APL Technical Bulletin
Supported Electrical Configurations

For the Power Pallet PP30

Summary

This document describes the supported electrical and wiring configuration of the **Power Pallet PP30**. The PP30 can support 3-phase AC power export with grid tie synchronization, with a maximum output of 25 kW at 60Hz and 22kW at 50Hz.[1] Paralleling electronics are a standard feature of the PP30.

Frequency

The PP30 is available in 50 Hz and 60 Hz configurations and is delivered pre-configured to the customers requested specification. The AC frequency is self-regulated via the engine governor, which maintains a constant engine RPM. Changing operating frequency of the PP30 requires an update of the engine governor; changing the operating frequency of the PP30 also requires changing the generator control module (DSE 8610) configuration.

Note: The maximum power output may vary depending on the voltage of the electrical configuration. APL does not support electrical configurations outside the list of approved configurations. Modifying the electrical configuration to an unapproved configuration will void the warranty.

Installation requirements

Minimum Load Requirement: 3 kW

The Power Pallet requires a minimum load of 3 kW in order to keep the reactor at temperatures hot enough to produce clean gas. Do not operate the Power Pallet with a sustained load less than 3 kW. Long term operation of the Power Pallet without load will damage the system and may void warranty.

Licensed Electrician Required

All on-site electrical work needs to be designed and performed by a licensed electrician. Safety and Electrical Standards must be followed for the interface connections to the Power Pallet.

[1] Stand-alone, 25kW @ 60Hz, 22kW @50Hz. Grid-tied with CHP, 27kW @60Hz, 24kW @50Hz

Line Diagram Required

APL requires a one line diagram of the system prior to on-site commissioning. There may be two different versions: one for the commissioning and training and other for the final system configuration as this may come at a later date.

Electrical Grounding Required

The Power Pallet must be electrically grounded to the available site / building grounding per local Electrical Standards.

Note: Some of the configurations need additional changes and/or modifications to other sub-assemblies in the PP30. Please contact and work with APL Support to make changes.

Components

Automatic Voltage Regulator Type and Configuration

The PP30 uses an DSE A106 MK II model AVR (Automatic Voltage Regulator) as part of the generator configuration. The AVR is adjustable and can support all of the listed voltage configurations for the PP30.

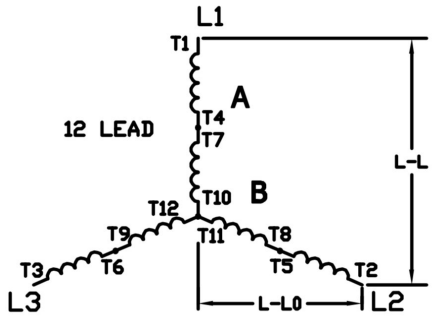
Generator Wiring Options

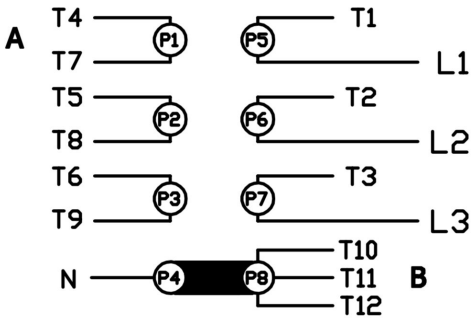
The Power Pallet PP30 only supports 3-phase AC electrical output.
The following pages show the supported configurations and voltages.

Note: The generator is shipped pre-configured to the requested wiring configuration. Modifying the wiring configuration requires updates to the generator control module configuration and risks damage to the system if done incorrectly. It is not recommended that the wiring configuration be modified from the pre-configured wiring.

Series High Wye— *3-Phase 4-Wire, High Voltage*

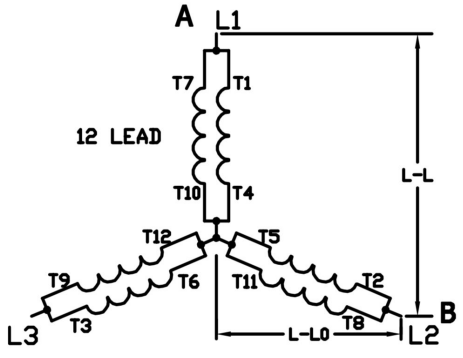
Configuration	Terminals	Voltage Options				
50 Hz Series High Wye *22 kW maximum*	L-L	380V	400V	415V	440V	
	L-L0	219V	231V	240V	254V	
60 Hz Series High Wye *25 kW maximum*	L-L	380V	416V	440V	460V	480V
	L-L0	219V	240V	254V	266V	277V

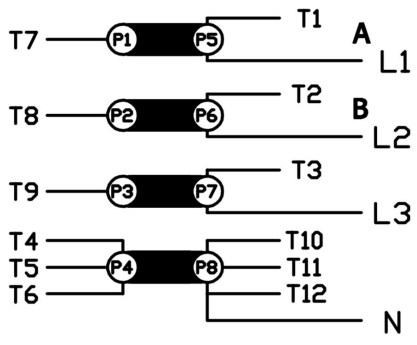




Parallel Low Wye — *3-Phase 4-Wire, Low Voltage*

Configuration	Terminals	Voltage Options				
50 Hz Parallel Low Wye *22 kW maximum*	L-L	190V	200V	208V	220V	
	L-L0	110V	115V	120V	127V	
60 Hz Parallel Low Wye *25 kW maximum*	L-L	190V	208V	220V	230V	240V
	L-L0	110V	120V	127V	133V	139V





Series High Delta — *3-Phase 4-Wire, Low Voltage*

Configuration	Terminals	Voltage Options		
50 Hz **Series High Delta** *22 kW maximum*	L-L	200V	220V	240V
	L-L0	100V	110V	120V
60 Hz **Series High Delta** *25 kW maximum*	L-L	240V	277V	
	L-L0	120V	139V