

EMS

ELECTRONIC MONITORING SOLUTIONZ LTD

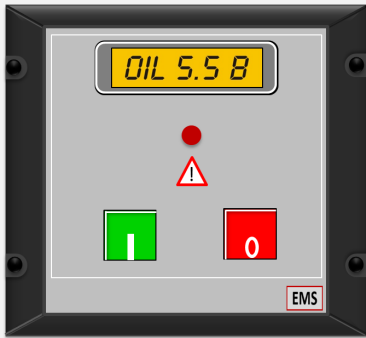
EMS

Control Systems

PRODUCT CATALOG

We offer Solutions for your Generators

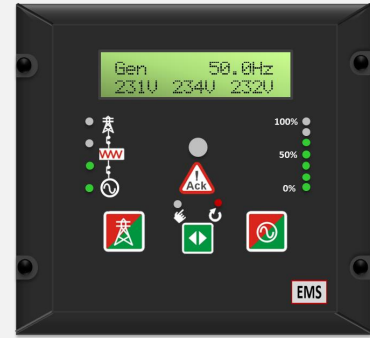




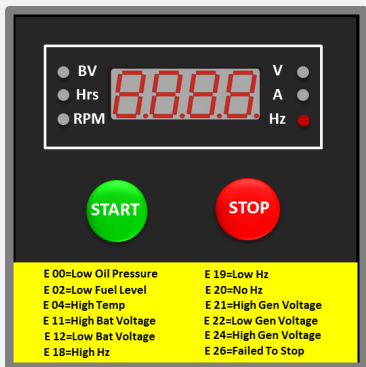
EMS28



EMS39



EMS314



EMS324



EMS326



EMS336



EMS339



EMS344



EMS353



EMS361



EMS362



EMS363



EMS371



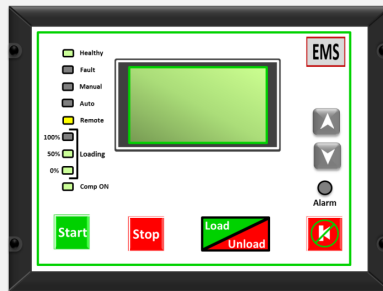
EMS372



EMS375



EMS827



EMS828



EMS840



EMS854



EMS855



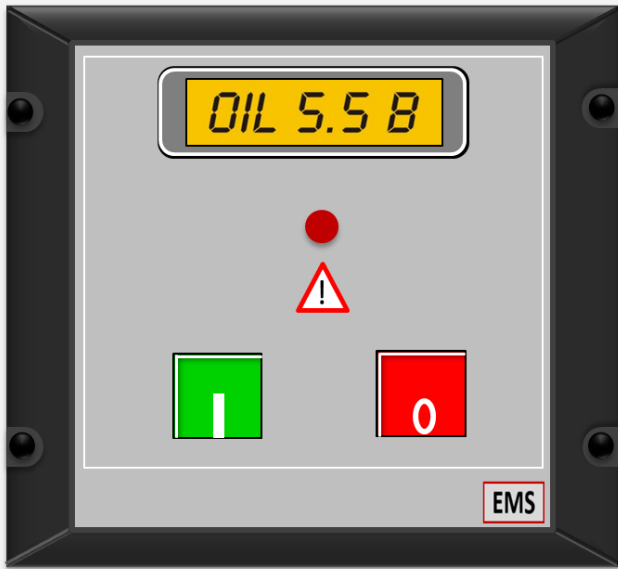
EMS860

*** AMF = Automatic Mains Failure*****CT = Current Transformer***** ECU = Engine Controller Unit***** GCU = Generator Controller Unit**

EMS NO	SIZE	MANUAL / AMF	CTS / SHUNT	SINGLE PHASE / MULTI PHASE	ECU / GCU
EMS28	100 x 120 x 22mm	Manual	No	No	ECU
EMS39	100 x 120 x 22mm	Manual	No	No	GCU
EMS98	180 x 126 x 28mm	AMF	Shunt	Multi-Phase	GCU
EMS324	96 x 96 x 28mm	Manual	CT	Single Phase	GCU
EMS326	100 x 120 x 60mm	Manual	CTs	Multi-Phase	GCU
EMS336	100 x 120 x 60mm	Manual	No	Multi-Phase	ECU
EMS339	100 x 120 x 60mm	Manual	Shunt	Multi-Phase	Fuel Optimiser
EMS344	100 x 120 x 60mm	-	CTs	Multi-Phase	LCC
EMS353	100 x 120 x 60mm	Manual	CTs	Multi-Phase	GCU
EMS361	100 x 120 x 60mm	Manual	CT	Single Phase	GCU
EMS362	100 x 120 x 60mm	Manual	Shunt	Multi-Phase	GCU
EMS363	100 x 120 x 60mm	Manual	Shunt	Single Phase	GCU
EMS371	100 x 120 x 60mm	Manual	CT	Single Phase	GCU
EMS372	100 x 120 x 60mm	AMF	Shunt	Multi-Phase	GCU
EMS375	100 x 120 x 32mm	AMF/ATS	CTs	Multi-Phase	GCU
EMS827	180 x 126 x 51mm	AMF	CTs	Multi-Phase	GCU
EMS828	180 x 126 x 51mm	No	No	No	CCU
EMS840	180 x 126 x 51mm	Manual	No	No	GCU
EMS854	180 x 126 x 51mm	AMF	Shunt	Multi-Phase	GCU
EMS855	180 x 126 x 51mm	AMF	Shunt	Multi-Phase	GCU
EMS860	180 x 126 x 51mm	Manual	Shunt	Multi-Phase	GCU

EMS NO	SIZE	TYPE	FUNCTION
EMS08	-	Resistive Sensor	Temperature sensor
EMS12	41 x 86 x 40mm	Communication	Logic to RS232
EMS18	41 x 86 x 40mm	Communication	Logic to RS485
EMS20	41 x 86 x 40mm	Communication	Logic to Optical
EMS23	41 x 86 x 40mm	Communication	Logic to Ethernet
EMS24	41 x 86 x 40mm	Communication	Logic to USB
EMS30	102 x 86 x 50mm	Communication	SNMP Adapter
EMS72	66.6 x 1.6mm	Capacitive Sensor	Fuel Level Measurement
EMS314	120 x 100 x 32mm	Controller	PM-AMF-ATS
EMS315	66 x 72 x 50mm	Relay Module	Potential Free Outputs / 2 (For Crank & Fuel Solenoids)
EMS316	41 x 86 x 40mm	Multistart	Fuel Optimizer
EMS930	111 x 86 x 30mm	Input / Output Expansion Module	Isolated Inputs / Outputs
EMS931	111 x 86 x 30mm	Output Expansion Module	Potential Free Outputs / 8

EMS28 ENGINE CONTROLLER UNIT



Key Features

- Operates with energise to run or energise to stop fuel solenoids
- Simple switch closure initiates the starting sequence
- Manual starting and stopping available from front panel
- Speed detection directly from Generator, MPU or alternator output
- Immediate alarm sensing and display
- Display starting and running sequence on display
- External shutdowns for Emergency stop or pump protection.

PRODUCT SELECTION CHART

Size	Manual / AMF	ECU / GCU
100 x 120 x 22mm	Manual	ECU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	Engine Temperature Range	120°C, 150°C, 200°C
IP rating	IP66 front, IP55 rear	Oil Pressure Range	500, 750, 1000 KPa
Supply Voltage	6 V to 32V DC Nominal 12V or 24V Automotive	Input Reference	0V Common
Speed Input Sensitivity	0.5-350 Volts	Battery Volts Measurement	6 to 32 Volts
Speed Sensing Options	50/60Hz AC, MPU, Magneto or alternator	Supply Current	Standby 20ma @27.2 Volts, 20ma @13.6 Volts Running 20ma @27.2 Volts, 20ma @13.6 Volts
Input Frequency Range	10Hz – 5KHz	Engine Hours	0 – 99999.9 Hours
Speed Display Options	RPM/Hz	Terminations	Screw less connection on rear
Displayed Frequency Range	0 - 9999 RPM 0 – 99.9 Hz	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu

EMS39 GENERATOR CONTROLLER UNIT



Key Features

- An integrated Genset controller
- LCD display of engine temperature, oil pressure, battery volts, speed and Engine Run hours, provides manual start and stop buttons
- Controls excitation of the battery charging alternator.
- Scheduler to periodically start the genset to keep site batteries charged.
- Support outputs to tell the BMS system of the alarm that caused the genset to be shut down.

