ADB Navigator™ Installation and Operation Manual

User Manual

96A0363

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Rev. F, 8/13/12

ETL Certified to FAA Specification
AC 150/4345-3 (current edition)
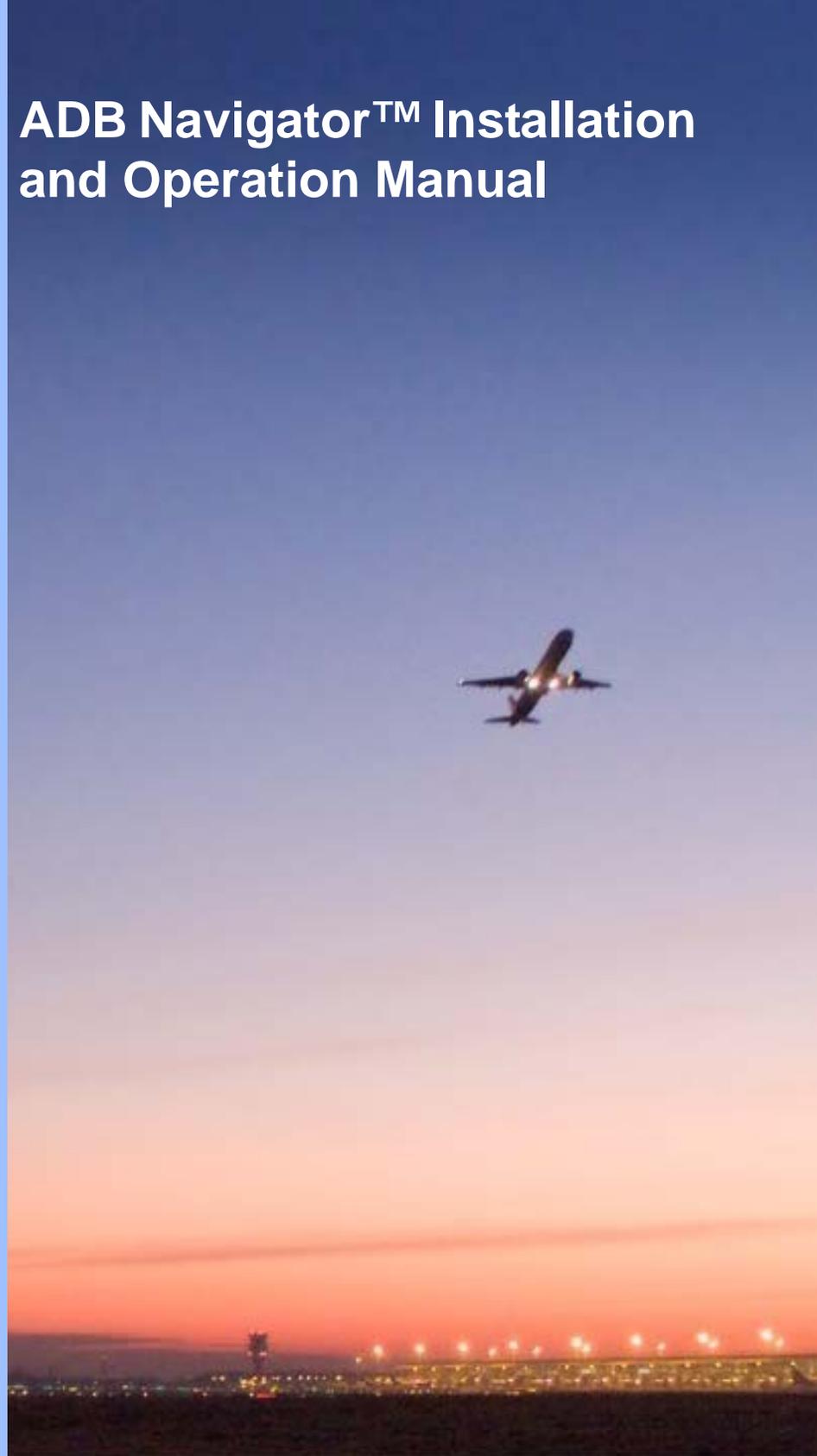
ADB
Airfield Solutions

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Disclaimer

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1.0 Safety

This section contains general safety instructions for installing and using ADB Airfield Solutions equipment. Some safety instructions may not apply to the equipment in this manual. Task- and equipment-specific warnings are included in other sections of this manual where appropriate.

1.1 To use this equipment safely:

WARNING

Read installation instructions in their entirety before starting installation.

- Refer to the FAA Advisory Circular AC 150/5340-26, Maintenance of Airport Visual Aids Facilities, for instructions on safety precautions.
- Observe all safety regulations. To avoid injuries, always disconnect power before making any wiring connections or touching any parts. Refer to FAA Advisory Circular AC 150/5340-26.
- Become familiar with the general safety instructions in this section of the manual before installing, operating, maintaining or repairing this equipment.
- Read and carefully follow the instructions throughout this manual for performing specific tasks and working with specific equipment.
- Make this manual available to personnel installing, operating, maintaining or repairing this equipment.
- Follow all applicable safety procedures required by your company, industry standards and government or other regulatory agencies.
- Install all electrical connections to local code.
- Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, panel accessibility, and cover removal.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, panel accessibility, and cover removal.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning prior to returning power to the circuit.

1.1.1 Additional Reference Materials:

- NFPA 70B, Electrical Equipment Maintenance.
- NFPA 70E, Electrical Safety Requirements for Employee Workplaces.
- ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
- OSHA 29 CFR, Part 1910, Occupational Health and Safety Standards.
- National and local electrical codes and standards.

1.1.2 Qualified Personnel

The term **qualified personnel** is defined here as individuals who thoroughly understand the equipment and its safe operation, maintenance and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations and have been trained to safely install, operate, maintain and repair the equipment. It is the responsibility of the company operating this equipment to ensure that its personnel meet these requirements.

Always use required personal protective equipment (PPE) and follow safe electrical work practices.

1.1.3 Intended Use

WARNING

Using this equipment in ways other than described in this manual may result in personal injury, death or property and equipment damage. Use this equipment only as described in this manual.

ADB Airfield Solutions cannot be responsible for injuries or damages resulting from nonstandard, unintended applications of its equipment. This equipment is designed and intended only for the purpose described in this manual. Uses not described in this manual are considered unintended uses and may result in serious personal injury, death or property and equipment damage. Unintended uses may result from taking the following actions:

- Making changes to equipment that are not recommended or described in this manual or using parts that are not genuine ADB Airfield Solutions replacement parts.
- Failing to make sure that auxiliary equipment complies with approval-agency requirements, local codes and all applicable safety standards.
- Using materials or auxiliary equipment that are inappropriate or incompatible with ADB Airfield Solutions equipment.
- Allowing unqualified personnel to perform any task.

1.1.4 Storage

CAUTION

If equipment is to be stored prior to installation, it must be protected from the weather and kept free of condensation and dust.

Failure to follow this instruction can result in injury or equipment damage.

