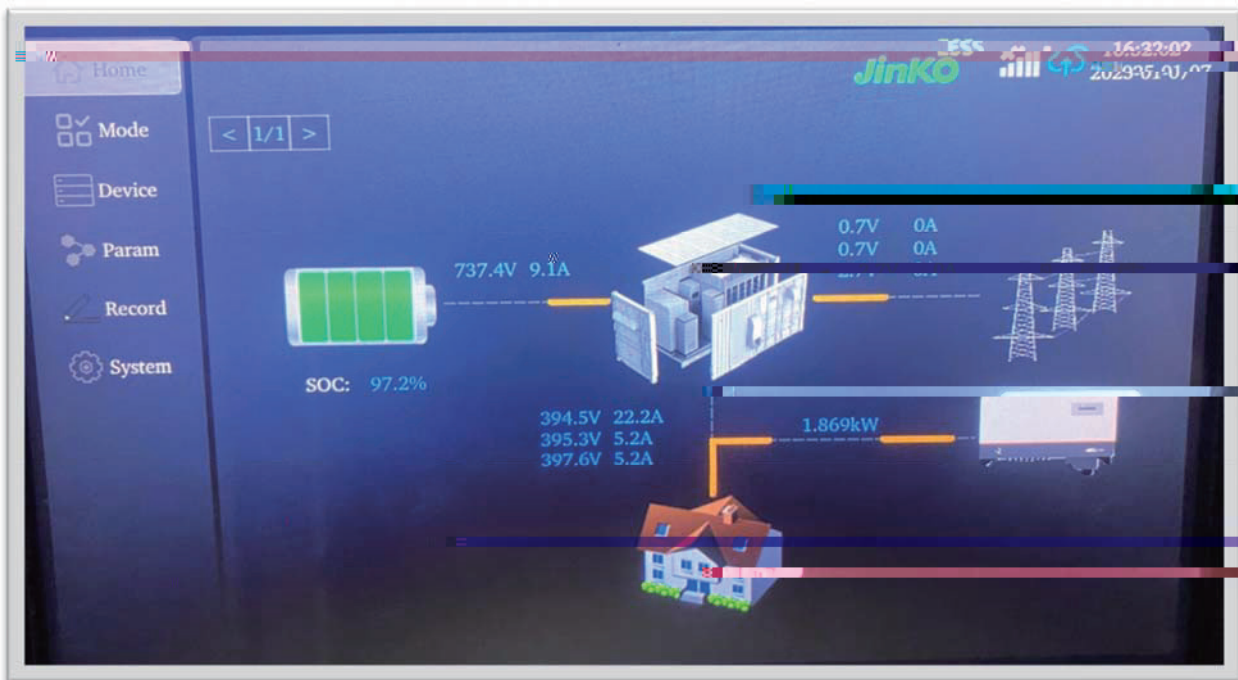


Fig. 5: EMS HMI Display

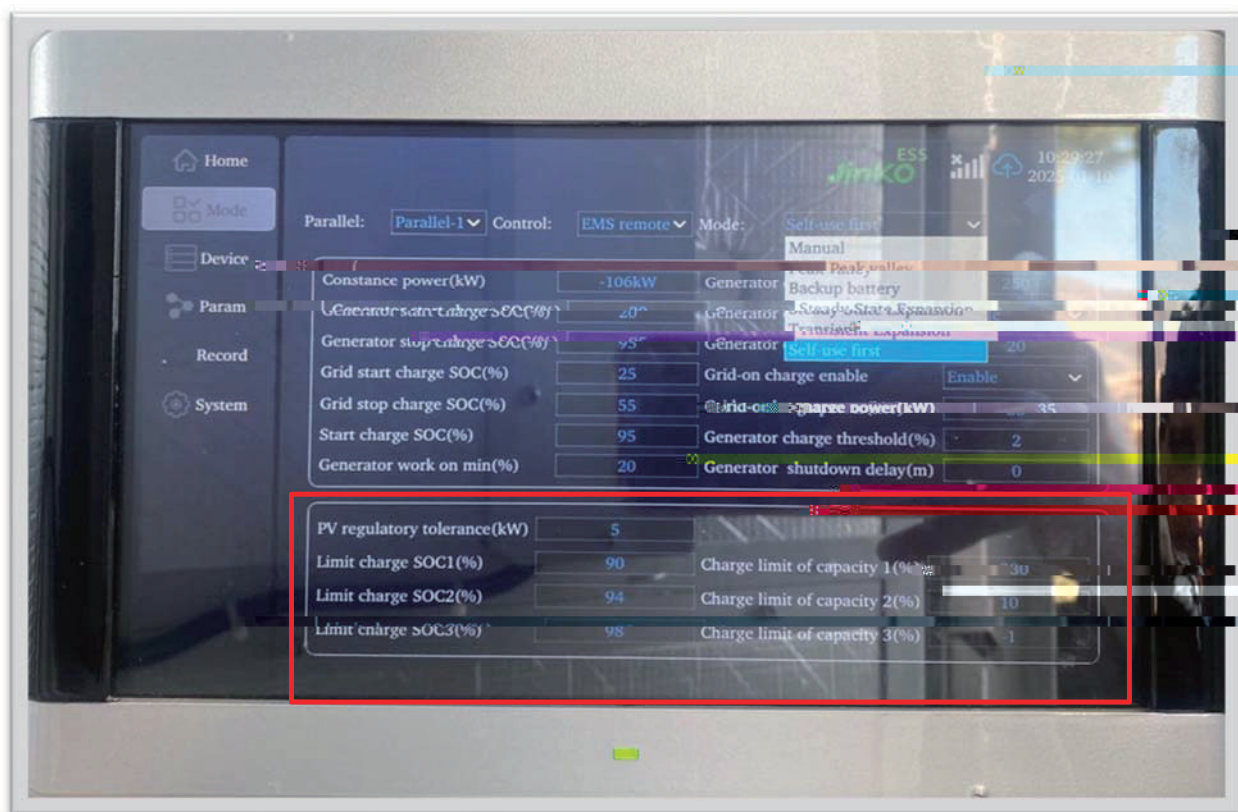


Fig. 6: EMS PV Inverters Power Limit Thresholds.

