

INSTALLATION AND INSTRUCTION MANUAL

WAYSIDE INSPECTOR, P/N A81000

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NOTES, CAUTIONS, AND WARNINGS

Throughout this manual, notes, cautions, and warnings are frequently used to direct the reader's attention to specific information. Use of the three terms is defined as follows:



Generally used to highlight certain information relating to the topic under discussion.

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- Ground yourself before touching card cages, assemblies, modules, or components.
- Remove power from card cages and assemblies before removing or installing modules.
- Remove circuit boards (modules) from card cages by the ejector lever only. If an ejector lever is not provided, grasp the edge of the circuit board but avoid touching circuit traces or components.
- Handle circuit boards by the edges only.
- Never physically touch circuit board or connector contact fingers or allow these fingers to come in contact with an insulator (e.g., plastic, rubber, etc.).
- When not in use, place circuit boards in approved static-shielding bags, contact fingers first. Remove circuit boards from static-shielding bags by grasping the ejector lever or the edge of the board only. Each bag should include a caution label on the outside indicating static-sensitive contents.
- Cover workbench surfaces used for repair of electronic equipment with static dissipative workbench matting.
- Use integrated circuit extractor/inserter tools designed to remove and install electrostaticsensitive integrated circuit devices such as PROM's (OK Industries, Inc., Model EX-2 Extractor and Model MOS-40 Inserter (or equivalent) are highly recommended).
- Utilize only anti-static cushioning material in equipment shipping and storage containers.

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CHAPTER 1 – INTRODUCTION

1.1 PURPOSE

This manual provides the information needed by field maintainers and crossing installation teams to install and correctly wire the Wayside Inspector (WI) to crossings. This manual provides installation instructions and wiring of the WI to AC power, batteries, battery chargers, crossing warning systems including the Solid State Crossing Controller (SSCC), relay controlled crossing wiring, Grade Crossing Predictor (GCP) connections, the Ground Fault Tester 2, and Wireless Magnetometers.

1.2 SCOPE

This manual focuses on installation and connection of the WI. It is useful to crossing installers and field maintenance personnel intending to use the WI in crossing monitoring. This manual does not address any railroad specific crossing guidelines. This manual provides an overview of the programming, but should not be used as a guide to the programming of the WI. For application guidelines, see the Wayside Inspector Application Guideline Manual, SIG-00-16-05.

1.3 ABBREVIATIONS AND ACRONYMS

APPLICATION ENGINEER	Application Engineer
AP	Access Point
AREMA	American Railway Engineering and Maintenance-of-way Association
CFR	Code of Federal Regulations
DCE	Data Communication Equipment
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
DTE	Data Terminal Equipment
ECD	External Configuration Device
GCP	Grade Crossing Predictor
GFT	Ground Fault Tester
IP	Internet Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
MCF	Module Configuration File
MCT	MCF Configuration Tool
PoE	Power over Ethernet
TCP	Transmission Control Protocol

UDP User Datagram Protocol

UI User Interface

WI Wayside Inspector

WiMag Wireless Magnetometer

1.4 REFERENCES

<u>Component</u>	Manual Title	Document Number
Battery Charger	Battery Charger SJ Battery Chargers	
	Model 4000 Grade Crossing Predictor (Model 4000 GCP) Field Manual	SIG-00-08-10
Model 4000 Grade Crossing Predictor	Model 4000 Grade Crossing Predictor Plus (Model 4000 GCP Plus) Field Manual	SIG-00-12-68
	Microprocessor Based Model 4000 Grade Crossing Predictor Family Application Guidelines	SIG-00-08-06
Model 5000 Grade	Model 5000 Grade Crossing Predictor (Model 5000 GCP) Field Manual	SIG-00-13-03
Crossing Predictor	Microprocessor Based Model 5000 Grade Crossing Predictor Family Application Guidelines	SIG-00-13-04
	Ground Fault Tester, A80297-01, -02, -03	SIG-00-03-05-003
Glound Fault Tester	Ground Fault Tester 2 (GFT2), A81010-01, -02	SIG-00-15-06
	Solid State Crossing Controller IIIA (SSCCIIIA) A91160 & 91165	SIG-00-02-12
Solid State Crossing Controller	Solid State Crossing Controller III Plus (SSCCIIIPlus) A91190 & 91195	SIG-00-02-03
	Solid State Crossing Controller IV (SSCCIV) A91210 & 91215	SIG-00-03-02
Wayside Alarm Management System	Wayside Alarm Management System (WAMS) Test and Inspection Management	SIG-00-07-08
Wayside Inspector	Wayside Inspector Application Guidelines	SIG 00-16-05

CHAPTER 2 - OVERVIEW

A WARNING

WARNING

THE WAYSIDE INSPECTOR IS A NON-VITAL PRODUCT. CAUTION MUST BE TAKEN WHEN INTERFACING THE WAYSIDE INSPECTOR TO ANY VITAL SIGNAL OR CROSSING EQUIPMENT AS THE WAYSDE INSPECTOR CANNOT BE USED TO PERFORM, EITHER DIRECTLY OR INDIRECTLY, ANY VITAL FUNCTIONS. ENSURE THE WAYSIDE INSPECTOR IS INSTALLED PER MANUFACTURER'S INSTRUCTIONS, AND/OR ALL EQUIPMENT INTERCONNECTIONS ARE IN COMPLIANCE WITH RAILROAD PROCEDURES AND SPECIFICATIONS.

The Wayside Inspection system automates periodic inspections for crossings. The system focuses on the following inspections: Grounds (CFR, Title 49, §234.249), Standby Power (CFR, Title 49, §234.251), and Warning Time (CFR, Title 49, §234.259) Inspections.

To achieve those goals, the system uses the Wayside Inspector (WI), installed at the crossing, to test standby power, test for grounds, monitor the crossing, and test warning time,. The Wayside Inspector monitors the state of discrete I/O signals, battery voltages, and AC power at a crossing. From that information, the Wayside Inspector analyzes the operation of the crossing warning system and automatically performs periodic inspections of the crossing warning system. The Wayside Inspector can send alarms and automated inspection results to the backoffice system using several possible communications methods. The inspections are performed by the Wayside Inspector by executing application programmable logic Figure 2-1 shows the context of the WI installed at a crossing.



Figure 2-1: Context of Wayside Inspector Installed at Crossing

The WI monitors the crossing warning system I/O using digital inputs. The WI monitors the battery system voltages using analog inputs. The WI can turn off the battery chargers using an AC power control relay. The WI monitors the system for ground faults using the Siemens Ground Fault Tester 2(GFT2).

If the crossing uses a Siemens GCP, the WI can receive crossing statuses over a message interface instead of using input wiring. In addition, the WI can receive train speed and direction information in GCP messages.

In situations where the typical crossing I/O cannot provide the direction our route information needed for the warning time test, the installation can add Wireless Magnetometer (WiMag) sensors to detect trains. The WI can receive the WiMag sensor statuses over a network.

Field personnel can interact with the WI using a web browser user interface. The UI allows field personnel to adjust system settings, view status, view inspection results, download logs, etc.

Because each location (or class of locations) is different, the WI uses programmable logic to execute the inspections. The logic is loaded into the WI as a Module Configuration File (MCF). The MCF includes configuration settings and relay logic. An Application Engineer defines the logic and settings using the MCF Configuration Tool (MCT).



CHAPTER 3 – HARDWARE

The Wayside Inspector (WI) has the following connections and components:



The WI has the following connectors:

Table 3-1: W	ayside Inspector	Connectors
--------------	------------------	------------

No.	Name	No.	Name
1.	Power Input & ECD	2.	Isolated Power Output
3.	On-site Personnel Button and Beeper	4.	Application LEDs
5.	Status LEDs	6.	Ethernet Interface LEDs
7.	Comms Serial Interface	8.	Expansion Slot
9.	Digital Inputs	10.	Battery Inputs
11.	Relay Outputs	12.	AC Power Monitor and Control

3.1 POWER INPUT AND ECD



Figure 3-2: Power Input and ECD Connector

The WI is connected to the 12 VDC (nominal) battery banks as shown in Section 5. The WI power supply supplies 2000 VRMS isolation and complies with AREMA power supply standards.

The WI monitors the applied power using an internal battery input circuit, which eliminates the need to wire the input power battery bank to an external battery input. Table 3-2 shows the power input specifications.

Parameter	Value Range
Input Voltage Range	8.0 – 20.0 VDC
Input Current	3.0A max @ 13.8 VDC
Reverse Polarity Protection	Up to 16 VDC
Isolation	2000 VRMS, 60 Hz, 60 s

Table 3-2:	Power	Input S	pecifications
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The External Configuration Device (ECD) allows field personnel to replace the WI with a new unit without re-configuring it. The ECD is attached to the power input connector. The WI is compatible with both the original A80519 ECD and the A81006 ECD.

3.2 ISOLATED POWER OUTPUT

The WI provides 12VDC (nominal) isolated power output. The isolated power can be used to power external communication equipment such as cell modems.



12VDC (0.5A) OUT

Figure 3-3: Isolated Power Output

Table 3-3 lists the specification for the output power.

Table 3-3: Isolated Power Output Specifications

Parameter	Value Range
Voltage	12.0VDC nominal (follows input voltage)
Current Limit	0.5A max at 12.0VDC
Short Circuit/Over Current Protection	Yes
Isolation	2000 VRMS, 60 Hz, 60 s

3.3 ON-SITE PERSONNEL BUTTON & BEEPER

The WI has an On-site Personnel button, which field personnel use to active Maintainer on Site mode.

O On-Site Personnel

Figure 3-4: On-site Personnel Button

Maintainer on Site mode allows field personnel to test and modify the crossing without sending erroneous alarm messages to the office. When field personnel press the On-site Personnel button, the WI goes into Maintainer on Site mode and starts a timer. The WI will not send alarm messages to the office while in Maintainer on Site mode. The WI returns to normal operation when the timer expires. The Alarms Suppressed LED will be on while the WI is in Maintainer on Site mode. The maintainer may re-start the timer for Maintainer on Site mode by pressing the On-Site Personnel button again, at any time.

The WI has an internal beeper. The beeper will "chirp" when the user presses the On-site Personnel pushbutton to provide audible feedback. The MCF may also control the beeper for application-specific functions.

3.4 APPLICATION LEDS



The WI has eight application programmable LEDs available to the program logic. The eight LEDs are red color. The application logic in the MCF determines the function of the Application LEDs. There is space next to each LED to add a sticker or write in the LEDs intended function.



Figure 3-5: Application LEDs

3.5 STATUS LEDS

The WI has LEDs to display system status information.



Figure 3-6: Status LEDs

The Power LED is green and driven by hardware. It turns on when power is applied to the WI.

The Health LED is green and driven by software. The Health LED turns on for one second and off for one second when the system is healthy. The Health LED flashes faster when there is a detected hardware problem.

The Alarms Suppressed LED is yellow and driven by software. It turns ON while in Maintainer on Site mode and alarms are suppressed. Field personnel activate Maintainer on Site mode by pressing the Onsite Personnel button (see section 6-20 for a description of Maintainer on Site mode). The WI software must see the button change from "pressed" to "not pressed" to activate the mode. That prevents a failed button from leaving the unit in Maintainer on Site mode permanently.

The TX/RX Comms LEDs are green and red and driven by software. The green TX LED briefly flashes when the WI sends a data packet on the Comms serial interface. The red RX LED briefly flashes when receiving a valid data packet.

3.6 ETHERNET INTERFACE LEDS



Figure 3-7: Ethernet Interfaces

The Laptop and Network Ethernet connectors each include a yellow and a green LED, which are driven by hardware. The network connection is generally used to receive and transmit the status of the WI. The Laptop port is used when field maintenance personnel view the status of tests and equipment via the Web User Interface (web u/i). The yellow LED shows Ethernet link-up status. The yellow LED turns on when Ethernet link-up is established. The green LED shows Ethernet activity. The green LED briefly flashes when Ethernet frames are received or transmitted.

3.7 COMMS SERIAL INTERFACE

The WI has one serial interface, which uses a DB9 male connector with a standard DTE pin arrangement. Table 3-4 lists the Comms serial port specifications.

Parameter	Value Range
Baud Rate	Up to 115,200
Line Levels	RS-232 only
Clock Modes	Asynchronous only
Flow Control	RTS/CTS, Modem, XON/XOFF
Isolation	2000VRMS, 60Hz, 60s

Table 3-4: Comms Serial Port Specifications

Table 3-5: Comms Serial Port Pin Configuration

Pin	I/O	Function	
1	I	Carrier Detect (CD)	
2	I	Receive Data (RXD)	
3	0	Transmit Data (TXD)	
4	0	Data Terminal Ready (DTR)	
5	N/A	Ground (GND)	
6	l	Data Set Ready (DSR)	
7	0	Request To Send (RTS)	
8	I	Clear To Send (CTC)	
9	N/A	No Connect	

3.8 HARDWARE EXPANSION SLOT

The WI has one hardware expansion slot.



Figure 3-8: Hardware Expansion Slot

As of this writing, no expansion cards have been developed. Future expansion options include communication interfaces or specialized I/O.

3.9 DIGITAL INPUTS

The WI has 25 digital inputs. The unit has 3 groups of 7 inputs per group. Each group shares a common negative and is isolated from the rest of the system but not to inputs within the same group. There are 4 additional digital inputs, which are individually isolated with independent negatives. The installation may wire vital signals directly to digital inputs as long as the installation follows strict wiring guidelines specified in this manual in CHAPTER 6.

