Certificate No.
FS808004

WEATHER FORECAST & WEB SERVICE TO SB & GSO

MMF gateway and solar data integration

Weather acquisition. Data processing. Utility exchange.

LSS solution datasheet | Configured to approved interfaces



ENGINEERED & INTEGRATED BY SAE MALAYSIA
Weather station and solar PV array | Supplied presentation visual

Rev 3.2 | 07 November 2026 | Datasheet draft

One gateway. Weather to SB and GSO.

SAE integrates weather measurements and approved forecast outputs into an engineered data path for Single Buyer and GSO interfaces.

Acquire site data, validate and time-align values, then map the agreed data set to each utility service.

Weather measurements

Collect irradiance, ambient and PV-module temperature, wind and other approved meteorological points.

Forecast-data integration

Integrate approved PV forecasts optimised for Malaysian climate. Validate correlation against actual generation.

Forecast JSON contract

ForecastResponse / PlantName / ForecastCategory / ForecastData StartTime / EndTime / ForecastValue / Unit
Numeric MW; full horizon.

HTTPS REST service

JSON over HTTPS. Plant mnemonic: four lowercase letters in URL. Optional API key: apiKey query or X-API-Key header.

Engineering confirmation

GSO contract: REST Rev5, pp. 2, 6–7. Time format yyyy-mm-ddThh:mm:ss; timezone agreed in ICD. SB payload and endpoint require its separate approved specification.

Forecasts that support utility planning.

SAE integrates the approved forecast source and publishes complete 15-minute MW series to GSO through HTTPS REST JSON.

ROLLING | /forecast/rolling

24-hour horizon: 96 points. Refresh every 30 minutes.
Next 15-minute forecast aligned with the SCADA value.

DAY-AHEAD | /forecast/dayahead

Rolling five-day horizon: 480 points. Update by 10:00 a.m. on the previous day; cater for weekends and public holidays.

WEEK-AHEAD | /forecast/weekahead

Nine-day horizon: 864 points. Update every Wednesday before 12:30 p.m.

FOUR-MONTH | /forecast/fourmonthsahead

Complete four-month horizon. Update by the 25th monthly.
Also provide four monthly split endpoints, suffixes 1, 2, 3, 4.

Monthly splits represent each of the next four months. Point counts use actual calendar days × 96; 11,520 in Rev5 is a 120-day example.

Source: GSO Web Service Requirement REST Rev5, pp. 3–4, 7, 9–10. Base URL: https://{host}/{mnem}. Forecast data must cover the full requested horizon.

12 weather parameters. One MMF response.

PARAMETER (EXACT API KEY)	UNIT
HorIrradiance	W/m²
IncIrradiance	W/m²
TotRadiation	Wh/m²
AmbientTemp	°C
WindSpeed	m/s
WindDir	° (0–359)
WindDirSD	°
Humidity	%
Precipitation	mm/h
AirPressure	hPa
AtmPressure	atm
PVTemperature	°C

LATEST DATA | /{mnem}/live/mmf

Update at least every 5 minutes and match agreed SCADA cadence/units. Return all 12 parameters across MMF1–MMF5 in one JSON response (60 values).

STRUCTURE & REQUIRED CALCULATIONS

MMFResponse / PlantName / MMFData; each record: Parameter / Time / Unit / MMF1…MMF5. WindDirSD: last 5 hours. TotRadiation: daily accumulation from 00:00 per agreed Rev5 calculation. AirPressure: kPa × 10 → hPa. Source: GSO REST Rev5, pp. 5, 8–9.

Proposed hardware. Core and network.

Drawing-confirmed quantity: 1 each. Proposed for one gateway assembly.

