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Standard Generator Control Systems – Fuel Transfer Control System

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Standard Generator Control Systems - Fuel Transfer Control

Systems Insight is a generator systems specialist, with extensive experience in the design engineering, manufacture and installation of custom built generator control packages. A range of standard control systems have been designed, suitable for use in a variety of applications and incorporating the most commonly requested features.

As an adjunct to our generator control and paralleling package, Systems Insight has engineered a specialised control panel for the specific task of monitoring diesel fuel storage levels and managing diesel fuel transfer operations.

The fuel control panel can be supplied in a choice of three variants:

Type 1: Remote controlled fuel control system with PLC I/O unit, for direct high level communication with a 'Master Control' PLC.

Type 2: Stand alone fuel control system with integral PLC and relay logic control.

Type 3: Basic fuel transfer pump control and monitoring only, with relay logic control.

The 'Type 1' remote controlled system is linked via a single twisted pair communications cable to a 'Master Control' PLC, for projects where a *Systems Insight* 'Master Control' package is installed.

The 'Type 2' stand alone system can be used on virtually any project, utilising a combination of low level (contact closure) signalling and an integral micro PLC to manage the fuel system.

The 'Type 3' system is a basic fuel transfer pump control panel with all control operated via external low level signals (eg: from Master PLC output).

The fuel control system is supplied in a wall mounting, powder coated steel cabinet. The cabinet has a lockable, hinged door with concealed swing handle and 3 point locking mechanism.

Systems Insight has introduced its range of standard control systems to provide ready made, adaptable packages to suit a variety of generator and power distribution control applications. On request, our systems can be further customised to comply with the customer's specific requirements.

Standard Generator Control Systems - Fuel Transfer Control

Main Features:

Fuel Transfer Control & Management:

- PLC remote I/O unit with 16 discrete inputs, 16 discrete outputs and high speed data communications to Master Control PLC (Type 1 - Remote controlled system)
- Programmed Micro PLC with 16 discrete inputs & 12 relay outputs (Type 2 - Stand alone system).
- D.O.L Motor starters for two fuel transfer pumps (Duty & Standby) up to 1 kW motor rating
- 2 x 3 pole miniature circuit breakers for protection and isolation of transfer pumps.
- Control selectors for Off/Isolated, Automatic or Manual control of fuel transfer pumps
- Automatic PLC controlled duty cycling of fuel transfer pumps with duty changed after each pump operation (Type 1 & Type 2 panels only)
- Monitoring of fuel storage tank low fuel level
- Monitoring of fuel day tank levels (allowance for 2 day tanks):
 - Low Level (Backup to Pump start)
 - Pump Start (Normal Pump start level)
 - Pump Stop (Normal Pump stop level)
 - High Level (Backup to Pump Stop)

Notes:

- (1) - Day tank 'Empty' level is signalled direct to Master Control PLC or Gen Control Panel to call engine shutdown.
 - (2) - Day tank levels may be monitored by the Master Control PLC (where installed) in preference to Fuel Control panel PLC, dependent on the location of fuel storage equipment on site.
- Provision for monitoring of a fuel flow switch (supplied separately)
 - Combined Lamp test and Fault Reset push button to cubicle door
 - Optional monitoring of fuel leakage sensors and fuel filter alarms (where required)

Standard Generator Control Systems - Fuel Transfer Control

Other Features:

- Separate control system 240VAC/24VDC switching power supply. The PLC and internal control circuits can be operated from any local essential 240V AC circuit.
- Standard LED indicators to control panel door:
 - Fuel Transfer Pump No.1 Running
 - Fuel Transfer Pump No.1 Fault
 - Fuel Transfer Pump No.1 On Duty (Type 1 & 2 Only)
 - Fuel Transfer Pump No.2 Running
 - Fuel Transfer Pump No.2 Fault
 - Fuel Transfer Pump No.2 On Duty (Type 1 & 2 Only)
 - Fuel Storage Tank Low Level (Type 1 & 2 Only)

Other LED indicators may be added according to customer request as a further option

- Optional anti-condensation heater with thermostat fitted to cubicle
- Electronically drafted construction drawings & wiring schematics supplied with all systems

Testing & Commissioning:

Testing and commissioning of the fuel control panel is normally included with the allowances made for supply of a generator or master control system package.

