![Green Power Generators logo]

# InteliLite MRS 11

## Controller for single gen-set applications

# Datasheet

## Product description

▶ Single Gen-set controller for Prime-power applications

▶ Direct communication with EFI engines

▶ All-in-one intuitive & powerful PC tool for configuration/monitoring/control, locally or remotely
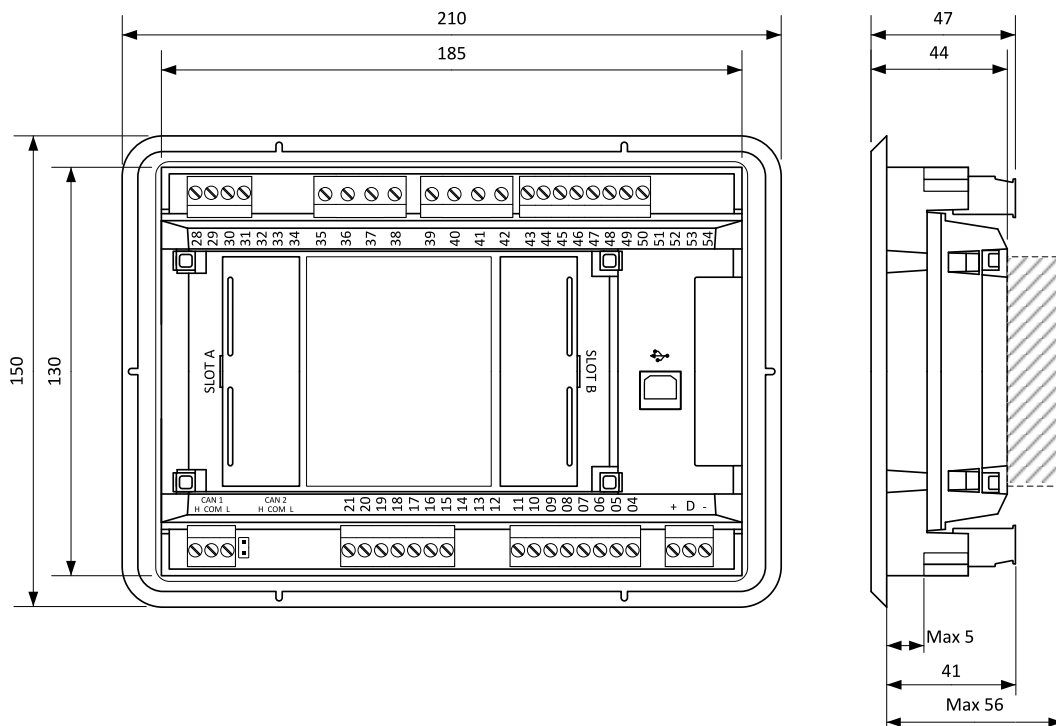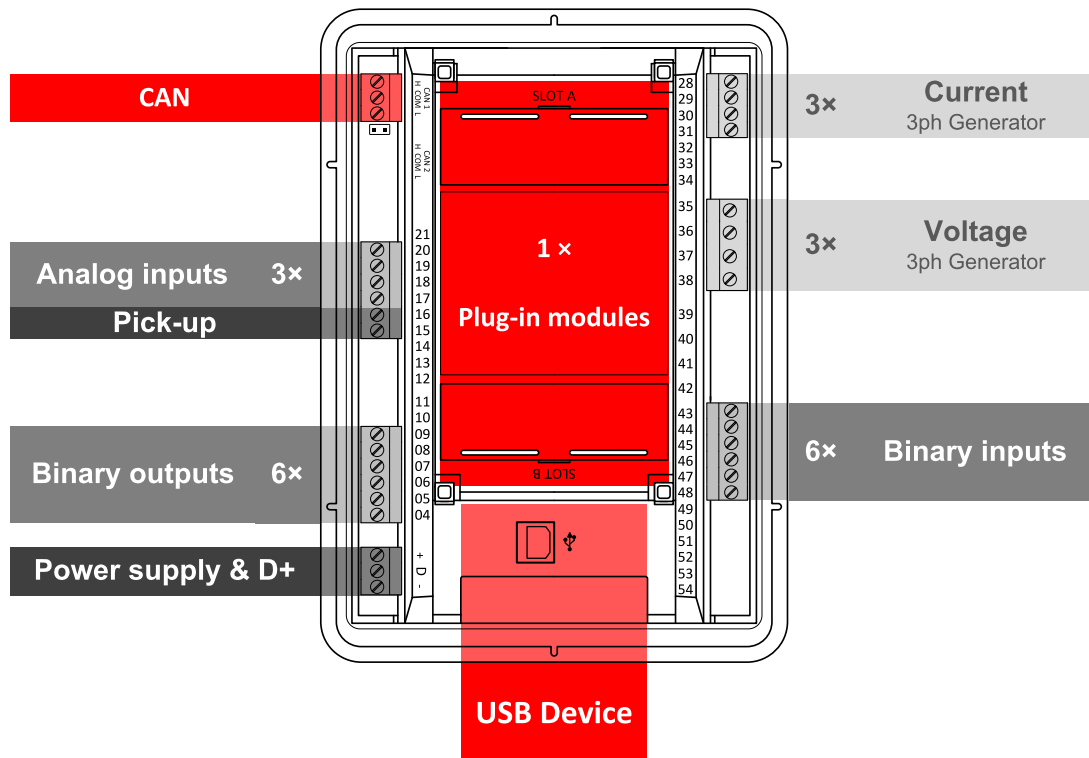
## Key features

