SIEMENS

SERVICE MANUAL

Q2517-XX ALERTER SYSTEM

APRIL 2005 (REVISED AUGUST 2018)

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Siemens Mobility Inc.
700 East Waterfront Drive
Munhall, Pennsylvania 15120
1-800-793-SAFE

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The equipment covered in this manual has been tested and found to comply with the limits for Class A digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

DOCUMENT HISTORY

Version	Release Date	Sections Changed	Details of Change	Author
A	04/2005	--	Initial Release by Quantum.	N/A
B	06/2015	All	Branding change and material update.	TP
C	02/2018	All	Material added for Q2517-02 functionality. Changes made: 1.1 Wording added to include Q2517-02 functionality. Table 1-1 & 1-2 Parts List updated to include Q2517-02 specific parts. 2.0 Updated wording. 2.1 Active/Dormant Operation description to detail Q2517-02 operation. 2.3 Alerter Timing Cycle has been updated to include the standard timing intervals of the Q2517-02. 2.4 Operator On Board feature has been updated to include Q2517-02 functionality. 2.6 Alarm Cycle updated to include Q2517-02 timing differences. 3.2.2 Service brake label change updated to include Q2517-02. 4.1 Electrical connections updated to include installation drawing specific to the Q2517-02 (Section 7 also updated). 5.1 Updated System Qualification Test to differentiate between Q2517-XX and Q2517-02 systems. Table 5-1 Added differentiation between Q2517-XX and Q2517-02. 6.1 Updated Warranty Policy.	LM
C.1	5/4/2018	2.6	Updated 2.6 by removing line “The Q2517-02 provides a 15 second alarm cycle.”	LM
C.2	8/2/2018	5.0	Updated to content relating to test mode. Added updated graphics.	LM
C.3	8/13/2018	2.6	Added note for Q2517-02 recovery after penalty brake application light/horn panel behavior.	LM

Table of Contents

List of Figures

List of Tables

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:

WARNING

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY. WARNINGS ALWAYS TAKE PRECEDENCE OVER NOTES, CAUTIONS, AND ALL OTHER INFORMATION.

CAUTION

REFERS TO PROPER PROCEDURES OR PRACTICES WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN A POTENTIALLY HAZARDOUS SITUATION AND/OR POSSIBLE DAMAGE TO EQUIPMENT. CAUTIONS TAKE PRECEDENCE OVER NOTES AND ALL OTHER INFORMATION, EXCEPT WARNINGS.

NOTE

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

If there are any questions, contact Siemens Mobility, Inc. Application Engineering.

ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

Static electricity can damage electronic circuitry, particularly low voltage components such as the integrated circuits commonly used throughout the electronics industry. Therefore, procedures have been adopted industry-wide which make it possible to avoid the sometimes invisible damage caused by electrostatic discharge (ESD) during the handling, shipping, and storage of electronic modules and components. Siemens Mobility, Inc. has instituted these practices at its manufacturing facility and encourages its customers to adopt them as well to lessen the likelihood of equipment damage in the field due to ESD. Some of the basic protective practices include the following:

- 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 electrostatic-sensitive integrated circuit devices such as PROMs (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.

For information concerning ESD material applications, please contact the Technical Support Staff at 1-800-793-7233. ESD Awareness Classes and additional ESD product information are also available through the Technical Support Staff.

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SECTION 1 **INTRODUCTION**

1.0 GENERAL INFORMATION

The Siemens Q2517-XX Alerter System Controller is a track vehicle reset timer which requires vehicle operator acknowledgement for reset, assuring the vehicle operator is attentive to the operation of the vehicle at all times.

The Q2503/PNL Alerter Light/Horn panel is used to provide visual and audible signals to the vehicle operator after a predetermined period of time in which the alerter system has not detected the movement of a track vehicle control. In the event that the vehicle operator is unable to continue to operate the track vehicle and has not responded to the alerter system visual and audible alarms, the alerter system will initiate a penalty application of the brakes.

This manual contains operating, installation, testing, and maintenance information for the Siemens Q2517-XX Alerter System Controller and the Q2503/PNL Light/Horn Panel.

1.1 FEATURES OF THE Q2517-XX ALERTER CONTROLLER

1.1.1 Full Redundancy

The alerter controller incorporates two (2) microprocessors that monitor all inputs to the alerter system but control half (1/2) of the alerter visual indicators, and one (1) of the two (2) audible horns. In the event that one of the microprocessors or its supporting electronics fail, the intensity of the visual and audible alarm indications will be diminished, but the alerter system controller will continue to ensure attentive operation of the track vehicle.

1.1.2 Speed Dependent Timing Cycle

The model Q2517 and Q2517-01 alerter controllers use the track vehicle speed signal to vary the alerter system timing cycle (time between alerter alarm indications). As the speed of the track vehicle increases, the timing cycle decreases. This design feature demands that the operator acknowledge the alerter system more frequently during high-speed operation.

1.1.3 Timing Cycle for Q2517-02 Models

The Q2517-02 alerter controller uses a fixed alerter system timing cycle (time to alarm) of 30 seconds. This time was selected based on standard timeout for worst-case operation at 80 MPH.

1.1.4 Operator on Board (OOB)

The alerter system requires one (1) acknowledgement of the visual and audible alarm indications before the system will increase the timing cycle above its most restrictive setting. The OOB feature ensures that a minimum distance will be traveled if the track vehicle brakes are released without an operator on board that is capable of operating the track vehicle.

1.1.5 Repetitive Reset Disable

The Q2517-XX Alerter System Controller monitors the manual reset switch input for the presence of repetitive inputs. Any mechanical or electrical means of providing repetitive resets to the manual reset switch input will not be processed as a valid timing or alarm cycle reset. If a repetitive reset is detected, the repetitive input to the alerter controller is disabled but the others remain available to the operator to reset the alerter controller timing or alarm cycle.

1.1.6 Maintainability

The Q2517-XX Alerter System Controller features a self-test mode, allowing maintenance personnel to quickly evaluate all functions and reset inputs. A series of steps is required to enter the test mode, thereby preventing the vehicle operator from inadvertently placing the system in the test mode of operation. On the Q2517 and Q2517-01 alerters, if a speed signal is detected while the alerter system is in test mode, the test mode is immediately discontinued and the normal mode of operation begins. The Q2517-02 can exit test mode in one of three ways: if the alerter counts down and completes the penalty cycle, by holding the manual reset push button high for 10 seconds, or by the external Cutout Input going inactive.

1.1.7 Serviceability

The components of this system are modular in design, allowing each component to be changed quickly, when required. The controller is designed for ease of replacement via one MS-type Amphenol connector. The air brake manifold is integrated into the alerter controller enclosure for ease of installation and service.