Standard commissioning allowances are for systems installed at a site within the Melbourne metropolitan area. Travel and other associated costs apply for interstate and overseas commissioning.

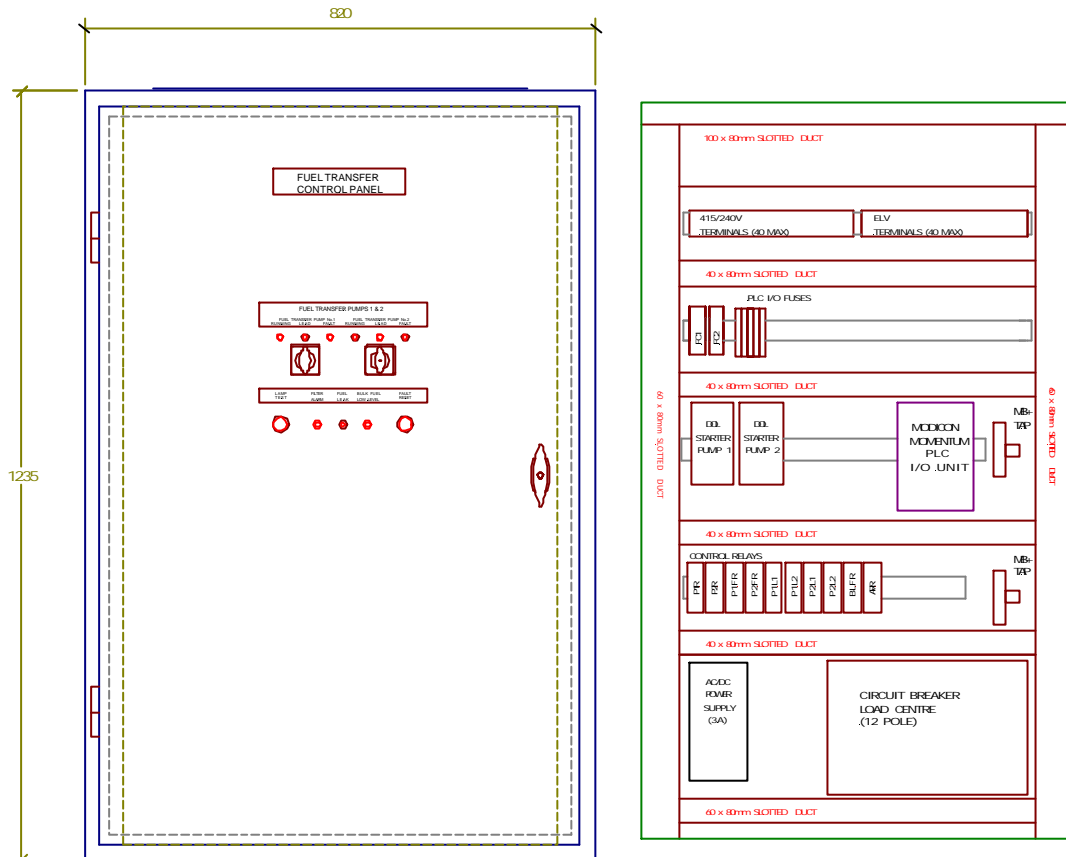
Exclusions:

The following items are normally excluded from our standard package but are available as options:

- ❖ Provision of licensed PLC programming software
- ❖ Provision of fuel pumps, level switches and other mechanical equipment
- ❖ Supply and installation of site cabling to controlled and monitored equipment

Standard Generator Control Systems - Fuel Transfer Control

Fuel Transfer Control Panel Design:



The pictured CAD drawings (above) depict typical door layout design and internal gear tray arrangement for a standard fuel transfer control panel (Type 1), optioned to customer specifications.

Electronically drafted construction drawings and control wiring schematics are supplied with all standard generator control systems.

A recommended site cable installation schedule is also provided, referenced to the wiring schematics.