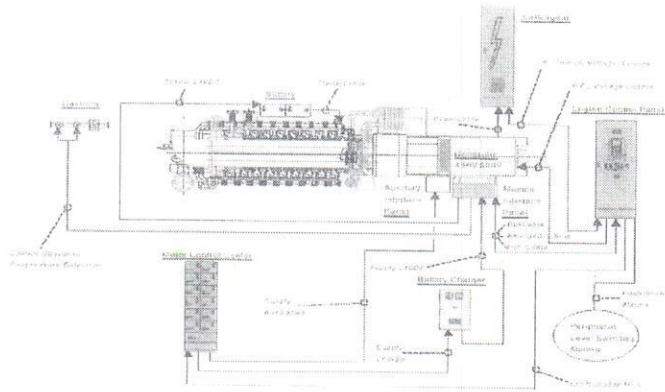


A full technical description for the JGS 312 engine generator is attached.

Jenbacher Control Package

The GE Jenbacher generator set and control package provides an integrated electrical control system. Connection to utilities are by others.

- Generator sets
- Starting systems
- Interface panels
- Control panels



(Typical Synchronous Utility Connection Diagram)

The DI.ANE (Dialog-Network) freestanding control panel provides an engine-generator management system featuring a membrane touchpad display for interface and operation of the generator set equipment.

The DI.ANE system includes:

- Central engine and control module.
- An industrial grade computer with 10" VGA TFT color graphics display, 10 function keys, display selection keys, 10-key numeric keyboard for input of operating parameters, auxiliary keys for START, STOP, lamp test, and special functions. A RS485 serial port interfaces to the central computer and multi-transducer.

Dimensions for the DI.ANE panel are 87"high x 32" wide x 24" deep.

Main displays available from the DI.ANE panel include:

- Generator set interconnection electrical values:
 - Phase current
 - Neutral current
 - Voltage (Phase-to-Phase and Phase-to-Neutral)
 - Active power
 - Reactive power
 - Apparent power
 - Power factor
 - Frequency

(Options are available for generator winding temperature and generator bearing temperature display.)

- Engine oil pressure and temperature
- Jacket water circuit pressure and temperature
- Exhaust gas temperatures
- Engine controller
- Auxiliary PID controller
- Auxiliary status

- Operational data such as operating hours, service hours, number of starts, active power demand (kWh), reactive power demand (kVArh), and measured values required for the operational logbook.
- System set-up
- Graphical data logging and trending for up to sixteen (16) measured values
 - Long term trending of data for 30 second intervals up to one (1) month duration
 - Short term trending provides data for troubleshooting
- PLC base central engine management which controls the following:
 - Speed control in no load and isolated operation
 - Power output control in a parallel operation.
 - LEANOX® control system for control of boost pressure relative to generator terminal output and fuel mixture temperature via the GE Jenbacher engine driven air-gas mixer.
 - Knocking controls enable adjustment of the ignition point, power output, and potentially the mixture temperature in the event of a knocking condition.
 - Load sharing between generator sets is isolated operations.
 - Proportional power reduction as a result of a fault
 - Generator set logic control
 - Generator monitoring of up to eight (8) functions simultaneously:
 - Overload/short-circuit [51], [50]
 - Over voltage [27]
 - Undervoltage [59]
 - Asymmetric voltage [64], [59N]
 - Unbalance current [46]
 - Failure Excitation [40]
 - Overfrequency [81>]
 - Underfrequency [81<]
- Three (3) position lockable operation mode selector switch
 - “OFF”- Unit is disabled
 - “MANUAL”- unit is manually operable
 - “AUTOMATIC”- Full automatic operation is enabled via remote signal. A remote stop is enabled with a cooldown period following signal. Auxiliary equipment will continue to operate for a period following engine shutdown.
- Three (3) position demand switch
 - External demand OFF
 - External demand
 - Override external demand
- The following shut down functions are displayed:
 - Low lube oil pressure
 - Low lube oil level
 - High lube oil level
 - High lube oil temperature
 - Low jacket water pressure
 - High jacket water pressure
 - High jacket water temperature
 - Overspeed
 - Emergency stop
 - Gas train failure
 - Start failure
 - Stop failure
 - Engine start blocked
 - Engine operation blocked
 - Misfiring
 - High mixture temperature
 - Measuring signal failure
 - Overload/output signal failure
 - Generator overload/short circuit
 - Generator over/under voltage