1.2 PARTS LIST AND DESCRIPTION

Table 1-1 Parts List

Part Number	Description
Q2517, -01	Alerter Controller, 24 Vdc version. With pressure switch manifold for monitoring the service brake and integrated penalty brake application relay.
Q2517-02	Transit alerter controller, no-speed, 24V Vdc.
Q2503/PNL	Light Horn Panel, Compatible with the Q2517-XX, 24 Vdc operation.
Q9020/35	Q2517-XX Alerter System Controller power and vehicle interconnection cable, 35 feet long.
07014	Manual Reset Switch, Yellow Mushroom Head.
07016	Manual Reset Switch Legend Plate, “RESET.” (for model Q2517, and Q2517-01)
07038	Manual Reset Switch Legend Plate, “RESET.” (for model Q2517-02)
QP-35075	Pressure Switch, 15 psi, normally open configuration. (for model Q2517, and Q2517-01)
Q1126	Axle drive, 20 Pole (Pulse per wheel revolution), For model Q2517, and Q2517-01.

Additional alerter system components are available from Siemens Mobility Inc. Please consult customer service for pricing and availability.

Table 1-2 Additional Alerter System Components

Part Number	Description
NYKZ814001290000	SSR-NO, control voltage 24V, DIN-mount (Q2517-02)
NYKZ814001300000	SST-NO, control voltage 24V, DIN-mount (Q2517-02)
NYKZ814001320000	RLY QPDT, coil voltage 36V (Q2517-02)
NYKZ714021350000	Socket, DIN-rail, for plug-in relays (Q2517-02)
NYKZ827002800000	Four-stage rotary switch (Q2517-02)
NYKZ827002790000	Dual-contact mushroom pushbutton (Q2517-02)
NYKZ827002810000	Foot-pedal momentary DPDT (Q2517-02)
NYK153158-3	DC-DC converter 4A / 100W 36V – 24V (Q2517-02)
07002	Manual Reset Switch, Red “Jumbo” Mushroom Head (for model Q2517, and Q2517-01)
07007	Manual Reset Switch, 6” Whisker (for model Q2517, and Q2517-01)
OBE-00-15-03	Service Manual, Q2517-XX Alerter System

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SECTION 2 **OPERATION**

2.0 OPERATIONS INTRODUCTION

The Q2517-XX Alerter System Controller, when interconnected to the track vehicle, monitors the actuation of up to six reset signals to ensure that the operator is attentive to the operation of the track vehicle. When a reset signal is actuated within the timing cycle of the alerter controller, the alerter timing cycle is reset to its maximum value.

The maximum value of the timing cycle is further described in Section 2.3.

If movement of a monitored track vehicle control is not detected within the timing cycle, the alerter controller will initiate a visual and audible alarm cycle, via the Q2503/PNL Alerter Light/Horn. The operator must acknowledge the alerter system alarm by pressing the manual reset switch or actuating another monitored reset signal to avoid a penalty application of the track vehicle brakes. If no acknowledgement is received and the alerter completes the alarm cycle, the alerter system will initiate a penalty brake application by opening a penalty brake application relay contained within the enclosure of the Q2517-XX Alerter Controller.

2.1 ACTIVE/DORMANT OPERATION

The Siemens Q2517-XX Alerter System Controller is active at all times when power is applied. Certain conditions, as listed below, will place the alerter system in a dormant mode of operation. When operating in the dormant mode, the system will not initiate an alarm cycle or a penalty brake application.

For the Q2517 either of the following conditions will place the unit in dormant mode:

Condition 1 - Service Brake Pressure (Dormant pneumatic input) Greater than 15 PSI
Condition 2 - Cutout Input On/Active

For the Q2517-01 the following condition will place the unit in dormant mode:

Condition - Service Brake Pressure (Dormant pneumatic input) Greater than 15 PSI

For the Q2517-02, the following condition will place the unit in dormant mode:

Condition - Cutout Input On/Active

2.2 ALERTER RESETS

The table below lists the alerter resets for the Q2517 Alerter System Controller.

Table 2-1 Alerter Controller Timing Cycle Resets

Alerter Controller Timing Cycle Resets	Q2517	Q2517-01	Q2517-02
Service Brake (Dormant)	■	■	
Brake Cylinder Pressure Switch			■
Horn 1	■	■	■
Horn 2	■	■	
Manual Reset 1 and 2	■	■	■
Spare Inputs 5 and 6	■	■	■
Throttle	■	■	■

2.3 ALERTER TIMING CYCLE

The timing cycle is the largest difference between the model Q2517, Q2517-01, and the Q2517-02. For information on the model Q2517 and Q2517-01 timing cycles, reference the alerter system timing diagram, located in the Drawings Section (7.0) of this manual. The timing cycle, or time to alarm, is directly related to the measured track vehicle speed. Each portion of the alerter timing cycle is described in Section 2.6.

The timing cycle of the Q2517-02 is a fixed interval of 30 seconds.

NOTE

NOTE

For the Q2517 and Q2517-01, the most restrictive timing cycle is used if a speed signal is not detected by the alerter system.

2.4 OPERATOR ON BOARD (OOB)

The OOB feature ensures that a minimum distance will be traveled if the track vehicle brakes are released without a vehicle operator on board that is capable of operating the track vehicle. When the alerter exits Dormant Mode (See Dormant Mode Operation on preceding pages), the alerter will immediately enter the OOB mode (timing cycle is 20 seconds, independent of speed). For models Q2517 and Q2517-01, after the alerter enters OOB mode, the operator must increase the speed of the vehicle above the minimum OOB setting (0.3 MPH) and then allow the alerter system to enter the alarm cycle. Once one of the alerter timing cycle resets (reference Table 2-1) is actuated, the alerter system will extend the timing cycle to the maximum allowable value based on speed. For the Q2517-02 model, to exit OOB, the operator needs to actuate one of the reset inputs, at which point timing will change from the 20 seconds for OOB, to the alerter timing cycle of 30 seconds.

2.5 HIGH SPEED OPERATION (APPLIES TO Q2517 AND Q2517-01 ONLY)

When the track vehicle is operated at or above the high-speed operation threshold, the Q2517 and Q2517-01 alerter systems timing cycle is calculated using the following formula:

$$\frac{2400}{\text{Train Speed (MPH)}} = \text{Length of timing cycle (Seconds)}$$

Example: At 60 MPH, the timing cycle is 40 seconds long.

2.6 ALARM CYCLE

The Siemens Q2517 Alerter System Controllers provide the operator with a 20-second-long alarm cycle. Visual and audible warnings are provided by the Q2503/PNL Light Horn Panel. The three phases of the alarm cycle are described below:

- Seconds 1-5: LEDs flash – No audible warning
- Seconds 5-10: LEDs flash – Audible warning increases in volume
- Seconds 10-20: LEDs fully illuminated, audible warning at full volume

When the end of the alerter system timing cycle is reached, the visual Light Emitting Diode (LED) displays will begin to flash. After approximately 5 seconds, the audible alarm will begin to sound and then increase in volume. Ten seconds after the initiation of an alarm cycle, the LEDs will be continuously illuminated (no flashing) and the audible alarms will emit a steady tone at full volume. At any time during the alarm cycle, the vehicle operator may reset the alerter device by pressing the manual reset switch or actuating another reset input to avoid a penalty application of the brakes. If the alarm cycle is not reset within 20 seconds of the initiation of the cycle, a penalty application of the brakes will occur. The operation of the alerter system then proceeds as follows:

1. The audible alarms will be silenced and the visual indicators are turned off.
2. The vehicle brakes will be applied (via the integrated penalty application relay).
3. The vehicle operator will not be allowed to cancel the penalty for 30 seconds, (45 seconds for the Q2517-02).
4. For the Q2517-02, after the 45 second penalty phase, the visual indicators will begin to flash again at 2.5 Hz with a 3% duty cycle, indicating the vehicle operator is able to reset. The reset must be either the manual reset button or the foot switch.