Each input has its own LED indicator to display the state of that input, as determined by software (the LEDs are not directly hardware driven).



Figure 3-9: Digital Input Connectors and LEDs

Table 3-6 lists the specifications for the digital inputs:

Table 3-6	: Digital	Input	Specifications
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Parameter	Value Range	Comments	
Voltage Range	0 – 120V (AC or DC)		
ON Threshold	4.0VDC	See Note	
OFF Threshold	1.0VDC	See Note	
Reverse Polarity Protection	Full input voltage range	Reverse polarity always OFF	
Isolation	2000VRMS, 60Hz, 60s		

NOTE

NOTE

The specified ON and OFF DC voltage thresholds apply to the input circuit hardware. The WI executive software further samples and de-bounces the input to determine the reported input state. The ON and OFF voltage thresholds do not apply when monitoring AC voltage. The system may not reliably detect AC voltage below about 14.0 VRMS and specific de-bounce settings are required to correctly report AC input states.

See 5.1.2 for a description of digital input processing and programming.

3.10 BATTERY INPUTS

The WI has 4 battery inputs. Three battery inputs are externally accessible through a WAGO connector. One battery input is internally connected to the power input. The battery inputs are designed to monitor battery banks with voltages ranging up to 36VDC.



Figure 3-10: Battery Input Connector

Table 3-7 lists the specifications for the battery inputs.

Table 3-7: Battery Input Specifications

Parameter	Value Range
Voltage Range	0 – 36VDC
Isolation	2000VRMS, 60Hz, 60s

3.11 RELAY OUTPUTS

The WI has 4 general purpose non-vital relay outputs. Each relay includes both the front (F) and back (B) contacts for normally open (H to F) or normally closed (H to B) wiring options. LED indicators display the status of each relay, as commanded by software (the LEDs are not directly hardware driven).



Figure 3-11: Relay Output Connector and LEDs

Figure 3-12 shows the internal relay hardware:



Figure 3-12: Relay Output Hardware Internals

Table 3-8 lists the specifications for the relay outputs.

Table 3-8: Relay Output Specifications

Parameter	Value Range
Current Limit	5A @ 30VDC
Isolation	2000VRMS, 60Hz, 60s

3.12 AC POWER MONITOR AND CONTROL

The WI has a dedicated input for monitoring AC power and a dedicated relay output to control the AC power to battery chargers.



Figure 3-13: AC Power control and Input Connector

The "Line In" pin is for connection to the AC power line wire and the "Neutral" is for connection to the AC power neutral.

The AC CTRL Relay is intended to control an external relay that removes AC power from the installed battery chargers. That is needed to perform the standby power test. The AC CTRL relay is normally open. The contacts will close to control external AC disconnect relays for each battery charger.

Siemens recommends using a 12V relay with 10 Ohms or greater Relay Resistance Value for the AC CTRL Relay.

The WI AC power input is the same as the digital input, but has different default de-bounce settings in the software. The AC CTRL relay is the same as the general purpose relays, except only the Front contact is available, and it has a Relay Resistance Value of XX ohms.

3.13 DIAGNOSTIC SERIAL INTERFACE

The WI has a diagnostic serial port intended for use by Siemens personnel. This serial port provides access to the underlying Linux command line, which should be used by properly trained or instructed personnel only.

The diagnostic serial port is accessible only after removing the hardware expansion plate. The user must connect the Siemens 53255 cable to the 4-pin header on the back side of the printed circuit board. The 53255 cable provides a DB9 female DCE connector suitable for connection to a PC using a standard, straight though, RS-232 serial cable.

Table 3-9 shows the pin assignments on the 4 pin header. All signals are TTL-level at the header. The 53255 cable has a built-in RS-232 level converter.

Pin	I/O	Function	
1	0	+5VDC	
2	I	Receive Data (RXD)	
3	0	O Transmit Data (TXD)	
4	N/A	GND	

Table 3-9: Diagnostic Serial Port Pin Assignment

3.14 MOUNTING

The WI is mounted on a wall, a shelf, or a 19-inch rack. All WI connector and indicators are front facing.



Figure 3-14: Wayside Inspector Mounting Dimensions

CHAPTER 4 – ANCILLARY EQUIPMENT

The following programs and external hardware are used with Wayside Inspector (WI):

4.1 WAYSIDE INSPECTOR APPLICATION GUIDELINES & MCF CONFIGURATION TOOL

This document provides guidance to field personnel to install and setup the WI. The Siemens Wayside Interface Application Guidelines, SIG-00-16-05, provides a reference to the Application Engineer for all WI configuration settings and their purpose. The Module Configuration File Configuration Tool provides a means for the Application Engineer to program all WI logic states, which are then available as optional pull down values in the MCF logic.

An Application Engineer tailors the functionality of the WI by writing an MCF. The MCF includes configuration settings and the relay logic. The Application Engineer uses the MCT to create the MCF. The MCT presents screens to define the MCF configuration settings, configure timers and logic states, and write the logic using relay logic diagrams. For data regarding the MCF and the MCT, see SIG-00-16-05.

4.2 GROUND FAULT TESTER 2 (GFT2)





Figure 4-1: The Ground Fault Tester 2, A) A81010-01 (9V - 16.5V) & B) A81010-02 (24V – 36V)

	WARNING
	THE GROUND FAULT TESTER 2 (GFT 2) SHOULD ONLY BE USED IN APPLICATIONS DESCRIBED IN THIS MANUAL.
	AN INTERNAL FAILURE OF THE GFT 2 MAY RESULT IN A GROUND OF UP TO 0.8 mA ON THE BATTERY BEING MONITORED. THEREFORE, THE GFT 2 SHOULD NOT BE USED IN SAFETY CRITICAL APPLICATIONS THAT COULD BE ADVERSELY AFFECTED BY A GROUND OF UP TO 0.8 mA. THE GET 2 CANNOT BE GUARANTEED TO CORRECTLY DETECT AND/OR
	REPORT GROUND FAULTS UNDER ALL FAILURE CONDITIONS.
NOTE	NOTE
	Periodic independent ground fault testing should be performed during routine maintenance of the system.

The A81010 Ground Fault Tester 2 (GFT 2) is a user configurable device used to monitor the leakage resistance between battery terminals and earth ground. The unit can be operated in a stand-alone mode, with a SEAR II device, with a Wayside Inspector (WI) or with any 3rd party equipment that can be configured to accept **dry** contact relay inputs.

The GFT 2 is available in two hardware configurations, A81010-01 and A81010-02. The –01 configuration is used with 9 to 16 volt batteries. The –02 configuration is used with 24 to 30 volt batteries. See Figure 4-1A and Figure 4-1B.

The unit can also be placed in test mode where a simulated ground fault of 1 mA is placed internally on an isolated battery input to verify that the unit is properly detecting faults.

A separate internal circuit is used to verify the GFT 2's health, as indicated by the status of the GFT FAIL LED on the front panel. The GFT 2 can be powered by a 9-30 VDC (12 VDC nominal) operating battery independently from the batteries being monitored.

The GFT 2 has an internal de-bounce circuit that monitors the channel faults for 10+/- 1 sec from the instant the GFT 2 detects the presence or removal of the fault before confirming the status of the fault visually via LED indicators on the front panel and via a serial interface to the SEARII or to the WI via any unused WI digital input, or via dry relay contacts to 3rd party equipment

The GFT 2 has been designed using fail-safe design principles to ensure that in the event of a failure, no more than a 0.8 mA ground can be placed on the battery being monitored.

For additional information regarding the GFT2, please see Siemens Ground Fault Tester 2 (GFT2), A81010 -01, -02 User's Guide, SIG-00-15-06.

4.3 CROSSING BATTERIES



Figure 4-2: Typical Crossing Battery Banks

The WI monitors the battery system voltages using analog inputs. The WI can turn off the battery charger using the AC power control relay. The WI also monitors the system for ground faults using the Ground Fault Tester 2 (GFT2).

4.4 BATTERY CHARGERS



Figure 4-3: Siemens SJ20 20 Amp Battery Charger

By placing a relay between the WI and the Battery Charger, the WI can command the battery charger off to perform required battery testing.

4.5 AC POWER

The local AC Power in the shelter used to power the battery charger is also routed through the WI so that the battery charger can be commanded off for required battery testing.

4.6 GRADE CROSSING PREDICTOR MODEL 4000 OR 5000 (MODEL 4000/5000 GCP)



Figure 4-4: The Model 4000/5000 Grade Crossing Predictor (GCP)

4.6.1 System Configurations

The Model 4000/5000 Grade Crossing Predictor (GCP) is a modular microprocessor-controlled predictor system that is deployed to continually monitor the approach(es) to railroad grade crossings and to control the lamps, gates and bells associated with those crossings. It also has provision for an optional plug-in SEAR event recorder. The Model 4000/5000 GCPs are available in several case configurations. The Model 4000 GCP communicates with the Wayside Inspector (WI) using the GCP's Echelon communication protocol thru the Wayside Access Gateway (WAG), and from the WAG to the WI via the Ethernet. The Model 5000 GCP has Ethernet connectivity already built in to pass information via the Ethernet.

4.6.2 Standard Features

The Model 4000/5000 GCP can have up to 6 Track Modules for train detection, with each Track Module having nine track predictors that are configurable as motion sensors or predictors. The Track Module Prime Predictor is generally used for control of local crossings. The Track Module DAX A through DAX G Predictors are generally used for control of remote crossings. The Track Module Preempt Predictor is generally used for interconnection with traffic signal systems. Each track module has two vital inputs and two vital outputs. In addition to predictors, each track module is capable of providing a multifrequency island circuit.

Using internal crossing controller(s), the GCP can control the bells and gates of a crossing and up to 40 amps of lights. Each SSCC IIIi module has 5 vital outputs. The GCP can utilize internal PSO Modules that have the ability to detect train direction on a bidirectional track circuit that allows the control of remote crossings (DAXing) and also to perform mandatory testing of crossings in conjunction with the WI. Each PSO Module has three vital outputs and two vital inputs. The GCP can utilize RIO modules to extend I/O capability via the RIO's four vital inputs and four vital outputs. The GCP has redundant Main/Standby operation for CPU, Track, PSO, and RIO modules.

The GCP can perform independent event recording, using the SEAR2i. The SEAR2i options include programmable alarms and automated performance of crossing test functions. The GCP generates test

result reports in several formats. The GCP also interfaces to the Wayside Alarm Management System (WAMS) and the Wayside Inspector (WI).

The Model 4000 GCP utilizes Echelon communications for vital communications to other locations via Ethernet spread spectrum radio (ESSR) and single person calibration and monitoring using VHF communicator. The GCP has a color display module for configuration, monitoring and troubleshooting the system. The Model 5000 GCP uses internet connectivity for vital communications to the WI as well as other locations via the Ethernet.

For further information regarding the Model 4000 GCP, see Siemens Microprocessor Based Grade Crossing Predictor Model 4000 Family Application Guidelines, SIG-00-08-06 and for the Model 5000 GCP see Siemens Microprocessor Based Grade Crossing Predictor Model 5000 Family Application Guidelines, SIG-00-08-06.

4.7 CROSSING WARNING SYSTEM (CROSSING CONTROLLER OR RELAY BASED)

In a Relay Based Crossing, take one output wire from the relay concerned (XR, ISL, Appr1, Appr2, etc.), and connect it to a digital input per the approved Railroad/Agency site wiring diagram.

4.8 WIRELESS MAGNETOMETER (WIMAG) SYSTEM

The WI can receive status information from a Wireless Magnetometer (WiMag) system. The WiMag system is made up of an Access Point (or base station) and at least one sensor. Optionally, the system may use a repeater to increase the RF range of the sensors. Figure 4-5 shows an example system.



Figure 4-5: The Wireless Magnetometer (WiMag) Sensor System

The Access Point reports the status of each sensor in the system to the WI over a network using UDP messages. The sensor statuses are reported at a periodic rate. The sensor reports "detected" or "not detected" status and an error status. When a train is above a WiMag sensor, it will report "detected".

The user may set the UDP port number and a timeout value for the Access Point messages. The timeout is used to report the health of the link with the Access Point.

The user can set a channel name, OFF name, and ON name for each sensor. The user can also set ON and OFF de-bounce values for each sensor (just like discrete digital inputs). These names are used when adding state change entries to the Event Log.

The WI can receive statuses from only 1 Access Point and at most 20 WiMag sensors.

The Application Engineer may use the "detected" and "error" statuses of each sensor and the "link OK" status of the Access Point in the MCF logic.

For a more detailed description of the WiMag Sensor System, see Siemens WiMag Vehicle Detection System General Handbook, Part No. 667/HB/47200/000.

4.9 WEB USER INTERFACE

The field maintainer will connect a laptop computer to the Laptop connector to perform required maintenance, upload software, and download reports. An Application Engineer may monitor the status of the WI remotely using the Network port on the face of the WI. The Application Engineer could also reprogram and install software updates remotely.

4.10 BACK OFFICE INTERFACE

The Wayside Inspector reports via the Ethernet to the Back Office links to the Wayside Alarm Management System (WAMS), the Office Control Gateway, (OCG), and/or the A-Server. Soon, Rail Fusion will take in the reports as well.

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CHAPTER 5 – MENUS & PROGRAMMING

This chapter provides information regarding each of the menu screens used to program the Wayside Inspector.