Safety

1.1.4.1 Operation

Safety

WARNING

- Only qualified personnel, physically capable of operating the equipment and with no impairments in their judgment or reaction times, should operate this equipment.
- Read all system component manuals before operating this equipment. A thorough understanding of system components and their operation will help you operate the system safely and efficiently.
- Before starting this equipment, check all safety interlocks, fire-detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly. Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects or pneumatic valves.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Never operate equipment with a known malfunction.
- Do not attempt to operate or service electrical equipment if standing water is present.
- Use this equipment only in the environments for which it is rated. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.
- Never touch exposed electrical connections on equipment while the power is ON.

1.1.4.2 Material Handling Precautions

CAUTION

This equipment may contain electrostatic sensitive devices.

- Protect from electrostatic discharge.
- Electronic modules and components should be touched only when this is unavoidable e.g. soldering, replacement.
- Before touching any component of the cabinet you should bring your body to the same potential as the cabinet by touching a conductive earthed part of the cabinet.
- Electronic modules or components must not be brought in contact with highly insulating materials such as plastic sheets, synthetic fiber clothing. They must be laid down on conductive surfaces.
- The tip of the soldering iron must be grounded.
- Electronic modules and components must be stored and transported in conductive packing.

1.1.4.3 Action in the Event of a System or Component Malfunction

WARNING

- Do not operate a system that contains malfunctioning components. If a component malfunctions, turn the system OFF immediately.
- Disconnect and lock out electrical power.
- Allow only qualified personnel to make repairs. Repair or replace the malfunctioning component according to instructions provided in its manual.

1.1.4.4 Maintenance and Repair

WARNING

Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks.

- Only persons who are properly trained and familiar with ADB Airfield Solutions equipment are permitted to service this equipment.
- Disconnect and lock out electrical power.
- Always use safety devices when working on this equipment.
- Follow the recommended maintenance procedures in the product manuals.
- Do not service or adjust any equipment unless another person trained in first aid and CPR is present.
- Connect all disconnected equipment ground cables and wires after servicing equipment. Ground all conductive equipment.
- Use only approved ADB Airfield Solutions replacement parts. Using unapproved parts or making unapproved modifications to equipment may void agency approvals and create safety hazards.
- Check interlock systems periodically to ensure their effectiveness.
- Do not attempt to service electrical equipment if standing water is present. Use caution when servicing electrical equipment in a high-humidity environment.
- Use tools with insulated handles when working with electrical equipment.

2.0 LED In-pavement Utility Light

The scope of this manual is to assist you when installing and connecting the components of the NAVIGATOR Airfield Lighting Control System.

The project specific contract / engineering drawings and instructions shall also be followed for information regarding location, mounting requirements, fixing and connecting all components of the system.

2.1 About this manual

The manual shows the information necessary to:

Chapter 1	Safety Guidelines	Defines basic safety related guidelines for installation personnel and handling of the components
Chapter 2	Introduction	Introduction and tips for usage of this manual
Chapter 3	Getting Started	Introduction to the system
Chapter 4	Installation	Installation of the hardware components
Chapter 5	Operating the Navigator System	Operation of the ADB Navigator
Chapter 6	Troubleshooting	Troubleshooting
Chapter 7	Specifications	System Specifications
Chapter 8	Spare Parts	Spare Parts
Chapter 9	External Wiring Schematics	External Wiring Diagrams

2.1.1 How to work with the manual

1. Become familiar with the structure and content.
2. Carry out the actions completely and in the given sequence.

2.1.2 Record of changes

Page	Rev	Description	EC No.	Checked	Approved	Date
All	A	Initial release				12/06
All	B	Full release				
Various	C	Various corrections based on production prints, and controlling up to 18 elements.				
	D	Added certification of FAA L-821 Advisory Circular (150/5345-3). Changed naming to ADB Navigator.		JC	JC	10/1/09
All	E	Changes required for configuration requirements.	3116	JC	JC	8/25/11
All	F	Updated to ADB format		NH	JC	8/13/12

2.1.3 Icons used in the manual

For all WARNING symbols see the Safety section.

Carefully read and observe all safety instructions in this manual, which alert you to safety hazards and conditions that may result in personal injury, death or property and equipment damage and are accompanied by the symbol shown below.

WARNING
• Failure to observe a warning may result in personal injury, death or equipment damage.

CAUTION
• Failure to observe a caution may result in equipment damage.

2.1.4 Support

Customer Service

Should you have questions regarding usage of the system described in this manual, contact an ADB Airfield Solutions representative.

ADB Airfield Solutions Technical Support and Sales teams are made up of well trained and knowledgeable personnel who are ready to provide immediate response and support for all of our customers' needs.

Technical Support

The ADB Airfield Solutions Technical Support Team provides 24/hour, 7-days-a-week technical support. To reach our Service Team, call (800) 545-4157 or +1 (614) 861-1304 and press 1. The ADB Technical Support Team is also able provide on-site technical support on request.

2.1.5 Terms and Abbreviation

Term / Abbreviation	Description
ALCS	Airfield Lighting Control System
ALCMS	Airfield Lighting Control and Monitoring System
ATC	Air Traffic Control
ATCT	Air Traffic Control Tower
PLC	Programmable Logic Controller
HMI	Human Machine Interface (i.e. Touchscreen)
CCR	Constant Current Regulator

2.1.6 Associated Drawings and Documents

Document Number	Description
43A3160/01	NAVIGATOR™ System Externals – Ordering Codes
43A3160/02	NAVIGATOR™ System Externals – Local Communications
43A3160/03	NAVIGATOR™ System Externals – Short Haul Modem Communications
43A3160/04	NAVIGATOR™ System Externals – Fiber Optic Communications
43A3160/05	NAVIGATOR™ System Externals – Wireless Communications
105A0863	12.1" All-in-one touchscreen computer
105A0870/L157	15" All-in-one touchscreen computer
44A6580/01	PLC Enclosure Assembly Drawing
44A6580/02	PLC Enclosure Assembly Drawing
43A3161/01	Watchdog Timer Internal Wiring Diagram Drawing
43A3161/02	Vault Enclosure Assembly Internal Wiring Diagram Drawing- No B1/B10
43A3161/03	Vault Enclosure Assembly Internal Wiring Diagram Drawing- No B1/B10
43A3161/04	Vault Enclosure Assembly Internal Wiring Diagram Drawing- No B1/B10
43A3161/05	Vault Enclosure Assembly External Wiring Diagram Drawing- No B1/B10
43A3161/06	Vault Enclosure Assembly External Wiring Diagram Drawing- No B1/B10
43A3161/07	Typical CCR Wiring Diagram Drawing- No B1/B10
43A3161/08	Vault Enclosure Assembly External Wiring Diagram Drawing-Separate B1/B10
43A3161/09	Vault Enclosure Assembly External Wiring Diagram Drawing- Separate B1/B10
43A3161/10	Vault Enclosure Assembly External Wiring Diagram Drawing- Separate B1/B10
43A3161/11	Vault Enclosure Assembly External Wiring Diagram Drawing- Separate B1/B10
43A3161/12	Vault Enclosure Assembly External Wiring Diagram Drawing- Separate B1/B10

About this manual

43A3161/13	Typical CCR Wiring Diagram Drawing With B1/B10
43A3162/01	System internal diagrams for connections to the PC
43A3162/02	Communications Options Diagram
44A6600	Short Haul Modem Communication Enclosure
44A6739/XXX	Fiber Optic Communication Enclosure
44A6581	Wireless Radio Communication Enclosure
94A0454/DC	DC Current Sensing Relay

Refer to the ADB web site at www.adb-airfield.com for a copy of these drawings, and additional information, located in the Product Center. External wiring diagrams are found in section 9.