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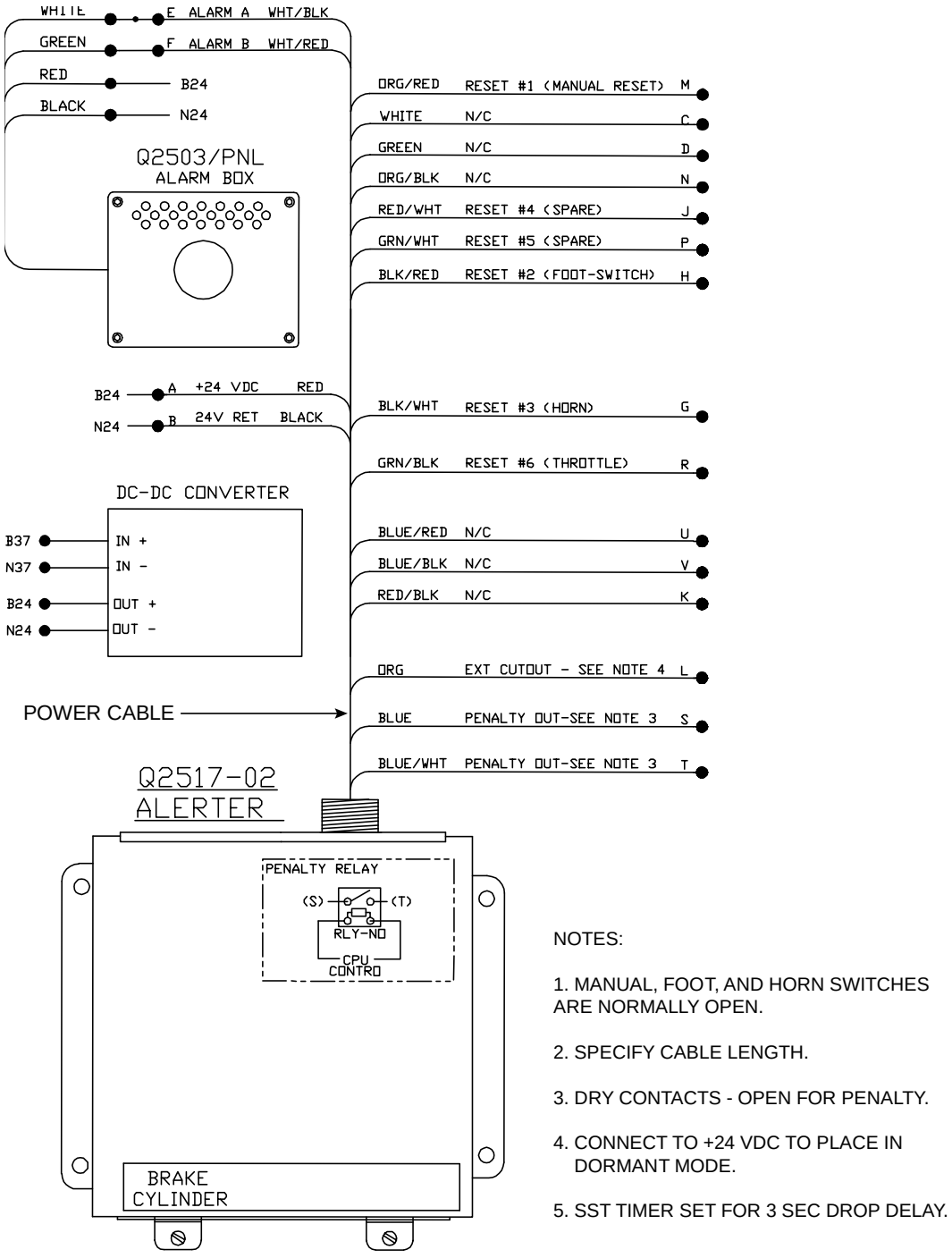
SECTION 3 **INSTALLATION**

3.0 ALERTER CONTROLLER INSTALLATION

Electrical and pneumatic connections between the track vehicle and the Q2517-XX Alerter System Controller are shown schematically on the drawing located in the Drawings Section 7.0 of this manual. The Q2517-02 model wiring connections are illustrated in Figure 3-1.



NOTES:

1. MANUAL, FOOT, AND HORN SWITCHES ARE NORMALLY OPEN.
2. SPECIFY CABLE LENGTH.
3. DRY CONTACTS - OPEN FOR PENALTY.
4. CONNECT TO +24 VDC TO PLACE IN DORMANT MODE.
5. SST TIMER SET FOR 3 SEC DROP DELAY.

Figure 3-1 Connections for Q2517-02

3.1 MOUNTING CONSIDERATIONS

Mounting considerations for the Q2517-02 alerter box are shown below in Figure 3-2. For mounting specifications for models Q2517 and Q2517-01, reference drawing C2517 located in Section 7.0.