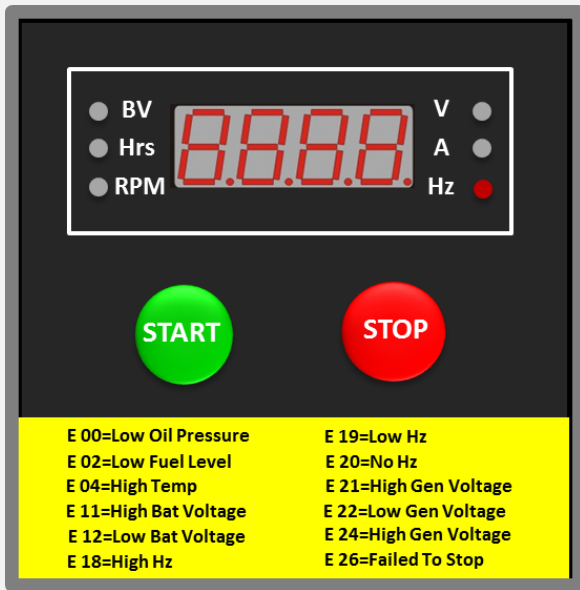
PRODUCT SELECTION CHART

Size	Manual / AMF	ECU / GCU
100 x 120 x 22mm	Manual	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	Engine Temperature Range	120°C, 150°C, 200°C
IP rating	IP66 front, IP55 rear	Oil Pressure Range	500, 750, 1000 KPa
Supply Voltage	6 V to 32V DC Nominal 12V or 24V Automotive	Input Reference	0V Common
Speed Input Sensitivity	100-350 Volts	Battery Volts Measurement	6 to 32 Volts
Speed Sensing Options	50/60Hz AC	Supply Current	Standby 20ma @27.2 Volts, 20ma @13.6 Volts Running 20ma @27.2 Volts, 20ma @13.6 Volts
Input Frequency Range	10Hz – 80Hz	Engine Hours	0 – 99999.9 Hours
Speed Display Options	RPM/Hz	Terminations	Screw less connection on rear
Displayed Frequency Range	0 – 99.9 Hz 0 – 9999 RPMs	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu

EMS324 SINGLE PHASE MANUAL GENSET



Key Features

- The unit incorporates key switch initiated start and stop sequencing.
- Monitors engine and alternator operating parameters
- LED display to show the operating parameters of the genset
- Immediate alarm sensing and display
- Automatic shutdown of the genset in event of damaging conditions.
- The unit monitors oil pressure, fuel level and engine temperature to provide protection.

PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
96 x 96 mm (Bezel) x 28 mm	Manual	CT	Single-Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Overall Dimensions	96 x 96 mm (Bezel) x 28 mm behind bezel	CT current range	0 - 60A
IP Rating	IP51 front, IP20 rear	Overall Accuracy	Class 1
Supply Voltage	8 V to 16V DC	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 36VDC max
Operating Temperature	-20 to +70°C	Input Reference	0V Common
Storage Temperature	-20 to +70°C	Displayed Speed Range	0 - 1500 RPM
Relative Humidity	95% non-condensing	Engine Hours	0 - 99999.9 Hours
Supply Current	Standby < 7mA Running = 50mA	Engine Sensors Type	Switch: Close to common on fault
AC Voltage Range	L-N Max 300VRMS	Terminations	Molex Mini Fit JNR
AC Frequency Range	40 - 70Hz	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS326 GENERATOR CONTROLLER UNIT



Key Features

- Manual and Autostart initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Immediate alarm sensing and display
- Fuel wastage reduction
- Operational cost reduction
- Stop alarm log shows last 50 stops for alarm and giving time and reason.

PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
100 x 120 x 60mm	Manual	CTs	Multi-Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	CT current range	0 – 5A + 25% Overload
IP rating	IP55 front, IP20 rear	Overall Accuracy	Class 1
Supply Voltage	8 V to 36V DC Nominal Automotive	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 32VDC max.
Operating Temperature	-20 to +70°C	Input Reference	0V Common
Storage Temperature	-20 to +70°C	Speed Range	0 – 5000 RPM
Relative Humidity	95% non-condensing	AC Frequency Range	40 – 70Hz
Supply Current	Standby < 7mA Running 50mA	Engine Hours	0 – 99999.9 Hours
Kilo Watt Hours	0 – 999999.9 KWH	Terminations	Amp DUAC / Molex Mini Fit JNR
Oil Pressure Range	500, 750, 1000 KPA	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC Windows based utility
AC Voltage Range	L-N = 350VRMS.	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS336 ENGINE CONTROLLER UNIT



Key Features

- Manual and Autostart initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Immediate alarm sensing and display
- Status display on the backlight 16 character by 2 line LCD
- Fuel wastage reduction
- Operational cost reduction
- Stop alarm logs shows last 40 stops for alarm and giving time and reason.

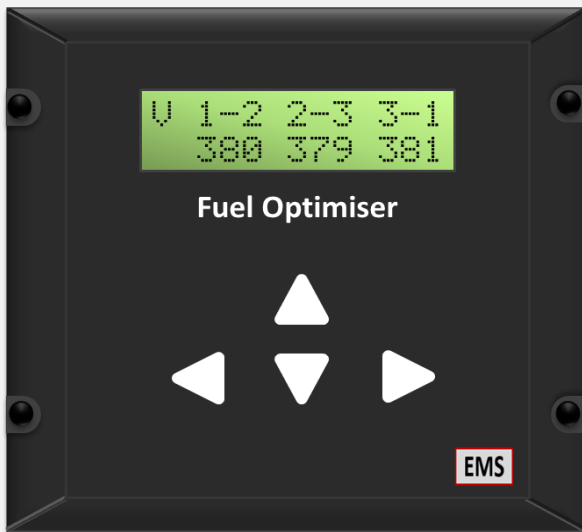
PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
100 x 120 x 60mm	Manual	---	Multi-Phase	ECU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	CT current range	0 – 5A + 25% Overload
IP rating	IP55 front, IP20 rear	Overall Accuracy	Class 1
Supply Voltage	8 V to 36V DC Nominal Automotive	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 32VDC max.
Operating Temperature	-20 to +70°C	Input Reference	0V Common
Storage Temperature	-20 to +70°C	Speed Range	0 – 5000 RPM
Relative Humidity	95% non-condensing	AC Frequency Range	40 – 70Hz
Supply Current	Standby < 7mA Running 50mA	Engine Hours	0 – 99999.9 Hours
Kilo Watt Hours	0 – 999999.9 KWH	Terminations	Amp DUAC / Molex Mini Fit JNR
Oil Pressure Range	500, 750, 1000 KPA	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC Windows based utility
AC Voltage Range	L-N = 350VRMS.	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS339 FUEL OPTIMISER



Key Features

- Fuel consumption reduction by intelligent mains and battery monitoring.
- Room Temperature monitoring
- Battery Voltage and Symmetry Monitoring and Display.
- Single and Multi phase mains monitoring and metering
- Includes communications port for remote monitoring applications
- Inbuilt data logs provide operating history.
- Stop alarm log shows last 20 stops for alarm and giving time and reason.