2.2 Introduction

The NAVIGATOR requires minimal setup to get started.

2.2.1 Components

The NAVIGATOR comes with the following standard components:

— PLC cabinet
— ALL-in-One Touchscreen Computer with NAVIGATOR software installed
— Keyboard and mouse
— User guide
— Serial cable, 9 feet (3 m)

Other optional components may also be delivered with the system. These components may include:

— ALL-in-One Touchscreen Computer with NAVIGATOR software for a remote location
— Current sensing devices
— Communication extension equipment
— UPS (Uninterruptible Power Supply)

Figure 1:   Main components

2.2.2 Inspect Delivered Items

Inspect the carton and contents for any signs of damage. Notify ADB if any parts are missing or damaged.

2.3 Installation

Before beginning installation:

— Determine where to place the PLC cabinet and touchscreen computer.

— Verify the cable run between the PLC cabinet and the computer, is within 9 feet (3 m) or construct an extension cable that meets the requirements set forth in the print package. For a standard PLC cable extension, please refer to drawing 43A3160/02 for pin-out details.

— If the communication medium between the computer and the PLC cabinet is longer than 9ft. a communication extension option may be purchased. These options include hardwire communication equipment with lightning protection, multi-mode or single-mode fiber optic communication media converters, or 2.4 GHz serial radios. Refer to the print package for equipment details.

— Ensure there is access for power and control wiring.

2.3.1 Mounting the Touchscreen

Touchscreens are available in either flush-mount or desktop stand-alone units. The standard version of the NAVIGATOR comes with a 12" touchscreen computer that can be both flush mounted or mounted to a desktop stand.

2.3.1.1 Flush Mount Touchscreen

Determine where to mount the flush mount touchscreen in the ATCT.

— Make sure that there is ample space available around and below the mounting area. Please see the NAVIGATOR system prints for dimensions. The 12" panel cutout dimensions can be found on drawing 105A0863. The optional 15" panel can be found on drawing 105A0870/L157 (drawing 105A0870 for older installations).

— Cutout the console area to fit. Place the touchscreen down in the console making sure that the bezel catches on the outside of the cutout for a flush fit.

— The power cord will be attached underneath the screen when it is mounted and should be plugged into critical power in the ATCT.

— Refer to 43A3162/01 and /02 for specific touchscreen computer port connections. These will vary depending on the options purchased so please take care in making these connections.

— All cabling going to the touchscreen should have adequate strain relief installed so that the cables and connections will not be under any stress.

2.3.1.2 Desktop Stand-alone Touchscreen

Determine where the Stand-alone touchscreen is to be set up in the ATCT.

— Make sure there is a flat surface for the touchscreen to be set on to ensure stability.

— The power cord will be attached to the back of the monitor and must be plugged into critical power in the ATCT.

— Refer to 43A3162/01 and 43A3162/02 for specific touchscreen computer port connections. These will vary depending on the options purchased so please take care in making these connections.

2.3.2 Mounting the Equipment

The PLC cabinet must be installed indoors, protected from excessive heat, cold and dampness. The cabinet must be secured to a structure that will support its weight (137lb. / 62kg). See cabinet specifications for details.

Provide adequate clearance around the cabinet for connecting control and power cables. Enough clearance must be left in front of the cabinet to open the door safely for service.

See Drawing 44A6580/01 for dimensions, mounting details, and suggested mounting height.

2.3.3 Wiring Considerations

The NAVIGATOR cabinet is wired at the factory and ready for power and monitoring connection by the installing contractor. The cabinet requires these wiring connections:

— The computer must be linked to the cabinet with the supplied cable, extension cable, or communications package option.

— Constant Current Regulators and other airfield devices must be connected to the control and monitoring terminal blocks.

— External power must be supplied. A dedicated 15A circuit breaker.

— (at 120V AC) is recommended for providing power to the PLC cabinet or UPS depending on the power option purchased.

The installer must make conduit penetrations for cable entrances; the PLC cabinet has no knockouts. The cabinet penetrations should be made at the bottom of the enclosure to avoid interference with any of the electrical components located within the enclosure itself. If a communications extension cable is being used it is important to bring that cable into the PLC enclosure via a separate conduit penetration to minimize possible interference problems.

The following sections provide general guidelines only. For all wiring, refer to Installation Drawings (see "Associated Drawings and Documents" on page 5).

Installation

2.3.4 Connect the Computer

The NAVIGATOR comes with a 9-foot (3 m) serial cable for connection to the computer. If the cabinet and the computer will be more than 9 ft. (3 m) apart, obtain or construct an extender. See Drawing 43A3160/02 for details.

— In the standard system that does not include any communication extension equipment, simply connect the PLC programming cable to the "COM1" port on the back of the touchscreen computer as shown in Figure 3.

— Connect the other end to the PLC3 serial connector in the NAVIGATOR cabinet, as shown in Figure 2 This serial connector is

— normally pre-wired to the other PLC racks in the cabinet. Verify that the DIP configuration switches on the side are set for 9.6 Kbaud. Switch 2 should be on, and all other switches should be off.

— For connection using communication extension equipment, please refer to the print package for connection details.

— Connect the power cord to the ATC critical power supply. Input Power to the computer shou

— ld be 120 V AC (60 Hz) or 220 V AC (50 Hz).

Figure 2:   PLC Enclosure

PLC3 serial connector
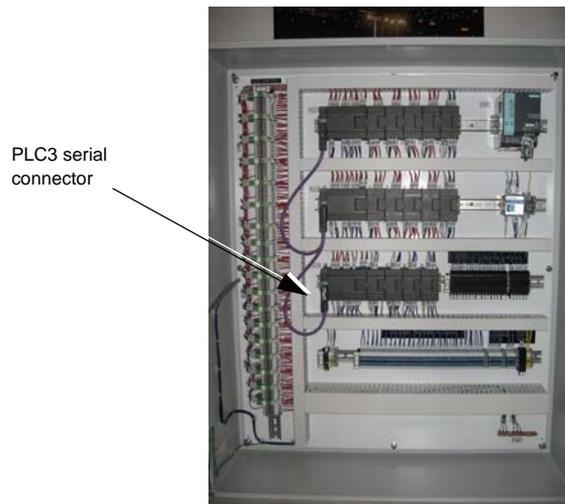
Figure 3:   Touchscreen connections