- Generator over/under frequency
- Generator asymmetric voltage
- Generator unbalanced power
- Generator reverse power
- High generator winding temperature
- Synchronizing failure
- Knocking failure
- The following alarms are displayed:
 - Low jacket water temperature
 - CPU battery failure
- Operational functions displayed:
 - Ready to start
 - Operation
 - Generator circuit breaker "ON"
- Four (4) auxiliary contacts are available for remote start, shut down, operation, and a common alarm.
- Additional contacts are optionally available for start/stop controls, thermal processes, and electrical synchronization.

(Please note, functions listed above may not be available when operating an induction generator. This will be determined by GE Jenbacher)

1. Base Engine generator equipment package will include the following:

- Two (2) GE Jenbacher JGS 312 engine
- Two (2) US Motors 5012 Induction Generator 480V, 3 phase 60Hz
- Two (2) GE Jenbacher DIA.NE engine generator control package
- Two (2) Global Heat Transfer Horizontal Radiator
- Two (2) Power Factor Correction PN KNM43100-3
- Two (2) Set of Fuel and exhaust flexes
- Two (2) Oil make up systems
- ~~One (1) 1400L Carbon Filter for LFG~~

Please note that all equipment (Engine and generator are supplied on common skid coupled together) is supplied loose and are installed by others

2. Engineering and integration services to be provided will include:

- a. Assistance in development of sequence of electrical operations in association with GE Jenbacher for synchronizing, and paralleling, to BC Hydro grid.
- b. Develop and customize engine, generator, and associated mechanical-electrical equipment drawings for all equipment outlined in this scope. Installation and interface drawings along with technical data will be prepared for use by others to develop integrated installation and point-to-point wiring diagrams required for installation of equipment.
- c. Coordinate with and provide engineering assistance for integration of the DIA.NE XT
- d. Provide emissions data and support for air permitting.
- e. Customize DIA.NE panel operating systems for site specific conditions and parameters.
- f. Provide six (6) sets of submittal documentation in hard copy and CD format for review by construction managers and sub-contractors.
- g. Provide six (6) sets of as-built documentation, following final startup and commissioning, in hard copy and CD format for the owners use.
- h. Provide three (3) sets of operation and maintenance manuals

3. Startup and Commissioning and Training Services

Waterous Power Systems and GE Jenbacher will jointly provide startup and commissioning services. Startup personnel will include a factory startup engineer and service technician provided by Waterous Power Systems. Services will be scheduled after receipt of completed installation checklists. A complete startup and commissioning work scope will be provided 14 days prior to start up date. Startup and commissioning will include all required travel and lodging. Startup is limited to ten (10) working days per engine. Any startup and commissioning services required beyond that time period will be billed at \$1,650 per day per person.

Eight (8) hours of on-site training for the plant operator is also included and will immediately follow commissioning.

4. Pricing

| Description | Qty | Unit Price |
|---|-----|--------------|
| Unit #1 | | |
| GE Jenbacher Model JGS 312 Engine | 1 | \$413,616.00 |
| US Motors Model 5012L Induction end piece Installed | 1 | Inc. |
| Global Heat Transfer Radiator | 1 | Inc. |
| Power Factor Correction PN KNM43100-3 (Installed) | 1 | Inc. |
| On site Commissioning | 1 | Inc. |
| Unit #2 | | |
| GE Jenbacher Model JGS 312 Engine | 1 | \$413,616.00 |
| US Motors Model 5012L Induction end piece Installed | 1 | Inc. |
| Global Heat Transfer Radiator | 1 | Inc. |
| Power Factor Correction PN KNM43100-3 (Installed) | 1 | Inc. |
| On site Commissioning | 1 | Inc. |
| Carbon Filter | | |
| GE Jenbacher 1400L Carbon Filter Gas Conditioning Vessel C/W first fill of Carbon | 1 | \$45,000.00 |

Not Included:

Installation of equipment
 Site electrical and mechanical connections
 Waste oil tank and disposal of oil
 Initial filling of carbon for the Carbon filtering system
 Freight from Calgary
 Local permits and approvals

All Civil work and suitable concrete foundation by owner

Package Price for two units including Carbon Filter.

\$872,232.00