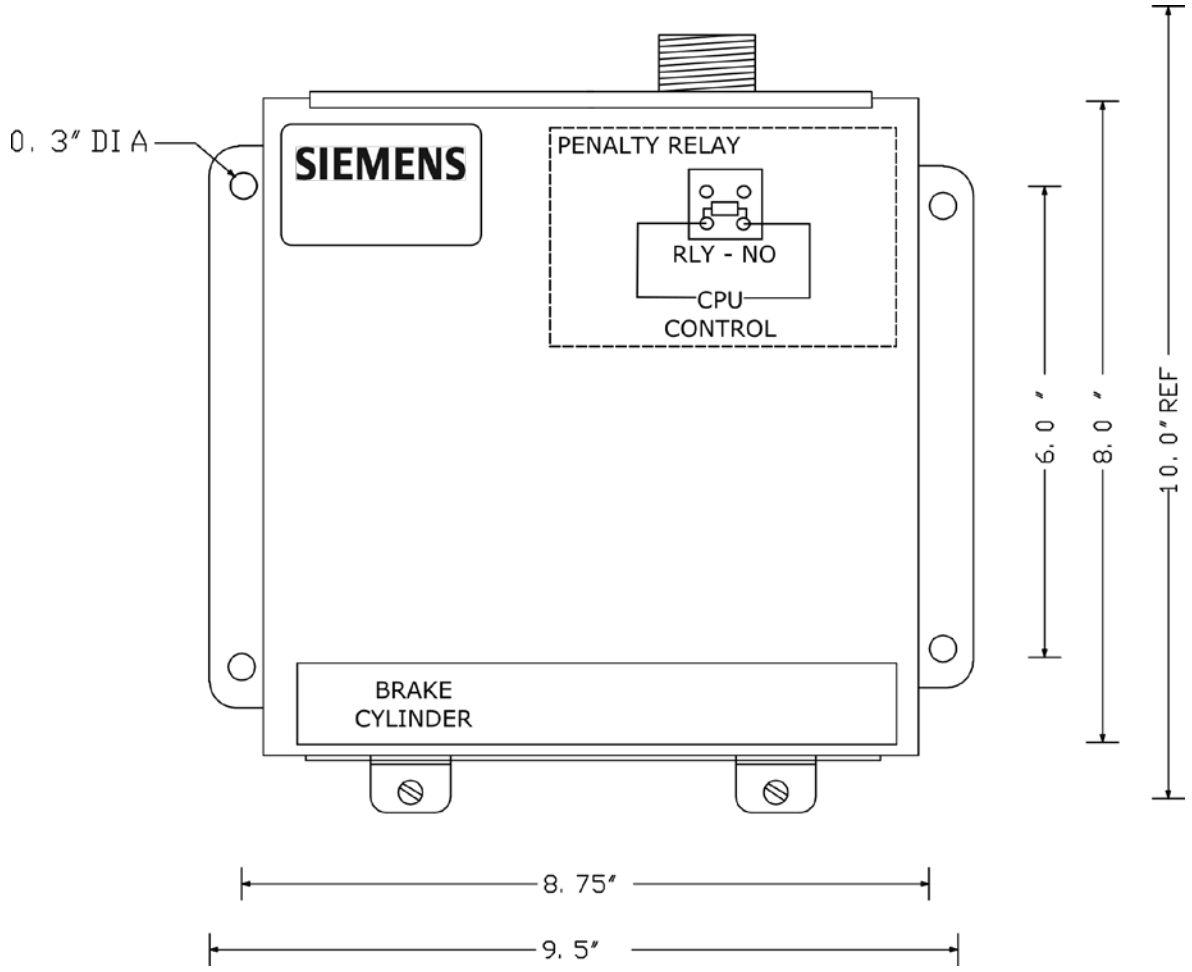


Figure 3-2 Q2517-02 Alerter Box

3.2 PNEUMATIC AND PIPING

Pneumatic connections to the integrated pressure switch manifold can be made with copper tubing (flare), flexible plastic tubing, or rubber hose. Since the pressure switch manifold is monitoring pressure (no airflow through the pneumatic connections) ¼" diameter tubing is normally used.

3.2.1 Horn

The QP-35075 pressure switches should be installed as close to the horn air valve as possible.

3.2.2 Service Brake

Locate and interconnect the pneumatic connection on the alerter controller labeled DORMANT on Q2517 and Q2517-01 and BRAKE CYLINDER on Model Q2517-02 to a point in the track vehicle air brake system that is always at the same pressure as the service brake system.

SECTION 4 ALERTER LIGHT/HORN PANEL INSTALLATION

4.0 MOUNTING CONSIDERATIONS

The Q2503/PNL Alerter Light/Horn Panel can be mounted in any position that is visible to the track vehicle operator.

4.1 ELECTRICAL CONNECTIONS

1. Interconnect the power leads of the alerter light/horn panel to the same +/- 24 Vdc circuit as the Q2517-XX Alerter Controller, per Siemens installation drawing.
2. Interconnect Alarm A and Alarm B leads, to the Q9020/35 Alerter Power Cable leads marked Alarm A and Alarm B.

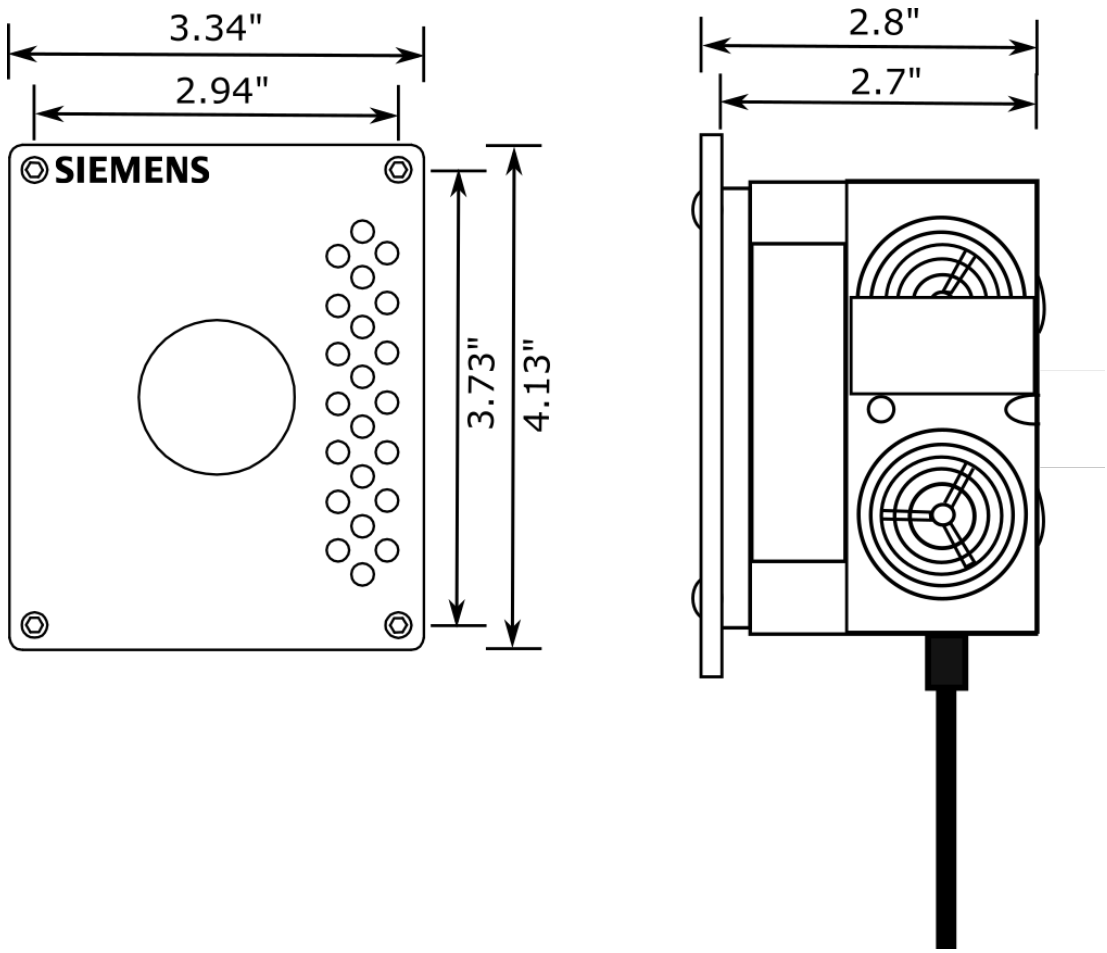


Figure 4-1 Q2503/PNL Alerter Light/Horn

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SECTION 5 **SYSTEM TEST**

5.0 SYSTEM TEST INTRODUCTION

The Siemens Q2517-XX alerter system provides built-in test and diagnostic capabilities when the alerter is placed in the test mode. Once in the test mode, each time an alerter controller reset is activated, the red LEDs will blink and the audible alarms will sound. This verifies that the alertness device is operational and that the wiring to the alerter controller reset input is intact. Test each of the reset inputs (see Table 2-1 for full listing of alerter resets) by following the steps listed below. If any reset input fails to operate, check the cable connections to that input.

