The electronic, microprocessor-based SGCP4000 / MS4000, manufactured by Siemens, is a modular microprocessor-controlled motion detector system that is designed to reliably detect the motion of an approaching train and start the crossing warning system.

**Feature Summary**
- Available in single track non-redundant and single track redundant models.
- Uses proven GCP 4000 modules (which are all hot swappable and interchangeable with GCP 4000 systems):
  - CPUII+ Module
  - Track Module (complete with island, two configurable vital inputs, vital XR output, and vital Island output)
- Reduced system size for installation in a smaller equipment house.
- Provides a simple user interface in order to easily program and setup the unit.
- The SGCP4000 / MS4000 programming can be confirmed by an Office Configuration Check Number (OCCN) and the track calibration information can be confirmed by a Track Check Number (TCN).
- Provides a diagnostic history log and train move history log with being capable of interfacing to a SEARII Recorder/Analyzer for additional recording capability.
- Supports the use of an external island using a vital input.
- Supports the use of an Office Configuration Editor allowing minimum programming steps to be specified by design.
- Transfer module can be removed and a strap can be used to force either main or standby operation without the transfer module present.
- Can be configured as a basic predictor.
- The SGCP4000 / MS4000 comes ready for field installation; requiring minimum configuration per the railroad's approved wiring or installation instructions to place the unit into operation.

**Theory of operation**
Operation of the SGCP4000 / MS4000 is based on the maximum impedance of an unoccupied track circuit, which is determined by the location of the termination shunts and the rate of change in the impedance resulting from the physical location of a train as it moves within the track circuit.

- The SGCP4000 / MS4000 applies a constant current AC signal to the track and measures the level of the resulting voltage. The level varies with approach track impedance, which also varies with the distance of the train from the crossing.
- The SGCP4000 / MS4000 will detect the inbound motion of a train and activate the crossing warning equipment.
- When the train has cleared the crossing, the SGCP4000 / MS4000 no longer senses the inbound motion and allows the crossing warning signal system to recover.
- When a train stops before reaching the crossing, or reverses direction and backs away from the crossing, the SGCP4000 / MS4000 system will recover after a short (programmable) time-out as inbound motion is no longer detected.
Dimensional Data

**Parameter**

**Chassis Dimensions:**
- Width: 10.16 In. (25.806 cm)
- Depth: 10.86 In. (27.584 cm)
- Height: 14.25 In. (36.195 cm)

**Chassis Weight:**
- Single Track (A80490)
  - Empty: 11.8 lbs (3.742 kg)
  - Full Module Complement: 17.5 lbs (7.938 kg)

**Module Weights:**
- CPU2+ (A80403)
  - 1.25 lbs (0.567 kg)
- Track (A80418)
  - 1.00 lbs (0.454 kg)
- Transfer (A80406)
  - 0.83 lbs (0.567 kg)

Miscellaneous Data

**Parameter**
- M5 Response Time: 5 seconds
- Relay Drive Outputs (VO):
  - 400 to 1000-ohm load
- Minimum Output Current @ medium transmit power: 200 mA
- Minimum Output Current @ high transmit power: 400 mA
- Surge Protection: Requires surge protection
- Typical Monitoring and Storage: CPU2+
  - 3000 minimum
- IO State Changes:
  - 3000 minimum
- Train Moves:
  - 100 minimum

SGCP4000 / MS4000 Ordering Information

**Item Description**
- SGCP4000 / MS4000
- SGCP4000 / MS4000, A80490

**Cards**
- CPU II+
- Track Module
- Transfer Module

**Documentation**
- Motion Sensor 4000 (MS 4000) Installation and Instruction Manual

**Part Number**
- 8000-80490-0001
- 8000-80403-0001
- 8000-80418-0001
- 8000-80406-0001
- SIG-00-11-02