



CLEARGUARD®

PSO 4000 Series Phase Shift Overlay Modules

Siemens Clearguard® PSO 4000 is an electronic, microprocessor-based modular system designed to reliably provide a track occupancy overlay system that activates crossing warning devices as well as other systems and is sufficiently versatile to permit use in a wide variety of complex applications.

Operation of the system is such that the transmitter module emits a coded, 8- or 16-bit address through the rails using an audio frequency signal carrier channel.

Then a modulated signal is detected by the receiver module, which is tuned to the same carrier frequency, where it is decoded and processed.

Next, the receiver responds only to signals of the proper frequency, modulation rate, address and amplitude.

The ability of PSO 4000 to differentiate between its operation signal and all other signals present on the track is due to the non-symmetrical coded modulation and receiver decoding techniques which ensure that the system is immune to random or foreign AM, FM and beat signals.

Features

- Available in Transmitter, Receiver, Transceiver and Crossing modules.
- Provides a simple user interface for wasy unit setup.
- Programmable for ALL common PSO II, PSO III, AFTAC and METRA carrier channels.

- Compatible with existing PSO II and PSO III equipment.
- Available internally programmable pick-up and drop delay timers.
- Available internally programmable vital stick release timer. *(Embedded within crossing package.)*
- Two vital inputs and one vital relay output contained within 7A471 transmitter modules.
- Two vital inputs and three vital relay outputs contained within all other modules.
- Program selectable modulation codes through 8-bit formats "A" and "C" as well as 16-bit formats "D", "E" and "F".
- Able to dynamically select codes via vital inputs or ATCS interface.



Model 7A475 Clearguard® PSO 4000 Series Phase Shift Overlay Transceiver Module shown for reference purposes only. Actual unit selected may vary in mounting and features.

SIEMENS

Physical Data

Specification	Parameters
SERIES DESIGNATION	ALL MODELS
Height	9.54 in (24.23 cm)
Width	3.65 in (9.27 cm)
Depth	10.35 in (26.29 cm)
Weight	6.10 lb (2.77 kg)

General Data

Specification	Parameters
SERIES DESIGNATION	ALL MODELS
Frequency Stability	0.01% (Hz) of selected frequency
Transmitter Output	2 Ω nominal
Receiver Sensitivity	62 dB over entire operating range
Receiver Selectivity	60 dB down on adjacent channels
Track Circuit Shunt	Between 0.06 Ω and 0.50 Ω
Signal Strength	4 Vrms between 2.0 kHz and 20.2 kHz
Island Transmitter	100 Ω beyond 3 dB of island load operating frequency with a Q of 10 to track
Island Receiver	100 Ω beyond 3 dB of island load operating frequency with a Q of 10 to track
Island Sensitivity	30 dB down on adjacent channels
Relay Coil Resistance	400 Ω to 1,000 Ω
Power Supply Ripple	1.0 VDC Peak to Peak (maximum)
Supported PSO Frequencies (Frequencies listed in BOLD are recommended for use within electrified territories)	156 Hz, 211 Hz, 285 Hz, 348 Hz, 430 Hz, 525 Hz, 645 Hz, 790 Hz, 970 Hz, 1180 Hz, 1450 Hz, 1770 Hz, 2140 Hz, 2630 Hz, 3240 Hz and 4000 Hz.
Supported Track Island Circuit Frequencies	2.14 kHz, 2.64 kHz, 3.24 kHz, 4.00 kHz, 4.90 kHz, 5.90 kHz, 7.10 kHz, 8.30 kHz, 10.00 kHz, 11.50 kHz, 13.20 kHz, 15.20 kHz, 17.20 kHz and 20.20 kHz.

Environmental Data

Specification	Parameters
SERIES DESIGNATION	ALL MODELS
Operating Temperature	-40 °F to +160 °F (-40 °C to +70 °C)
Humidity (Maximum)	90% non-condensing

Ordering

To Order Call	1 (800) 793-7233
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Clearguard® Transmitter Module
(Part No. NYK:70007A4710001)



Clearguard® Receiver Module
(Part No. NYK:70007A4730001)



Clearguard® Transceiver Module
(Part No. NYK:70007A4710005)



Clearguard® Crossing Module
(Part No. NYK:70007A4740001)

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