NOTE

NOTE

For the Q2517 and Q2517-01, if, for any reason, the speed input to the alerter controller exceeds 3 MPH, the test mode will automatically be canceled and the normal alerter system will resume. For the Q2517-02, if external cutout goes inactive, test mode will automatically be exited.

5.1 SYSTEM QUALIFICATION TEST VIA Q2517-XX ALERTER CONTROLLER TEST MODE

1. Check to ensure that the alerter model in use is in the proper mode per table below:

Table 5-1 System mode

System Mode	Q2517	Q2517-01	Q2517-02
Not Dormant	■	■	
Dormant			■
Cutout Active			■
Cutout Inactive	■	■	

2. Set up the track vehicle for the alerter system test:
   a. Apply the HANDBRAKE.
   b. Place the THROTTLE in IDLE
   c. Fully apply the SERVICE BRAKE (>15 PSI)
   d. Press and hold the manual reset switch connected to the input labeled MANUAL RESET 1 until the alerter light/horn panel provides the visual indication (LEDs flash one time) that the system is in the test mode (approximately 10 seconds).
3. Test the alerter system reset inputs in the sequence listed on Table 5-2. When the Q2517-XX Alerter Controller acknowledges the input, a visual (and audible) confirmation is provided via the alerter light/horn panel.

NOTE

NOTE

With each acknowledgement of an input while in test mode, the volume of the audible confirmation will increase

Table 5-2 Test Step Control Positions

Test Step	Input	Org. Position	Test Position	Final Position	Comments
1	Manual Reset #1	Off	On	Off	
2	Horn #1	Off	On	Off	
3	For Q2517 and Q2517-01 Service Brake (Dormant) For Q2517-02 - Brake Cylinder Pressure Switch	Fully Applied	Fully Released	Fully Applied	
4	Manual Reset #2	Off	On	Off	
5	Horn #2 (Q2517 and Q2517-01 only)	Off	On	Off	
6	For Q2517 and Q2517-01 Cutout Switch (If Equipped)	Off	On	Off	

5.2 PENALTY APPLICATION OF THE TRACK VEHICLE BRAKING SYSTEM

Allow enough time to elapse without providing an alerter system reset to the Q2517-XX Alerter System. The alerter system light/horn panels will then start to flash, followed by a steady increase in volume of the audible warning horns. After 20 seconds, the alerter will cause a penalty application of the track vehicle brakes. Allow 30 seconds (45 seconds for the Q2517-02) to elapse after the penalty application of the brakes. Press the manual reset switch and then recover the track vehicle air brake system.

5.3 COMPLETION OF TEST (EXITING TEST MODE)

For the Q2517 and Q2517-01

The following test procedure will test the speed (axle drive) input to the Q2517-XX Alerter Controller and place the Q2517-XX Alerter Controller in its normal operating mode (i.e., exits the test mode) and will complete the system test.

1. Connect an axle drive simulator or frequency generator to the AXLE DRIVE inputs of the Q2517 Alerter Controller.
2. Provide a simulated speed signal greater than 3 MPH. (About 15 Hz or greater for 20 pole operation).
3. After approximately five (5) seconds, a visual indication (LEDs Flash one time) indicating that a speed above three (3) MPH has been acknowledged should be provided. This will also cancel the alerter system test mode and place the Q2517 Alerter Controller in the normal mode of operation.

5.4 ALTERNATE METHOD TO EXIT THE TEST MODE

For the Q2517 and Q2517-01

1. Fully apply the Service Brake.
2. Press and hold the Manual Reset 1 switch (Reference drawing C2517 for Q2517 and Q2517-01, located in the Drawings Section of this manual) for approximately 10 seconds, until the alerter visual warning lights provide an indication (LEDs flash one time) that the alerter system has exited the test mode.

For the Q2517-02, three methods exist to exit test mode:

1. Press and hold the manual reset switch connected to the input labeled MANUAL RESET 1 until the alerter light/horn panel provides the visual indication (LEDs flash one time) that the system has exited test mode (approximately 10 seconds).
2. If the external cutout input becomes inactive, the system will automatically exit test mode.
3. If the alarm cycle completes and a penalty brake application occurs, the unit exits test mode.

5.5 ALTERNATE METHOD TO TEST THE AXLE DRIVE INPUT

For the Q2517 and Q2517-01

1. While in the Q2517 Alerter System test mode, move the track vehicle to a speed greater than 3 MPH. A visual indication (LED’s Flash one time) indicating that a speed above three (3) MPH has been acknowledged should be provided. This will also cancel the alerter system test mode and place the Q2517-XX Alerter Controller in the normal mode of operation.

5.6 ALERTER SYSTEM MAINTENANCE

The Siemens alerter system does not require periodic replacement of any component. The alerter light/horn panels contain LED lamps that do not require replacement. Periodic inspection should be performed in accordance with the railroad's established procedures or the alerter system test instructions in this manual.

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SECTION 6 WARRANTY AND REPAIR INFORMATION

6.0 WARRANTY AND REPAIR INFORMATION

6.1 WARRANTY POLICY

All Siemens equipment, excluding credit card memory or other similar devices that already carry a manufacturer's warranty, is warranted against failure, due to materials or workmanship, for a period of two (2) years commencing on the month of manufacture. Siemens will repair or replace, at our discretion, all defective material returned to our factory in Marion, Kentucky, prepaid. The equipment will be fully repaired and tested to the original equipment specifications. Equipment will be returned at the equipment owners' expense with the existing warranty in effect.

The date (month/year) of manufacture will be listed on serial number label.

6.2 REPAIR POLICY

Equipment must be shipped to the address listed below. Equipment which has exceeded the warranty period, must be shipped freight pre-paid to our factory, unless other arrangements have been previously negotiated. Repair charges will be estimated and charged upon determination of the extent of damage, current costs of parts and labor. Return shipping is the responsibility of the equipment owner and will be charged accordingly.

NOTE

NOTE

Before returning any equipment for warranty or repair, a Return Material Authorization (RMA) number must be obtained from Siemens Customer Service prior to shipping the equipment.