UEW"Oqpkvqtkp i"

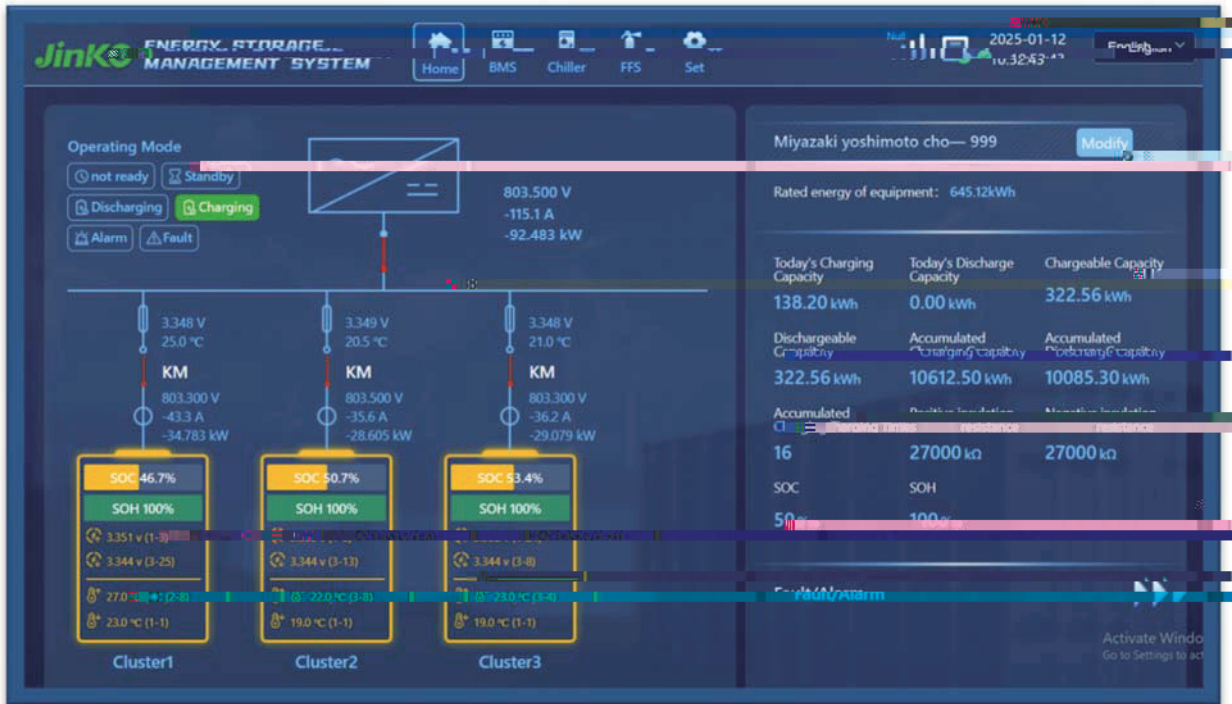


Fig. 6: SCU Cloud Monitoring Display

GOU"Oqpkvqtkp i"



