SCHLEPSMART™

Locomotive Auxiliary Power Supply System

LOW FUEL COSTS

>INR 12 LAKH SAVINGS / LOCO / ANNUM

LOW IDLING EMISSIONS

>25% REDUCTION IN IDLING EMISSIONS

PRAG

INNOVATION AT WORK

Prag Schlepsmart™ is a self-contained auxiliary power supply unit containing a smart control unit and a small diesel engine coupled to a compressor and alternator. It comes with its own set of controls and accessories and is integrated with the existing microprocessor control system of diesel locomotives.

With railway tracks in India getting more and more crowded due to increase in railway freight & passenger traffic and corresponding increase in rolling stock on existing track infrastructure, a vast number of locomotives remain immobile for long periods of time, often waiting for signal changes. These locomotives have to remain idle without shutting down the engine because it must supply compressed air to the brakes, which is provided by the engine compressor. Idling is also necessary to charge the locomotive batteries. It is estimated that on average, a freight locomotive spends as much as 8 hours each day in idle condition with the prime mover on. This leads to a significant amount of fuel wastage as well as unnecessary excessive locomotive exhaust emissions during idling.

While the main engine consumes 25 to 30 liters of diesel per hour, the Schlepsmart™ uses less than 3 liters, saving enormous amounts of fuel and reducing emssions.

With the Prag Schlepsmart™ Auxiliary Power Supply System in place, if a train is idle with the engine running for longer than ten minutes, the system will automatically shut the main engine down. The system includes a smart panel that continuously monitors and maintains all critical parameters of the locomotive including brake pipe pressure and battery charge level while the main engine is shutdown. In case any of the required parameters fall outside the control limit, a smaller 25 HP engine, inbuilt in the Schlepsmart™ System along with a small compressor and alternator, is used to charge the batteries and maintain air brake pressure.

The Schlepsmart™ engine continues to run until all safety parameters are restored to safe limits. While Schlepsmart™ is running, if the driver wants to move the locomotive, they simply need to change the position of the throttle and reverser handle. The system will automatically crank the main engine and thereafter shut down Schlepsmart™. The train can be started spontaneously as the locomotive batteries are charged and air pressure is maintained.

Schlepsmart™ is an eco-friendly system that reduces the amount of toxic gases such as CO_2, HC, NOx, & CO emitted by idling locomotive engines. It drastically saves fuel & lubrication expenses, reduces wear & tear of main engine components and increases the useful life of locomotive engine.

The system is supplied complete with controls, sensors, accessories, application software and an enclosure for indoor or outdoor mounting on locomotives, and can be installed on new locomotives or retrofitted on existing ones.

CONTROL UNIT

List of Major Components

- SMC Contactor
- Schlepsmart™ Cranking Contactor
- Schlepsmart™ Shutdown Contactor
- Fuel Oil Level Relay
- Diode Panel
- 12V Relay Module
- Schlepsmart™ Fuel Oil Solenoid
- Schlepsmart™ Fuel Oil Float Switch
- Schlepsmart™ Engine Gauge Panel
- Battery Cut Out Switch
- Manual Shutdown Lever

Locomotive Parameters Monitored

- AES Switch Position
- Loco Speed
- Engine RPM
- Reverse Handle Position
- Brake Cylinder Pressure
- Main Reservoir Pressure
- Engine Water Temperature
- Engine Oil Temperature
- Average Battery Charging Current

Schlepsmart™ Engine Parameters Monitored

- Schlepsmart™ Engine Water Level
- Schlepsmart™ Engine Water Temp.
- Schlepsmart™ Engine Oil Pressure
- Schlepsmart™ Engine Speed
- Schlepsmart™ Battery Charging Current

DIESEL ENGINE

GHP	25
RPM	1500
Cooling	Water Cooled
No. of Cylinders	3
Displacement in cc	1895
Governing Class	A1
Specific Fuel Consumption	166 gms / bhp / hr
Battery	12v – 75 AH

COMPRESSOR

RPM	1500
No. of LP Cylinders	2
No. of HP Cylinders	1
Discharge Pressure	10.2 Kg/cm2
Air Delivery Rate	1622 LPM
Power Consumption	13.5 HP while loading

ALTERNATOR

Type	Three-Phase Brushless
Main Components	Exciter, Main Alternator
RPM	1500
Output Voltage	72v ± 1 VDC
Max Current	27 A

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PRAG

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Longitudinal Energy Mgmt. Systems	Auxiliary Power Supply Systems	Compressed Air Supply Equipment
Bogie Mounted Air Brake Systems	Air Spring Suspension Systems	Plate Type Heat Exchangers
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