TAG / QTY	MAKE / MODEL	SPECIFICATION / ROLE
-DISP 1	SAE-IT FW-5 GATE	GATE Rev2, no I/O; e335. 2 RJ45, 1 RS-232, 2 RS-485 (terminal sheet).
-EDGE 1	Advantech ARK-1222	DIN-rail industrial PC. 12–28 VDC.
-MDM 1	Teltonika RUT901	Industrial modem router with NTP server. 9–30 VDC.
-F16ESM 1	Teltonika TSW212	Managed Ethernet switch: 8 RJ45 + 2 SFP. 7–57 VDC.
-FW 1	Teltonika RUTM08	Router with firewall capability. 9–50 VDC.

Source: weather forecast.pdf p. 20, U04 sheet 4-5-1; port/supply data pp. 14–15, S03 sheets 3-8-1/2. Drawing Rev 0, 01 August 2025.

Proposed hardware. Power and assembly.

Three power items are listed at quantity 1 each. Mechanical assembly is proposed separately.

TAG / QTY	MAKE / MODEL	SPECIFICATION / ROLE
-BA 1	Weidmüller PRO ECO 240W 10A 24V	24 VDC output; drawing states 110 VDC input. Verify input/order code before procurement.
-F72/1 1	CHINT NB1-63H	DC MCB, 10 A, 2 poles. Type C on terminal sheet.
-SA 1	Micromate Industries SP110-20KA/2	Surge arrestor: Type D, 110 V, 20 kA. Schematic tag: -SA1.
U-bracket 1 proposed	KP LOO 4U rack bracket	483 mm × 150 mm; 2 mm mild steel, matte-white epoxy powder coating. Quantity not stated.

DESIGN CONFIRMATION
Eight electronic items: quantity 1 each. Bracket quantity is proposed. Wiring, terminals, earthing and sensors require confirmation. Drawings: Seri Iskandar; database: Lumut Maritime. Reference configuration only.
Source: drawing pp. 20–22, U04 sheets 4-5-1 to 4-7-1.

Proposed signals. Five MMF stations.

19 rows per station × 5 stations = 95 database rows. All show CASDU 120. The database specifies an IEC 60870-5-104 Ethernet interface.

NO. SIGNAL / DISPLAY LABEL	UNIT
01 Active power production	kW
02 Day-ahead forecast	MW
03 Nine-day-ahead forecast (WeekAhead)	MW
04 Four-month-ahead forecast	MW
05 Horizontal irradiance / DNI (source label)	W/m²
06 Module-plane irradiance	W/m²
07 Total global irradiation	Wh/m²
08 Ambient air temperature	°C
09 Wind speed	m/s
10 Wind direction	°
11 Wind-direction standard deviation	°
12 Relative humidity	%
13 Precipitation	mm/h
14 Barometric pressure	kPa
15 Atmospheric pressure	atm
16 Average PV-module temperature	°C
17 GHI, additional database row	W/m²
18 POA, additional database row	W/m²
19 TGI, additional database row	Wh/m²

Mapping confirmation

95 database rows comprise 20 generation/forecast rows, 60 required MMF values and 15 additional irradiance rows. Retain raw tags (pp. 8–9); map to exact REST keys (p. 4). Convert pressure kPa → hPa × 10. Confirm GHI/DNI labels and duplicate aliases. TI, IOA and Modbus fields are blank.

Source tag names. MMF stations 1 and 2.

Database signalist GSO.xlsx, DL01. Worksheet row references are shown below. Each number links to the signal and unit on page 7.

MMF STATION 1 DL01 rows 20–38

01 ActivePowerProduction
02 DayAhead
03 WeekAhead
04 FourMonthsAhead
05 Horrinzontal_orradiation
06 Incline Irradiation
07 Total Radiation
08 Ambient_Temperarute
09 Wind Speed
10 Wind_Direction
11 WindDirectionStdDev_WDSW
12 Relactive Humidity
13 Precipitation
14 AirPressure
15 AtmPressure
16 PVTemperature
17 Global Horizontol Irradiation
18 Incline Irradiation
19 Total Global Irradiation