Return all equipment to:

Siemens Mobility, Inc.
939 S. Main Street
Marion, Kentucky 42064

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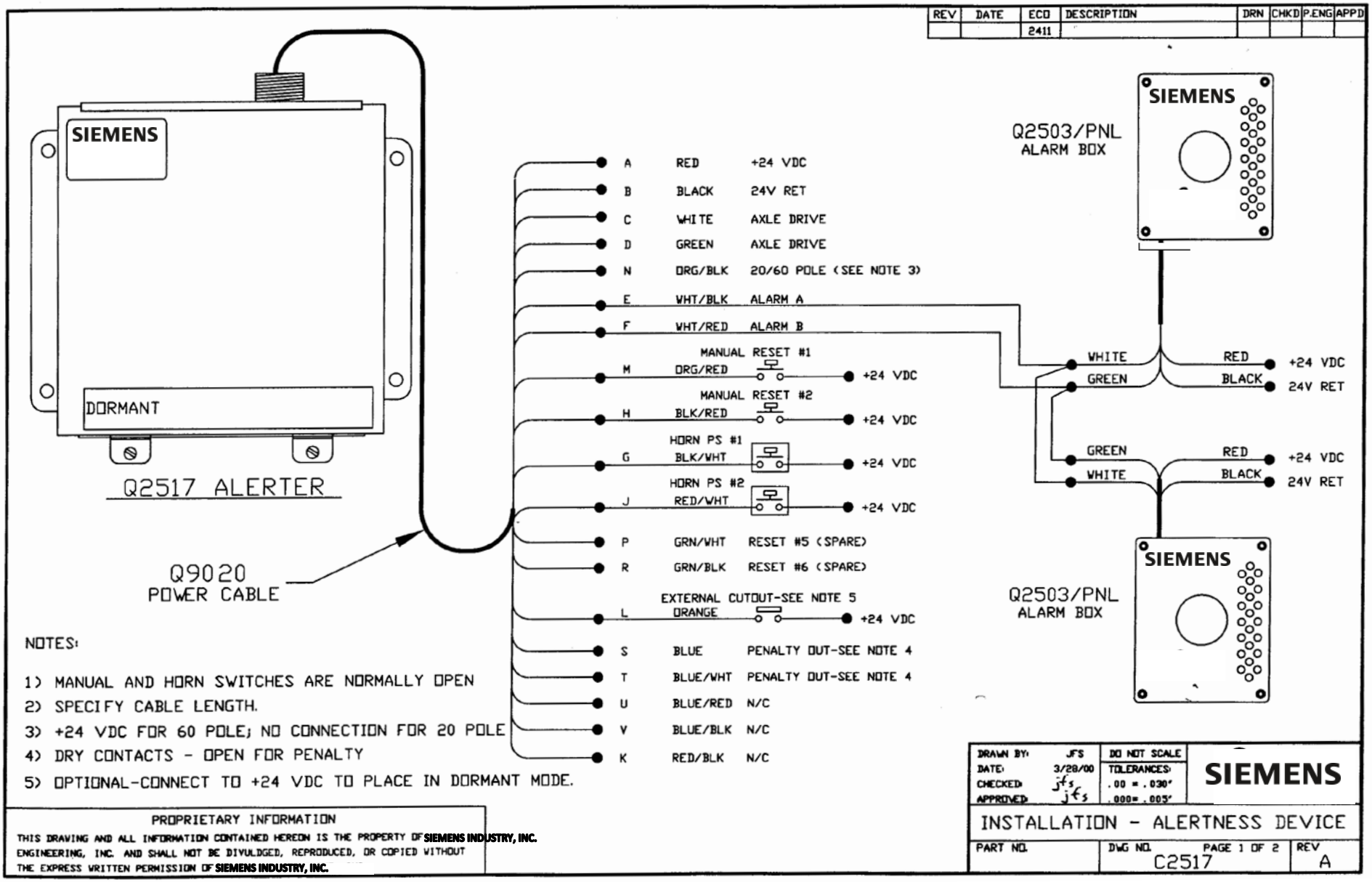
SECTION 7 **DRAWINGS**

7.0 INSTALLATION WIRING

The following lists the installation drawings included in this service manual and their corresponding revision level.

Table 7-1 Installation Wiring Drawing Number

Drawing Number	Description	Revision Level	Applicable Part No.
C2517 (1 of 2)	Installation – Alertness Device	A or higher	Q2517, Q2517-01
C2517 (2 of 2)	Installation – Alertness Device	A or higher	Q2517, Q2517-01
C2517 TIMING	Alerter Timing Curve	A or higher	Q2517, Q2517-01
C2505/PNL	Installation – Alertness Alarm Panel	A or higher	Q2517, Q2517-01