Touchscreen power switch

Keyboard and mouse splitter cable connection

PLC Programming cable connection

Touchscreen power adapter connection
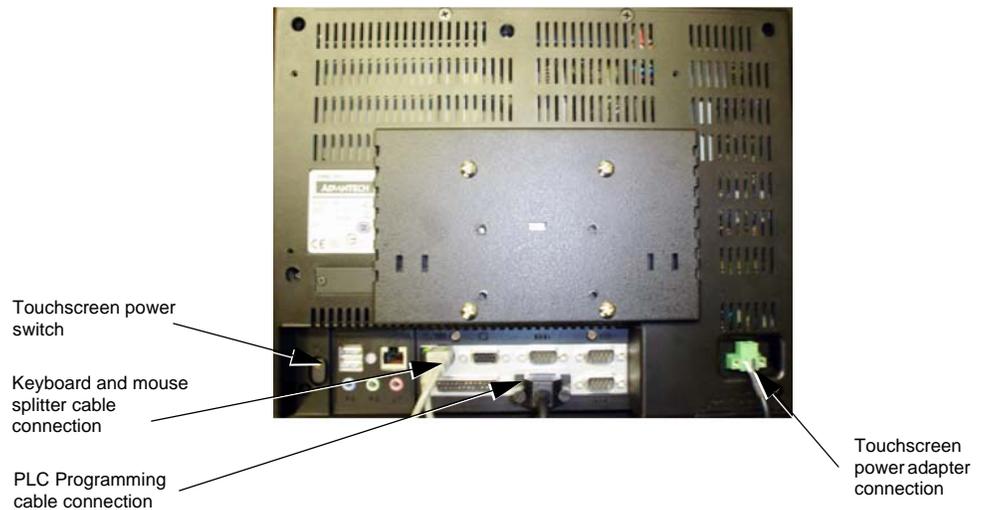
2.3.5 Wiring From CCRs

⚠	**IMPORTANT:**
	All power and control wiring must be performed by a qualified electrician. All power MUST be disconnected and tagged out before beginning to make any wiring connections to the PLC cabinet and CCRs. For all wiring, refer to "Associated Drawings and Documents" on page 5.

2.3.5.1 Wiring from Controllable Element Monitoring Points (TB3 and TB4)

Figure 4:   Terminal Block locations

TB2
CCR Control

TB1
Power

TB3
Monitoring Feedback

TB4
24V DC Source
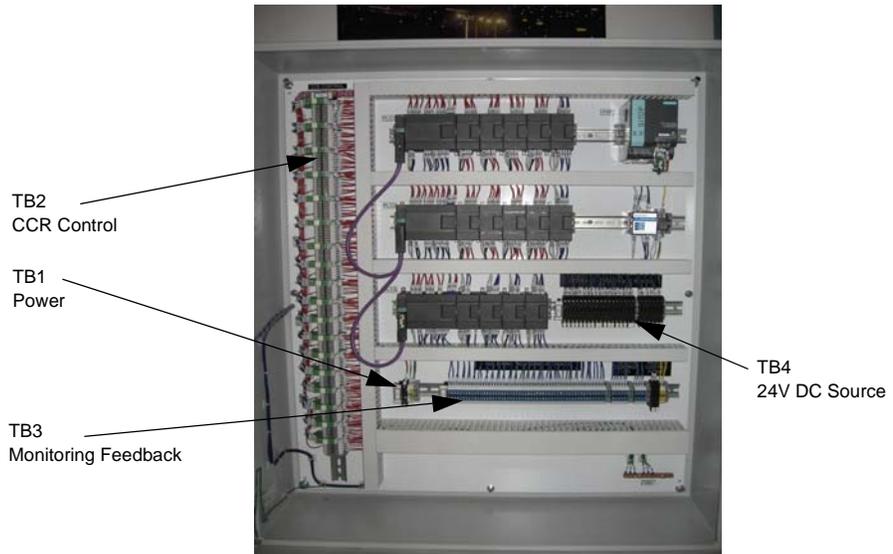
Alarm condition source voltage is supplied to each controllable element (Such as a CCR) from TB4 (labelled EXTERNAL DEVICE 24 VDC SOURCE). Each point on TB4 is fused so that the cabinet power supply is protected from an outside fault. The PLC input modules are designed and pre-wired to actuate upon return of this alarm condition voltage. Hence it is required that the source voltage be isolated from the controllable element power supply by an appropriate isolated contact such as relay contacts or current sensing device contacts. If a relay is used, the coil of the relay is wired to the controllable element to provide a contact closure of the source voltage back to the PLC. CCR Current sensing/monitoring relay kits can be separately ordered from ADB Airfield Solutions.

TB3 (labeled CCR & MISC. MONITORING FEEDBACK) has 54 inputs—three for each controllable element—for monitoring feedback.

All inputs to TB3 are rated for 24V DC only.

Table 1:   Monitoring Connections

Function	Connections	
	CCR #1	CCR #2
PP	1	4
RL	2	5
CO	3	6

The example above shows numbering for controllable elements 1 and 2.

One wire from each input may be connected to TB3 to monitor these points on the CCR along with each corresponding common:

— Primary Power (PP)

— Remote/Local (RL)

— Commanded ON (CO)

NOTE: Note that any, all, or none of these inputs may be used. The conditions that will be used are configured during the system configuration.

Installation

See Drawings 43A3161/05 and 43A3161/11 for monitoring point connections.

TB3 (labeled *Remote Control IO*) holds the connections for an L-854 Pilot Control Radio (PRC) and photocell, if used. Depending on the type of radio or photocell that is being connected to the NAVIGATOR, an array of contact closure relays will need to be added for the system to read these inputs correctly. If the PCR or photocell is a contact closure, the relay can be sourced (24V DC) from the power block to the right of the remote control inputs. If the PCR or photocell does not contain dry contact closures, the relays mentioned previously will need to be used. **Do not use a 120V AC control signal directly into TB3.**

2.3.5.2 Wiring for Controllable Element Points

TB2 (labelled CONTROL) has 18 sets of terminal blocks; one set for each controllable element. The example at right shows Terminal Block numbering for controllable CCR elements 1 and 2.

The first two connections in each group are dedicated to setting the preset fail-safe step for the CCR.

Table 2:   CCR Connections and CCR Control Wiring (TB2)

Function Separate B1 / no B1 required	Connections	
	CCR #1	CCR #2
Fail-safe	1-2	10-11
CCI	3	12
CC / CC (B1)	4	13
Step 1 (B1) / Step 2 (B2)	5	14
Step 2 (B2) / Step 3 (B3)	6	15
Step 3 (B3) / Step 4 (B4)	7	16
Step 4 (B4) / Step 5 (B5)	8	17
Step 5 (B5) / Not Used	9	18

Connect the jumper labeled "PRESET" from the second connection to the desired failsafe step (pre-wired at factory). For example, to set CCR #1 to Step 4 in fail-safe mode, place the jumper at Connection 7 (Step 4 – B4).