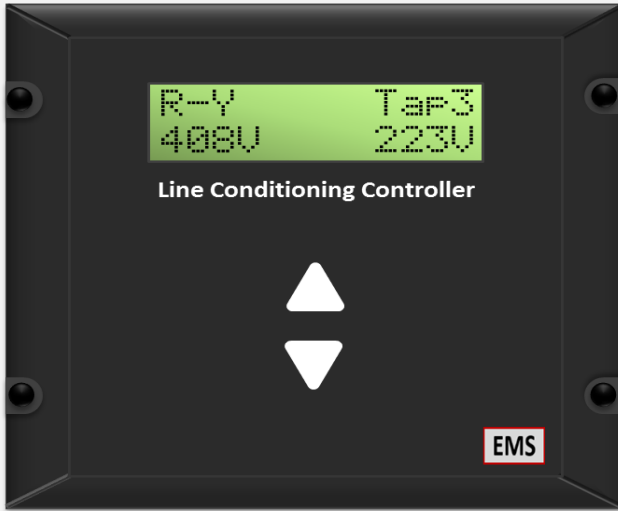
PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	Others
100 x 120 x 60mm	Manual	Shunt	Multi-Phase	Fuel Optimiser

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	155 x 117mm	Overall Accuracy	Class 1
IP rating	IP56 front, IP20 rear	Input Reference	0V Common
Supply Voltage	8 V to 36V DC Nominal 12V DC Automotive	Digital Output Rating	Open Drain Relay Coil Driver. 300mA @ 36VDC max. Short Circuit protected
Operating Temperature	-20 to +70°C	Run Hours	0 – 999999.9 Hours
Storage Temperature	-20 to +70°C	Mains Run Hours	0 – 999999.9 Hours
Relative Humidity	95% non-condensing	Battery Run Hours	0 – 999999.9 Hours
Supply Current	Standby <10mA Running 70mA	DG Run Hours	0 – 999999.9 Hours
AC Voltage Range	L-N = 300VRMS. L-E 300V	Canopy Temperature Range	EMS08 0-100°C
AC Frequency Range	40 – 70Hz	Supply Battery Volts Measurement	8 to 36 Volts
BTS Battery Voltage Measurement	10 to 65V DC	Terminations	Amp DUAC / Molex Mini Fit JNR
Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC windows based utility	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS344 LINE CONDITIONING CONTROLLER



Key Features

- Supports a transformer with up to 5 taps
- Auto select the best tap to give the correct output
- Easy configuration for all setup items
- Clear display on the LCD of all measurements
- Auto select best line to line pair based on load R-B, R-Y and Y-B.

PRODUCT SELECTION CHART

Size	CTs / Shunt	Single Phase / Multi Phase
100 x 120 x 60mm	CTs	Multi-Phase

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	CT current range	0 – 5A + 25% Overload
IP rating	IP55 front, IP20 rear	Overall Accuracy	Class 1
Supply Voltage	8 V to 36V DC Nominal Automotive	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 32VDC max.
Operating Temperature	-20 to +70°C	Input Reference	0V Common
Storage Temperature	-20 to +70°C	Terminations	Amp DUAC / Molex Mini Fit JNR
Relative Humidity	95% non-condensing	AC Frequency Range	40 – 70Hz
Supply Current	Standby < 7mA Running 50mA	AC Voltage Range	L-N = 350VRMS.
Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC Windows based utility

EMS353 GENERATOR CONTROLLER UNIT



Key Features

- Manual and Autostart initiated start and stop sequencing.
- Status display on the backlight graphics LCD
- LEDs indicate various alarms & warnings
- Automatic shutdown of the genset in event of damaging conditions.
- The unit also monitors coolant level, fuel level, canopy temperature and generator loading to provide even more comprehensive protection.
- Reduces system cost

TECHNICAL SPECIFICATIONS

Overall Dimensions	100 x 120 x 60mm	Oil Pressure Sensor Type	Switch: Close on fault Resistive 10 to 180 Ohms
Mounting Hole	92 x 92mm	Oil Pressure Range	500, 750, 1000 KPa
IP rating	IP55 front, IP20 rear	Engine Temperature Sensor Type	Switch: Close on fault Resistive (NTC)
Supply Voltage	8 V to 36V DC Nominal Automotive	Engine Temperature Range	120°C, 150°C, 200°C
Operating Temperature	-20 to +70°C	Canopy Temperature Sensor Type	Switch: Close on fault Resistive (NTC) EMS08 Sensor
Storage Temperature	-20 to +70°C	Canopy Temperature Range	EMS08 0-100 °C
Relative Humidity	95% non-condensing	Fuel Level Sensor Type	Switch: Close to fault Resistive 0 to 90 Ohms Resistive 10 to 180 Ohms Resistive 180 to 10 Ohms
Supply Current	Standby < 7mA Running 50mA	Battery Volts Measurement	6 to 40 Volts
AC Voltage Range	L-N = 350VRMS.	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC Windows based utility
AC Frequency Range	40 – 70Hz	Terminations	Amp DUAC / Molex Mini Fit JNR
CT current range	0 – 5A + 25% Overload	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260
Overall Accuracy	Class 1	Displayed Speed Range	0 – 5000 RPM
Digital Output Rating	Open Drain Relay Coil Driver. 300mA 32VDC max.	Engine Hours	0 – 99999.9 Hours
Input Reference	0V Common	Kilo Watt Hours	0 – 999999.9 KWH

EMS361 GENERATOR CONTROLLER UNIT



Key Features

- Custom designed controller for gensets
- Manual and Autostart initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Automatic shutdown of the genset in event of damaging conditions.
- Immediate alarm sensing and display
- Fuel wastage reduction
- Stop alarm log shows last 40 stops for alarm and giving time and reason.
- Operational cost reduction

PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
100 x 120 x 60mm	Manual	CTs	Single Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	CT current range	0 – 5A + 25% Overload
IP rating	IP55 front, IP20 rear	Overall Accuracy	Class 1
Supply Voltage	8 V to 36V DC Nominal Automotive	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 32VDC max.
Operating Temperature	-20 to +70°C	Input Reference	0V Common
Storage Temperature	-20 to +70°C	Speed Range	0 – 5000 RPM
Relative Humidity	95% non-condensing	AC Frequency Range	40 – 70Hz
Supply Current	Standby < 7mA Running 50mA	Engine Hours	0 – 99999.9 Hours
Kilo Watt Hours	0 – 999999.9 KWH	Terminations	Amp DUAC / Molex Mini Fit JNR
Oil Pressure Range	500, 750, 1000 KPA	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC Windows based utility
AC Voltage Range	L-N = 350VRMS.	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS362 GENERATOR CONTROLLER UNIT



Key Features

- Custom designed controller for small gensets
- Manual and Autostart initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Automatic shutdown of the genset in event of damaging conditions.
- Immediate alarm sensing and display
- Fuel wastage reduction
- Operational cost reduction
- Stop alarm log shows last 40 stops for alarm and giving time and reason.

PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
100 x 120 x 60mm	Manual	Shunt	Multi-Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	CT current range	0 – 5A + 25% Overload
IP rating	IP55 front, IP20 rear	Overall Accuracy	Class 1
Supply Voltage	8 V to 36V DC Nominal Automotive	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 32VDC max.
Operating Temperature	-20 to +70°C	Input Reference	0V Common
Storage Temperature	-20 to +70°C	Speed Range	0 – 5000 RPM
Relative Humidity	95% non-condensing	AC Frequency Range	40 – 70Hz
Supply Current	Standby < 7mA Running 50mA	Engine Hours	0 – 99999.9 Hours
Kilo Watt Hours	0 – 999999.9 KWH	Terminations	Amp DUAC / Molex Mini Fit JNR
Oil Pressure Range	500, 750, 1000 KPA	AC Voltage Range	L-N = 350VRMS.
Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC Windows based utility	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS363 GENERATOR CONTROLLER UNIT



Key Features

- Manual and Autostart initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Automatic shutdown of the genset in event of damaging conditions.
- Immediate alarm sensing and display
- Fuel wastage reduction
- Operational cost reduction

PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
100 x 120 x 60mm	Manual	Shunt	Single Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	Overall Accuracy	Class 1
IP rating	IP55 front, IP20 rear	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 32VDC max.
Supply Voltage	8 V to 36V DC Nominal Automotive	Input Reference	0V Common
Operating Temperature	-20 to +70°C	Speed Range	0 – 5000 RPM
Storage Temperature	-20 to +70°C	AC Frequency Range	40 – 70Hz
Relative Humidity	95% non-condensing	Engine Hours	0 – 99999.9 Hours
Supply Current	Standby < 7mA Running 50mA	Terminations	Amp DUAC / Molex Mini Fit JNR
CT current range	0 – 5A + 25% Overload	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC Windows based utility
AC Voltage Range	L-N = 350VRMS.	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS371 GENERATOR CONTROLLER UNIT



Key Features

- Custom designed controller for small gensets
- Manual and Autostart initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Automatic shutdown of the genset in event of damaging conditions.
- Immediate alarm sensing and display
- Fuel wastage reduction
- Operational cost reduction
- Stop alarm log shows last 40 stops for alarm and giving time and reason.

PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
100 x 120 x 60mm	Manual	CTs	Single Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	CT current range	0 – 5A + 25% Overload
IP rating	IP55 front, IP20 rear	Overall Accuracy	Class 1
Supply Voltage	8 V to 36V DC Nominal Automotive	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 32VDC max.
Operating Temperature	-20 to +70°C	Input Reference	0V Common
Storage Temperature	-20 to +70°C	Battery Volts Measurement	6 to 40 Volts
Relative Humidity	95% non-condensing	AC Frequency Range	40 – 70Hz
Supply Current	Standby < 7mA Running 50mA	Engine Hours	0 – 99999.9 Hours
Kilo Watt Hours	0 – 999999.9 KWH	Terminations	Amp DUAC / Molex Mini Fit JNR
Oil Pressure Range	500, 750, 1000 KPA	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC Windows based utility
AC Voltage Range	L-N = 350VRMS.	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS372 AMF GENERATOR CONTROLLER UNIT



Key Features

- Custom designed controller for gensets
- Manual and Autostart with AMF initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Automatic shutdown of the genset in event of damaging conditions.
- Immediate alarm sensing and display
- Fuel wastage reduction
- Operational cost reduction
- Stop alarm log shows last 40 stops for alarm and giving time and reason.

PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
100 x 120 x 60mm	AMF	Shunt	Multi-Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	CT current range	0 – 5A + 25% Overload
IP rating	IP55 front, IP20 rear	Overall Accuracy	Class 1
Supply Voltage	8 V to 36V DC Nominal Automotive	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 32VDC max.
Operating Temperature	-20 to +70°C	Input Reference	0V Common
Storage Temperature	-20 to +70°C	Battery Volts Measurement	6 to 40 Volts
Relative Humidity	95% non-condensing	AC Frequency Range	40 – 70Hz
Supply Current	Standby < 7mA Running 50mA	Engine Hours	0 – 99999.9 Hours
Kilo Watt Hours	0 – 999999.9 KWH	Terminations	Amp DUAC / Molex Mini Fit JNR
Oil Pressure Range	500, 750, 1000 KPA	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC Windows based utility
AC Voltage Range	L-N = 350VRMS.	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS375 POWER METER WITH AMF & ATS



Key Features

- Manual and Autostart with AMF initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Automatic shutdown of the genset in event of damaging conditions.
- Immediate alarm sensing and display
- Fuel wastage reduction
- Operational cost reduction
- Stop alarm log shows last 10 stops for alarm and giving time and reason.

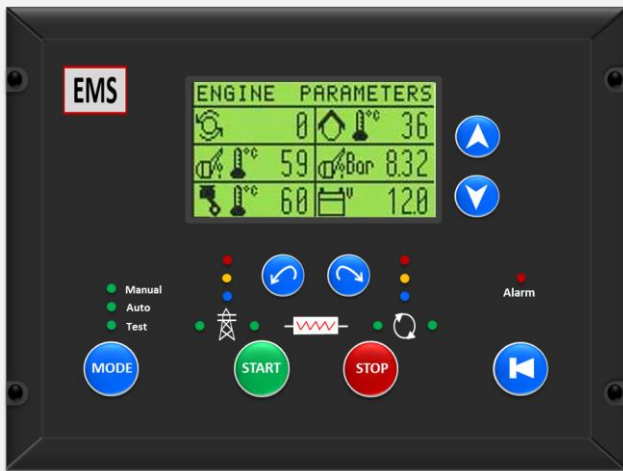
PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
100 x 120 x 32mm	AMF/ATS	CTs	Multi-Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	92 x 92mm	General protection	Reverse voltage, 120V load dump
IP rating	IP66 front, IP20 rear	Input Reference	0V DC/Common
Supply Voltage	8 V to 16V DC Nominal 12V Automotive	Generator Voltage Input Range	60-300 Volts RMS. Short duration overload capacity 350V
Operating Temperature	-10 to +70°C	Output OP1 to OP5	Relay Coil Driver Open drain current limited 32V 300mA
Storage Temperature	-20 to +70°C	Output protection	Short circuit, reverse voltage, load dump, inductive relay current
Relative Humidity	95% non-condensing @50°C	Terminations	Amp DUAC / Molex Mini Fit JNR
Supply Current	Nominal 50mA	Set-up and Adjustment	Menu buttons and LCD or by PC with cloning software.
Mains Under/Over Frequency	Under Frequency = 40Hz, Over Frequency = 70Hz	Environmental Tests	IEC68 Part2
Mains Voltage Input Range	60-300 Volts RMS. Short duration overload capacity 350V	EMC Compliance	EN50081-1, EN50081-2, IEC6100-4-3
		Electrical Safety	AS3100, AS3260
		Design	ISO 9001
		Manufacturing	ISO 9002

EMS827 AMF GENERATOR CONTROLLER UNIT



Key Features

- Manual and Autostart with AMF initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Automatic shutdown of the genset in event of damaging conditions.
- Status display on the backlight graphics LCD
- Immediate alarm sensing and display
- Fuel wastage reduction
- Operational cost reduction
- Stop alarm log shows last 50 stops for alarm and giving time and reason.

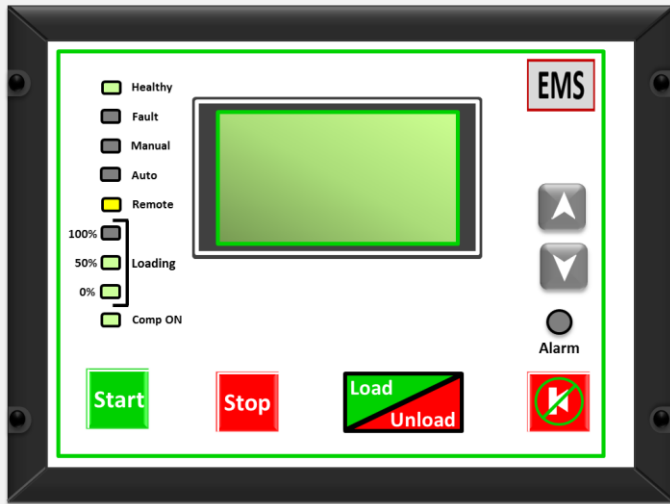
PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
180 x 126 x 51mm	AMF	CTs	Multi-Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	155 x 117mm	Overall Accuracy	Class 1
IP rating	IP56 front, IP20 rear	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 362VDC max
Supply Voltage	8 V to 36V DC Nominal Automotive	Input Reference	0V Common
Operating Temperature	-20 to +70°C	Speed Range	0 – 4000 RPM
Storage Temperature	-20 to +70°C	Engine Hours	0 – 99999.9 Hours
Relative Humidity	95% non-condensing	Terminations	Amp DUAC / Molex Mini Fit JNR
Supply Current	Standby < 10mA Running 70mA	Analog Input Rating	Current limited outputs 15mA or less as required by sensors. Short circuit and reverse voltage protected.
AC Voltage Range	L-N = 350VRMS	Kilo Watt Hours	0 – 999999.9 KWH
AC Frequency Range	40 – 70Hz	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via PC Windows based utility
CT current range	0 – 5A + 25% Overload	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS828 COMPRESSOR CONTROLLER