REV | DATE | ECO | DESCRIPTION | DRN | CHKD | P.ENG | APPD
2411
SIEMENS
DORMANT
Q2517 ALERTER
Q90 20
POWER CABLE
A RED +24 VDC
B BLACK 24V RET
C WHITE AXLE DRIVE
D GREEN AXLE DRIVE
N ORG/BLK 20/60 POLE (SEE NOTE 3)
E WHT/BLK ALARM A
F WHT/RED ALARM B
MANUAL RESET #1
M ORG/RED +24 VDC
MANUAL RESET #2
H BLK/RED +24 VDC
HORN PS #1
G BLK/WHT +24 VDC
HORN PS #2
J RED/WHT +24 VDC
P GRN/WHT RESET #5 (SPARE)
R GRN/BLK RESET #6 (SPARE)
EXTERNAL CUTOUT-SEE NOTE 5
L ORANGE +24 VDC
S BLUE PENALTY OUT-SEE NOTE 4
T BLUE/WHT PENALTY OUT-SEE NOTE 4
U BLUE/RED N/C
V BLUE/BLK N/C
K RED/BLK N/C
Q2503/PNL
ALARM BOX
WHITE
GREEN
RED +24 VDC
BLACK 24V RET
GREEN
WHITE
RED +24 VDC
BLACK 24V RET
Q2503/PNL
ALARM BOX
NOTES:
1) MANUAL AND HORN SWITCHES ARE NORMALLY OPEN
2) SPECIFY CABLE LENGTH.
3) +24 VDC FOR 60 POLE; NO CONNECTION FOR 20 POLE
4) DRY CONTACTS - OPEN FOR PENALTY
5) OPTIONAL-CONNECT TO +24 VDC TO PLACE IN DORMANT MODE.
PROPRIETARY INFORMATION
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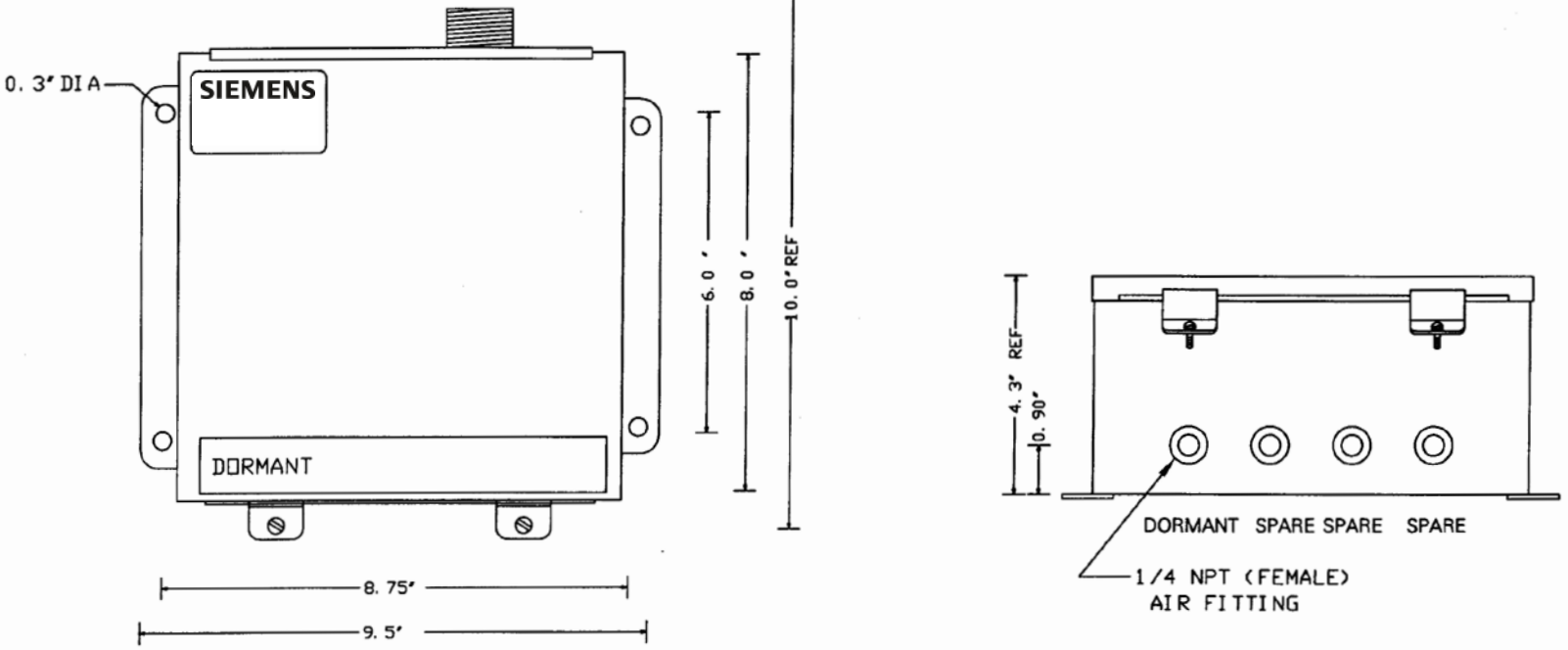
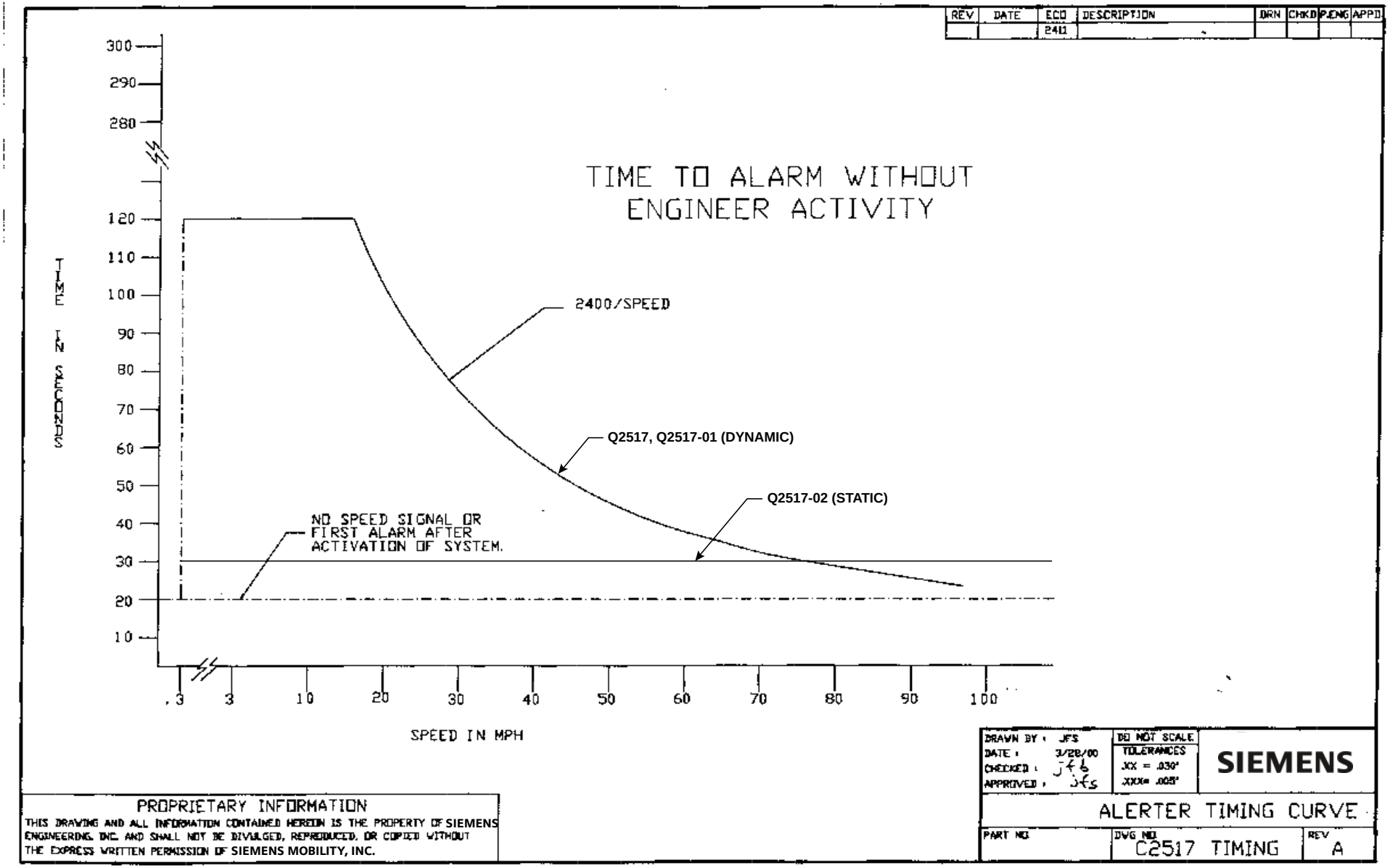
DRAWN BY: JFS
DATE: 3/28/00
CHECKED: jfs
APPROVED: jfs
DO NOT SCALE
TOLERANCES:
.00 = .030"
.000= .005"
SIEMENS
INSTALLATION - ALERTNESS DEVICE
PART NO.
DWG NO. C2517
PAGE 1 OF 2
REV A



NOTE:
ALERTER MAY BE MOUNTED IN ANY ORIENTATION. PRESSURE FITTINGS MUST NOT BE THE LOW POINT SUCH THAT TRAPPED MOISTURE ACCUMULATES IN THE ALERTER.