MMF STATION 2 DL01 rows 40–58

01 ActivePowerProduction2
02 DayAhead
03 WeekAhead
04 FourMonthsAhead
05 Horrinzontalirradiation2
06 InclineIrradiation2
07 TotalRadiation2
08 AmbientTemperarute2
09 WindSpeed2
10 WindDirection2
11 WindDirectionStdDev2
12 RelactiveHumidity2
13 Precipitation2
14 AirPressure2
15 AtmPressure2
16 PVTemperature2
17 Global_Horizontol_Irradiation_GHI
18 Incline Irradiation (POA)
19 Total Global Irradiation (TGI)

Raw names retained

Spellings, underscores, spaces and suffixes follow the source. “Nine Day Ahead” uses WeekAhead. Approve service field names and station grouping before implementation.

Source tag names. MMF stations 3 to 5.

57 additional rows complete the 95-row source list. Numbering links to the signal and unit schedule on page 7.

MMF STATION 3 DL01 60–78

01 ActivePowerProduction3
02 DayAhead
03 WeekAhead
04 FourMonthsAhead
05 Horrinzontalirradiation3
06 InclineIrradiation3
07 TotalRadiation3
08 AmbientTemperarute3
09 WindSpeed3
10 WindDirection3
11 WindDirectionStdDev3
12 RelactiveHumidity3
13 Precipitation3
14 AirPressure3
15 AtmPressure3
16 PVTemperature3
17 Global_Horizontol_Irradiation_GHI
18 Incline Irradiation (POA)
19 Total Global Irradiation (TGI)

MMF STATION 4 DL01 80–98

01 ActivePowerProduction4
02 DayAhead
03 WeekAhead
04 FourMonthsAhead
05 Horrinzontalirradiation4
06 InclineIrradiation4
07 TotalRadiation4
08 AmbientTemperarute4
09 WindSpeed4
10 WindDirection4
11 WindDirectionStdDev4
12 RelactiveHumidity4
13 Precipitation4
14 AirPressure4
15 AtmPressure4
16 PVTemperature4
17 Global_Horizontol_Irradiation_GHI
18 Incline Irradiation (POA)
19 Total Global Irradiation (TGI)

MMF STATION 5 DL01 100–118

01 ActivePowerProduction5
02 DayAhead
03 WeekAhead
04 FourMonthsAhead
05 Horrinzontalirradiation5
06 InclineIrradiation5
07 TotalRadiation5
08 AmbientTemperarute5
09 WindSpeed5
10 WindDirection5
11 WindDirectionStdDev5
12 RelactiveHumidity5
13 Precipitation5
14 AirPressure5
15 AtmPressure5
16 PVTemperature5
17 Global Horizontol Irradiation
18 Incline Irradiation
19 Total Global Irradiation

Source and commissioning checks
Workbook cover: Lumut Maritime, Rev 3, 13 November 2025. Drawing: Seri Iskandar, Rev 0. Reconcile project identity, mapping and time/data quality. Complete fail/recovery tests and FAT/SAT, then hand over ICD, as-builts, O&M records and backups.

Certificate No.
FS808004

Weather and forecast data. Connected to SB and GSO.

Define your interface and delivery scope.

Share your weather-station model, point list, forecast source and approved SB/GSO interface documents to configure the solution.

Ts. Jamal Abdul Nasser bin Zakaria

CEO | SAE Malaysia Sdn. Bhd.

jamal@sae-malaysia.com | +6016 234 8197

Wiradani Md Ali
Business Development Manager
wiradani@sae-malaysia.com | +60 13-600 4422

A-G-4 & A-1-4, Jalan Seroja 1/6
Sungai Buloh Country Resort, 47000 Sungai Buloh
Selangor, Malaysia
Office: +603 6038 7080 | info@sae-malaysia.com
www.sae-malaysia.com | support@sae-malaysia.com
Registration No. 200501006853 (683900-A)

Grow Together is a registered trademark of SAE Malaysia Sdn. Bhd.