▶ 5 languages in the controller & translator functionality

▶ 3 levels of password

▶ 3 sets of alternative configurations

▶ Magnetic pickup

▶ ECU support & Tier 4 Final ready

▶ STAGE V support

▶ Plug-in module concept for more capabilities (RS232, RS485, Ethernet, GPRS, 4G/LTE, Modbus, emails, SMS, I/Os)

▶ 1 slots for plug-in modules

▶ CAN modules support

▶ Power over USB for controller's adjustment

▶ In-built PLC, complemented with a monitoring/debugging tool

▶ 8 binary outputs, 8 binary inputs, 4 analog inputs

▶ 2 high-current binary outputs

▶ Run Hours source selector

▶ Activation of outputs based on inputs

▶ Real time clock

▶ Multipurpose flexible timers

▶ Comprehensive history log with up to 150 events

▶ Dual Application: control of Gen-set, transfer switch and alternation

▶ 3 maintenance timers (counting even under zero)

▶ Modbus register mapping possibility

▶ Adjustable Main Screen

## Application overview

**MRS**
Generator Circuit Breaker

# Dimensions, terminals and mounting



| | | |
|---|---|---|
| CAN | | |
| Analog inputs **3×** | SLOT A | **3×** Current — 3ph Generator |
| Pick-up | **1×** Plug-in modules | **3×** Voltage — 3ph Generator |
| Binary outputs **6×** | SLOT B | **6×** Binary inputs |
| Power supply & D+ | | |
| | USB Device | |



**Note:** The final depth of the controller depends on the selected plug-in module – it can vary between 41 mm and 56 mm. Mind also the size of connectors and cables (e.g. in case of RS232 connector, add about 60 mm more for standard RS232 connector and cable).

**Note:** The controller is to be mounted into panel doors as a standalone unit using provided metal holders. The requested cutout size is 187 × 132 mm. Use the screw holders delivered with the controller to fix the controller into the door.

# Technical data

## Power supply

| | |
|---|---|
| **Power supply range** | 8-36 VDC |
| **Power consumption** | 394 mA / 8 VDC<br>255 mA / 12 VDC<br>140 mA / 24 VDC<br>97 mA / 36 VDC |
| **Power terminal fusing** | Max. 3 A<br>(without BOUT consumption nor extension modules) |
| **Max. Power Dissipation** | 3.5 W |

## Operating conditions

| | |
|---|---|
| **Protection degree (front panel)** | IP 65 |
| **Operating temperature** | -20 ˚C to +70 ˚C |
| **Storage temperature** | -30 ˚C to +80 ˚C |
| **Operating humidity** | 95 % non-condensing (EN 60068-2-30) |
| **Vibration** | 5-25 Hz, ± 1.6 mm<br>25-100 Hz, a = 4 g |
| **Shocks** | a = 500 m/s$^2$ |
| Surrounding air temperature rating 70 °C<br>Suitable for pollution degree 3 | |

## D+ terminal

| | |
|---|---|
| **Max. output current** | 250 mA / 36 V |
| **Charging fail threshold** | Adjustable |

## Voltage measurement

| | |
|---|---|
| **Measurement inputs** | 3ph-n Gen voltage |
| **Measurement range** | 277 V / 480 V AC (EU)<br>346 V / 600 V AC (US/Canada) |
| **Linear measurement and protection range** | 381 V / 660 V |
| **Accuracy** | 1 % |
| **Frequency range** | 40-70 Hz (accuracy 0.1 Hz) |
| **Input impedance** | 0.72 MΩ ph-ph , 0.36 MΩ ph-n |

## Communications

| | |
|---|---|
| **USB port** | non-isolated |
| **CAN 1** | CAN bus, 250 kbps, max 200 m, 120 Ω termination option, non- isolated |

