

**NEMA Standards Publication TS 2-2003 (R2008)**

*Traffic Controller Assemblies  
with NTCIP Requirements  
Version 02.06*

*Published by:*

National Electrical Manufacturers Association  
1300 North 17th Street, Suite 1752  
Rosslyn, Virginia 22209

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## Foreword

This NEMA Standards Publication TS 2-2003, *Traffic Controller Assemblies with NTCIP Requirements*, has been developed as a design guide for traffic signaling equipment which can be safely installed and provide operational features not covered by the NEMA TS 1-1989, *Traffic Control Systems*. Within the standard, any reference to a specific manufacturer is made strictly for the purpose of defining interchangeability where there exists no nationally recognized standard covering all the requirements. The manufacturer references do not constitute a preference.

The TS 2 Standards Publication has been established to reduce hazards to persons and property when traffic signaling equipment is properly selected and installed in conformance with the requirements herein.

The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to the validity of this claim or of any patent rights in connection therewith.

Comments and suggestions for the improvement of this document are encouraged. They should be sent to:

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## Scope

This Standards Publication covers traffic signaling equipment used to facilitate and expedite the safe movement of pedestrians and vehicular traffic.

Two approaches to expansion of traffic features of NEMA TS 1, *Traffic Control Systems*, are provided:

Type 1—

- Entirely new performance oriented standard.

Type 2—

- Use of the MSA, B, and C connectors in common use with NEMA TS 1 equipment.

The Type 1 approach embraces:

- Controller Unit
  - Display-alphanumeric Display—32 Characters, 2 Lines Minimum
  - Port 1 Connector
    - High speed full duplex data channel connecting controller unit, conflict monitor (malfunction management unit), rear panel (terminals and facilities) and detectors.
    - All data exchange with rear panel.
    - Controller unit and conflict monitor exchange information on a regular basis, performing redundant checks on each other. Controller unit has access to all conflict monitor internal information, making enhanced event logging, remote intersection monitoring, and remote diagnostics feasible.
    - All detector information, including detector diagnostics.
    - EIA-485 serial communications interface with noise immunity characteristics.
    - SDLC (synchronous data link) communication protocol with a bit rate of 153, 600 bits/second, utilizing sophisticated error checking.
    - Vast reduction in number of wires in the cabinet.
  - Port 2 Connector
    - Interface to personal computer.
    - Interface to printer.
  - Port 3 Connector
    - 1200 baud, FSK serial port for on-street communications.