Fig. 7: System IoT Router

POD<

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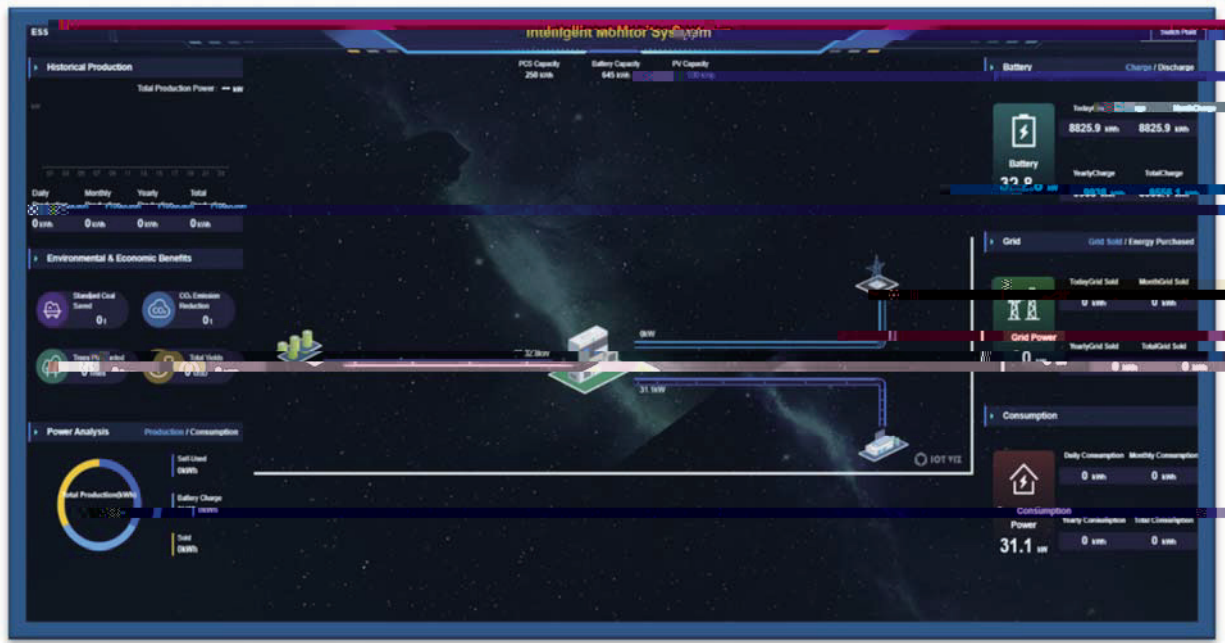


Fig. 8: EMS Cloud Monitoring Platform

42 ' ÖUQEÖ;2"

