



Installation Guide



PLEASE READ THIS ENTIRE DOCUMENT BEFORE STARTING YOUR INSTALLATION

Warning: Failure to properly follow this installation guide may result in injury or serious accident.

Warning: Failure to properly follow this installation guide may result in damage to the Start-Manager unit or the equipment it is being installed on.

Warning: Failure to properly follow this installation guide may void warranty.

Videos Coming Soon

Tools Recommended for Installation



Electric Drill



3/4" & 1/4" Drill Bits



1/4" bit Driver



16ga. Insulated wire



1 Amp slow Blow fuse



Electric Tape & connectors



3/4" & 1/2" Wrenches



Wire Cutter



Multi-Meter



Proper PPE

Time Required



1.5-2.5 hours

Please allow 1-1/2 to 2-1/2 hours for installation of a single unit depending on the experience level of the installer. Each additional units may require less time.

Skill Level



Medium

A working knowledge of the ignition system of the forklift or equipment is required. Installer must understand basic electrical connections and proper use of a Multi-Meter.

Caution is Required



Electrical Hazard



Shock Hazard



Lock-out Power

Working with electricity can always be dangerous unless proper precautions are taken. Always disconnect and lock out ALL power before starting your work. Always wear proper PPE as indicated. Please follow OSHA guidelines for electrical safe work practices specified in OSHA 29 CFR 1910.331-.335 and NFPA 70E Chapter 1

Connector Recommendation:



Scotchlok



Molex



Solderless Crimp

In order for an electronic device to work properly in an industrial environment it is critical that the correct connector is used. Standard 'Solderless Crimp Type Connectors' are NOT recommended..

Older Vehicle Warning:



Years or
Older

This system is designed for low amperage (Max 10amp). Extra caution is advised when wiring the Start-Manager unit directly into an older or non-electronic ignition system. Please use protective relays to prevent high amperage from contacting the Start-Manager system. **Failure to do so may cause system failure and void the warranty.**

Electronic Noise/ Interference:



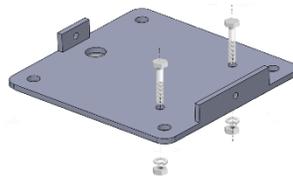
The Start-Manger unit may be affected by electrical noise, commonly emitted by the ignition circuitry of internal combustion (LP gas or gasoline) engines. It is imperative that the IC vehicle be properly suppressed by using suppressed spark plugs and wires. UNSUPPRESSED IGNITION CIRCUITRY MAY CAUSE ERRATIC BEHAVIOR WITH THE START-MANAGER UNITS. Start-Manager is NOT responsible from any malfunction associated with unsurpressed equipment.

What is in the box:



Start-Manger unit

- SM101
- SM201
- SM301



Backing Plate

- 12 ga. Steel
- Zinc plated



Wiring Harness

- 6 wires
- 12" long



Torx Security Set

- (1) T10 Torx bit
- (2) T10 Torx screws



Mounting Hardware

- (2) #8 bolts
- (2) #8 nuts
- (2) #8 lock washers



(2) Key Fobs

- 125 kHz
- (1) Operator
- (1) Supervisor



Quick Start Guide

- Use with this manual

Specifications:

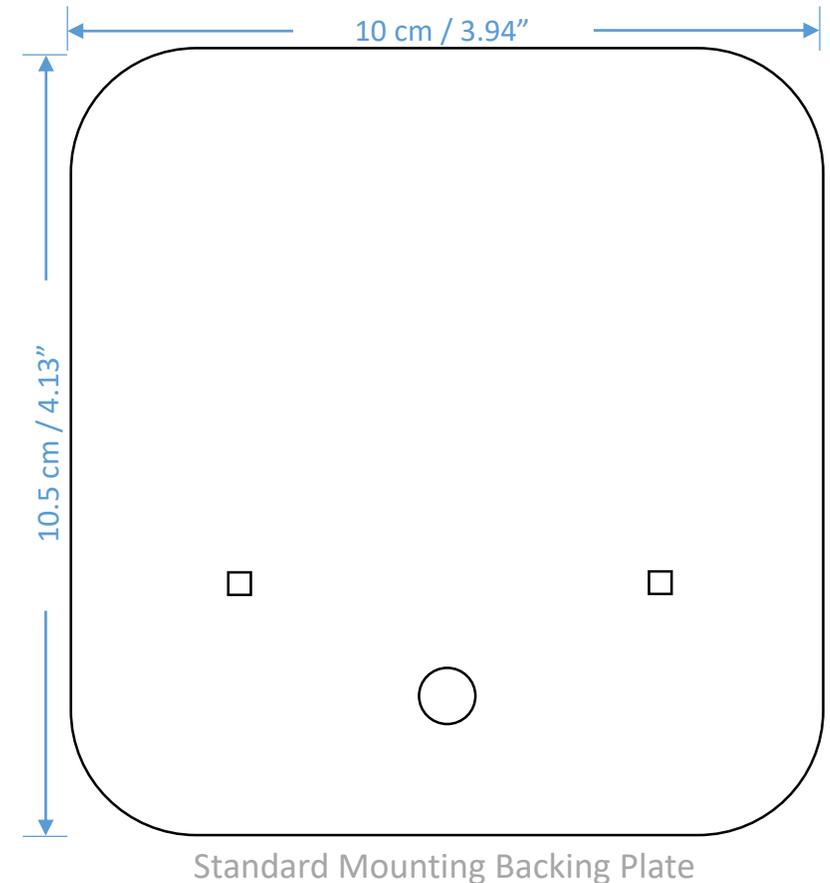
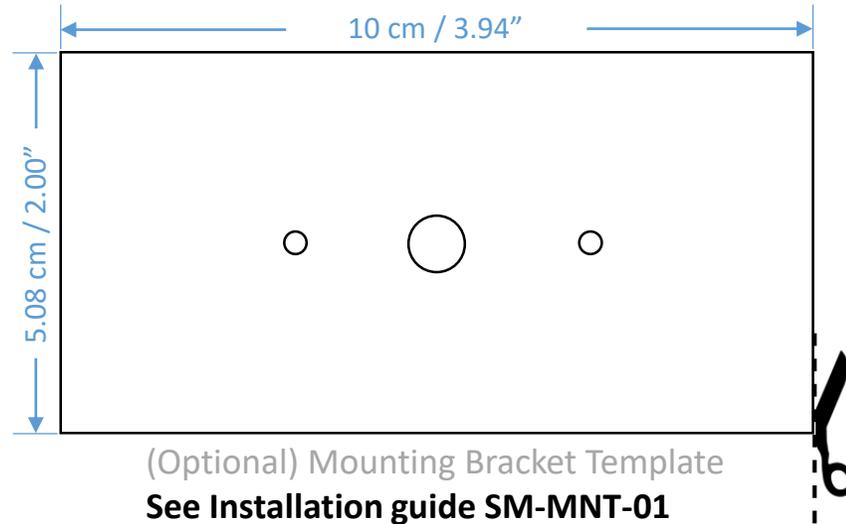
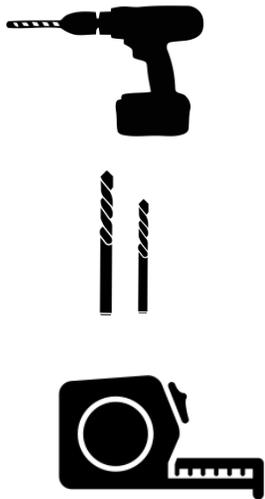
- Supply Voltage: 12 VDC – 48 VDC.
- Stand-by current:
- Max allowable contact current: 10A / 12V
- Storage for 250+ 4-digit codes
- Storage for 100 + proximity cards
 - 125 kHz frequency
 - Suitable for H10301 & H10302 HID formats
 - Suitable for EM4100, EM4305 formats
- Dust, vandal and moisture proof housing
- 2.4 GHz Wi-Fi transceiver, 802.11 b/g/n HT40
- Security: WPA/WPA2/WPA2-Enterprise/WPS
- -30°C to +65°C operating temperature
- Unit Size: 10 cm X 10.5 cm x 2.5 cm (4" x 4.25" x 1")

Step#1: Choose a suitable mounting location



Start-Manager's compact housing is designed to fit in the tight confines of today's forklifts and on various pieces of industrial equipment. Choose a location that is easily accessible to the operator, typically close to the ignition switch. Our (Optional) compact mounting bracket gives you a 2" x 4" footprint and a 45 degree viewing angle (purchased separately part# SMB01).

Step#2: Layout your pattern and drill as required

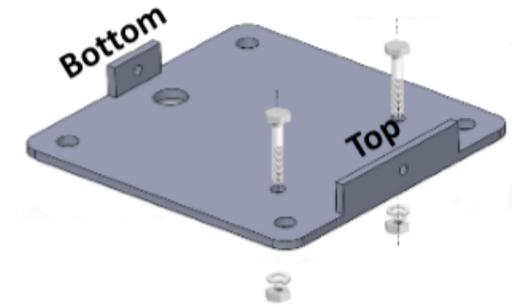


Step#2a: Mount Backing Plate



Securely attach the 12ga. Zinc plated mounting plate directly to the vehicle (or mounting bracket if used) with the (2) #8 bolts, nuts & lock washers (included).