NOTE Except for the top level Configuration screen, all parameters and parameter values are set by the Application Engineer for each MCF. Field Maintainers can neither create nor add values that do not already appear in pull down entry lists. Typically, Field Maintainers are not required to make changes to the parameters of the Wayside Maintainer, but the capability to do so is built into the equipment. Field Maintainer's that make such entries will ensure that the entries are in

accordance with the Railroad/Agency's approved site drawings.

5.1 CONFIGURATION

The following screens are found under the Configuration Button

5.1.1 Site Configuration

SIEMENS		Welcome Admin Logout Site Name: Nate's WI ATCS Address: 7.620 100.100.03 Mile Post. 102.5 DOT Number: 102575N
Configuration Status Monitor Rep	orts & Logs Maintenance Ala	arms
Configuration Site Configuration	Configuration	foult
 MCF Configuration Networking Log Setup ATCS Message Routing Time Management Security Set to Default 	Site Name DOT Number Mile Post Time Zone ATCS Address	Nate's WI 102575N 102.5 Pacific (GMT-8:00) ▼ 7 620.100.100.03
© Copyright 2016 Siemens. All rights rese	rved.	Wayside Inspector Version 1.2.0.



NOTE

NOTE

The Field Maintainer will ensure all parameter values set on-site conform to the values specified in the approved Railroad/Agency's site drawings.

The top-level Configuration screen allows the Field Maintainer to enter the following parameter's values:

- Site Name
- DOT Number
- Mile Post
- Time Zone
- ATCS Address

Parameter Name	Range	Default	Description	
Site Name	20 characters	Inspection Site The name of the site printed on reports and downloads.		
DOT Number	7 characters	A000000	The DOT number assigned to the installation	
Mile Post	20 characters	000.0	The mile post location of the installation.	
Time Zone	Greenwich Mean Time (GMT), Eastern, Central, Mountain, Pacific, Alaska, Atlantic, Arizona (no DST), Newfoundland	Eastern	The time zone of the installation.	
ATCS Address	Type 7 ATCS address	7.620.100.100. 03	The ATCS address of the installation.	

Table 5-1: Site Configuration Screen

5.1.2 MCF Configuration

The MCF Configuration screen opens tabs concerning:

- 1. General Configuration
- 2. Digital Input Configuration
- 3. Battery Input Configuration
- 4. Relay Output Configuration
- 5. WiMag Configuration
- 6. GCP Interface Configuration
- 7. Speed Measurement
- 8. Logic Configuration
- 9. State Names
- 10. Set to Default

5.1.2.1 General Configuration

The General Configuration screen opens tabs concerning:

- Maintainer On Site
- AC Power

Maintainer On Site

SIEMENS		
		Welcome Admin Logout
		Site Name: Nate's WI ATCS Address: 7.620.100.100.03 Mile Post: 102.5 DOT Number: 102575N
Configuration Status Monitor Rep	Doorts & Logs Maintenance Alarms	
Configuration	Maintainer On Site	
Site Configuration MCF Configuration General configuration Maintainer On Site	Maintainer on Site Time (min)	
AC Power Digital Input configuration Battery Input configuration		
Relay Output configuration Logic configuration State Names Set to default		
 Networking 		
 Log Setup 		
ATCS Message Routing		
Time Management		
▶ Security		
Set to Default		
© Copyright 2016 Siemens. All rights rese	rved.	Wayside Inspector Version 1.2.0.

Figure 5-2: Maintainer On Site Screen

Table 5-2:	General	Configurat	tion Para	meter Data
	Contrai	oomigaia		motor Date

Parameter Name	Range	Default	Description
Maintainer On Site Time	10 minutes to 3 hours	30 minutes	This value determines the length of time the WI will remain in Maintainer On Site mode when Field Personnel press the On-Site Personnel button.

AC Power

SIEMENS			Walcoma	Admin
			Wecome .	DOT Number: 102575N
			Site Name, Nate's WITALCS Address, 7:620, 100, 100,031 Mile Post, 102,51	DOT Number, 102575N
Configuration Status Monitor Rep	ports & Logs Maintenance A	Narms		
Configuration	AC Power			
	🖥 Save 📑 Refresh			
Site Configuration				
General configuration				
Maintainer On Site	AC Pwr Monitor Name	ACPWR		
AC Power	AC Power Monitor Off Name	Off *	·	
 Digital Input configuration 	AC Power Monitor On Name	On *	•	
 Battery Input configuration 	AC Dawar Manitar Off Dahaunaa			
 Relay Output configuration 	(msec)	1000		
 Logic configuration 	AC Power Monitor On Debounce (msec)	0		
 State Names 	AC Pwr Control Name	ACRLY		
Set to default	AC Power Control Off Name	0//1		
Networking		ΟΠ ^		
Log Setup ATCS Massage Douting	AC Power Control On Name	On *	<u> </u>	
Time Management				
 Security 				
Set to Default				
© Convright 2016 Siemens AlLrights rese	Ned		Waveide Ir	aspector Version 1.2.0

Figure 5-3: The AC Power Screen

Table 5-3: AC Power Parameter Data

Parameter Name	Range	Default	Description
AC Pwr Monitor Name	20 characters	ACPWR	Name used when logging state changes in the event log and included on the configuration report.
AC Pwr Monitor Locked	No, Yes	No	If set to Yes, UI will not allow Field Personnel to change the channel name and state names of this channel.
AC Pwr Monitor On Name	On state name list	On	Name used for the ON state when logging state changes in the event log. Name is selected from a user definable list of possible ON state names.
AC Pwr Monitor Off Name	Off state name list	Off	Name used for the OFF state when logging changes in the event log. Name is selected from a user definable list of possible OFF state names.

AC Pwr Monitor Off Debounce	0 to 60,000 ms	1000	Debounce timer to declare the input OFF. If the input is ON, the WI must not detect energy on the input for this period of time, continuously, before declaring it OFF.
AC Pwr Monitor On Debounce	0 to 60,000 ms	0	Debounce timer to declare the input ON. If the input is OFF, the WI must detect energy on the input for this period of time, continuously, before declaring it ON.
AC Pwr Control Name	20 characters	ACRLY	Name used when logging commanded state change in the event log and included on the configuration report.
AC Pwr Control Locked	Yes or No	No	If set to Yes, UI will not allow Field Personnel to change the channel name and state names of this channel

5.1.2.2 Digital Input Configuration

The WI monitors the crossing using digital inputs. The user can set each digital input to operate in one of three modes: Not Used, Discrete, or GFT.

Not Used Inputs

In some cases, the user may wish to ignore inputs without removing external wiring connected to that input. The user may set the input to "Not Used". In that case, the WI will not process the input or log events for that input.

Discrete Inputs

The WI considers discrete digital inputs to be in one of the following states: OFF, ON, or TOGGLING. When the software detects a state change, it adds an entry to the event log. The log entry includes the name of the input and a name for the state.

For example, an input named "XR" with an OFF state name of "DOWN" and an ON state name of "UP would be logged as "XR DOWN" when the input turns off. The software would log "XR UP" when the input turned back on. The following is an example from an Event report:

B85F 07-Apr-2016 13:42:50.35 DI XR UP

The software determines the input's state by sampling the input hardware. The inputs are de-bounced to prevent logging state changes caused by noise and to prevent application logic from acting on transient states. Before the software declares the input is ON, it must have consecutive energized samples for the on de-bounce time.

The software implements toggle detection to prevent filling up the log if external relays or equipment fails. When the software detects the input is toggling, it will log one single event rather than a long sequence of ON/OFF entries. If the software sees 4 or more changes on the input within the toggle period, it will declare the input as toggling.

The input state is available to the MCF for use in relay logic.

GFT Inputs

The WI can process the pulsed data signal used by the GFT. There are 4 bits of data sent by the GFT on the pulsed data signal: GFT Health (Good or Bad), GFT Mode (Normal or Test), Battery 1 Status (Fault/No Fault), Battery 2 Status (Fault/No Fault). The WI can also detect the "stuck low" and "stuck high" errors on the connection. The WI will log changes to each GFT status bit and the line status. Each status bit and the line status is available to the MCF for use in relay logic.

Digital Input 1 – 25

SIEMENS		
		Welcome Admin Logout
		Site Name: Nate's WI ATCS Address: 7.620.100.100.03 Mile Post 102.5 DOT Number: 102575N
Configuration Status Monitor	Reports & Logs Maintenance	Alams
Configuration	Digital Input 1	
	层 Save 🛛 🔗 Refresh	
Site Configuration		
MCF Contiguration		
Digital Input configuration	Name	р <u>и</u>
Digital Input 1	Channel Type	Discrete Input
Digital Input 2	Off Nama	
Digital Input 3		
Digital Input 4	On Name	On*
Digital Input 5	Toggle Name	Toggling *
Digital Input 6	Off Dobourso (msoc)	
Digital Input 7	Oil Debource (msec)	
Digital Input 8	On Debounce (msec)	100
Digital Input 9	Toggle Period (msec)	1000
Digital Input 10		
Digital Input 11		
Digital Input 12		
Digital Input 13		
Digital Input 14		
Digital Input 15		
Digital Input 17		
Digital Input 18		
Digital Input 19		
Digital Input 10		

Figure 5-4: The Digital Input "N" Screen

There are 25 separate Digital Inputs. If not preset in the MCF, the Field Maintainer will enter the values as specified in the Agency/Railroad's approved site diagram. Alternatively, the MCF may have some or all of the fields locked, thereby preventing changes to the channel name and state names of that channel.

Table 5-4:	Digital	Input	Parameter	Data
	g			

Parameter Name	Range	Default	Description
Name	20 characters	Dlxx	Name used when logging state changes in the event log and included on the configuration report. This name is NOT used in the relay logic (see section 3.4).
Channel Type	Discrete Input, GFT, Not Used	Discrete Input	Selects the type of function the input used for. If Discrete Input, logs OFF, ON, or TOGGLE states. If GFT, the input is wired to an external Ground Fault Tester and individual ground fault states are logged. If Not Used, the input channel is ignored and nothing will be logged, regardless of physical changes on the input.

Locked	Yes or No	No	If set to Yes, UI will not allow Field Personnel to change the channel name and state names of this channel
On Name	On state name list	On	Name used for the ON state when logging state changes in the event log. Name is selected from a user definable list of possible ON state names.
Off Name	Off state name list	Off	Name used for the OFF state when logging changes in the event log. Name is selected from a user definable list of possible OFF state names.
Toggle Name	Toggle state name list	Toggle	Name used for the TOGGLE state when logging changes in the event log. Name is selected from a user definable list of possible TOGGLE state names.
Off Debounce	0 to 60,000 ms	100	Debounce timer to declare the input OFF. If the input is ON, the WI must not detect energy on the input for this period of time, continuously, before declaring it OFF.
On Debounce	0 to 60,000 ms	100	Debounce timer to declare the input ON. If the input is OFF, the WI must detect energy on the input for this period of time, continuously, before declaring it ON.

5.1.2.3 Battery Input Configuration



SIEMENS		
		Welcome Admin Logout
		Site Name: Nate's WI ATCS Address: 7.620.100.100.03 Mile Post: 102.5 DOT Number: 102575N
Configuration Status Monitor Re	ports & Logs Maintenance	Alarms
Configuration	Battery Input 1	
Site Configuration	📙 Save 🥳 Refresh	
 MCF Configuration 		
 General configuration 	Name	Batt1
 Digital Input configuration 		
 Battery Input configuration 	Resolution (V)	0.5
Battery Input 1	Sample Period (msec)	100
Battery Input 2	Average Count	• •
Power Input	VThreshold 1 Use Field Cal Value	
 Relay Output configuration Logic configuration 	Voltage Threshold 1 (V)	0.0
 State Names 	VThreshold 2 Use Field Cal Value	No *
Set to default	Voltage Threshold 2 (V)	0.0
 Networking Log Setup 	VThreshold 3 Use Field Cal Value	No •
ATCS Message Routing	Voltage Threshold 3 (V)	0.0
Time Management Security	VThreshold 4 Use Field Cal Value	No ·
Set to Default	Voltage Threshold 4 (V)	0.0



The WI monitors the battery banks at the crossing using the battery inputs (a.k.a analog inputs). The software measures the voltage on the input by sampling the input every Sample Period. After sampling, the software averages the last Average Count samples to determine the voltage. If the voltage differs from the last logged voltage by the Resolution setting or greater, the software adds an entry to the Event Log. The log entry includes the user-configured name of the battery bank and averaged voltage to the tenth of a volt. (e.g. OB 13.8V).

The software can compare the last logged voltage to up to 4 voltage thresholds. If the voltage is greater than or equal to the threshold, the software sets a logic state, which the MCF can use in relay logic rungs for inspections or alarm logic.

Parameter Name	Range	Default	Description
Name	20 characters	BATTx	Name used when logging state changes in the event log and included on the configuration report. This name is NOT used in the relay logic (see section 3.5).
Resolution	0.1V to 36.0V	0.5V	Required change in voltage before the executive will log an entry.
Sample Period	100ms to 60,000ms	100ms	How often the executive will sample the input voltage.
Average Count	1 to 32	10	The number of consecutive samples the executive will average together to determine the input's voltage.
Voltage Threshold 1	0V to 36V	0V	If the last logged voltage is greater than or equal to this value, the executive will set the "Above Threshold 1" logic state for this battery channel.
Voltage Threshold 2	0V to 36V	0V	If the last logged voltage is greater than or equal to this value, the executive will set the "Above Threshold 2" logic state for this battery channel.
Voltage Threshold 3	0V to 36V	0V	If the last logged voltage is greater than or equal to this value, the executive will set the "Above Threshold 3" logic state for this battery channel.
Voltage Threshold 4	0V to 36V	0V	If the last logged voltage is greater than or equal to this value, the executive will set the "Above Threshold 4" logic state for this battery channel.