Key Features

- Manual and Remote Start initiated start and stop sequencing
- Monitors compressor operating parameters and provides protection
- Status display on the backlight graphics LCD
- LEDs indicate various alarms & warnings
- Automatic shutdown of the compressor in the event of damaging conditions

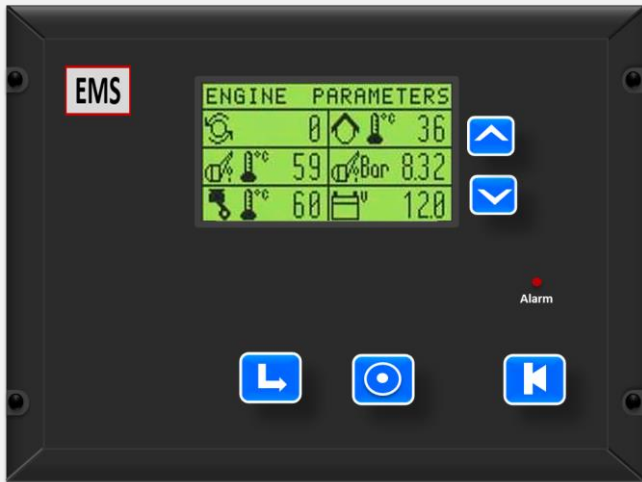
PRODUCT SELECTION CHART

Size	Manual / AMF	ECU / GCU
180 x 126 x 51mm	No	CCU

TECHNICAL SPECIFICATIONS

Overall Dimensions	180 x 126 x 51mm	Relay Outputs	3A at 230VAC 5A at 30VDC
Mounting Hole	155 x 117mm	Input Reference	0V Common
IP rating	IP55 front, IP20 rear	Pressure Sensor Type	Resistive: 4 – 20mA
Supply Voltage	220 – 260VAC 50-60Hz	Pressure Sensor Range	0 – 50.0 Bar
Operating Temperature	-20 to +70°C	Temperature Sensor Type	Resistive PT100
Storage Temperature	-20 to +70°C	Temperature Range	0 – 200°C
Relative Humidity	95% non-condensing	CT current range	0 – 5A + 25% Overload
Supply Current	Standby < 10mA Running 70mA	Overall Accuracy	Class 1
AC Voltage Range	L-N = 350VRMS.	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via a PC Windows based utility
AC Frequency Range	40 – 70Hz	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS840 REMOTE MONITORING SYSTEM



Key Features

- Data logger and communications device
- Intended to monitor on site power sources, including Mains Power conditions, Diesel Generator performance, site security, and other critical site conditions.
- Collected data is automatically transferred to a central server via GPRS connectivity
- Fitted into an enclosure so it provides a ready to use solution
- Improves fuel and service management
- Improves network reliability

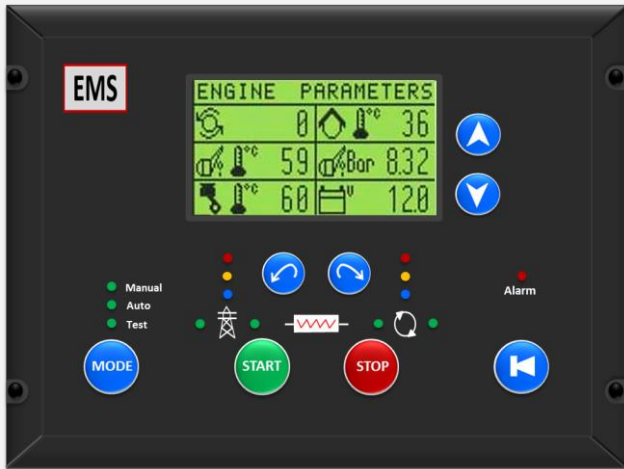
PRODUCT SELECTION CHART

Size	Manual / AMF	ECU / GCU
180 x 126 x 51mm	Manual	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	155 x 117mm	Overall Accuracy	Class 1
IP rating	IP56 front, IP20 rear	Input Reference	0V Common
Supply Voltage	8 V to 36V DC Nominal Automotive	Analog Input Rating	Current limited outputs 15mA or less as required by sensors. Short circuit and reverse voltage protected.
Operating Temperature	-20 to +70°C	Digital Input Rating	Opto-coupler isolated. Whetting current 10mA at 12V DC DC input protection for +/- 30V DC Transient Protected
Storage Temperature	-20 to +70°C	Terminations	Amp DUAC / Molex Mini Fit JNR
Relative Humidity	95% non-condensing	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via PC Windows based utility
Supply Current	Standby < 10mA Running 70mA	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS854 AMF GENERATOR CONTROLLER UNIT



Key Features

- Custom designed controller with AMF functionality
- Manual and Autostart with AMF initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Automatic shutdown of the genset in event of damaging conditions.
- Status display on the backlight graphics LCD
- Immediate alarm sensing and display
- Fuel wastage reduction
- Operational cost reduction

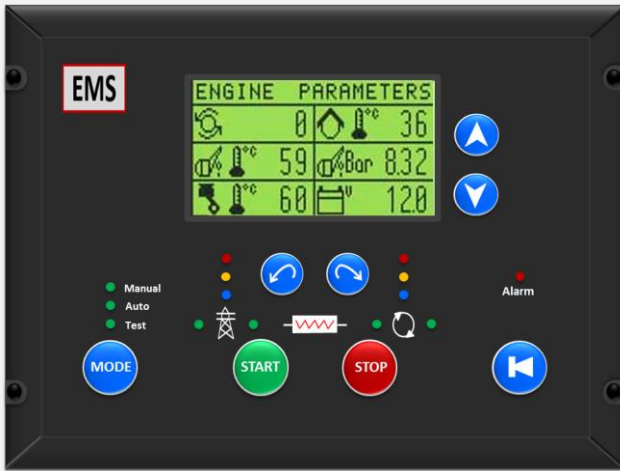
PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
180 x 126 x 51mm	AMF	Shunt	Multi-Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	155 x 117mm	CT current range	0 – 5A + 25% Overload
IP rating	IP55 front, IP20 rear	Overall Accuracy	Class 1
Supply Voltage	8 V to 36V DC Nominal Automotive	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 32VDC max
Operating Temperature	-20 to +70°C	Input Reference	0V Common
Storage Temperature	-20 to +70°C	Speed Range	0 – 5000 RPM
Relative Humidity	95% non-condensing	Engine Hours	0 – 99999.9 Hours
Supply Current	Standby < 10mA Running 70mA	Terminations	Amp DUAC / Molex Mini Fit JNR
AC Voltage Range	L-N = 350VRMS	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via PC Windows based utility
AC Frequency Range	40 – 70Hz	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS855 AMF GENERATOR CONTROLLER UNIT



Key Features

- Manual and Autostart AMF initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Automatic shutdown of the genset in event of damaging conditions.
- Status display on the backlight graphics LCD
- Immediate alarm sensing and display
- Fuel wastage reduction
- Operational cost reduction
- Stop alarm log shows last 50 stops for alarm and giving time and reason.

PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
180 x 126 x 51mm	AMF	Shunt	Multi-Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	155 x 117mm	Overall Accuracy	Class 1
IP rating	IP56 front, IP20 rear	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 362VDC max
Supply Voltage	8 V to 36V DC Nominal Automotive	Input Reference	0V Common
Operating Temperature	-20 to +70°C	Speed Range	0 – 4000 RPM
Storage Temperature	-20 to +70°C	Engine Hours	0 – 99999.9 Hours
Relative Humidity	95% non-condensing	Terminations	Amp DUAC / Molex Mini Fit JNR
Supply Current	Standby < 10mA Running 70mA	Analog Input Rating	Current limited outputs 15mA or less as required by sensors. Short circuit and reverse voltage protected.
AC Voltage Range	L-N = 350VRMS	Kilo Watt Hours	0 – 999999.9 KWH
AC Frequency Range	40 – 70Hz	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via PC Windows based utility
CT current range	0 – 5A + 25% Overload	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS860 GENERATOR CONTROLLER UNIT



Key Features

- Manual and Autostart initiated start and stop sequencing.
- Provides engine and alternator protection by monitoring their parameters.
- Automatic shutdown of the genset in event of damaging conditions.
- Status display on the backlight graphics LCD
- Immediate alarm sensing and display
- Fuel wastage reduction
- Operational cost reduction
- Stop alarm log shows last 50 stops for alarm and giving time and reason.