— The third connection is for CCI (controllable element control voltage).
— The fourth through ninth connections correspond to the brightness steps for the CCR. Each step requires a separate wire to the CCR—as shown in Table 4.
— Note that for ADB CCRs, B1 is not required. ADB CCRs automatically turn on to the lowest step when CCI is connected to CC. Please refer to the regulator (CCR) manual to see if your CCR requires B1/B10 contact to be energized for CCR remote control.

Refer to Drawings 43A3161/05 and 43A3161/11 for complete external wiring details. In addition, please see Drawings 43A3161/07 and 43A3161/13 for example fail-safe wiring connections.

2.3.5.3 Wiring Notes for Separate B1/B10 Control

Refer to Drawing 43A3161/8 through 43A3161/13 for wiring regulators that require a separate control line for B1 or B10. **Note that in this configuration 3-step control elements #8, #9, #11 and #12 cannot be wired with a separate B10 control line.** Regulators that do not require a separate B10 control line should be used in these positions.

2.3.5.4 Watchdog Wiring

The watchdog is wired from the factory and does not need any field connections in order to function. The 3-position switch on the front of the PLC assembly is used to control failsafe and watchdog functions. The positions are defined as follows.

— **TOWER** – The system functions as designed where the output of the watchdog timer keeps the failsafe relays energized so that the controllable elements are controlled by the PLC.

— **BY-PASS** – The watchdog timer is bypassed and 24VDC is applied to the failsafe relays keeping them energized so that the controllable elements are controlled by the PLC.

— **FAILSAFE** – The control power to the watchdog is removed thereby removing the 24VDC from the failsafe relays. This action results in the failsafe relay coils de-energizing and control of the CCRs reverts to the preset failsafe connection.

2.3.5.5 Power Wiring (TB1)

The PLC cabinet requires 120V or 230V AC input power. Power wiring is connected to TB1 as shown in Drawing 43A3161/05.

Use only 14 AWG NEC approved 600-volt wire.

Installation

2.4 Operation

Operating the NAVIGATOR™ System

This section describes how to start and use the Touchscreen application to control the NAVIGATOR . The Touchscreen program should be running whenever operators need to control the configured CCRs, beacon and other items. The program may be stopped for computer maintenance or airport closure.

2.4.1 Starting the Touchscreen Program

Start the Touchscreen application in either of two ways:

- Double-click on the **Run_Navigator** shortcut icon on the Windows desktop.
- Click on the **Start** button, then on **Run_Navigator**, as shown below.

Figure 5:   Run NAVIGATOR
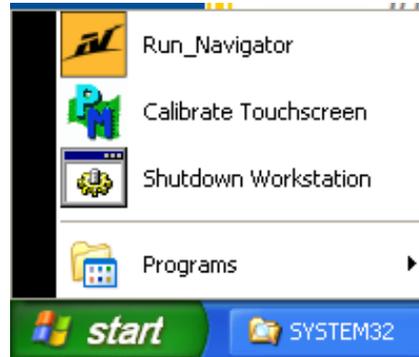
- Once the "Run Navigator" application has been started, several programs will begin to start in the background. These programs are:

    Circuit State Engine (CSE)

    Vault

    PLC Manager

- For each of these programs a dialog box will appear which can be ignored when starting up the touchscreen application.
- These programs are required for the ADB NAVIGATOR system to function properly but have no functional use to the user. They should be left to start and should not be touched or closed.
- Once these three programs have successfully started, the "Touchscreen" program will automatically begin. This program will be used by the end user for system operation.
    — NOTE: The programs listed above must be running for the touchscreen buttons to appear and be functional.

2.4.2 Overview of the Touchscreen

The layout of buttons and the general screen appearance vary according to the options selected during the Primary Configuration process. The example below in Touchscreen Overview shows the main parts of the screen; the exact location and appearance of some buttons may differ for your configuration.

Figure 6:   Touchscreen Overview
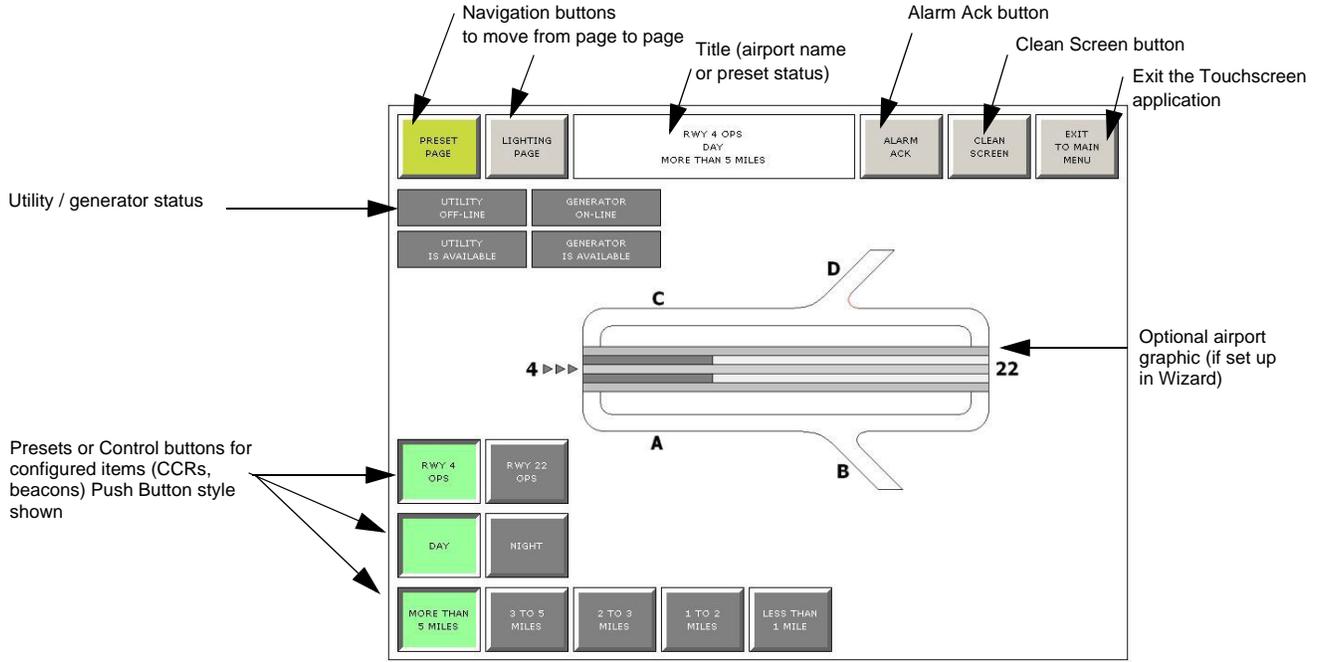
Table 3 below summarizes the key elements that are common to all views and configurations:

Table 3:   Touchscreen Button Overview

Screen component	Description	For details, see:
Navigation buttons	Touch to move from page to page	"Choosing a Page to View" on page 16
Title (airport name or preset status)	Displays either airport name or current status of presets (if configured)	"Overview of the Touchscreen" on page 15
Alarm Ack button	Button color turns red on alarm; touch to acknowledge alarm	"Using the Alarm Ack Button" on page 20
Clean Screen button	Touch to deactivate all buttons while screen is being cleaned	"Using the Clean Screen Button" on page 22
Exit to Main Menu button	Touch to exit the Touchscreen program	"Exiting Programs" on page 24
Optional airport graphic	Background picture (if configured)	"Overview of the Touchscreen" on page 15
Control buttons for configured items (CCR)	Push Button or Popup display of control buttons for configured items	"Using the Control Buttons" on page 16Using the Control Buttons
Utility / generator status	Indicates status of power sources	"Overview of the Touchscreen" on page 15

2.4.3 Choosing a Page to View

The navigation buttons in the top left corner of the screen allow you to scroll through different views.