Table 5-5: Analog Inputs Parameter Data

There are four separate Battery Inputs. If not preset in the MCF, the Field Maintainer will enter the values as specified in the Agency/Railroad's approved site diagram. Typically, the following values are entered: Name, Resolution (V), Sample Period (msec), Average Count, VThreshold 1 Use Field Cal Value, Voltage Threshold 1 (V), VThreshold 2 Use Field Cal Value, Voltage Threshold 2 (V), VThreshold 3 Use Field Cal Value, Voltage Threshold 4 (V). Alternatively, the MCF may have some or all of the fields locked, thereby preventing changes to the channel name and state names of that channel.

5.1.2.4 Relay Output Configuration

The WI commands the relay outputs to states as defined by the MCF. Like discrete digital inputs, each relay output has a channel name, OFF name, ON name and TOGGLE name. When relay outputs are commanded to change state, the software adds an entry into the Event log showing the channel name and newly commanded state (e.g. TLITE FLASH).
The software automatically toggles the relay output at a user-programmable toggle rate and duty cycle when commanded to the TOGGLE state. The Application Engineer does not need to write MCF timer logic to turn the relay off and on.

SIEMENS		Welcome Admin Logout Site Name: Nate's WI ATCS Address: 7.620 100.100.03 Mile Post. 102.5 DOT Number: 102575N
Configuration Status Monitor	Reports & Logs Maintenance	Alarms
Configuration	Relay Output 1	
Site Configuration MCF Configuration General configuration Digital Input configuration Battery Input configuration Relay Output configuration Relay Output 1 Relay Output 2 Relay Output 3 Relay Output 4	Refresh Name On Name Off Name Toggle Name Toggle Period (msec)	Riy1 • • • • • • • • • • • • • • • • • • •
 Logic configuration State Names Set to default Networking Log Setup ATCS Message Routing Time Management Security Set to Default 	buy cyce	50

Relay Output 1 – 4

Figure 5-6: The Relay Output "N" Screen

There are four separate Relay Outputs. If not preset in the MCF, the Field Maintainer will enter the values as specified in the Agency/Railroad's approved site diagram. Typically, the following values are entered: Name, On Name, Off Name, Toggle Name, Toggle Period (msec), Duty Cycle. Alternatively, the MCF may have some or all of the fields locked, thereby preventing changes to the channel name and state names of that channel.

Table 5-6:	Relay	Outputs	Parameter	Data
------------	-------	---------	-----------	------

Parameter Name	Range	Default	Description
Name	20 characters	RLYx	Name used when logging state changes in the event log and included on the configuration report. This name is NOT used in the relay logic (see section 3.6).
Toggle Period	100ms to 60,000ms	1000ms	If commanded to toggle, this is the period of time for each toggle cycle.
Duty Cycle	5% to 95%	50%	If commanded to toggle, the percentage of the toggle cycle for the relay output to be ON.

On Name	On state name list	On	Name used for the ON state when logging state changes in the event log. Name is selected from a user definable list of possible ON state names.
Off Name	Off state name list	Off	Name used for the OFF state when logging changes in the event log. Name is selected from a user definable list of possible OFF state names.
Toggle Name	Toggle state name list	Toggle	Name used for the TOGGLE state when logging changes in the event log. Name is selected from a user definable list of possible TOGGLE state names.

5.1.2.5 GCP Interface Configuration

General

SIEMENS		Welcome Admin Locout
		Site Name: ITO Taski ATOD Address: 7 555 400 400 441 Mile Bash 000 01 DOT Number: 0000004
		Site Martie: IT'S Test (ATC'S Audress, 7:335, 100, 100, 11) Mile Pust 000,01 DOT Multiper, 000000A
Configuration Status Monitor Repo	orts & Logs Maintenance Alarms	
Configuration	General	
Site Configuration	📊 Save 🦉 Refresh	
MCF Configuration		
 General configuration 	Name	
 Digital Input configuration 		
 Battery Input configuration 	ATCS Subnode 16	· · · · · · · · · · · · · · · · · · ·
 Relay Output configuration 	Send Status on Change Yes	• •
 GCP Interface configuration 	Cfa Msa Period (min)	
General		
Speed Measurement	Status Msg Period (sec) 1	
Logic contiguration	GCP Link Timeout (sec) 10	
Set to default		
 Networking 		
Networking		
ATCS Message Routing		
Time Management		
▶ Security		
Set to Default		



Table 5-7: GCP General Parameter Values

Parameter Name	Range	Default	Description

Name	20 characters	GCP IF	Name used for the GCP interface in logs and reports.
ATCS Subnode	0 to 99	16	The ATCS subnode of the GCP, which is assume to have the same railroad, line, and group addresses as the WI.
Send Status on Change	Yes or No	Yes	If Yes, the GCP will send status changes on change of state.
Cfg Msg Period	0 to 60 minutes	0 minutes	Time period between configuration messages. If 0, the GCP will send configuration messages only on initiate of the link and on configuration data changes.
Status Msg Period	0 to 300 seconds	30 seconds	Period of status messages. If 0, the GCP will not send periodic status messages.
GCP Link Timeout	10 to 600 seconds	30 seconds	If the WI does not receive messages from the GCP for this length of time, it will declare the link as failed.

The WI can receive I/O statuses and configuration data from a GCP over a network. The I/O statuses and the configuration data status are available to the MCF logic, which eliminates the need to wire physical inputs for many of the statuses.

The WI monitors the health of the link with the GCP. If the WI stops receiving status messages from the GCP, it will set the link to unhealthy. The Application Engineer can set the timeout for the GCP messages in the MCF. The link health is available to the MCF logic as an input logic state.

The WI receives the status of GCP I/O, such as XR, ISL, etc., which the executive makes available as input logic states to the MCF. Since the GCP is highly configurable, not all I/O status are relevant in all conditions. The GCP reports the I/O items used in its current configuration. The executive software also makes the "used" statuses available to the MCF logic as input logic states. See the Wayside Inspector Application Guideline Manual, SIG-00-16-05 for all the logic states available to the MCF.

The WI will also log changes in the I/O and configuration statuses, as reported from the GCP, into the Event Log using the configured function name for that status.

5.1.2.6 WiMag Configuration

WiMag General

Configuration Status Monitor Re	ports & Logs Maintenance	Alarms		
Configuration	WiMag General			
Site Configuration MCF Configuration General configuration Digital Input configuration Battery Input configuration Relay Output configuration Wildag configuration Wildag General	UDP Listen Port Base Status Timeout (sec)	7253 10	•	

Figure 5-8: The WiMag General Screen

The user may set the UDP port number and a timeout value for the Access Point messages. The timeout is used to report the health of the link with the Access Point.

The Field Maintainer will enter the values as specified in the Agency/Railroad's approved site diagram. Alternatively, the MCF may have some or all of the fields locked, thereby preventing changes to the channel name and state names of that channel.

Table 5	5-8:WiMag	Base	Parameter	Values
---------	-----------	------	-----------	--------

Parameter Name	Range	Default	Description
UDP Listen Port	1 to 65535	7253	The UDP port the WI will listen on for WiMag sensor status messages.
Base Status Timeout	0s to 255s	10s	If the WI does not receive a status update from the WiMag base station in this amount of time, it will declare the link as failed.

Sensor "N" (1-20)

SIEMENS		Welcome Admin Logout
		Site Name: Nate's WI ATCS Address: 7.620.100.100.03 Mile Post: 102.5 DOT Number: 102575N
Configuration Status Monitor Re	eports & Logs Maintenance	Alarms
Configuration	Sensor 1	
Site Configuration	🕞 Save 🦉 Refresh	
General configuration Digital langet configuration	Sensor Name	Sensor 1
 Battery Input configuration 	Sensor Used	Yes *
 Relay Output configuration 	Sensor Off Debounce (msec)	1000
 WiMag configuration WiMag General 	Sensor On Debounce (msec)	500
Sensor 1	Off Name	Off*
Sensor 2	On Name	On*
Sensor 4		
Sensor 5		
Sensor 6		
Sensor 7		

Figure 5-9: The WiMag Sensor "N" Screen

There are up to 20 separate WiMag Inputs. The Field Maintainer will enter the values as specified in the Agency/Railroad's approved site diagram.

The user can set a channel name, OFF name, and ON name for each sensor. The user can also set ON and OFF de-bounce values for each sensor (just like discrete digital inputs). These names are used when adding state change entries to the Event Log.

The WI can receive statuses from only 1 Access Point and at most 20 WiMag sensors.

The Application Engineer may use the "detected" and "error" statuses of each sensor and the "link OK" status of the Access Point in the MCF logic.

Table 5-9: WiMag Sensors Parameter Values

Parameter Name	Range	Default	Description
Senor Used	Yes or No	No	If set to Yes, the WI will expect status updates for this sensor.
Sensor Name	20 characters	Sensor x	The name used when logging state changes to the event log and on reports. <i>Only visible if Sensor Used is Yes.</i>
Sensor Off Debounce	0ms to 60,000ms	100ms	The sensor must report off for this length of time, continuously, before the WI will declare the status as OFF. <i>Only visible if Sensor Used is</i> Yes.
Sensor On Debounce	0ms to 60,000ms	500ms	The sensor must report on for this length of time, continuously, before the WI will declare the status as ON. <i>Only visible if Sensor Used is</i> Yes.
Off Name	Off state name list	OFF	The name used for the OFF state when logging state changes to the event log. <i>Only visible if Sensor Used is Yes.</i>
On Name	On state name list	ON	The name used for the ON state when logging state changes to the event log. Only visible if Sensor Used is Yes.

5.1.2.7 Speed Measurement

Speed Measurement 1-6

SIEMENS		
		Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post 000.0 DOT Number: 000000A
	in 🔬 🔬	R
Configuration Status Monitor Re		Alarms
Configuration	Speed Measurement 1	1
Site Configuration	📕 Save 📑 Refresh	
 MCF Configuration 		
 General configuration 	Speed Selection	
 Digital Input configuration 		
 Battery Input configuration 	Name	Speed 1
 Relay Output configuration 	Distance (ft)	•
 GCP Interface configuration 	Comparison Speed (mph)	
 Speed Measurement 	Companson Opeca (mpn)	04
Speed Measurement 1	Time Adjustment (sec)	•
Speed Measurement 2	Calculation Timeout (sec)	180
Speed Measurement 3		
 Logic configuration 		
 State Names 		
Set to default		
 Networking 		
 Log Setup 		
AICS Message Routing		
Time Management		
Security		
Set to Default		



To properly perform warning time tests, the WI must ensure the train was moving through the crossing at or near the maximum permissible speed for the route. The WI provides two methods to get train speed: calculate it or receive it from a GCP.

The executive software determines if the train speed is fast enough on behalf of the MCF. The MCF configuration data includes a "Speed Measurement Entry" for each speed the executive needs to check. The WI supports up to 64 entries.

At crossings using the Siemens GCP, the WI does not need to calculate the speed. The GCP can report the speed to the WI over a network. Again, the MCF and the executive software cooperate to determine if the reported speed is high enough for the warning time test. The Speed Measurement Entry will identify which island speed, reported from the GCP, to compare to the Comparison Speed. The executive will set the Speed Result logic state (and Result Ready) after the GCP reports the island speed (after the train has entered the island).

Parameter Name	Range	Default	Description
Speed Selection	Calculate, GCP Trk 1 Isl Speed, GCP Trk 2 Isl Speed, GCP Trk 3 Isl Speed, GCP Trk 4 Isl Speed, GCP Trk 5 Isl Speed, GCP Trk 6 Isl Speed	Calculate Speed	Selects the method of determining speed. See section TBD for a description of the speed measurement method.
Name	20 characters	Speed Measure- ment	The name used for the speed measurement entry in logs and reports.
Distance	0 to 65535 ft.	0 ft.	The distance to use in the speed calculation. Only relevant if Speed Selection is set to Calculate Speed.
Comparison Speed	0 to 255 mph	0 mph	The calculated speed or reported speed from the GCP must be greater than or equal to this value to set the "Speed Result" logic state.
Time Adjustment	-12.8 to 12.7 seconds	0 seconds	Time value used to adjust the speed calculation to account for de-bounce or other system delays. Only relevant if Speed Selection is set to Calculate Speed.
Calculation Timeout	0 to 65535 seconds	180 seconds	Time limit on a complete speed calculation. If both speed measurement inputs do not change state within this length of time, the speed calculation will be abandoned. Only relevant if Speed Selection is set to Calculate Speed.

Table 5-10: Speed Measurements Parameter Value

5.1.2.8 Logic Configuration

Properties

SIEMENS	Welcome Admin Longut
	Site Name ITS Test I ATCS Address: 7 555 100 100 11 Mile Post 000 0 LDOT Number 000000A
Configuration Status Monitor	Reports & Logs Maintenance Alarms
Configuration	Properties
Site Configuration	Save Refresh
 MCF Configuration 	
 General configuration 	
Digital Input configuration	
 Battery Input configuration 	
 Relay Output configuration 	
 GCP Interface configuration 	
 Speed Measurement 	
 Logic configuration 	
Properties	
Timers	
 State Names 	
Set to default	
 Networking 	
Log Setup	
ATCS Message Routing	
Time Management	
▶ Security	
Set to Default	

Figure 5-11: The Properties Screes

Properties are field programmable options within the MCF, created by the Application Engineer. The user can set or clear a property from a menu. Properties provide a logic state, which the Application Engineer may use in the relay logic. Properties allow the MCF to change behavior based on field personnel input on the UI.

