

MSU4.2

ENKO Electronic Control Systems - IZMIR / TURKIYE

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Automatic / Manual Start Unit for Gen-Sets

MSU4.2 control panel offers extensive start and control functions for Gen-Sets, where mains control is not required.



Provides flexible start and control functions for Diesel Generators

MSU4.2 Automatic/Manual Start control unit is designed for single Generators, where mains line monitoring is not required. The unit has all the necessary functions to start the Diesel engine safely and control engine parameters, while monitoring the alternator voltage and load current.

All voltage and current values are monitored in True RMS values and displayed on the panel. There is no need for additional panel meters. Load power is also measured and displayed. User can operate functions on these values.

The unit also provides all the necessary protection and monitoring of the engine values. The engine temperature and oil pressure is also displayed on analog bar graph displays, hence eliminating the use of additional gauges on the panel. Pre-heat function can be used for secure starting under very cold weather conditions.

The DC battery voltage is measured and displayed. Alarm function can also be initiated, depending on the battery supply voltage. All alarms are logged and the last 10 alarms can be seen in the past log records.

The unit can be remotely controlled by a remote start input function, hence allowing gen-set to be controlled by other systems. Engine working hours are recorded in the system memory. Load power is also measured and monitored and special functions can be activated on these measured values. User can also program periodic service time for the engine. The unit has configurable i/o ports which can be programmed according to user application. Analog measuring input calibration can be made from the menu. There is no need to open the unit enclosure. Five digital displays allow most critical values to be displayed simultaneously, which allows easy monitoring from the front panel.

- OFFERS ECONOMICAL SOLUTIONS FOR SINGLE GENSET APPLICATIONS
- SIMULTANEOUS MONITORING OF 5 DIGITAL VALUES
- ANALOG MONITORING (BAR-GRAPH DISPLAY) FOR ENGINE TEMPERATURE AND OIL PRESSURE
- FULLY CONFIGURABLE AUXILIARY INPUTS AND OUTPUTS

Technical specifications:

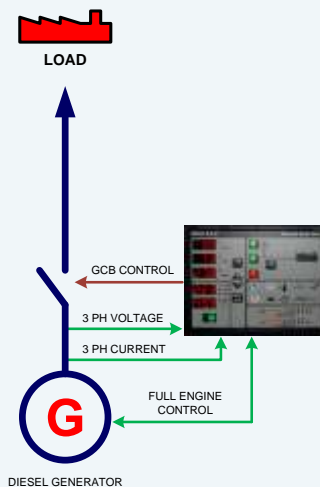
DC power supply:	9-35Vdc@140mA (relays off position)
Operating temperature:	-35°C to +70°C
Relative humidity:	10%rH to 95%rH, non condensing
AC voltage measurement:	20Vac to 300Vac phase to Neutral
Frequency measurement:	1.0Hz to 99.9Hz, ±0.1Hz
Current measurement:	Shunt type measuring, x/5A current transformer should be used
Charge alternator excitation current:	80mA for 12Vdc systems, 160mA for 24Vdc systems
Measurement accuracy:	Phase voltages: ±2% of scale, Phase currents: ±2% of scale, Frequency: ±0.1Hz
Auxiliary i/o:	4 configurable inputs 3 configurable outputs (relay contact outputs)
Relay contact ratings:	10A/250Vac, 3A/24Vdc
Weight:	600 grams
Mounting:	186x138 panel cutout
Protection class:	IP52 (front panel protection)

Main features:

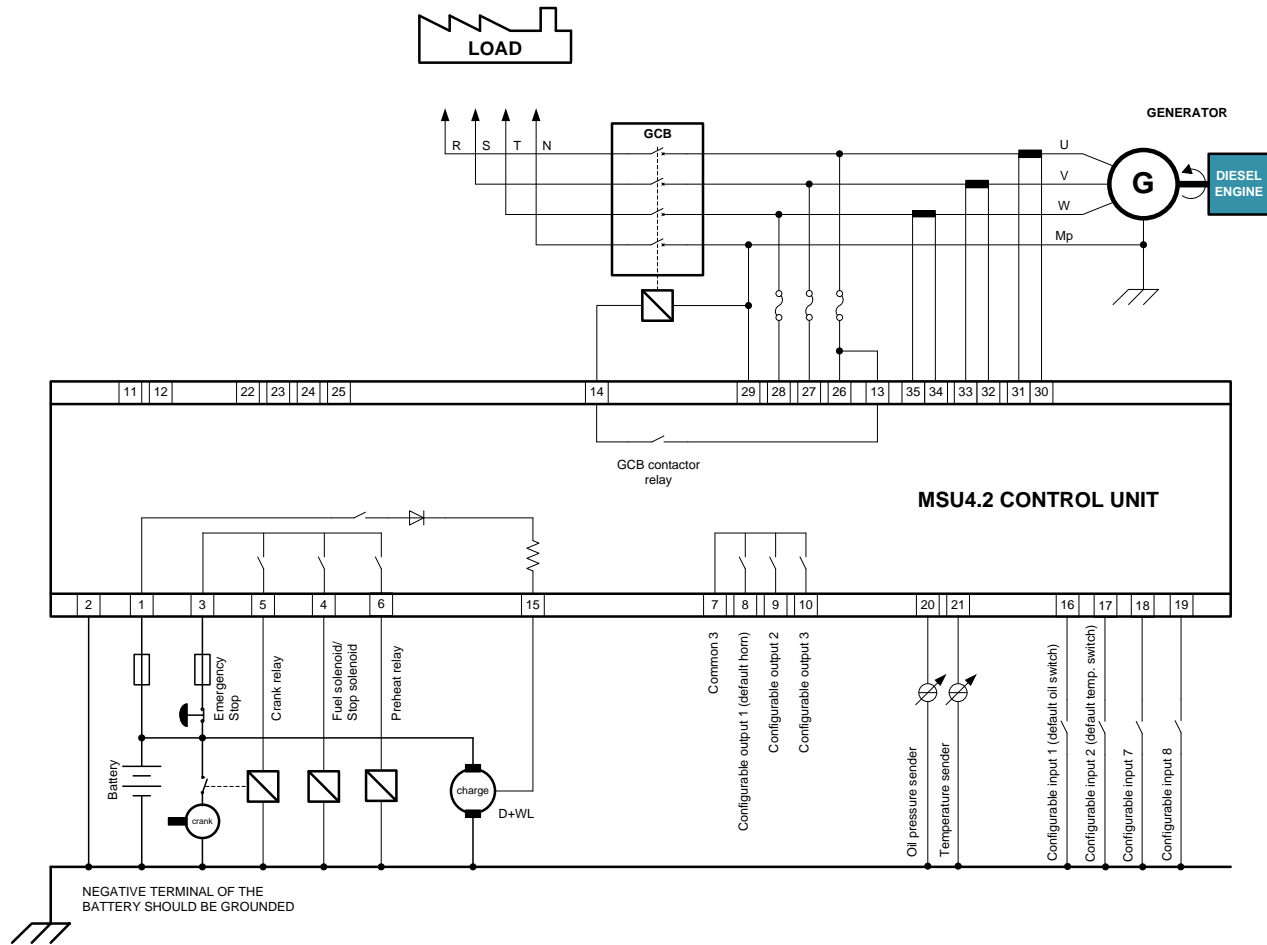
- Automatic and Manual control of Diesel Generator and Alternator parameters,
- Remote start input allows easy interface to other control systems,
- 3 phase True RMS measurement and monitoring of load voltage and current values,
- Manual and automatic control of GCB,
- Engine hours working time memory and service log,
- Programmable auxiliary inputs and outputs,
- DC Battery voltage level measurement,
- Digital calibration for analog input variables from menu,
- Internal charge alternator excitation control ,
- Alarm logging for the last 10 alarm signals,

Additional features:

- MEASUREMENT OF LOAD POWER (KW and KVA) ✓
- ANALOG ENGINE TEMPERATURE AND OIL PRESSURE BAR-GRAPH DISPLAY ✓
- PRE-HEAT CONTROL ON AUTOMATIC AND MANUAL START SEQUENCE ✓
- MULTI DIGITAL DISPLAY ARCHITECTURE FOR EASY MONITORING ✓
- ON-OFF FRONT PANEL CONTROL BUTTON FOR GCB CONTACTOR ✓
- INPUT VOLTAGE MEASUREMENT RANGE UP TO 300Vac (Phase to Neutral) ✓
- IP52 PROTECTION CLASS OVER THE FRONT PANEL ✓
- WIDE TEMPERATURE RANGE FOR OPERATING AND STORAGE CONDITIONS ✓



APPLICATION CONNECTION DIAGRAM



Typical connection diagram is shown and this is one of possible applications among many. The system is shown in 3 phase connection but can also be applied for single phase systems.

The unit has a **"Remote Start"** input, which can be used to start and stop the engine from a remote distance. Engine cooling period can be controlled manual or automatic.

Pre-heat can be operated in order to start the engine easily in very cold weather conditions.

Remote Start/Stop function allows the control of Gen-Set by external devices..

It allows simple and economic solutions for single Gen-Set operations.

MSU4.2 controller plastic housing is designed according to DIN norms. Mechanical dimensions are shown in the drawing.

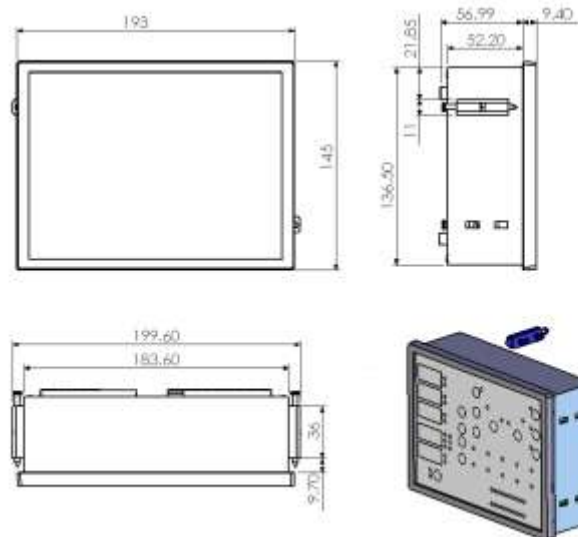
Plastic housing is made of NORYL (PPO) which provides high temperature resistance and good mechanical stability. The electrical characteristics of the housing is excellent.

The front panel is designed to comply with IP52 protection class. Embossed *Lexan* is used for front panel, which provides easy control of the buttons and clear reading of the digital values. It also provides long life for operation.

All components are SMD mounted, including the buttons and LED indicators. The use of mechanical switches for control buttons ensures reliable operation over long periods.

Inner construction is specially tailored for resistance against vibration. Also, special chemical treatment ensures reliable operation in high humidity environments.

Mechanical dimensions



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