Figure 7:   Preset Page View

— Touch a Lighting Page button to display the Control buttons for configured items in the lower portion of the window, as shown in Figure 7.

— If presets were selected in the Primary Configuration, touch the Preset button to display the presets in the lower portion of the window.
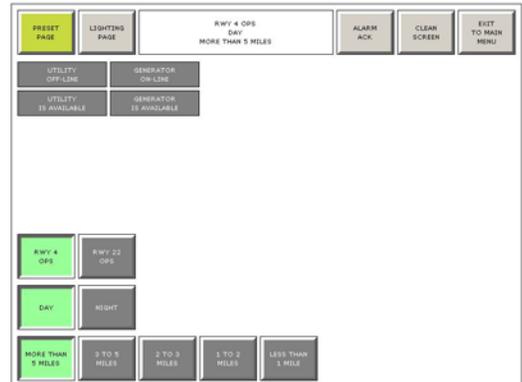
2.4.4 Using the Control Buttons

The Control buttons allow you to turn any controllable item on or off (CCR, Beacon, Generator, etc). The primary Control button displays the item name and its current status. The display differs according to the button style selected during Primary Configuration: Popup or Push Button.

2.4.4.1 Popup Style

Figure 8:   CCR Control Page

The Popup style layout, shown in Figure 8, displays the Control buttons for all items in the bottom left corner of the screen, with a single button for each configured item. Each Control button shows the name of the item and its current status. The Step buttons for an item pops up only when a Control button is touched. The CONFIRM/ REJECT button shows up once the step command button is pressed.

To turn an item on or off:
• If necessary, touch a Lighting Page button.
• Touch a Control button— for example, TWY A.

• Touch the appropriate Step button for that item—for example, touch STEP 2 to turn the item on to the second step or touch OFF turn the item off.

The CONFIRM and REJECT buttons pop up to the right of the Step buttons. Touch the CONFIRM button to perform the selected operation (or touch REJECT to cancel the operation).
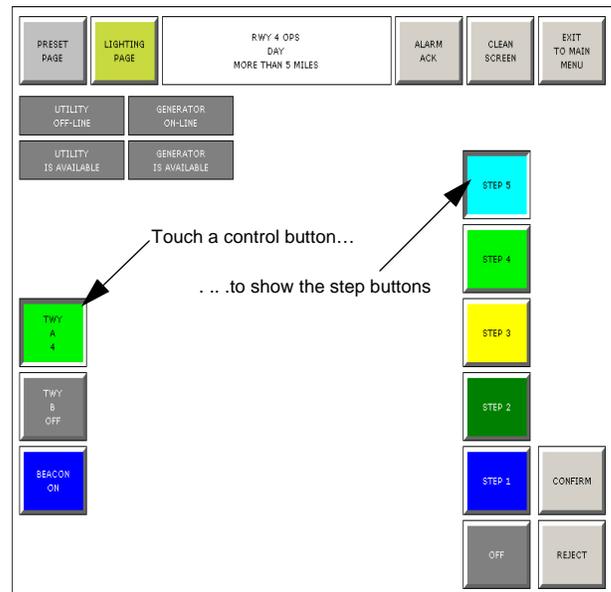
2.4.4.2 Push Button Style

The Push Button style layout, shown in Figure 9, displays a row of buttons for each configured item. The Control button is at the left of the page, showing the name of the item and its current status. All Step buttons appear to the right of the Control button.   In this instance, contrary to the popup style, control buttons act as indicators and do nothing more than show status of the current controlled object. The confirm/reject buttons will still pop up after the desired step is selected on the page.

Figure 9:   Control Buttons

Control
buttons

Step buttons
(displayed at all times)
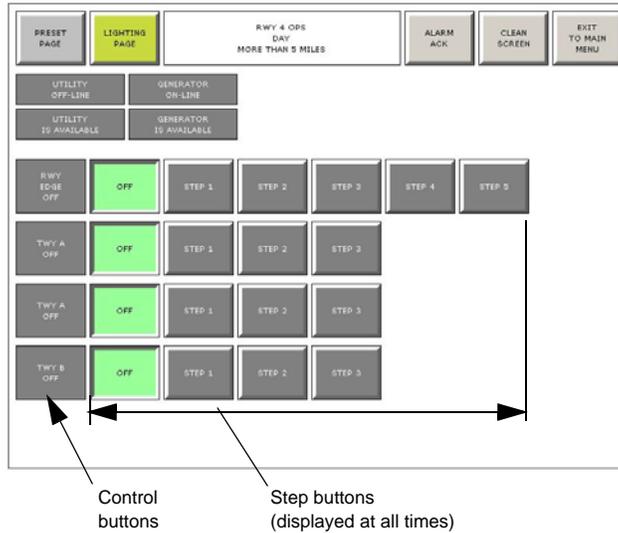
To turn an item on or off:

— If necessary, touch a Lighting Page button.
— Touch the appropriate Step button for an item—for example, touch **STEP 2** to turn the item on to the second step or touch **OFF** turn the item off.
— If desired, touch Step buttons for other items before confirming or rejecting the changes.
— Touch the **CONFIRM** button to perform the selected operation (or touch **REJECT** to cancel the operation).

Operation

2.4.5 Using the Preset Buttons

If presets were configured the navigation buttons will include a PRESET PAGE button to display the configured presets in the lower portion of the window.

To use the preset buttons:

— Touch the Preset page navigation button at the top of the window to display the configured preset buttons in the lower portion of the window, as shown below in Figure 10.