Table 5-11: Proper	ies Parameter Values
--------------------	----------------------

Parameter Name	Range	Default	Description
Some Description	No, Yes	No	See MCF paperwork for description

Timers

SIEMENS		Welcome Admin Logout
		Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post: 000.0 DOT Number: 000000A
Configuration Status Monitor Re	eports & Logs Maintenance Alarms	
Configuration	Timers	
Site Configuration MCF Configuration General configuration Digital Input configuration Battery Input configuration Relay Output configuration GCP Interface configuration Speed Measurement Logic configuration Properties Timers State Names Set to default	Save Perresh WTMin (sec) 20 WTMeasure (sec) 300	
 Networking Log Setup ATCS Message Routing Time Management 		
► Security Set to Default		
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Figure 5-12: The Logic Configuration Timers Screen

The Wayside Inspector supports timers relay coils in the relay logic. Each timer has a single logic state to start/run the timer and a single logic state indicating if the timer has expired or not. The start logic state must remain set for the timer to run. The timer clears with the "start" logic state changes back to clear. The Application Engineer creates a timer within the MCT on the "Logic Data" page.

Table 5-12:	Logic Co	onfiguration	Timers	Parameter	Values
-------------	----------	--------------	--------	-----------	--------

Parameter Name	Range	Default	Description
Some Description	No, Yes	No	See MCF paperwork for description

5.1.2.9 State Names

There are 16 possible values for the channels of the states On and Off. There are eight possible Toggle Names and Battery Names. The Field Maintainer will enter the values as specified in the Agency/Railroad's approved site diagram. Alternatively, the MCF may have some or all of the fields locked, thereby preventing changes to the channel name and state names of that channel.

On Names

SIEMENS		
		Cite Name: ITO Taski ATOS Address: 7 555 400 400 441 Mile Bash 000 01 DOT Number 0000004
		Site Name. It's rest Arcs Address. 7.353, 100, 100, 11 mile Post 000,01 DOT Number, 000000A
Configuration Status Monitor Repo	Dits & Logs Maintenance Alarms	
Configuration	On Names	
Site Configuration	📑 Save 🦉 Refresh	
 MCF Configuration 		State Name
 General configuration 		On
Digital Input configuration		Not Used
 Battery Input configuration 		Not Used
 Relay Output configuration 		Not Used
 GCP Interface configuration 		Not Used
Speed Measurement		Not Used
Logic configuration		Not Used
 State Names 		Not Used
On Names		Not Used
Off Names	10	Not Used
Toggle Names		Not Used
Rattery Names	12	Not Used
O alta dafault	13	Not Used
Serto default	14	Not Used
Networking	15	Not Used
Log Setup	16	NOT USED
ATCS Message Routing		
Time Management		
 Security 		
Set to Default		

Figure 5-13: The State "On" Names

Table 5-13: "On" State Names Parameter Values

Parameter Name	Range	Default	Description
On Names	1 to 12 Characters	Not Used	List of names available to choose from when configuring the "On Names" for inputs and outputs that support discrete states.

Off Names

SIEMENS		Welcome Admin Logout
		Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post 000.0 DOT Number: 000000A
Configuration Status Monitor F	Reports & Logs Maintenance Alarms	
Configuration	Off Names	
Site Configuration	🔒 Save 🛛 🦉 Refresh	
 MCF Configuration 	#	State Name
 General configuration 	1	on
 Digital Input configuration 	2	Not Used
 Battery Input configuration 	3	Not Used
 Relay Output configuration 	4	Not Used
 GCP Interface configuration 	5	Not Used
 Speed Measurement 	6	Not Used
Logic configuration	7	Not Used
🔻 State Names	8	Not Used
On Names	9	Not Used
	10	Not Used
Toggle Names	12	Not Used
Battery Names	13	Not Used
Set to default	14	Not Used
 Networking 	15	Not Used
Log Setup	16	Not Used
ATCS Message Routing		
Time Management		
 Security 		
Set to Default		

Figure 5-14: The State "Off" Names

Table 5-14"Off" State Names

Parameter Name	Range	Default	Description
Off Names	1 to 12 Characters	Not Used	List of names available to choose from when configuring the "Off Names" for inputs and outputs that support discrete states.

Toggle Names

SIEMENS		
		Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post 000.0 DOT Number: 000000A
Conliguration Status Monitor Re	pons & Logs Maintenance Alarms	
Configuration	Toggle Names	
Site Configuration	🔒 Save 📑 Refresh	
MCE Configuration	#	State Name
 General configuration 	1	Toggling
Digital Input configuration	2	Not Used
Battery Input configuration	3	Not Used
Relay Output configuration	4	Not Used
 GCP Interface configuration 	5	Not Used
 Speed Measurement 	6	Not Used
Logic configuration	7	Not Used
	8	Not Used
On Names		
Off Names		
Toggle Names		
Battery Names		
Set to default		
 Networking 		
Log Setup		
ATCS Message Routing		
Time Management		
Security		
Set to Default		

Figure 5-15: The State Toggle Names

Table 5-15: "Toggle" State Names

Parameter Name	Range	Default	Description
Toggle Names	1 to 12 Characters	Not Used	List of names available to choose from when configuring the "Toggle Names" for inputs and outputs that support discrete states.

Battery Names

SIEMENS		Welcome Admin Logout
		Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post 000.0 DOT Number: 000000A
Configuration Status Monitor Re	ports & Logs Maintenance Alarms	
Configuration	Battery Names	
Site Configuration	🔒 Save 🛛 🦉 Refresh	
 MCF Configuration 		State Name
 General configuration 	1	Batt
Digital Input configuration	2	Not Used
 Battery Input configuration 	3	Not Used
Relay Output configuration	4	Not Used
 GCP Interface configuration 	5	Not Used
 Speed Measurement 	6	Not Used
Logic configuration	7	Not Used
	8	Nöt Used
On Names		
Off Names		
Toggle Names		
Battery Names		
Set to default		
 Networking 		
Log Setup		
ATCS Message Routing		
Time Management		
▶ Security		
Set to Default		

Figure 5-16: The State Battery Names

Table 5-16: "Battery" Names

Parameter Name	Range	Default	Description
Battery Names	1 to 12 Characters	Not Used	List of names available to choose from when configuring the "Battery Names" for GFT input channels.

5.1.2.10 Set to Default

SIEMENS	Welcome Admin	gout
	Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post 000.0 DOT Number: 00	00000A
Configuration Status Monitor F	eports & Logs Maintenance Alarms	
Configuration	Set to default	
Site Configuration MCF Configuration General configuration Digital Input configuration Battery Input configuration Relay Output configuration GCP Interface configuration Speed Measurement Logic configuration State Names Of Names Toggle Names Battery Names	Set To Default	
Set to default Networking Log Setup	· · · · · · · · · · · · · · · · · · ·	
ATCS Message Routing Time Management Security Set to Default		

Figure 5-17: The MCF Configuration Set to Default Screen

Selecting the Set to Default button will return all entries in the MCF Configuration portion of the Configuration Tab menu back to the MCF Default. Selecting this button does not affect parameter values set in the Networking, Log Setup, ATCS Message Routing, Time Management portions of Configuration Tab menu.

Table	5-17:	Set to	Default	Screen
IUNIO	• • • •	00110	Donaun	0010011

Parameter Name	Range	Default	Description
Set to Default	Click	Not Used	Resets MCF Configuration parameters to the default condition.

5.1.3 Networking

5.1.3.1 Comms Interface

SIEMENS		Welcome Admin Logout
	Site Name: ITS Test ATCS Address: 7.5	i55.100.100.11 Mile Post: 000.0 DOT Number: 000000A
Configuration Status Monitor Rep	Dorts & Logs Maintenance Alarms	
Configuration	Comms Interface	
Site Configuration MCF Configuration Networking Comms Interface Domain Name System ATCS/IP Field Protocol Log Setup ATCS Message Routing Time Management Security Set to Default	F Save Perfresh Default DHCP Mode Client •	
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Figure 5-18: The Comms Interface Screen

Parameter Name	Range	Default	Description
DHCP Mode	Disabled or Client	Disabled	If set to Client the WI will request the network settings using the DHCP protocol. If set to Disabled, the interface uses static settings.
IP Address	IPv4 Address	192.168.2 .100	The IPv4 address of the Network Ethernet interface. Only visible if DHCP Mode is Disabled.
Network Mask	IPv4 Address	255.255.2 55.0	The network mask of the Network Ethernet interface. Only visible if DHCP Mode is Disabled.
Default Gateway	IPv4 Address or Blank	Blank	The default gateway of the Network Ethernet interface. Leaving the field blank means no default gateway used. Only visible if DHCP Mode is Disabled.

Table 4-18: Networking: Comms Interface Parameter Values

5.1.3.2 Domain Name System

SIEMENS	Welcome Admin Logout
	Site Name: ITS Test ATCS Address; 7:555.100.100.11 Mile Post 000.0 DOT Number: 000000A
Configuration Status Monitor R	Reports & Logs Maintenance Alarms
Configuration	Domain Name System
Site Configuration	Refresh 🛃 Default
MCF Configuration MCF Configuration Networking	Name Server 1 *
Comms Interface Domain Name System ATCS/IP Field Protocol	Name Server 2
► Log Setup ATCS Message Routing	
Time Management Security	
Set to Default	
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Figure 5-19: The Domain Name System Screen

Table 4-19:	Networking:	Domain	Name System	Parameter	Values
-------------	-------------	--------	-------------	-----------	--------

Parameter Name	Range	Default	Description
Name Server 1	IPv4 Address or Blank	Blank	IP address of the primary name server for use with name resolution.
Name Server 2	IPv4 Address or Blank	Blank	IP address of the secondary name server for use with name resolution.

5.1.3.3 ATCS/IP Field Protocol

SIEMENS		Welcome Admin Logout
		Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post: 000.0 DOT Number: 000000A
Configuration Status Monitor Repo	rts & Logs Maintenance Ala	arms
Configuration	ATCS/IP Field Protocol	
Site Configuration MCF Configuration Networking Comms Interface Domain Name System ATCS/IP Field Protocol Log Setup ATCS Message Routing Time Management Security Set to Default	Refresh Port ATCS/IP Field Protocol Enabled UDP Port Broadcast IP Address	Yes 50100 10.163.3.255
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Figure 5-20:The ATCS/IP Field Protocol

Table 4-20: Networking: ATCS/IP Field Protocol Parameter Values

Parameter Name	Range	Default	Description
ATCS/IP Field Protocol Enabled	Yes or No	No	If set to Yes, enables the ATCS/IP Field Protocol, which is used for communication to other ATCS systems installed on a network, such as the Siemens GCP.
UDP Port	1024 to 65535	5000	The UDP port to use for the ATCS messages.
Broadcast IP Address	IPv4 Address	255.255.2 55.255	The WI will send ATCS packets to this address if it has not yet discovered the IP address associated with the ATCS destination address.

5.1.4 Log Setup

5.1.4.1 *Diagnostic Logging*

SIEMENS		Welcome Admin Logout
		Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post 000.0 DOT Number: 000000A
Configuration Status Monitor Report	a Logs Maintenance Alarms	
Configuration	Diagnostic Logging	
Site Configuration	🖥 Save 🖉 Refresh 📝 Default	
 MCF Configuration Networking 	Diagnostic Log Verbosity Info	<u>·</u> *
	WAMS/RailFusion Message Logging No	▼ *
Diagnostic Logging	Routing Logging Enabled No	▼ *
Time Management	Comms Serial Port Logging Enabled No	*
 Security Set to Default 	Network Protocol Logging Enabled No	× *

Figure 5-21: The Diagnostic Logging Screen

Table 4-21: Log Setup: Diagnostic	Logging Parameter Values
-----------------------------------	--------------------------

Parameter Name	Range	Default	Description
Diagnostic Log Verbosity	Error, Warning, Info, Debug	Info	Sets the level of diagnostic entries to include in the diagnostic log. The selected level includes all entries at that level and lower (e.g. Info includes all Error, Warning, and Info entries in the diagnostic log).
WAMS/RailFusi on Message Logging Enabled	Yes or No	No	Future Feature.
Routing Logging Enabled	Yes or No	No	Enables logging of the internal ATCS message router functionality, which shows ATCS messages and their contents (starting with ATCS layer 3 header) in the diagnostic log.
Comms Serial Logging Enabled	Yes or No	No	Future Feature.
Network Protocol Logging Enabled	Yes or No	No	Enables logging of any enabled network protocol, such as ATCS/IP Field. The diagnostic log will include entries showing the sent and received message data, including the network protocol specific headers.

5.1.5 ATCS Message Routing

SIEMENS		Welcome Admin Logout Site Name:ITS Test JATCS Address: 7:555.100.100.111 Mile Post.000.01 DOT Number: 000000A
Configuration Status Monitor Rep	iorts & Logs Maintenance Alarms	
Configuration	ATCS Message Routing	
Site Configuration	🔚 Save 🧭 Refresh 🚺 Default	
 MCF Configuration Networking 	Route Timeout (Seconds) 300	
 Log Setup Diagnostic Logging ATCS Message Routing Time Management Security Set to Default 		
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Parameter Name	Range	Default	Description
Route Timeout	0 to 172,800 seconds	300 seconds	The length of time, in seconds, the WI will hold the ATCS route information for a discovered device before discarding it. A value of 0 means entries will never time out.