DRAWN BY: JFS	DO NOT SCALE	SIEMENS	
DATE: 3/28/00	TOLERANCES: .00 = .030" .000= .005"		
CHECKED:			
APPROVED:			
INSTALLATION - ALERTNESS DEVICE			
PART NO.	DWG NO. C2517 PAGE 2 OF 2	REV A	


REV | DATE | ECO | DESCRIPTION | DRN | CHKD | P.ENG | APPD
2411
TIME TO ALARM WITHOUT ENGINEER ACTIVITY
TIME IN SECONDS
300
290
280
120
110
100
90
80
70
60
50
40
30
20
10
2400/SPEED
Q2517, Q2517-01 (DYNAMIC)
Q2517-02 (STATIC)
NO SPEED SIGNAL OR FIRST ALARM AFTER ACTIVATION OF SYSTEM.
.3
3
10
20
30
40
50
60
70
80
90
100
SPEED IN MPH
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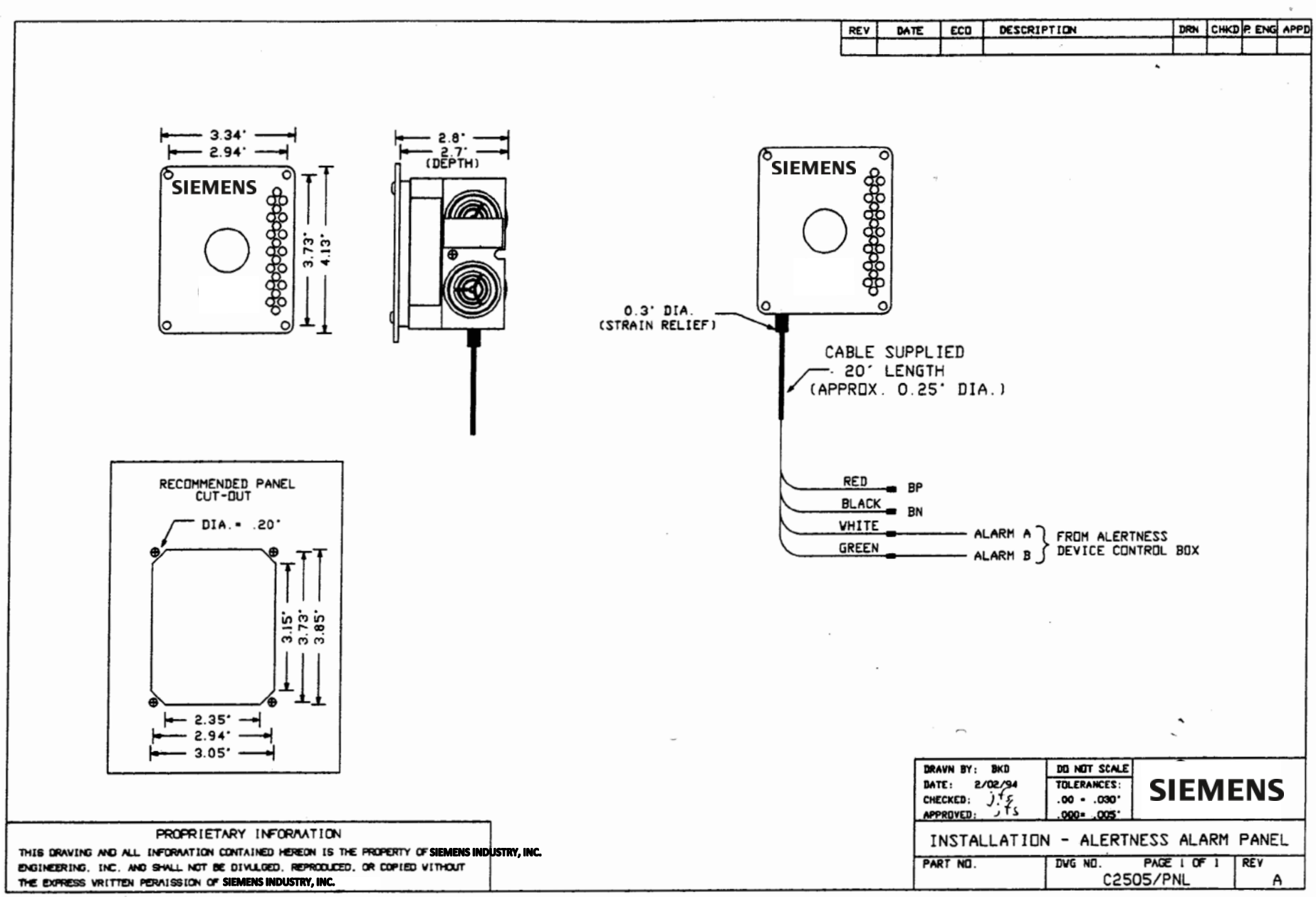
DRAWN BY : JFS
DATE : 3/28/00
CHECKED : JFS
APPROVED : JFS
DO NOT SCALE
TOLERANCES
.XX = .030"
.XXX= .005"
SIEMENS
ALERTER TIMING CURVE
PART NO
DWG NO C2517 TIMING
REV A


REV
DATE
ECO
DESCRIPTION
DRN
CHKD
P. ENG
APPD
3.34"
2.94"
SIEMENS
3.73"
4.13"
2.8"
2.7"
(DEPTH)
SIEMENS
0.3" DIA.
(STRAIN RELIEF)
CABLE SUPPLIED
20' LENGTH
(APPROX. 0.25" DIA.)
RED
BP
BLACK
BN
WHITE
ALARM A
GREEN
ALARM B
FROM ALERTNESS
DEVICE CONTROL BOX
RECOMMENDED PANEL
CUT-OUT
DIA. = .20"
3.15"
3.73"
3.85"
2.35"
2.94"
3.05"
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DRAWN BY: BKD
DATE: 2/02/94
CHECKED:
APPROVED:
DO NOT SCALE
TOLERANCES:
.00 = .030"
.000= .005"
SIEMENS
INSTALLATION - ALERTNESS ALARM PANEL
PART NO.
DWG NO. C2505/PNL
PAGE 1 OF 1
REV A

NOTES

NOTES

Siemens Mobility, Inc.
700 East Waterfront Drive
Munhall, Pennsylvania 15120
1-800-793-SAFE

Siemens Mobility, Inc.
939 S. Main Street
Marion, Kentucky 42064
(800) 626-2710

Siemens Mobility, Inc.
2400 Nelson Miller Parkway
Louisville, Kentucky 40223
(502) 618-8800

Rail-Automation Website