PRODUCT SELECTION CHART

Size	Manual / AMF	CTs / Shunt	Single Phase / Multi Phase	ECU / GCU
180 x 126 x 51mm	Manual	Shunt	Multi-Phase	GCU

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	155 x 117mm	Kilo Watt Hours	0 – 999999.9 KWH
IP rating	IP56 front, IP20 rear	CT current range	0 – 5A + 25% Overload
Supply Voltage	8 V to 36V DC Nominal Automotive	Overall Accuracy	Class 1
Operating Temperature	-20 to +70°C	Digital Output Rating	Open Drain Relay Coil Driver. 300mA 362VDC max. Short circuit protected.
Storage Temperature	-20 to +70°C	Input Reference	0V Common
Relative Humidity	95% non-condensing	Speed Range	0 – 4000 RPM
Supply Current	Standby < 10mA Running 70mA	Engine Hours	0 – 99999.9 Hours
AC Voltage Range	L-N = 350VRMS	Terminations	Amp DUAC / Molex Mini Fit JNR
AC Frequency Range	40 – 70Hz	Set-up and Adjustment	All features may be adjusted using set-up buttons and LCD menu or via PC Windows based utility
Oil Pressure Range	500, 750, 1000 KPa	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS12 LOGIC TO RS232 MODULE



Key Features

- Provides conversion from logic level to RS232.
- Outgoing communications are indicated by an LED
- Din rail mounting (72mm form)

TECHNICAL SPECIFICATIONS

Features	Specification
Overall Dimensions	41mm(W) x 86mm(H) x 40mm(D)
Mounting	Din Rail 72mm Series. 32mm rail.
IP rating	IP30
Storage Temperature	-20 to +85°C
Relative Humidity	95% non condensing
Operating Temperature	-20 to +60°C
Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS18 LOGIC TO RS485 ISOLATED MODULE



Key Features

- Provides conversion from logic level to opto isolated RS485.
- Outgoing communications are indicated by an LED
- Optically isolated for long haul applications
- 12/24V DC power supply
- Din rail mounting (72mm form)

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Size	41mm(W) x 86mm(H) x 40mm(D)	Fan Out	Maximum : 32
Mounting Hole	Din Rail 72mm Series. 32mm rail.	Bit Rate	Maximum : 57600 BPS
IP rating	IP30	Isolation	1KV between primary and secondary circuits
Storage Temperature	-20°C to 85°C	Common Mode Voltage Range	-7DC to +12 VDC(Across the network)
Relative Humidity	95% non-condensing	Short Circuit Protection	Protected
Operating Temperature	-20°C to +60°C	Supply Current	Standby : 5mA@12V DC power supply Maximum : 250mA Depending on Fan out
Supply Voltage	9.3V to 36V DC, Nominal 12V/24V Automotive	Testing	Environmental Test: IEC68 Part2 EMS Compliance: EN50081-1, EN50081-2, IEC61000-4-3 Electrical safety AS 3100 and AS 3260

EMS20 LOGIC TO OPTICAL MODULE

Key Features

- Provides conversation from logic level to fibre optic
- 12/24 DC power supply
- Outgoing communication indicates by red LED
- Immune to electrical noise
- No common ground required

TECHNICAL SPECIFICATIONS

Features	Specification
Overall Dimensions	41mm(W) x 86mm(H) x 40mm(D)
Mounting	Din Rail 72mm Series. 32mm rail.
IP rating	IP30
Storage Temperature	-20 to +85°C
Relative Humidity	95% non-condensing
Operating Temperature	-20 to +60°C
Common Connection	Point to Point (P2P)
Bit Rate	57600 BPS
Supply Current	Standby : 5mA@12V DC Maximum : 60mA@48m
Supply Voltage	9.3V to 36V DC Nominal 12V/24V Automotive
Short Circuit Protection	Protected
Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS23 LOGIC TO ETHERNET ISOLATED MODULE



Key Features

- Provides conversion from logic level to isolated Ethernet.
- Outgoing communications are indicated by an LED
- Optically isolated for long haul applications
- 12/24V DC power supply
- Din rail mounting (72mm form)

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Size	41mm(W) x 86mm(H) x 40mm(D)	Fan Out	Maximum : 32
Mounting Hole	Din Rail 72mm Series. 32mm rail.	Bit Rate	Maximum : 57600 BPS
IP rating	IP30	Isolation	1KV between primary and secondary circuits
Storage Temperature	-20°C to 85°C	Common Mode Voltage Range	-7DC to +12 VDC(Across the network)
Relative Humidity	95% non-condensing	Short Circuit Protection	Protected
Operating Temperature	-20°C to +60°C	Supply Current	Standby : 5mA@12V DC power supply Maximum : 250mA Depending on Fan out
Supply Voltage	9.3V to 36V DC, Nominal 12V/24V Automotive	Testing	Environmental Test: IEC68 Part2 EMS Compliance: EN50081-1, EN50081-2, IEC61000-4-3 Electrical safety AS 3100 and AS 3260

EMS24 LOGIC TO USB ISOLATED MODULE



Key Features

- Provides conversion from logic level to isolated USB.
- Outgoing communications are indicated by an LED
- Optically isolated for long haul applications
- 12/24V DC power supply
- Din rail mounting (72mm form)

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Size	41mm(W) x 86mm(H) x 40mm(D)	Fan Out	Maximum : 32
Mounting Hole	Din Rail 72mm Series. 32mm rail.	Bit Rate	Maximum : 57600 BPS
IP rating	IP30	Isolation	1KV between primary and secondary circuits
Storage Temperature	-20°C to 85°C	Common Mode Voltage Range	-7DC to +12 VDC(Across the network)
Relative Humidity	95% non-condensing	Short Circuit Protection	Protected
Operating Temperature	-20°C to +60°C	Supply Current	Standby : 5mA@12V DC power supply Maximum : 250mA Depending on Fan out
Supply Voltage	9.3V to 36V DC, Nominal 12V/24V Automotive	Testing	Environmental Test: IEC68 Part2 EMS Compliance: EN50081-1, EN50081-2, IEC61000-4-3 Electrical safety AS 3100 and AS 3260

EMS30 SNMP ADAPTER

Key Features

- Outgoing communications are indicated by an LED
- Optically isolated for long haul applications.
- 12/24V DC power supply.
- Din rail mounting. (72mm form)
- Provides Isolated RS485.
- Ethernet LAN accessible with TCP/IP Address.