Figure 10:   Preset Page Display

Preset Page button   Preset status displayed

Runway Direction

Day & Night
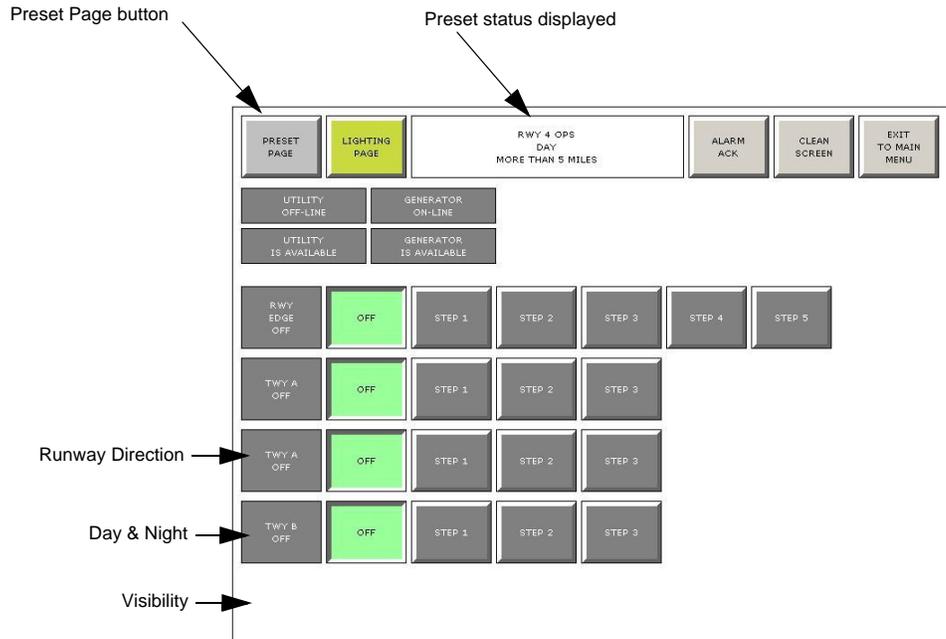
Visibility

• The preset page displays up to three preset conditions, based on your configuration.
    — **Day & Night** - two or more states, typically DAY and NIGHT. (another might be Dusk)
    — **Visibility** - up to eight configured states—for example, Less than 1 mile, 1-2 miles, More than 5 miles.
    — **Runway Direction** - usually two directions.

Operation

- To change a preset condition, simply touch the appropriate button and confirm your choice.
- For example:
  — When it begins getting dark outside, touch the **NIGHT** preset button.
  — Touch the **CONFIRM** button to change the preset condition, or touch **REJECT** to cancel the change.
  — This preset changes the screen background to the static graphic defined as Night Graphic, or black if no graphic has been defined.
  — The preset status displayed in the Title at the top center of the screen will be altered to reflect your change.

Figure 11:   Day/Night Switch View
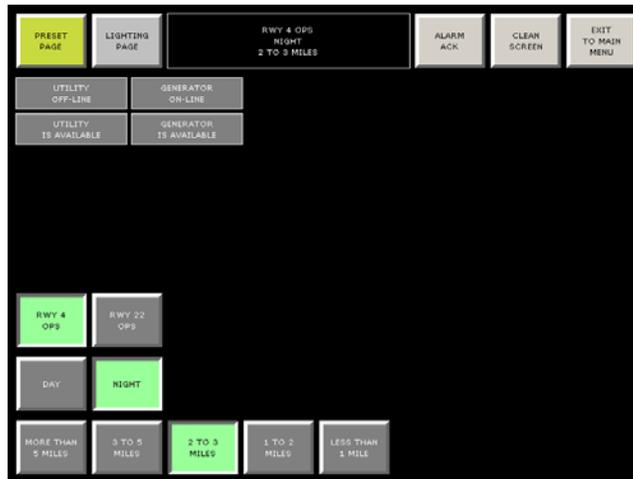
- Once the choice is confirmed, the preconfigured action will be executed. For example, after the NIGHT button is touched and confirmed, all lights might be turned to the preconfigured steps that were set during the system configuration.

2.4.6 Using the Alarm Ack Button

The NAVIGATOR reports alarm conditions visually through the **ALARM ACK** button and audibly through the computer audible alarm. The type of alarm and explanatory message vary according to the Monitoring Points selected during Primary Configuration.

Table 4:   Alarm Conditions

Monitoring point	If selected during configuration:
Primary Power	The touchscreen displays an alarm when the NAVIGATOR detects that the primary power to the CCR, beacon or other item is OFF.
Remote/Local	The touchscreen displays an alarm when the item is switched to Local control or OFF, preventing remote control of the item, such as during maintenance/repair.
Commanded ON	The touchscreen displays an alarm when the NAVIGATOR detects a fault in the item's electrical circuit. This may occur when: (a) the item is turned ON but no current is flowing or, (b) the item is turned OFF but current flow is detected.
General Fault	The touchscreen displays an alarm when the feedback to the NAVIGATOR represents any type of overall fault in the item.

NOTE: If the ALARM ACK button is grey, the system is normal with no current alarms.

2.4.6.1 Alarm Annunciation and Logging

When the NAVIGATOR detects an alarm condition:

— The **ALARM ACK** button blinks red and the audible alarm sounds (or the external speakers, if provided) until the current alarm is acknowledged. Touching the **ALARM ACK** button stops it from flashing and silences the audible alarm. The button remains red until the alarm condition is cleared.

— The audible alarm will sound for 5 seconds then silence itself for 55 seconds. This process will repeat over and over until the Alarm Ack button is pressed. Once pressed, the Alarm Ack button will cease to flash and the audible alarm will no longer sound until new alarms occur to the system.

— A record of the alarm is entered in the file **Vault.log**, and the acknowledgement is recorded in the file **TchScrn.log**. Both log files are in the **log** folder in the program directory (**C:\ALCSJ**).

2.4.6.2 Acknowledging an
Alarm

To acknowledge an alarm when the **ALARM ACK** button is flashing red and the audible
alarm is sounding:

— Touch the **ALARM ACK** button to acknowledge the alarm. The button remains red
until the alarm condition is cleared and the audible alarm will stop.

— If another alarm occurs while an existing alarm is current, the **ALARM ACK** will flash
again and the audible alarm will sound again.

Figure 12:   Alarm Acknowledge
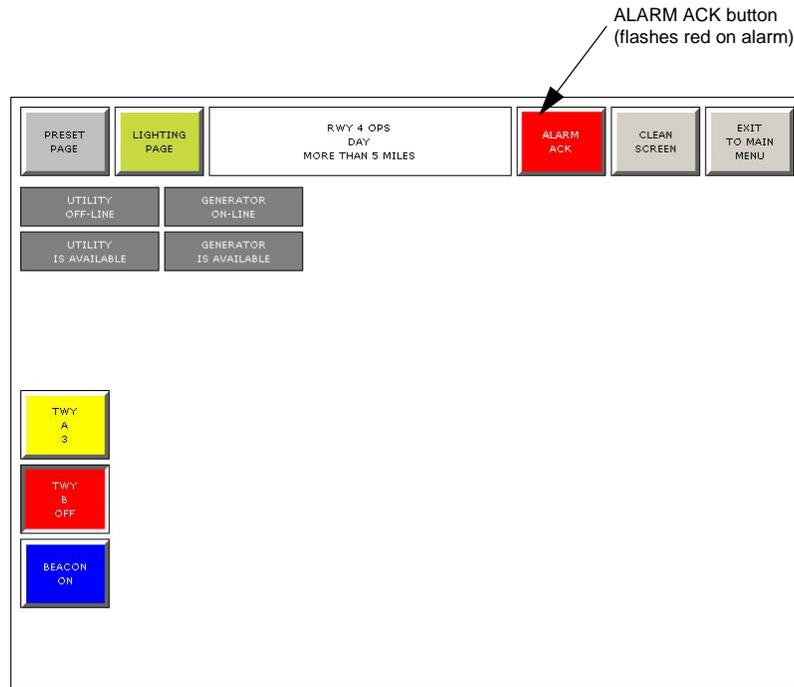
2.4.7 Using the Clean Screen Button

The **CLEAN SCREEN** button deactivates all buttons on the touchscreen to allow the screen to be cleaned. The default duration for the deactivation is 10 seconds.