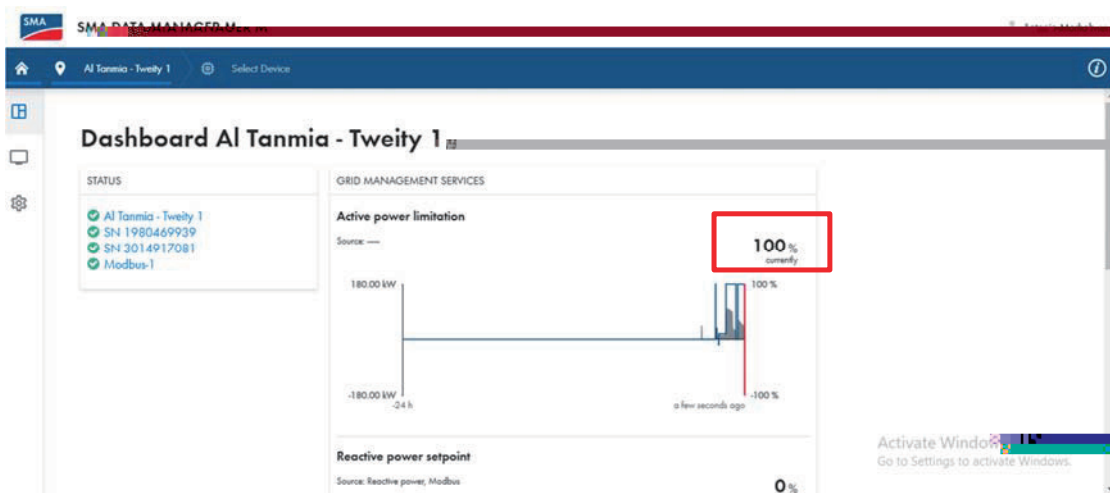


Fig. 9: SMA Monitoring platform showing 100% setpoint received from EMS

;2 ' ÖUQEÖ;7"

"9"84 "

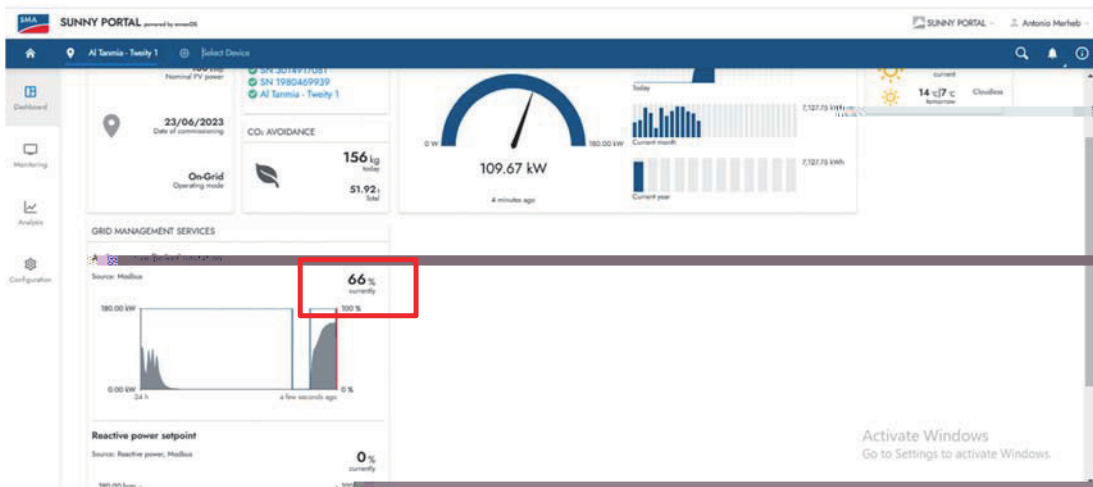


Fig. 10: SMA Monitoring platform showing 66% setpoint received from EMS

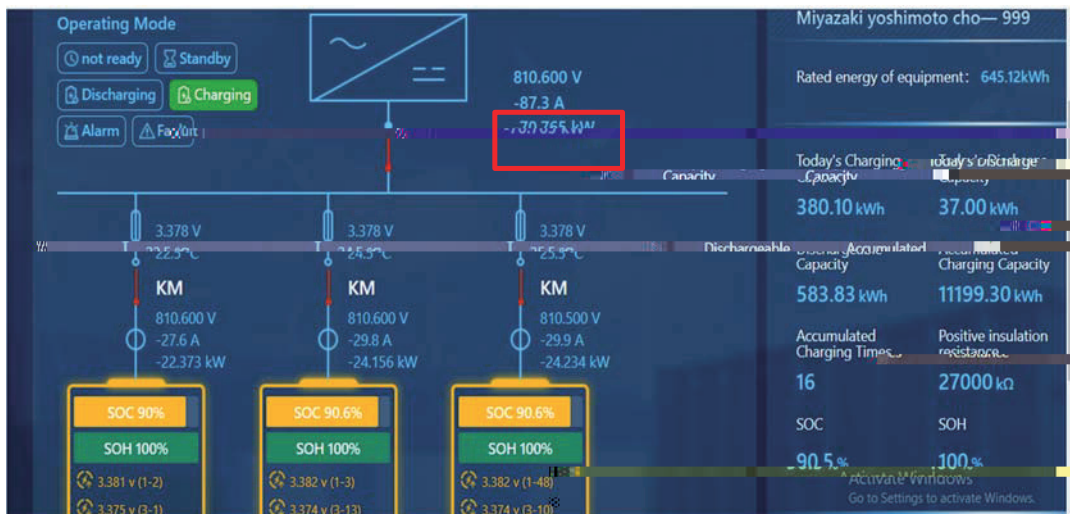


Fig. 11: SCU Monitoring showing charging power limit at 90% SOC

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;; ' ÖUQE"

