BaHN Automation
Dedicated to Control Technics

Product Profile & Reference List

Import Substitution Products Supplied to

Metro Railway, Kolkata

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***BaHN** Automation* was privileged to be associated with **Metro Railway, Kolkata** as a supplier for indigenous development of critical imported Traction Electronic items for their rolling stock.

BaHN's endeavor resulted in indigenous development of following critical imported electronic items meeting mechanical, electrical as well as functional requirement of the original items supplied by AEG & SIEMENS, Germany.

- **DC-DC Current Transformer**
- **Slip and Slide Protection Unit**
- **Thyristor Power Unit**
- **Speed Limit Detector**
- **Plug-In Cards for Motor Alternator**
- **Slot Initiator**
- **Time Limit Relay**
- **Motor Amplifier**

DC – DC Current Transformer

Application:

Measurement of Traction Motor Currents

Features :

- Wide choice of input currents
- Optical isolation
- Immune to magnetic fields
- Advanced sigma / delta technology for A / D conversion
- Chopper stabilized amplifiers to achieve high linearity and low drift
- Circuit design with high safety margins
- Use of surface mount technology components for high reliability

Slip and Slide Protection Unit

Application:

Detection & Protection against Wheel Slip and Slide of Metro Train

Features :

- Detect wheel slipping to reduce tractive effort so as to prevent wear out of wheels
- Detect wheel sliding to reduce braking effort so as to prevent flattening of wheels
- Independent computational modules for each axle of a bogie
- Use of high performance computing devices for high-speed real time evaluation of mathematical equations
- Reliable control & protection logic
- Anomalous and status signals monitoring thro' LEDs
- Use of surface mount technology components for high reliability

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Thyristor Power Unit

Application:

Control of Drive Motor of Cam-Shaft-Controller of BHEL Rake

Features :

- Based on MOSFETs
- Single side printed circuit board design
- Optical isolation from input control signals for high noise immunity
- Reliable control & protection logic
- Circuits design with high safety margins
- Crowbar protection in the event of
  - Anomalous control conditions
  - Over current situation

Speed Limit Detector

Application:

Detection of Train Speed for Control of Coach Doors

Features :

- When train is in motion, the opening of coach doors has to be prevented as a safety measure
- Continuous monitoring of train speed
- Only when train speed has come below specified limit, permissive signal is given for opening of coach doors
- Reliable control logic
- Circuits design with high safety margins
- Plug-in card design
- Use of surface mount technology components for high reliability

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Plug-in Cards for Motor Alternator

Application:

Control / Regulation of Motor Alternator Set of NGEF Coaches

Features :

- Control and regulation of motor speed of Motor Alternator
- Control and regulation of alternator voltage of Motor Alternator
- Reliable control & protection logic
- Circuits design with high safety margins
- Metering sockets for monitoring of signals
- Plug-in cards design

Slot Initiator

Application:

Sensing of Cam-Shaft-Controller Position

Features :

- Sensing of cam shaft controller position
- Magnetic sensing method
- Accurate and linear output for position control
- Circuits design with high safety margins
- Use of surface mount technology components for high reliability

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Time Limit Relay

Application:

Delayed switching of Relay for control of Motor Alternator set of BHEL Coaches

Features :

- Delayed switching of relay after switching ON of control supply
- Reduction in switching delay in case the ac signal is more than prescribed limit
- Optical isolation for ac signal
- Use of Silicon Controlled Rectifiers
- Accurate timing
- Circuits design with high safety margins

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Motor Amplifier

Application:

Control of Drive Motor of Cam-Shaft-Controller of NGEF Coaches

Features :

- Based on MOSFETs
- Single side printed circuit board design
- Pulse width modulation
- Front panel status indicating LEDs
- Reliable control & protection logic
- Intelligent current limit system
- Protection against over current
- Circuits design with high safety margins