To clean the touchscreen:

— Be sure to have a cotton cleaning cloth and appropriate cleaning solution available.
— When you are ready, touch the **CLEAN SCREEN** button at the top of the window, typically on the PRESET PAGE, if used.

Figure 13:   Clean Screen Button
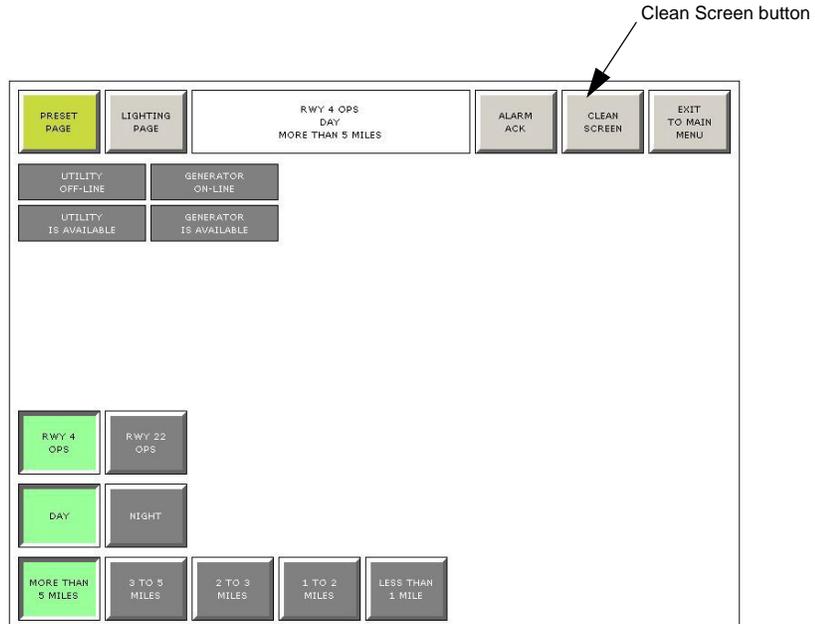
• After the Clean Screen button is touched, the screen display changes to the following:

Figure 14:   Clean Screen View

— Notice the "Time remaining" bar at the bottom of the page. Once the bar fills, the display automatically returns to the last page viewed with all buttons reactivated.
— If you need more time, simply repeat the process.

2.4.8 System Passwords

- Some operations of this control system require a password before carrying out a command (such as exiting applications and controlling CCRs from the Vault application). The password for these operations is "sba" (without the quotes, case sensitive).

Figure 15:   Example Password Screen
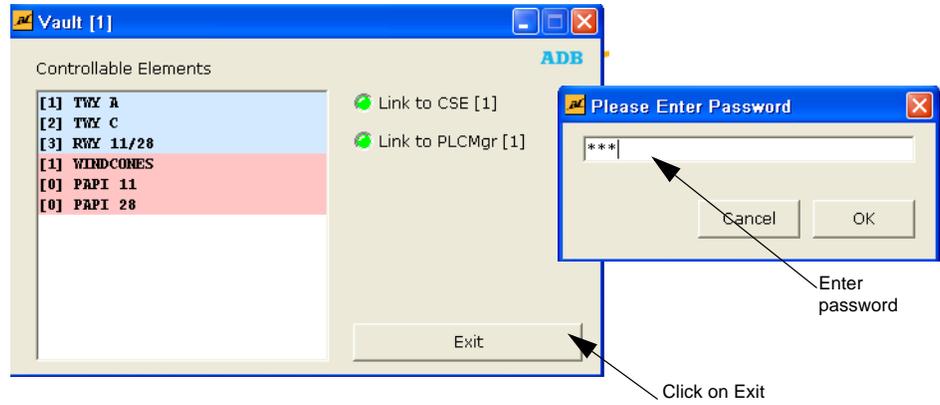
— Exiting from the Navigator will also require the use of the system password.

Operation

2.4.9 Exiting Programs

The Touchscreen application must be running for operators to control the configured items. At times, however, you will need to exit the program to perform setup, computer maintenance and other tasks. You may also do this when the airport is closed.

To exit the program:

- Touch the **EXIT TO MAIN MENU** button.

Figure 16:   Exit Program View

Exit to Main Menu button
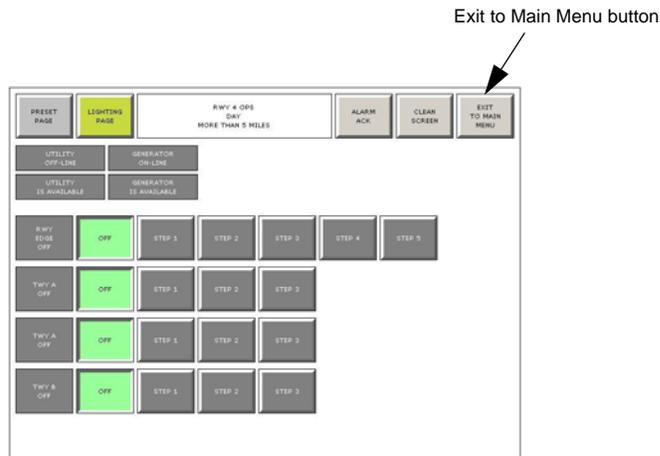
- A confirmation message appears. Click **YES** to close the application (or **NO** to cancel).
- Three programs running in the background must be closed to shut down the NAVIGATOR software:
  — CSE
  — Vault
  — PLCMgr

- Each of these programs has a dialog box with an Exit button, as shown at right. Each program must be closed separately.
- To close each of these three programs:
  — Click on the associated **Exit** button. This opens the **Please Enter Password** window.
  — Enter the system password and click **OK**.
- The Touchscreen application closes and the display returns to the Windows desktop.
- Lights will go to a hardware failsafe, unless the PLC panel switch is set to bypass failsafe.
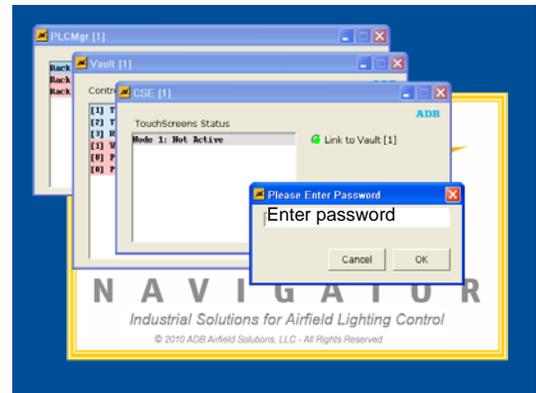
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