

# Main Substation Unit

(MSSU)

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The Main Substation Unit (MSSU) is installed at the Main Substation and is the heart of the Solar Plant Subsystem. It includes the necessary processing power that allows software to collect all signals from a solar plant. It also integrates necessary signal ports to connect to plant devices such as weather sensors, protection relays and meters. Multiple Peripheral Substation Units (PSSU) can optionally be used to feed the MSSU.

## FEATURES

- 2x 10/100 Base T Ethernet ports
- 2x USB Rev. 2.0 compliant full-speed host ports
- 5x Rev. 2.0 compliant full-speed RS232/422/485 serial communication interface ports
- Voltage or current analog inputs, electrically isolated
- Up to 32 dry or wet contact digital inputs with 3KHz counters, electrically isolated
- Up to 24 voltage or relay digital outputs
- Fiber Optic Patch Panel for fiber splicing, with up to 12x ST, SC, LC connector (optional)
- Industrial 8-port 10/100Mbps Ethernet switch or optical-to-Ethernet converter with six electrical ports and two optical ports for either single mode or multimode optical fiber (optional)
- Redundant Data Logger availability (optional)



Outside View



Inside View

## MAIN SUBSTATION UNIT CONTROLLER SPECIFICATIONS (MSSU)

<b>Data Logger</b>	CPU	1.75GHz operation frequency
	RAM	4GByte
	Storage	32/64GByte
	Date and time	Battery backed-up real-time clock
<b>Network Interfaces</b>	Ethernet	2-ports 10/100/1000 Mbps BaseT port
		8-port 10/100/ switch (optional)
	Serial Ports	6-port 10/100 switch with 2 optical SM or MM ports (optional)
		5-ports Rev. 2.0 compliant full-speed host ports which offers RS232/422/485 serial communication interface
		7-ports (optional)
USB	2-ports Rev. 2.0 compliant full-speed host ports	
Protocols	TCP/IP, UDP/IP, Modbus/TCP, Modbus RTU, IEC62056-21, IEC60870, DNP3.0, custom inverter protocols, other custom protocols on request	
<b>I/Os</b>	Number of digital inputs (DI)	8/16/32
	Number of digital outputs (DO)	4/8/16/24
<b>Analog Inputs</b>	Number of analog inputs (AI)	4/8/16
	Input range	-10..10V, -1..1V, 0..20mA, 4..20mA
	Sampling rate	Max 75Hz
	Resolution	16 bit
	Isolation	3KV
<b>Digital Inputs</b>	Mode	Dry or Wet contact
	Counter frequency	Max 50Hz
	Wet contact high level	4..30V
	Wet contact low level	0..1V
	Isolation	3kV

## MAIN SUBSTATION UNIT CONTROLLER SPECIFICATIONS (MSSU)

<b>Digital Outputs</b>	Relay type	2 Form A, 2 Form C
	MTBF	5*10 <sup>5</sup> operations
	Contact voltage	30VAC
	Contact current	2A
<b>Power Requirements</b>	Supply voltage	88-264VAC
	Supply frequency	50/60Hz
	Supply current	Typical 0.6A@230VAC / 0.8A@115VAC
	Consumption	40W (typical)
	Uninterrupted Power Supply	1.3/3.4/7.2/12 Amp Hour (optional)
<b>Mechanical</b>	Enclosure	IP65/NEMA4 steal or IP66 GRP (Glass Reinforced Polyester) electrical panel
	Dimensions (HxWxD)	850mm x 650mm x 300mm (33.5x25.5x11.8in) (Excluding cables and cable glands)
	Mounting	Wall mounted
	Weight	20 Kg / 44 lbs
<b>Environment</b>	Operating temperature	-10 to 60oC (14 to 140oF)
	Relative humidity	10% to 95% non-condensing
	Storage temperature	-40 to 85oC (-40 to 185oF)
	Certification	CE, UL(as applicable)
	EMC	EN55022 Class A, FCC Class A
	Pollution degree	2
	Altitude	Operating available up to 3000m (9842 feet), higher altitude support available on demand
	Cooling	Passive Fanless
	Usage	Indoors/Outdoors

# ORDERING INFORMATION

## PART NUMBER

MSSU- **P** - **B** - **12** - **AD** - **0** - **5** - **2** - **EO**

### Enclosure

P: polyester NEMA4X IP66  
S: Steel NEMA4 IP65

### UPS with Battery

A: 1.3Ah  
B: 3.4Ah  
C: 7.2Ah  
D: 12Ah  
Empty: no UPS

### Fiber Optic Patch Panel

06: Number of Ports 06  
12: Number of Ports 12

### Remote I/O Configuration

A: number of analog inputs  
D: number of digital inputs

### Number of relay outputs

### Number of RS-485 ports

### Number of SPDs for RS-485

### Ethernet/Optical switch

E: Number of Ethernet ports  
O: Number of Optical ports  
Empty: no switch