TECHNICAL SPECIFICATIONS

Features	Specifications
Overall Dimensions	102 x 86 x 50mm
Mounting	Din Rail 72mm Series. 32mm rail.
IP rating	IP30
Storage Temperature	-20 to +85°C
Relative Humidity	95% non-condensing
Operating Temperature	-20 to +60°C
Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260
Supply Voltage	9.3 V to 36V DC, Nominal 12V/ 24V Automotive
Supply Current	Standby: 20mA@12V DC power supply Maximum: 500mA Depending on Fanout.
Bit Rate	Maximum; 57600 BPS
Isolation	1KV between primary and secondary circuits.
Common Mode Voltage Range	-7DC to +12VDC (Across the RS485 network)
Short Circuit Protection	Protected

EMS72 FUEL PROBE



Key Features

- 12V/24V DC power supply
- EMS72V1 provides both an isolated RS485 for communication and 4-20mA output

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Overall size	66.6 mm(D) x 1.6 mm (W)	Operating Temperature	-20 to +60°C
Mounting	Mechanical Assembly	Supply Current	Standby: 5mA@12V DC power supply Maximum: 250mA Depending on Fan out
IP rating	IP30	Fan Out	Maximum: 32
Storage Temperature	-20 to +85°C	Bit Rate	Maximum: 57600 BPS
Relative Humidity	95% non-condensing	Isolation	1KV between primary and secondary circuits
Supply Voltage	9.3V to 36V DC, Nominal 12V/24V Automotive	Common Mode Voltage Range	-7DC to +12VDC (Across the network)
Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260	Short Circuit Protection	Protected

EMS314 PM-AMF-ATS



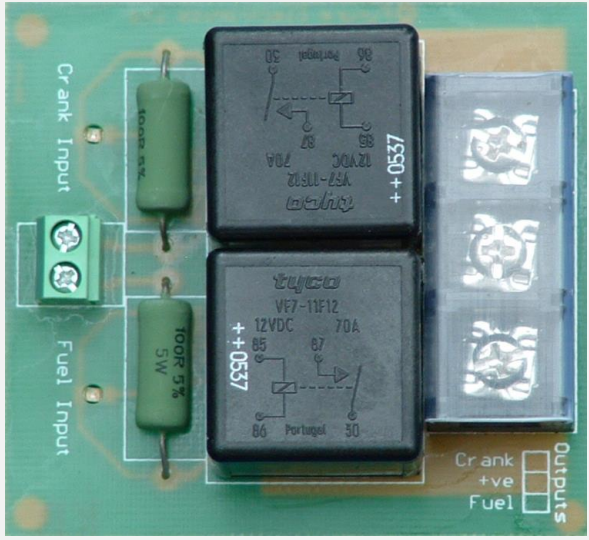
Key Features

- Integrated solution for Telecom DG sets
- Dual Power Meter for DG and Mains
- Single or three phase operation
- Integrated AMF function
- Integrated ATS controller
- Measures true RMS Volts, Current, and Frequency. Class 1 accuracy
- Includes KW and KWH meters
- Includes Loading Gauge and Overload Protection
- Uses standard 5 amp CTs for current sensing. May be set to use 1 CT for balanced loads

TECHNICAL SPECIFICATIONS

Overall Dimensions	120 x 100 x 32mm
Mounting Hole	92 x 92 mm. Mounted using 4x M4 x 6mm plastic rivets
IP rating	IP66 front, IP20 rear
Supply Voltage	6 V to 36V DC. Nominal 12V or 24V Automotive
Supply Current	Nominal 50mA
General protection	Reverse voltage, 120V load dump
Drop out protection	0 Volts for 200ms every second provided recovery exceeds 5V
Input reference	0V DC/Common
Mains Voltage Input Range	60-300 Volts RMS. Short duration overload capability 350V
Generator Voltage Input Range	60-300 Volts RMS. Short duration overload capability 350V
Mains Under/Over Frequency	Under Frequency = 40Hz, Over Frequency =70 Hz
Mains Contactor output	Relay Coil Driver Open drain current limited 32V 300mA
Genset Contactor output	Relay Coil Driver Open drain current limited 32V 300mA
Alarm/Hooter output	Relay Coil Driver Open drain current limited 32V 300mA
Run DG output	Relay Coil Driver Open drain current limited 32V 300mA
Load Shed output	Relay Coil Driver Open drain current limited 32V 300mA
Output protection	Short circuit, reverse voltage, load dump, inductive relay currents
Set-up and Adjustment	Menu buttons and LCD Messages or by Pc with cloning software
Terminations	Screw connections on rear. Recommended wire size 0.75mm
Operating Temperature	-10 to +70°C
Storage Temperature	-20 to +70°C
Relative Humidity	95% non-condensing @ 50°C
Environmental Tests.	IEC68 Part2
EMC Compliance.	EN50081-1, EN50081-2, IEC6100-4-3
Electrical Safety:	AS3100, AS3260
Design.	ISO 9001
Manufacturing.	ISO 9002

EMS315 RELAY MODULE



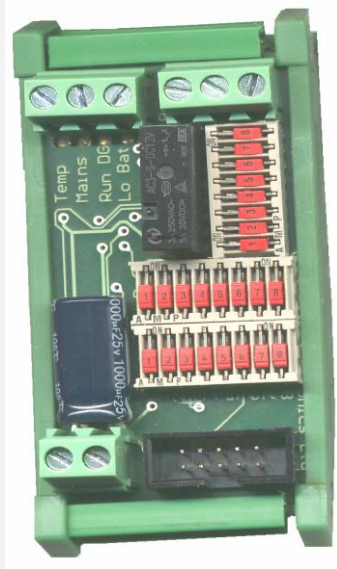
Key Features

- Reduces wiring and installation cost by integrating high power relays in a single din rail mounted package.
- May be powered from 12 or 24 volts.
- Works over the full automotive voltage range with no adverse effects.
- Requires no setup or jumpers for voltage setting.
- Status indicated with easy to view LEDs
- Outputs turned on using switch to ground or open collector outputs.
- Heavy duty barrier terminals for output wiring
- Screw terminals for input wiring

TECHNICAL SPECIFICATIONS

Features	Specifications
Overall Dimensions	66 x 72 x 50mm
Operating Voltage	12 or 24 Volts Automotive
Nominal Operating Current	130 ma
Maximum operating voltage	40 volts
Minimum operating voltage	8 volts
Relay drop out voltage	4 Volts
Maximum switch current	70 Amps

EMS316 MULTISTART



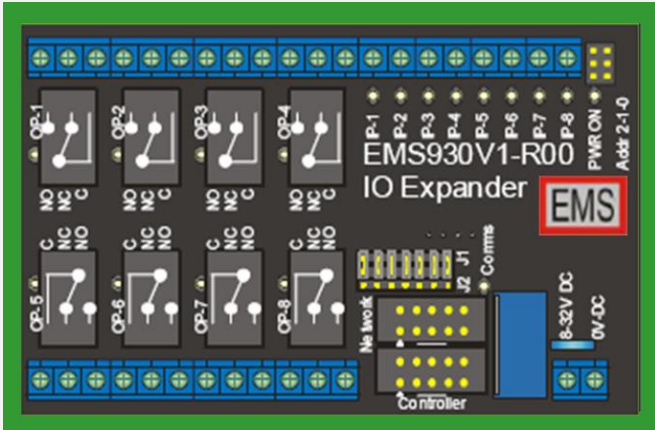
Key Features

- LVM Input for mains AC status
- Isolated battery voltage monitoring from 10 to 60 Volts
- Genset starting and stopping on AMF, Aircon Status, low String battery
- LED icons for AMF running status, Aircon status and battery status
- Output to control the Genset Run request
- Fitted with serial port for communications
- Fully configurable through the DIP Switches.
- Din rail mounted for easy installation
- 12V DC powered with low standby and operating current

TECHNICAL SPECIFICATIONS

Features	Specifications
Size	41mm(W) x 86mm(H) x 40mm(D)
Mounting Hole	Din Rail 72mm Series. 32mm rail.
IP rating	IP30
Supply Voltage	8v to 16V
Short Circuit Protection	Protected (Reverse Polarity Protection)
Supply Current	Standby : 5mA@12V DC power supply Maximum : 120mA Depending on Fan out
Testing	Environmental Test: IEC68 Part2 EMS Compliance: EN50081-1, EN50081-2, IEC61000-4-3 Electrical safety AS 3100 and AS 3260

EMS930 I/O EXPANSION MODULE



Key Features

- An addressable Input and Output Expansion module used with various EMS Controllers
- Two communication port connectors one of which connects to the controller and the other to allow connection to a BMS or PC
- 8 potential free outputs, supporting No / NC connections.
- 8 Opto isolated digital inputs
- LEDs indicate the status of all the inputs, outputs, power supply and Opto-communication