5.1.6 Time Management

SIEMENS				Welcome Admin	Logout
		Site Na	me: ITS Test ATCS Address: 7.555.100.1	100.11 Mile Post 000.0 DOT Nun	nber: 000000A
Configuration Status Monitor Re	Don's & Logs Maintenance Alarm	U Is			
Configuration	Time Management				
Pite Configuration	📕 Save 🛛 🦉 Refresh 🔢 Defaul	t			
MCF Configuration	Time Source	Manual Only	*		
✓ Log Setup Diagnostic Logging	Minimum Time Difference (seconds)	2			
ATCS Message Routing Time Management					
 Security 					
Set to Default					
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Table 4-23:	Time	Management	Screendd

Parameter Name	Range	Default	Description
Tiem Source	Manual Only,	Manual Only	Types of activites that may be accessee for a time source.
Name Server 2	0 – 60 sec	2	Minimum amount of time difference between reference time and machine time before an alert is sent.

5.1.7 Security

The Security Tab has two sub-menus: Password and WebUI Configuration.

5.1.7.1 Password

SIEMENS		Walcome Admin
		Site Name: ITS Tasti ATCS Address: 7.555 100 100 111 Mile Post 000 01 DOT Number 0000004
	👰 🔏 🔊	
Configuration Status Monitor Repo	orts & Logs Maintenance Alarms	
Configuration	Password	
Site Configuration	🔒 Save 💋 Refresh 🚺 Default	
 MCF Configuration Networking 	WebUI password	*
▶ Log Setup	Session Inactivity Timeout (Minutes) 20	
ATCS Message Routing		
 Security 		
Password		
WebUI Configuration		
Set to Default		
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Table 4-24: Security: Password Parameter Values

Parameter Name	Range	Default	Description
WebUI password	20 characters	Siemens	Sets the password the user must enter to access the web browser UI.
Session Inactivity Timeout	5 to 60 Minutes	20 minutes	The number of minutes of inactivity before the WI will automatically log out a connected user from the web browser UI.

5.1.7.2 WebUI Configuration

SIEMENS		Welcome Admin Logout
		Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post: 000.0 DOT Number: 000000A
Configuration Status Monitor Rep	orts & Logs Maintenance Alarms	
Configuration	WebUI Configuration	
Site Configuration	🔒 Save 🦉 Refresh 💽 Default	
 MCF Configuration Networking 	Browser Access Secure (https)	- *
► Log Setup		
ATCS Message Routing Time Management		
Password		
Set to Default		
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Figure 5-25: The WebUI Configuration Screen

Table 4-25: Security: Web UI Parameter Values

Parameter Name	Range	Default	Description
Browser Access	Secure (https) or Non-Secure (http)	Secure (https)	Whether or not the web browser is accessed using http or https.

5.1.8 Set to Default

SIEMENS		Welcome Admin Logout Site Name: ITS Test ATCS Address: 7.555 100.100.11 Mile Post 000.0 DOT Number: 000000A
Configuration Status Monitor Repo	ts & Logs Maintenance Alarms	
Configuration . MCF Configuration . MCF Configuration . Networking . Log Setup MCS Message Routing . Time Management . Security MebUI Configuration . Set to Default	Set to Default	
Copyright 2016 Siemens. All rights reserv	ed.	Wayside Inspector Version 1.3.0.

Figure 5-26: The Set to Default Screen

This Set to Default screen resets all values entered within the Configuration Tab.

Table 5-26: Set to Default Screen

Parameter Name	Range	Default	Description
Set to Default	Click	Not Used	Resets all parameters other than MCF Configuration parameters to the default condition.

5.2 STATUS MONITOR

The Status Monitor Tab provides the status of the various portions of the WI.

5.2.1 Digital Inputs

SIEMENS					
				Welcome Admin Logout	
			Site Name:	: ITS Test ATCS Address: 7.555.100.100.11 Mile Post: 000.0 DOT Number: 000000A	
Configuration	Configuration Status Monitor Reports & Logs Maintenance Alarms				
Status Monitor	Digital Inpu	ts			
	#	Channel Type	Channel Name	Status	
Digital Inputs	1	Discrete Input	DI1	Off	
Battery Inputs	2	Discrete Input	DI2	Off	
Relay Outputs	3	Discrete Input	DI3	Off	
AC Power Input and Controls	4	Discrete Input	DI4	Off	
GCP Status	5	Discrete Input	DI5	Off	
Internal Temperature	6	Discrete Input	DI6	Off	
Network Status	7	Discrete Input	DI7	Off	
LED Status	8	Discrete Input	DI8	Off	
WiMag Status	9	Discrete Input	DI9	Off	
Inspection Status	10	Discrete Input	DI10	no	
Schedule Status	11	Discrete Input	Di11	Off	
Relay View	12	Discrete Input	DI12	Off	
Logic State View	13	Discrete Input	DI13	Off	
Logic State view	14	Discrete Input	DI14	Off	
ALCS Routes Table	15	Discrete Input	DI15	Off	
	16	Discrete Input	DI16	Off	
	17	Discrete Input	DI17	Off	
	18	Discrete Input	DI18	Off	
	19	Discrete Input	Di19	Off	
	20	Discrete Input	DI20	Off	
	21	Discrete Input	DI21	Off	
	22	Discrete Input	DI22	Off	
	23	Discrete Input	DI23	Off	
	24	Discrete Input	DI24	no	
	25	Discrete Input	DI25	Off	

Figure 5-27: The Digital Input Screen

The Digital Input Screen provides the status of the Type Channel, the Channel name, and its Status.

5.2.2 Battery Inputs

SIEMENS			Welcome Admin Logout
		Site Name: ITS Test ATCS	Address: 7.555.100.100.11 Mile Post: 000.0 DOT Number: 000000A
Configuration Status Monitor Rep	ports & Logs Maintenar	Alarms	
Status Monitor	Battery Inputs		
	#	Channel Name	Voltage
Digital inputs	1	Batt1	0.0 VDC
Battery Inputs	2	Batt2	0.0 VDC
Relay Outputs	3	Batt3	0.0 VDC
AC Power Input and Controls	4	Power In	11.7 VDC
GCP Status			
Internal Temperature			
Network Status			
LED Status			
Inspection Status			
Schedule Status			
Relay View			
Logic State View			
ATCS Routes Table			
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Figure 5-28: The Battery Inputs Screen

The Battery Inputs Screen provides the status of up to four batteries with their respective Channel Names and their voltages.

5.2.3 Relay Outputs

SIEMENS			Welcome Admin Logout
		Site Name: ITS T	est ATCS Address: 7.555.100.100.11 Mile Post 000.0 DOT Number: 000000A
Configuration Status Monitor R	eports & Logs Maintenance	Alarms	
Status Monitor	Relay Outputs		
Digital Inputs	Change State: Rly1	To: Off 💽 Apply	
Battery Inputs	#	Channel Name	Status
Relay Outputs	1	Rly1	Off
AC Power Input and Controls	2	Rly2	Off
GCP Status	3	Riy3	Off
Internal Temperature	4	Kiy4	
Network Status			
LED Status			
Inspection Status			
Schedule Status			
Relay View			
Logic State View			
ATCS Routes Table			
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Figure 5-29: The Relay Outputs Screen

The Relay Outputs Screen provides the status of each Relay Output and depicts the Channel Name and Relay Status. From this screen, the user can command the relay off, on, or to toggle.

5.2.4 AC Power Input and Controls

SIEMENS			Welcome Admin Logout
		Otto Nome: ITO Toot I ATOO Address: 7 555 4	
		alle Marrie, IT'S Test) Ar CS Address, 7,999, 1	00.100.111 Mile Post 000.01 DOT Number 000000A
Configuration Status Monitor Rep	ports & Logs Maintenance Alarms		
Status Monitor	AC Power Input and Controls		
Digital Inputs	AC Pwr Switch: Off Apply		
Battery Inputs	Channel Tag	Channel Name	Status
Relay Outputs	AC Pwr In	ACPWR	Off
AC Power Input and Controls	AC Pwr Switch	ACRLY	Off
GCP Status			
Internal Temperature			
Network Status			
LED Status			
Inspection Status			
Schedule Status			
Relay View			
Logic State View			
AICS Routes Table			
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Figure 5-30: The AC Power Input and Controls Screen

The AC Power Input and Controls Screen provides the Channel Name and Status of AC Power In and the AC Power Switch. The AC Control Relay is commanded off and on from this screen.

5.2.5 GCP Status

SIEMENS						Welcome Admin
				ite Name: ITS Test LATCS Adr	tress: 7 555 100 100 11 M	ile Post 000 0 I DOT Number: 000000A
	-					
	- 🧓 🚽	in 📌	ſ			
Configuration Status Monitor F	Reports & Logs Mair	ntenance Alarms				
Status Monitor	GCP Status					
Digital Inputs						
Battery Inputs						
Relay Outputs	Track	Last EZ	Last EX	Last MPH	Island	Train on Approach
AC Power Input and Controls	1	58	103	+31	Up	Yes
GCP Status						
Internal Temperature						
Network Status						
LED Status						
Inspection Status						
Schedule Status	SSCC:		AND: 1			
Relay View						
Logic State View						
ATCS Routes Table						
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Figure 5-31: The GCP Status Screen

The GCP Status Screen provide data for up to six tracks, providing Last EZ, Last EX, Last MPH, Island, and Train on Approach for each track as well as SSCC & AND status.

5.2.6 Internal Temperature

SIEMENS	Welcome Admin
	Site Name: ITS Tast J 4T/S 444rass: 7 555 100 100 111 Mile Post 000 01 DOT Number 00000
Configuration Status Monitor	eports & Logs Maintenance Alarms
Status Monitor	Internal Temperature
Digital Inputs Battery Inputs Relay Outputs AC Power Input and Controls GCP Status Internal Temperature Network Status LED Status WiMag Status Inspection Status Scheduls Christia	Temperature: 84.50 F
Relay View Logic State View ATCS Routes Table	
© Copyright 2016 Siemens. All rights re	srved. Wayside Inspector Version 1.3.

Figure 5-32: The Internal Temperature Screen

The Internal Temperature Screen provides the current internal temperature of the WI.

5.2.7 Network Status

SIEMENS		Welcome Admin
		Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post 000.0 DOT Number: 000000A
Configuration Status Monitor Rep	Dorts & Logs Maintenance Alarms	
Status Monitor	Network Status	
	Laptop	
Digital Inputs	DHCP Mode	Server
Battery Inputs	IP Address	192.168.255.081 Down
Relay Outputs	Network Mask	255.255.255.000
AC Power Input and Controls	Link-up Status	DOWN
GCP Status	Comms Interface	
Internal Temperature	DHCP Mode	Client
Network Status	IP Address	010.163.003.040 (DHCP) Up
LED Status	Network Mask	255.255.255.000
	Link-up Status	UP
Inspection Status		
Schedule Status		
Relay View		
Logic State View		
ATCS Routes Table		
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Figure 5-33: The Network Status Screen

The Network Status Screen provides network data for the Laptop and Comms Interface connectors.

5.2.8 LED Status

SIEMENS			
		Site Name: ITS Test ATCS Address: 7.555.10	00.100.11 Mile Post: 000.0 DOT Number: 000000A
Configuration Status Monitor Re	eports & Logs Maintenanc	e Alarms	
Status Monitor	LED Status		
	#	Name	Status
	1	GCP HEALTH	On
Battery Inputs	2	LED 2	Off
Relay Outputs	3	LED 3	Off
AC Power Input and Controls	4	LED 4	Off
GCP Status	5	LED 5	Off
Internal Temperature	6	LED 6	Off
Network Status	7	LED 7	Off
LED Status	8	STANDBY LED	Off
Inspection Status			
Schedule Status			
Relay View			
Logic State View			
ATCS Routes Table			
© Copyright 2016 Siemens. All rights reserved. Wayside Inspector Version 1.3.0			

Figure 5-34: The LED Status Screen

The LED Status Screen provides the Name and Status of each of the eight Application LEDs.

5.2.9 WiMag Status

SIEMENS	رئیس و ۲	Westowe Allows			
	million 1	ave by ATCH ARREST TICK 100 THE BUILDER PART 122 IS DOT HARBEST 1021THE			
	💐 🦂 🦓				
Taxa Bontos	WMag Status				
Digital Injunity	Rese Value & Adverse RA. Recent Value Red				
Ref of Calmin	Serve Date	- Sensy Sale			
et Pour light and Contrain	International and the second sec				
COP Blates					
energial Techpologies					
Kalmoni Status					
UDDan					
WHEN DEAL					
internation Status					
Setter dails illustrat					
Fields View					

Figure 5-35: The WiMag Status Screen

The WiMag Status Screen provides the Sensor Name and State of all sensors currently in use.

5.2.10 Inspection Status

SIEMENS					Welcome	e Admin Logout
		Si	e Name: ITS Te	st ATCS Address: 7.555.10(0.100.11 Mile Post: 000.0) DOT Number: 000000A
Configuration Status Monitor Reports & L	.ogs Maintenance Alarms					
Status Monitor Insp	ection Status					
Diaital Insute	rigger					
Battery Innuts	Inspection Name	Туре	State	Last Pass Date/Time	Last Pass Value	Next Inspection
Rolay Outpute	INSPECTION 1 Warning Time (234.259)	Annual	Pending	03-Jun-2016 09:38:20	27s	None Scheduled
AC Rower Input and Controls	INSPECTION 2 Warning Time (234.259)	Annual	Passed	06-Jun-2016 09:33:29	20s	None Scheduled
CCP Status	INSPECTION 3 Warning Time (234.259)	Annual	Pending	No Result	No Result	None Scheduled
Network Status						
LED Status						
WiMag Status						
Inspection Status						
Schedule Status						
Relay View						
Logic State View						
ATCS Routes Table						

Figure 5-36: The Inspection Status Screen

The Inspection Status Screen shows the status of currently programmed tests.