"9"53 ' "

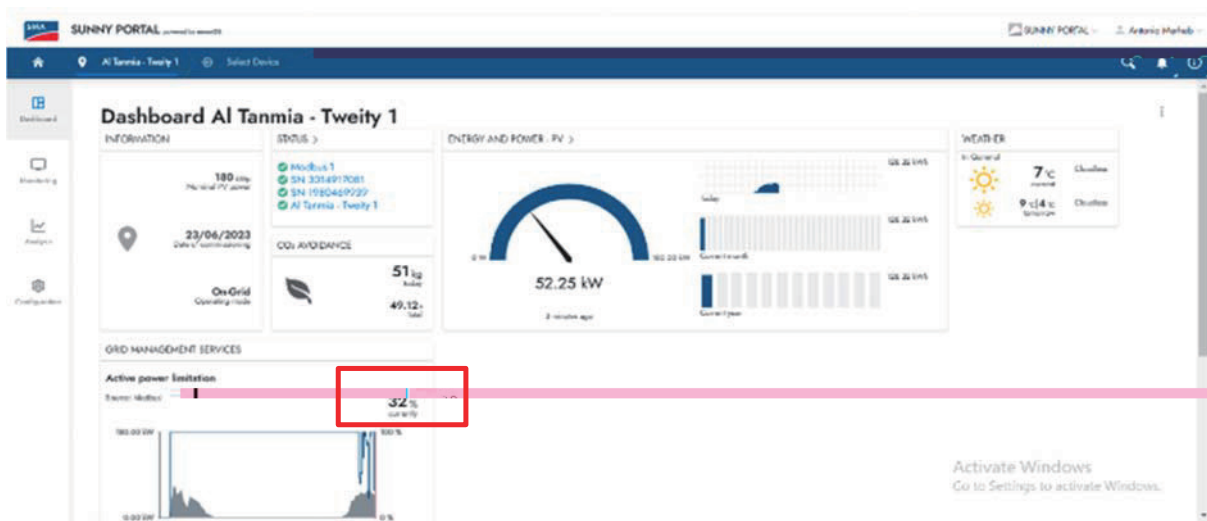


Fig. 12: SMA Monitoring platform showing 32% setpoint received from EMS

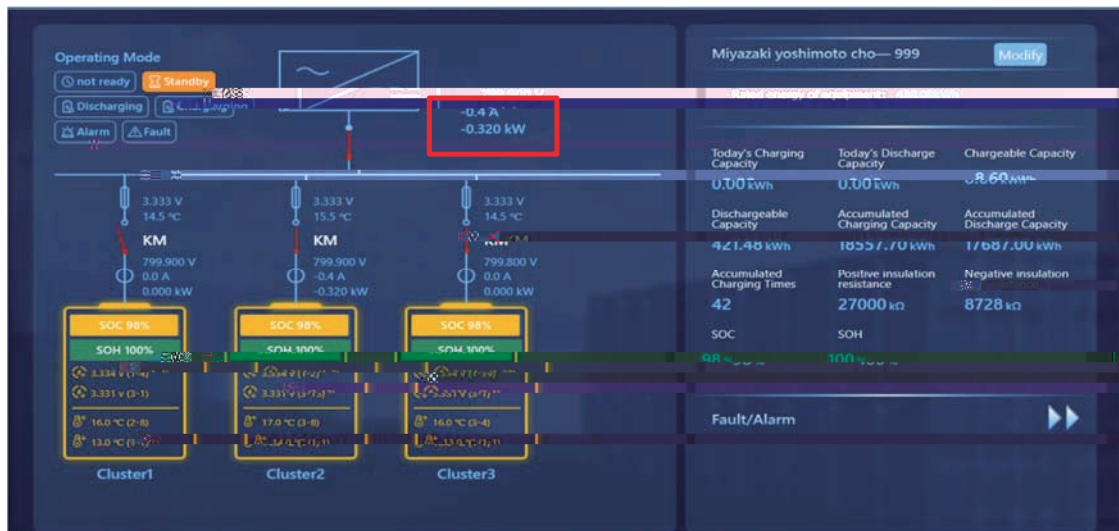


Fig. 14: SCU Monitoring showing charging power limit at 98% SOC