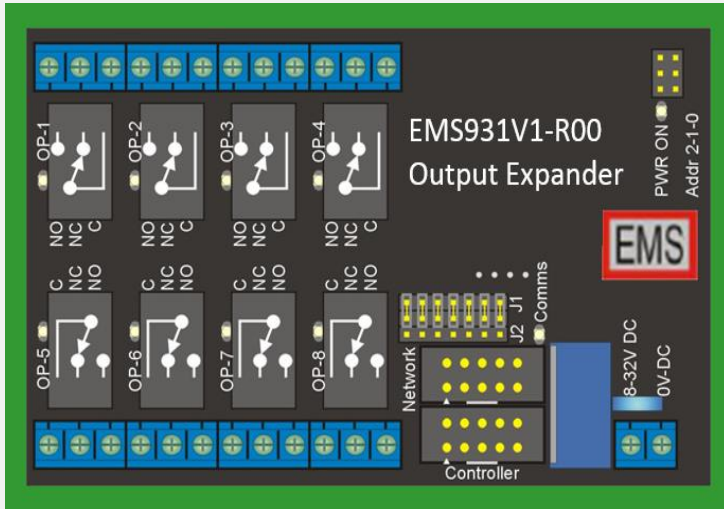
PRODUCT SELECTION CHART

Size	I/O Expansion Module	Function
111(L) x 86(H) x 30(D)mm	I/O Expansion Module	Relay Input / Output

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	Din Rail 72mm Series. 32mm rail	Relative Humidity	95% non-condensing
IP rating	IP30	Input Whetting Voltage	10mA @ Vin=12V (Vin-3V) < (12V)
Supply Voltage	9.5 V to 36V DC, Nominal 12V / 24V Automotive	Input Reference	0 Volt
Operating Temperature	-20 to +60°C	I/O function Set-up and Adjustment	IO assignments are contained within the Master controller
Storage Temperature	-20 to +85°C	Terminations	Strip length: 6-7 mm Wire range: 24-12 AWG, 0.5 to 2.5mm ²
Supply Current	Standby <9mA@12V DC power supply <13mA@24V DC power supply Full Function 500mA Depending on I/O activations.	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260

EMS931 OUTPUT EXPANSION MODULE



Key Features

- An addressable Output Expansion module used with various EMS Controllers
- Two communication port connectors one of which connects to the controller and the other to allow connection to a BMS or PC
- 8 potential free contact outputs, supporting No / NC connections.
- LEDs indicate the status of all the outputs, power supply and Opto-communication

PRODUCT SELECTION CHART

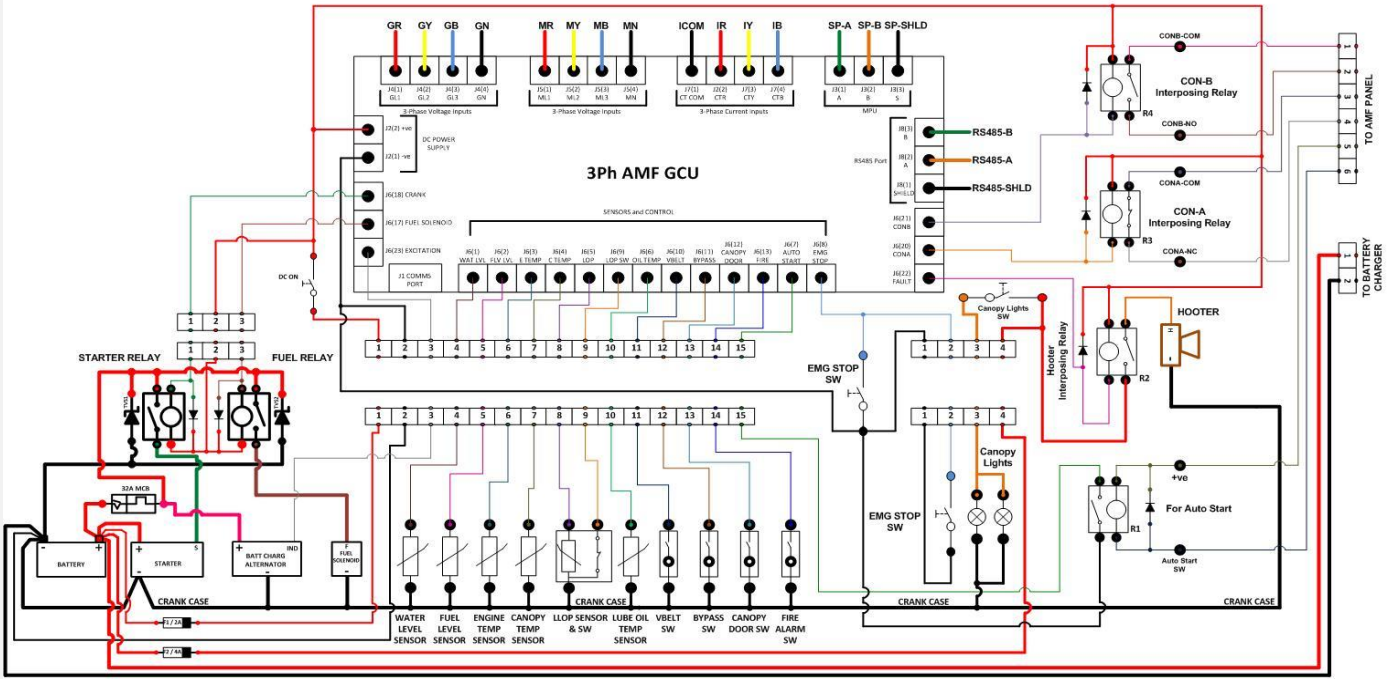
Size	I/O Expansion Module	Function
111(L) x 86(H) x 30(D)mm	Output Expansion Module	Relay Output

TECHNICAL SPECIFICATIONS

Features	Specification	Features	Specification
Mounting Hole	Din Rail 72mm Series. 32mm rail	Relative Humidity	95% non-condensing
IP rating	IP30	Input Reference	0 Volt
Supply Voltage	9.5 V to 36V DC, Nominal 12V / 24V Automotive	I/O function Set-up and Adjustment	IO assignments are contained within the Master controller
Operating Temperature	-20 to +60°C	Terminations	Strip length: 6-7 mm Wire range: 24-12 AWG, 0.5 to 2.5mm ²
Supply Current	Standby <9mA@12V DC power supply <13mA@24V DC power supply Full Function 500mA Depending on I/O activations.0	Testing	Environmental Tests: IEC68 Part2 EMC Compliance: EN50081-1, EN50081-2, IEC6100-4-3 Electrical Safety AS 3100 and AS 3260
Storage Temperature	-20 to +85°C		

BASIC WIRING AND INSTALLATION TIPS

THREE PHASE AMF GENERATOR CONTROLLER
WIRING DIAGRAM



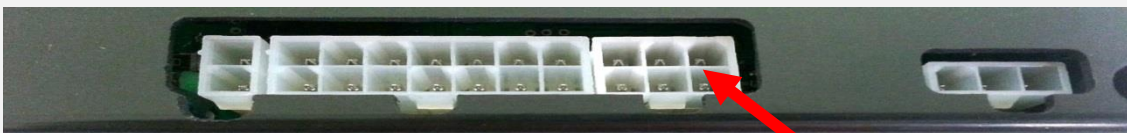
- NOTES:**
- All Outputs are rated at 300mA max.
 - Interposing Relays (R2, R3, R4 & R5) must be used & installed in the DG panel.
 - To use Auto Start input, relay R1 must be installed in the DG panel
 - Keep battery voltage (12V/24V) in mind and use appropriate relays (coil voltage needs to be looked at).
 - Fuses, F1 & F2 must be close to energy source, i.e., DG Battery in this case.

* EMS controllers are designed with rivets for the enclosures, which allows for effortless mounting of the device onto the control panel.



Rivet

* Knowing the DG is bound to undergo a lot of vibrations, EMS controllers are designed with mass termination type connectors.



Connector

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We also provide consultation for players in Genset market around the world to help provide the optimal solution.