5.2.11 Schedule Status

SIEMENS			_	
			Welcome Admin Logout	
		Site Name: ITS Test ATCS Address: 7.555.100.10	00.11 Mile Post: 000.0 DOT Number: 000000A	
Configuration Status Monitor Re	ports & Logs Maintenance Alarms			
Status Monitor	Schedule Status			
Disitel lesuite	Туре	Date/Time	Status	
Battery Inputs				
Ballery Inputs				
AC Rower Input and Controls				
GCP Status				
Internal Temperature				
Network Status				
LED Status				
WiMag Status				
Inspection Status				
Schedule Status				
Relay View				
Logic State View				
ATCS Routes Table				
© Copyright 2016 Siemens. All rights reso	© Copyright 2016 Siemens. All rights reserved. Wayside Inspector Version 1.3.0.			

Figure 5-37: The Schedule Status Screen

The Schedule Status Screen provides the status of scheduled inspections.

5.2.12 Relay View



Figure 5-38: The Relay View Screen

The Relay View Screen lists the conditions for each test using relay logic.

5.2.13 Logic State View

SIEMENS			Welcome Admin Logout
			Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post: 000.0 DOT Number: 000000A
Configuration Status Monitor Reports	a Logs Maintenance Alarms		
Status Monitor	ogic State View 👫		
Digital Inputs	Monitor 🛛 📕 Clear 🗍 Select Logic St	ates	
Battery Inputs	Mnemonic	State	Logic State Log
Relay Outputs			28-Jul-2016 10:46:12.79 GcpIsHealthy = True
AC Power Input and Controls			28-Jul-2016 10:46:12.79 LedLinkOn = True
CCP Status			28-Jul-2016 10:46:12.79 LedLinkTog = False
			28-Jul-2016 10:46:16.18 T1Inbound = True
Internal Temperature			19-Aug-2016 15:27:14.85 GcptsHealthy = False
Network Status			19-Aug-2010 15.27.14.85 LedLinkOn = False
LED Status			19-Aug-2010 15.27.14.05 LedLink log = True
WiMag Status			19-Aug-2016 15:30:28 49 LedLinkOn = True
Inspection Status			19-Aug-2016 15:30:28.50 LedLinkTog = False
Schedule Status			- 30-Aug-2016 09:25:23.51 GcpIsHealthy = False
Bolov View			
			30-Aug-2016 09:25:23.51 LedLinkTog = True
Logic State View			30-Aug-2016 09:28:10.87 GcpIsHealthy = True
ATCS Routes Table			30-Aug-2016 09:28:10.87 LedLinkOn = True
			30-Aug-2016 09:28:10.87 LedLink log = Faise
			30-Aug-2010 09.33.14.49 GcpISHealiny = False
			30-Aug-2016 09:33:14:49 LealinkOn - Faise
			30-Aug-2016 09:35:22 78 GcolsHealthy = True
			30-Aug-2016 09:35:22.78 LedLinkOn = True
			30-Aug-2016 09:35:22.78 LedLinkTog = False
			30-Aug-2016 09:38:11.51 GcpIsHealthy = False
			30-Aug-2016 09:38:11.51 LedLinkTog = True
			30-Aug-2016 09:43:28.99 GcpIsHealthy = True
			30-Aug-2016 09:43:28.99 LedLinkOn = True

Figure 5-39: The Logic State Screen

The Logic State Screen provides the Mnemonic and State of each programmed Logic Statement.

5.2.14 ATCS Routes Table

SIEMENS					Moleome Adm	
					weicome Adm	n Logout
			Site Name	: ITS Test ATCS Address: 7.555.10	0.100.11 Mile Post: 000.0 DOT	Number: 000000A
Configuration Status Monitor	Reports & Logs Main	tenance Alarms				
Status Monitor	ATCS Routes	s Table				
Digital Inputs	Port Number	Port Name	ATCS Address	Path	Timeout Text	Timeout Value
Battery Inputs	1	Local Serial	7.555.100.100.11.01	None	mortal	300
Relay Outputs	4	Ethernet 1	7.555.100.100.16.01	Field	mortal	300
AC Power Input and Controls						
GCP Status						
Internal Temperature						
Network Status						
LED Status						
Inspection Status						
Schedule Status						
Relay View						
Logic State View						
ALCS ROLLES TABLE						
© Copyright 2016 Siemens. All rights reserved. Wayside Inspector Version 1.3.0.					tor Version 1.3.0.	

The ATCS Routes Table provides the list of Routes used in the WI.

5.3 REPORTS & LOGS

The WI keeps two logs: the Event Log and the Diagnostic Log.

The Event Log contains entries showing external crossing events detected by the WI. The Event Log is useful to investigate crossing operation.

The Diagnostic Log contains entries showing internal WI operations and data. The Diagnostic Log is useful to troubleshoot the WI itself.

The WI always logs entries in chronological order. The time stamp may change forward or backward as the user changes the time; however, events are always added to the log in the order they occurred.
5.3.1 Event Log

SIEMENS			Welco	me Admin Logout
			Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post: 00	0.0 DOT Number: 000000A
Configuration Status Monitor R	eports & Logs Maintenance	Alarms		
Reports & Logs	Event Log			
Event Log	BASIC 🔽 🔣 First 🔍 Pre	evious 🕨 Next	🚺 Last 🛃 Download 🔍 🔍 Event Text 💌	
Diagnostic Log	30-Aug-2016 10:43:40.89	GCP	GCP Comms Good	
Application Log	30-Aug-2016 10:47:41.48	GCP	GCP Comms Bad	U
Varian Depart	30-Aug-2016 10:50:32.23	GCP	GCP Comms Good	U
	30-Aug-2016 10:53:35.51	GCP	GCP Comms Bad	U
Inspection Report	30-Aug-2016 10:58:58.86	GCP	GCP Comms Good	U
Configuration Report	30-Aug-2016 11:02:47.51	GCP	GCP Comms Bad	U
	30-Aug-2016 11:05:16.88	GCP	GCP Comms Good	U
	30-Aug-2016 11:22:26.48	GCP	GCP Comms Bad	U
	01-Sep-2016 13:09:16.96	GCP	GCP Comms Good	U
	01-Sep-2016 13:15:11.59	GCP	GCP Comms Bad	U
	01-Sep-2016 13:18:04.95	GCP	GCP Comms Good	U
	01-Sep-2016 14:15:44.61	GCP	GCP Comms Bad	U
	01-Sep-2016 14:17:50.10	GCP	GCP Comms Good	
	01-Sep-2016 14:19:17.59	GCP	GCP Comms Bad	
	01-Sep-2016 14:19:29.00	GCP	GCP Comms Good	
	08-Sep-2016 11:09:10.14	Exec	WebUser:Log in MAC Address: A4:BA:DB:02:C1:2 PORT: ETHERNET1	
	08-Sep-2016 11:44:37.65	Exec	WebUser:Log out MAC Address: A4:BA:DB:02:C1:2 PORT: ETHERNET1	
	08-Sep-2016 13:32:56.78	Exec	WebUser:Log in MAC Address: A4:BA:DB:02:C1:2 PORT: ETHERNET1	
© Copyright 2016 Siemens. All rights res	served.		Waysi	de Inspector Version 1.3.0.

Figure 5-40: The Event Log Screen

The event log will hold up to 172,800 entries. The following is an example event log entry: 095D 11-Apr-2016 13:26:15.30 AI Power In 12.0 V

5.3.2 Diagnostic Log

SIEMENS				Welcome Admin
				Sile Name: ITS Test I ATCS Address: 7 555 100 100 111 Mile Post 000 01 DOT Number 000000A
Configuration Status Monitor Re	ports & Logs Maintenance	Alarms		
Reports & Logs	Diagnostic Log			
Event Log	BASIC 🔽 🔀 First 🤇 Previou	us 🕨 Next	▶ Last	👱 Download 🔍 Event Text 🚽
Diagnostic Log	28-Jul-2016 10:45:24.78	Info	TMON	Thread Registered:alarm_manager id:15 sec:15
Application Log	28-Jul-2016 10:45:24.79	Info	TMON	Thread Registered:Speed_Manager id:16 sec:5
	28-Jul-2016 10:45:24.80	Info	TMON	Thread Registered:GCPSM id:17 sec:5
Version Report	28-Jul-2016 10:45:24.81	info	MOSM	get_config_from_mcf - MOS timer = 30 minutes
Inspection Report	28-Jul-2016 10:45:24.81	Info	TMON	Thread Registered:MOS_Manager id:18 sec:5
Configuration Report	28-Jul-2016 10:45:24.81	Info	MOSM	mos_manager thread starting
	28-Jul-2016 10:45:27.01	Info	RTE	Added 7.555.100.100.11.01: timeout=300 port=Local
	28-Jul-2016 10:46:12.78	Info	RTE	Added 7.555.100.100.16.01: timeout=300 port=Eth2
	05-Aug-2016 10:59:35.88	Info	UIM	EvtLog_GetStart failed.
	05-Aug-2016 10:59:53.90	Info	UIM	EvtLog_GetStart failed.
	30-Aug-2016 09:43:01.50	Info	RTE	Removing 7.555.100.100.16.01: expired
	30-Aug-2016 09:43:28.97	Info	RTE	Added 7.555.100.100.16.01: timeout=300 port=Eth2
	30-Aug-2016 09:56:39.52	Info	RTE	Removing 7.555.100.100.16.01: expired
	30-Aug-2016 10:00:34.89	Info	RTE	Added 7.555.100.100.16.01: timeout=300 port=Eth2
	30-Aug-2016 10:58:26.52	Info	RTE	Removing 7.555.100.100.16.01: expired
	30-Aug-2016 10:58:58.86	Info	RTE	Added 7.555.100.100.16.01: timeout=300 port=Eth2
	30-Aug-2016 11:27:17.53	Info	RTE	Removing 7.555.100.100.16.01: expired
	01-Sep-2016 13:09:16.96	Info	RTE	Added 7.555.100.100.16.01: timeout=300 port=Eth2
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Figure 5-41: The Diagnostic Log

Field personnel can change the diagnostic log verbosity level using the web browser user interface. The verbosity level defaults to "Info", which means the diagnostic log contains entries at verbosity level Basic, Error, Warning and Info. It will not include Debug level entries.

Each entry has a verbosity level associated with it. The diagnostic log also has a logging verbosity level. The WI will only add entries with the same verbosity level or lower to the diagnostic log. The user may turn the verbosity up or down to control how much information is in the diagnostic log. If turned all the way up, the diagnostic log may include a lot of information in a short amount of time, limiting the duration of time the log covers. If turned all the way down, the diagnostic log may cover a long duration of time but not include much detail.

The diagnostic log will hold up to 172,800 entries. The diagnostic log entries contain the same data as the event log entries with the addition of the "Verbosity" field. The following is an example of a Diagnostic Log entry.

DA75 24-Mar-2016 13:59:27.33 INFO TMON Thread Registered:wimag id:10

5.3.3 Application Log

SIEMENS	Welcome Admin Logout
	Site Name: ITS Test ATCS Address: 7.555.100.100.11 Mile Post 000.0 DOT Number: 000000A
Configuration Status Monitor Re	ports & Logs Maintenance Alarms
Reports & Logs	Application Log
EventLog	BASIC 🔽 💦 First Previous D Hext D Last Download 🔍 Event Text
Diagnostic Log	No logs found!
Application Log	
Version Report	
Inspection Report	
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Figure 5-42: The Application Log

The Application Log is a filtered version of the Event Log that shows only the entries added to the Event Log by the MCF logic.