## Current measurement

| | |
|---|---|
| **Measurement inputs** | 3ph Gen current |
| **Measurement range** | 5 A |
| **Max. allowed current** | 10 A |
| **Accuracy** | 1.5 % for full temperature range (1 % from 0 ˚C to 50 ˚C) |
| **Input impedance** | <0.1 Ω |

## Binary inputs

| | |
|---|---|
| **Number** | 6, non-isolated |
| **Close/Open indication** | 0-2 VDC close contact<br>6-36 VDC open contact |

## Binary outputs

| | |
|---|---|
| **Low current** | 4 low current output, non-isolated<br>0.5 A<br>switching to positive supply voltage, BATT+ |
| **High current** | 2 high current output, non-isolated<br>5 A (60 °C), 4 A (70 °C)<br>switching to positive supply voltage, BATT+ |

## Analog inputs

| | |
|---|---|
| **Number** | 3, non-isolated |
| **Type** | Resistive |
| **Resolution** | 0.1 Ω |
| **Range** | 0-2500 Ω |
| **Input impedance** | 170 Ω |
| **Accuracy** | ±2 % from value in range above<br>±1.5 kΩ in range 2.5-15 kΩ |

## Magnetic pickup

| | |
|---|---|
| **Voltage input range** | 4 Vpk-pk to 50 Vpk-pk in range 4 Hz to 1 kHz<br>6 Vpk-pk to 50 Vpk-pk in range 1 to 5 kHz<br>10 Vpk-pk to 50 Vpk-pk in range 5 to 10 kHz |
| **Frequency input range** | 4 Hz to 10 kHz |
| **Frequency measurement tolerance** | 0.2 % from range 10 kHz |

## Available plug-in modules

| Product | Description |
|---|---|
| **CM-4G-GPS** | For SMS and GPS info |
| **CM-Ethernet** | Ethernet interface |
| **CM-GPRS** | For SMS |
| **CM-RS232-485** | Dual port interface |
| **EM-BIO8-EFCP** | 8 additional binary inputs/outputs |

*Note: Controller has 1 slot for plug-in modules*

## Available CAN modules

| Product | Description |
|---|---|
| **IGL-RA15** | CAN remote annunciator with 15 LEDs |
| **Inteli AIN8** | CAN module with 8 analog inputs |
| **Inteli IO8/8** | CAN module with 8 binary inputs and 8 binary outputs |
| **IGS-PTM** | CAN module with 8 binary inputs, 8 binary outputs, 4 analog inputs and 1 analog output |
| **Inteli AIN8TC** | CAN module with 8 analog inputs dedicated for thermocouple sensors only. |
| **Inteli AIO9/1** | CAN module with analog inputs and outputs – designed for DC measurement. |

# Functions and protections

Support of functions and protections as defined by ANSI (American National Standards Institute):

| Description | ANSI code | Description | ANSI code |
|---|---|---|---|
| **Master unit** | 1 | **Current unbalance** | 46 |
| **Stopping device** | 5 | **Voltage unbalance** | 47 |
| **Multi-function device** | 11 | **Incomplete sequence relay** | 48 |
| **Overspeed** | 12 | **Overcurrent** | 50/50TD |
| **Underspeed** | 14 | **AC circuit breaker** | 52 |
| **Starting-to-running transition contractor** | 19 | **Overvoltage** | 59 |
| **Thermal relay** | 26 | **Pressure switch** | 63 |
| **Undervoltage** | 27 | **Liquid level switch** | 71 |
| **Annunciator** | 30 | **Alarm relay*** | 74 |
| **Overload(real power)** | 32P | **Overfrequency** | 81O |
| **Master sequence device** | 34 | **Underfrequency** | 81U |

*Dual-operation          **Extension module EM-BIO8-EFCP required          *** extension module IGL-RA15 required

## Certifications and standards

| | | |
|---|---|---|
| ▶ EN 61000-6-2 | ▶ EN 60068-2-6 (2÷25 Hz / ±1,6 mm; 25÷100 Hz / 4.0 g) | |
| ▶ EN 61000-6-4 | ▶ EN 60068-2-27 (a=500 m/s$^2$; T=6 ms) | **CE** |
| ▶ EN 61010-1 | ▶ EN 60068-2-30:2005 25/55°C, RH 95%, 48hours | |
| ▶ EN 60068-2-1 (-20 °C/16 h for std version) | ▶ EN 60529 (front panel IP65, back side IP20) | |
| ▶ EN 60068-2-2 (70 °C/16 h) | ▶ UL 6200 | |