

The purpose of the Diesel Power Station is to provide AC 220V/50Hz power supply to the 1000W lighthouses. The 220V/50Hz mains and the diesel generator will be used as energy sources. The station is fully automated and, its operation can be controlled remotely by the monitoring system. The AC controller of the station is continuously testing the voltage of the mains. When the voltage will become less of an acceptable level, the diesel generator will be started and it will take over the power supply. When the voltage level of the mains will be restored, the diesel generator will be stopped and, energy will be taken from the mains again.

### *System components*

- Diesel Generator "Yanmar"
- AC controller E176
- Diesel Generator Interface E177, controlling the electromechanical interface "Servo"
- Local Area Networks "Echelon" and "A-Bus"
- RS-485 Input Module E363
- Equipment cabinet

### *Features*

- Continuous testing of voltage of the mains. When the mains voltage will be less than an acceptable level or zero, the diesel generator will be started and the users will be switched over to it. Switching the users back to the mains and stopping the diesel generator when the mains voltage will be restored. The starting and stopping procedures can be initiated after a time delay, depending on the charge rate of the batteries in the user.
- Automatic heating of the diesel engine in the case, the temperature of will be below the acceptable level in winter conditions.
- Oil pressure drop below 1 bar stops the diesel engine.
- Setting up the control parameters:
  - minimal acceptable level of the voltage of mains (up to 200V)
  - time delays (0...900min) of starting and stopping of the diesel generator
  - temperature of switching ON of the diesel heating, (-30 ..0 egress)
- Getting following diagnostic information in case, the station is integrated into the remote monitoring system
  - warning: no voltage of the mains
  - voltages of the mains and of the diesel generator
  - temperature of the diesel engine
  - emergency messages about the failures of the station



#### **Department of Navigation Systems EKTA**

**Phone: +372 639 7991**

Fax: +372 639 7992

E-mail: [ekta@ekta.ee](mailto:ekta@ekta.ee)

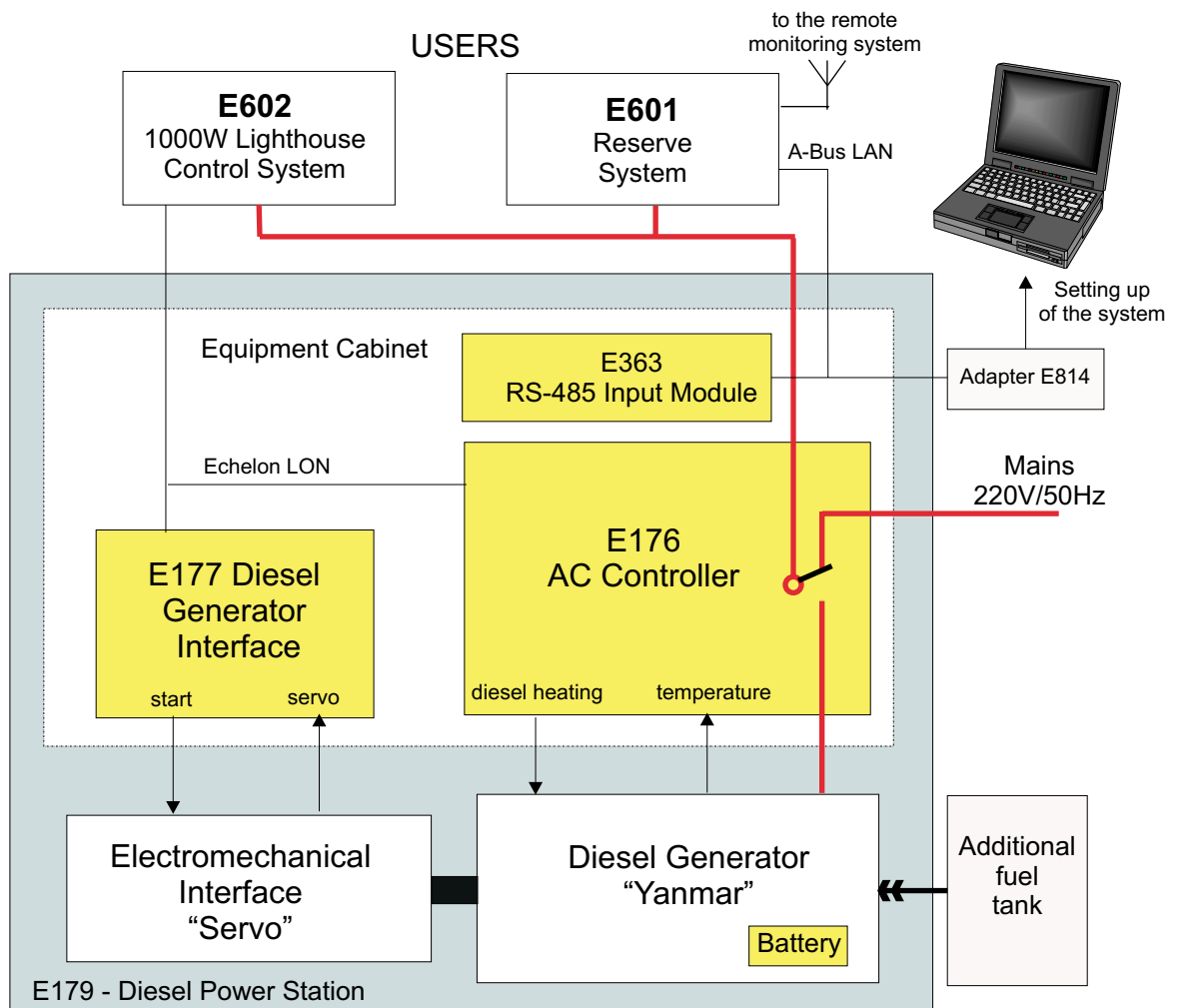
Akadeemia tee 21, 12618 Tallinn, ESTONIA

Our Internet Home Page: [http:// www.ekta.ee](http://www.ekta.ee)

## Specification

	Min.	Typical	Max.	Unit
Mains voltage, 50 Hz	187	220	242	VAC
Diesel Generator voltage, 50Hz	187	220	242	VAC
Diesel Generator current			20	A
DC power supply voltage	12		14.5	V
DC power supply current		90		mA
Diesel battery voltage	11.5		14.5	V
Fuel amount	0.5		13*	l
Motor oil amount	0.7		1.1	l
Diesel heater power	1kW			
Ambient air temperature	from -25°C to +55°C (IEC 60068-2-1, 2, 14)			
Relative humidity	up to 98% at temperature +35°C (IEC 60068-2-3)			
Application in salt mist conditions	allowed (IEC 60068-2-11)			
Mechanical vibration	10...500Hz, with acceleration up to 2,2g (IEC 60068-2-6)			

\*) - starting with full tank the diesel generator can operate up to 10 hours at 3kW nominal power



Block diagram of the Diesel Power Station E179