5.3.4 Version Report

	SIEMENS					Welcome Admin
					Site Name: Nate's WI ATCS Address: 7	7.620.100.100.03 Mile Post: 102.5 DOT Number:
	Configuration Status Monitor Re	ports & Logs Alarms				
	Reports & Logs	Version Report				
	Event Log Diagnostic Log	Create Download				
	Version Report	Site Configuration		Generated U	s-Sep-2016 14:16:56	
	Inspection Report	Site Name: Nate's WI Milepost: 102.5 Dot Number: 102575N Time zone: Pacific ATCS Address: 7.620.100.100.03 Config CRC: 67BE1FB7				
		Software Versions				
		TYPE SW_Name MEF 9VD17-A01.A MCF YUD17_DEFAULT_MCF.mcf UB00T 9VD13401.A Kernel 9V014A01.A R00TF5 9V015A01.A DTB 9V015A01.A FPGA 9VD12_A01.A4	version 1.2 001 2.6.24 —	Build No 0 0 0 0 0 0 0 0 0 0	Build Date 	CRC 5a5b47b2fdf02ab6c35a941479b86528 pE01E789 0 fe50cfdfdf2520663e4813ae41150bba 0
	© Copyright 2016 Siemens. All rights reso	arved.				Wayside Inspector Versi
•			III			4

Figure 5-43: The Version Report

5.3.5 Inspection Report

SIEMENS					
					Site Name: Nate's WI ATCS /
Configuration Status Monitor Re	eports & Logs Maintenance Alarms				
Reports & Logs	Inspection Report				
Event Log Diagnostic Log Application Log	■ Create	• t	Generated OF	8-Sep-2016 14:19:05	
Version Report	Site Configuration				
Inspection Report Configuration Report	Site Name: Nate's WI Milepost: 102.5 Dot Number: 102575N Time zone: Pacific ATCS Address: 7.620.100.100.03 Config CRC: 678ELFB7 Software Versions				
	TYPE SW_Name MEF 9VD17-AD1.A MCF WID_DEFAULT_MCF.mcf UBOOT 9VD13A01.A ROOTT5 9VD14A01.A DTB 9VD15A01.A FPGA 9VD12_A01.A4 No inspections	version 1.2 001 2.6.24 —	Build No 0 0 0 0 0 0 0 0 0 0 0	Build Date 	CRC 5a5b47b2fdf02ab6c35a941479b86528 pe01e789 0 fe50cfdfdf2520663e4813ae41150bba 0
© Copyright 2016 Siemens. All rights res	erved.				
javascript:void(0)	m				Þ

Figure 5-44: The Inspection Report

5.3.6 Configuration Report

SIEMENS					
					Site Name: Nate's WI ATCS A
Configuration Status Monitor Re	ports & Logs Maintenance Alarms				
Reports & Logs	Configuration Report				
Event Log Diagnostic Log	Create 🛃 Download				
Application Log	Wayside Inspector Configuration Re	port	Gene	erated 08-Sep-2016 14:20:20	
Version Report Inspection Report Configuration Report	Site Configuration Site Name: Nate's WI Milepost: 102.5 Dot Number: 102575N Time zone: Pacific ATCS Address: 7.620.100.100.03 config CRC: 67BEIFB7 Software Versions				
	TYPE SW_Name	Version	Build No	Build Date	CRC
	MEF 9VD17-A01.A MCF WIL DEFAULT_MCF.mcf UB00T 9VD13A01.A Kernel 9VD13A01.A R00TFS 9VD14A01.A PTB 9VD15A01.A FPGA 9VD13A01.A FPGA 9VD12_A01.A4	1.2 001 2.6.24 — 30	0 0 0 0 0 0	14-Jun-2016 10:55 PDT OB-War-2016 08:12 May 27 2016 08:12 Tue oct 20 11:13:35 PDT 2015 29-Feb-2016 2016-Jun-02 11:19	Sa5b47b2fdf02ab6c35a941479b86528 DE01E789 0 fe50cfdfdf2520663e4813ae41150bba 0
© Copyright 2016 Siemens. All rights res	erved. 111				

Figure 5-45: The Configuration Report

5.4 MAINTENANCE

5.4.1 Date/Time

SIEMENS	Welcome Admin Logout
	Site Name: Nate's WI ATCS Address: 7.620 100.100.03 Mile Post: 102.5 DOT Number: 102575N
Configuration Status Monitor Reports &	Logs Maintenance Alarms
Maintenance	Date/Time
Date/Time	Refresh Cet
 ▶ Configuration ▶ Software Update 	Date 08-Sep-2016 🎫
Reset T	Time 14 ♥ : 21 ♥ : 40 ♥
L	
© Copyright 2016 Siemens. All rights reserved.	Wayside Inspector Version 1.2.0.

Figure 5-46: The Date/Time Screen

5-51

The Field Maintainer may set the time by either manually entering it on the screen or using the GET button to obtain it from other equipment.

5.4.2 Configuration

5.4.2.1 Download

SIEMENS		Welcome Admin	Logout
		Site Name: Nate's Wi ATCS Address: 7.620.100.100.03 Mile Post 102.5 DOT Num	ber: 102575N
Configuration Status Monitor Rep	Doorts & Logs Maintenance Alarms		
Maintenance	Download		
Date/Time Configuration Download Upload Software Update Reset	Download		
© Copyright 2016 Siemens. All rights rese	rved.	Wayside Inspector V	ersion 1.2.0.

Figure 5-47: The Download Configuration Screen

SIEMENS		Watana Adaia - Caratta
		Site Name: Nate's WILATCS Address: 7 620 400 100 02 Mile Pact 402 51 DOT Number 402575N
Configuration Status Monitor Rep	orts & Logs Maintenance Alarms	Site Name, Male's Virj ALCS Address, 7/320, 100, 100/03 j Mile Post, 102/3 j DOT Namber, 1029/3N
Maintenance	Upload	
Date/Time • Configuration Download Upload • Software Update Reset	Vpdate Select File :	Rrowse
© Copyright 2016 Siemens. All rights reser	ved.	Wayside Inspector Version 1.2.0.

5.4.2.2 Upload

Figure 5-48: The Upload Configuration Screen

5.4.3 Software Update

Within the Software Update tab, the following screens may be updated: Executive, MCF, Inspection Schedule, Delete MCF, Erase ECD

5.4.3.1 Executive

SIEMENS				Welcome Admin	Logout
			Site Name: Nate's WI ATCS Address: 7.6	20.100.100.03 Mile Post: 102.5 DOT Nu	nber: 102575N
Configuration Status Monitor Rep	vorts & Logs Maintenance	Alarms			
Maintenance	Executive				
Date/Time Configuration Software Update Executive MCF Inspection Schedule Delete MCF Erase ECD Reset	Vupdate Select MEF:		Drowse		
© Copyright 2016 Siemens. All rights reser	rved.			Wayside Inspector	Version 1.2.0.

Figure 5-49: The Update Executive Software Screen

From the Update Executive Software screen, select the MEF from the available files.

SIEMENS	
	Site Name: Nate's WI ATCS Address: 7.620.100.100.03 Mile Post 102.5 DOT Number: 102575N
Configuration Status Monitor Re	ports & Logs Maintenance Alarms
Maintenance	MCF
	√ Update
Configuration Software Update Executive	MCF : WI_DEFAULT_MCF.mcf
MCF	Select MCF:
Inspection Schedule	
Delete MCF	
Erase ECD	
Reset	
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5.4.3.2 MCF

Figure 5-50: The Update MCF Software Screen

From the Update MCF Software screen, select the MCF from the available files.

5.4.3.3 Inspection Schedule

SIEMENS		Welcome Admin Logout
		Site Name: Nate's WI ATCS Address: 7.620.100.100.03 Mile Post: 102.5 DOT Number: 102575N
Configuration Status Monitor Re	ports & Logs Maintenance Alarms	
Maintenance	Inspection Schedule	
Date/Time Configuration Software Update	↓ Update	
MCF Inspection Schedule Delete MCF Erase ECD	Select Inspection Schedule.	
Reset		
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Figure 5-51: The Update Inspection Schedule Screen

From this screen, a new Inspection Schedule may be updated. Locate the applicable .txt file from the pull down list, make the updates, save the file, and click the Update button on the screen.

5.4.3.4 Delete MCF

SIEMENS		Welcome Admin Log	t
		Site Name: Nate's WI LATCS Address: 7 620 100 100 031 Mile Post 102 51 DOT Number 1025	75N
Configuration Status Monitor Reg	Dorts & Logs Maintenance Alarms		
Maintenance	Delete MCF		
Date/Time Configuration Software Update Executive MCF Inspection Schedule Delete MCF Erase ECD Reset	Delete MCF		
© Copyright 2016 Siemens. All rights rese	wed	Wayside Inspector Version 1.	2.0.

Figure 5-52: The Delete MCF Screen

From this screen, the currently loaded MCF may be deleted.

5.4.3.5 Erase ECD

SIEMENS		Welcome Admin	Logout
		Site Name: Nate's WI ATCS Address: 7.620.100.100.03 Mile Post: 102.5 DOT Numb	
Configuration Status Monitor Rep	ports & Logs Maintenance Alarms		
Maintenance	Erase ECD		
Date/Time Configuration Software Update Executive MCF Inspection Schedule Delete MCF Erase ECD Reset	Frase ECD		
© Copyright 2016 Siemens. All rights rese	erved.	Wayside Inspector Ve	ersion 1.2.0.

Figure 5-53: The Erase ECD Screen

From this screen, the ECD may be erased.

5.4.4 Reset

SIEMENS		Welcome Admin Logout
		Site Name: Nate's WI ATCS Address: 7.620.100.100.03 Mile Post: 102.5 DOT Number: 102575N
Configuration Status Monitor Rep	Dorts & Logs Maintenance Alarms	
Maintenance	Reset	
Date/Time Configuration Software Update Executive MCF Inspection Schedule Delete MCF Erase ECD Reset	Reset	
© Copyright 2016 Siemens. All rights reser	rved.	Wayside Inspector Version 1.2.0.

Figure 5-54: The Reset Screen

Using the Reset function returns all parameters in the Status Monitor, Reports & Logs, and Maintenance sections to the default established in the MCF.

5.5 ALARMS

SIEMENS		Site Na	me: Nate's WI ATCS Address	Welcome 57.620.100.100.03 Mile Post 102.5	Admin Logout
Configuration Status Monitor	Reports & Logs Maintenance	Alarms			
Alarms	Alarms				
Alarms	Clear All				
	Status	Set Text	Set Code	Clear Text	Clear Code
	2				
© Copyright 2016 Siemens. All rights	reserved.			Wayside I	nspector Version 1.2.0.

Figure 5-55: The Alarms Screen

The Alarms Screen provides a listing of all programmed alarms.

Table 4-27: Alarms Parameter Values

Parameter Name	Range	Default	Description
Log	Yes or No	Yes	If yes, when the application logic sets the alarm's logic state and if the Set Text is not blank, the executive will log the Set Text into the event log. When the application logic clears the alarm's logic state and if the Clear Text is not blank, the executive will log the Clear Text into the event log.
Set Text	64 characters	<blank></blank>	Text to include in log entries and alarm messages when the alarm is set.
Set Code	0 to 255	0	The code to use for this alarm in alarm messages when the alarm status is set.

Parameter Name	Range	Default	Description
Set Value Type	None, Battery Input Voltage, Timer, Digital Input, Relay Output, Logic Bit	None	The value to include in the log entry or alarm message, when the alarm is set.
Set Value Channel	0 to 4000	0	The channel that determines where the executive will ready the Set Value from according to the Set Value Type.
Clear Text	64 characters	<blank></blank>	Text to include in log entries and alarm messages when the alarm is cleared.
Clear Code	0 to 255	0	The code to use for this alarm in alarm messages when the alarm status is cleared.
Clear Value Type	None, Battery Input Voltage, Timer, Digital Input, Relay Output, Logic Bit	None	The value to include in the log entry or alarm message, when the alarm is cleared.
Clear Value Channel	0 to 4000	0	The channel that determines where the executive will ready the Clear Value from according to the Clear Value Type

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CHAPTER 6 – INSTALLATION AND WIRING

6.1 WAYSIDE INSPECTOR INSTALLATION AND WIRING

The Wayside Inspector is wall, shelf, or rack mountable. It will be installed in accordance with the Railroad/Agency's approved site drawing. In Figure 6-1, the WI is wired to perform the Standby Power Inspection (CFR, Title 49, §234.251).





6.2 ANCILLARY EQUIPMENT INSTALLATION AND MOUNTING

All ancillary equipment used with the Wayside Inspector is wall or rack mountable. The following ancillary equipment is installed and wired as shown:

- 1. WI Connected to the Ground Fault Tester 2 (GFT2) and Configured for Grounds Inspection
- WI Connected to the Model 5000 Grade Crossing Predictor (GCP) and Configured for Warning Time Inspection
- WI Connected to the Model 4000 Grade Crossing Predictor (GCP) via the Wayside Access Gateway (WAG) and Configured for Warning Time Inspection

6.2.1 WI Connected to the Ground Fault Tester 2 (GFT2) and Configured for Grounds Inspection

The GFT2 is wall, shelf, or rack mountable. The Data Out wire may be connected to any unused Digital Input. In Figure 6-2, the WI is configured to perform the Grounds (CFR, Title 49, §234.249) Inspection. The GFT2 will be installed in accordance with the Railroad/Agency's approved site drawing.





6.2.2 WI Connected to the Model 5000 Grade Crossing Predictor (GCP) with WI Configured for Warning Time Inspection



<u>NOTE</u>

Customer supplied ethernet hubs may be used to ensure connectivity between all eithernet capable equipment in the shelter.

The Model 5000 GCP is wall, shelf, or rack mountable. The GCP automatically provides the WI with Warning Time ((CFR, Title 49, §234.259) Inspection data. The Model 5000 is network capable, and is connected via Cat 5 cable to the WI in either the ETH1 or ETH2 connector in accordance with the Railroad/Agency's approved site drawing.



Figure 6-3: Wayside Inspector Connected to the Model 5000 Grade Crossing Predictor (GCP) with WI Configured for Warning Time Inspection drawing.

6.2.3 WI Connected to the Model 4000 Grade Crossing Predictor (GCP) via the Wayside Access Gateway (WAG) with WI Configured for Warning Time Inspection

all eithernet capable equipment in the shelter.

NOTE	NOTE
	Customer supplied ethernet hubs may be used to ensure connectivity between

The Model 4000 GCP is wall, shelf, or rack mountable. The GCP automatically provides the WI with Warning Time ((CFR, Title 49, §234.259) Inspection data. The Model 4000 GCP cannot be directly connected to the WI. The Model 4000 GCP is connected via the Echelon connector to the WAG, and the WAG is connected to the Wayside Inspector in accordance with the Railroad/Agency's approved site



Figure 6-4: WI Connected to the Model 4000 Grade Crossing Predictor (GCP) via the Wayside Access Gateway (WAG) with WI Configured for Warning Time Inspection