- Ensure that the larger flange is positioned towards the top of the device.
- Use silicone if a weather proof seal is required

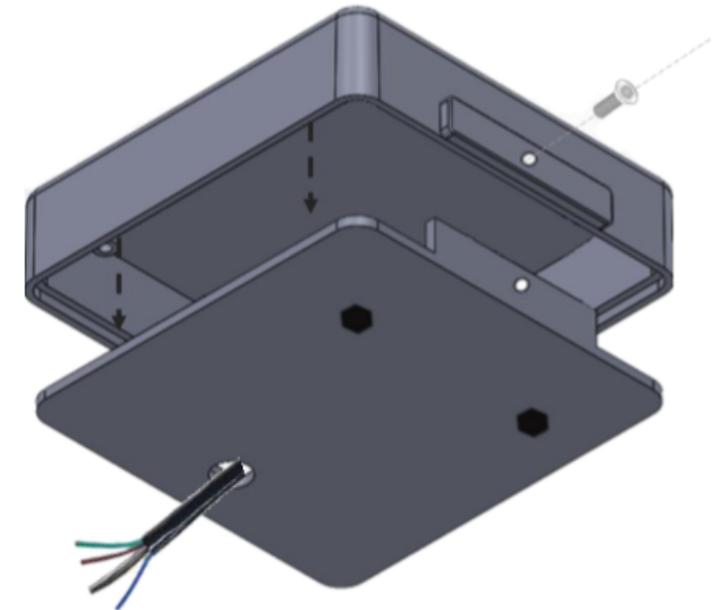


****NOTE: the clearance inside the unit is tight make sure bolt head does not extend past 8mm****

Step#2b: Final Assembly



- Align the housing so the larger flange is facing up
- Carefully feed the wire assembly through the ½" hole
- Press the housing onto the mounting bracket
- Use the (2) T10 security screws and bit (provided) to secure the housing to backing plate.



Step#2c: Special mounting instructions for outdoor, dusty & cold storage applications

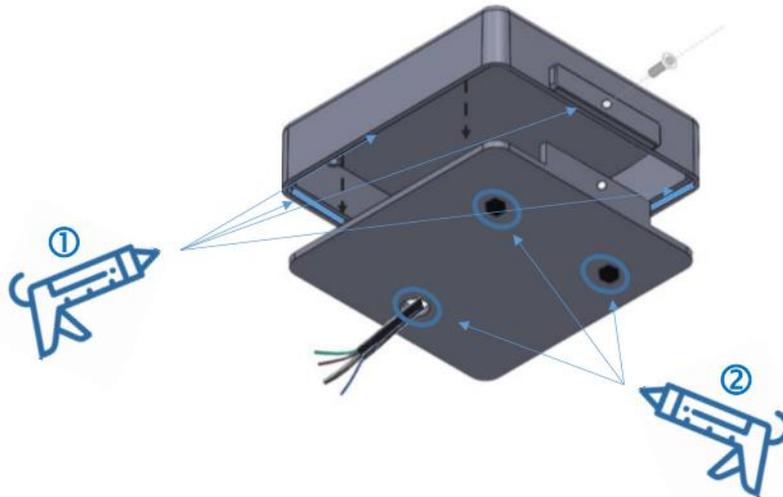


Moisture & Dust Proofing: To ensure that a moisture / dust proof installation of the Start-Manager units for outdoor, dusty or cold storage applications apply waterproof silicone as follows:

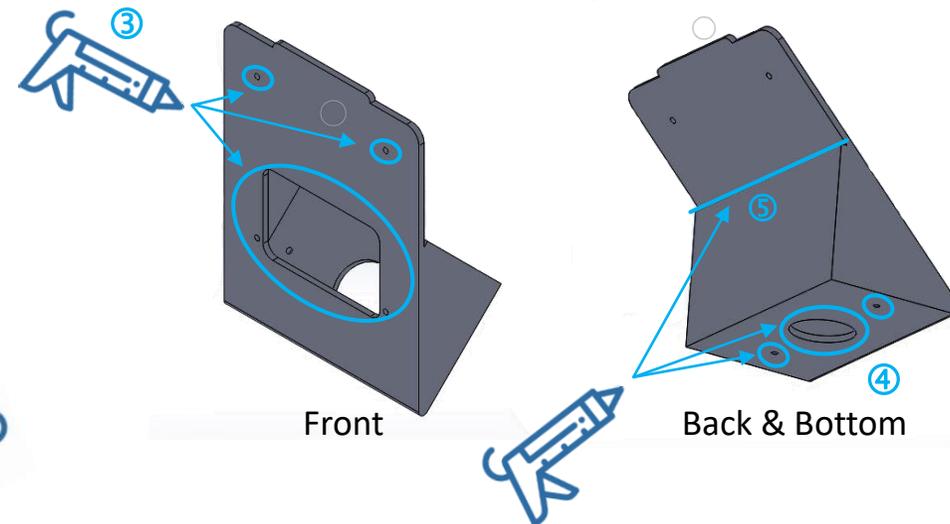
1. Apply a continuous bead of silicone along the inner edge of the housing as indicated.
2. Apply a continuous bead of silicone around each hole on the backside of the zinc plated backing plate.
3. Apply a continuous bead of silicone along each hole on the front of the (Optional) mounting bracket.
4. Apply a continuous bead of silicone along each hole on the bottom of the (Optional) mounting bracket.
5. Apply a continuous bead of silicone along the crease on the back of the (Optional) mounting bracket.

****NOTE: Cold Storage and or Freezer applications should have the Start-Manager freezer package****

Backing Plate & Housing



Optional Mounting Bracket



Step#2d: Mounting instructions for (optional) Mounting Bracket

USE CAUTION: Use proper PPE, use caution when working around electricity.

Skill Level: Low to moderate skill level, basic use of power tools.

Time required: Allow 15-30 minutes to complete.

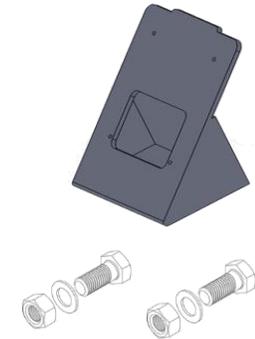
Tools required:



- Drill
- ¼" & ½" drill bits
- ½" wrench
- Tape measure

What is in the box:

- Mounting Bracket
- (2) ¼" x 1" bolts
- (2) ¼" nuts
- (2) ¼" lock washers
- Instructions
- Optional: Loctite



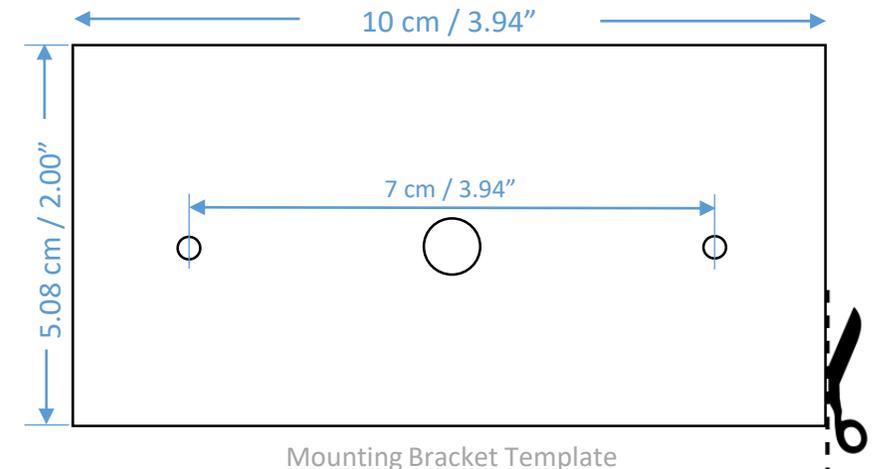
Choose a suitable mounting location



Start-Manager's compact 45 degree mounting bracket is designed to fit in the tight confines of today's forklifts and on various pieces of industrial equipment. Choose a location that is easily accessible to the operator, typically close to the ignition switch. Allow for a 2" x 4" surface space.

Layout, drill and mount

- Cut out the provided template
- Mark the hole locations with a pencil
- Drill (2) ¼" bolt holes on a 7 CM / 3.94" centerline
- Drill (1) ½" through hole for the wires as indicated
- Attach bracket to vehicle with the ¼" bolts, nuts & lock washers. (Note: for best results Loctite or equivalent is recommended).
- Mount SM101, SM201 or SM301 backing plate to bracket, as per instructions.



Mounting Bracket Template

Step#3a:



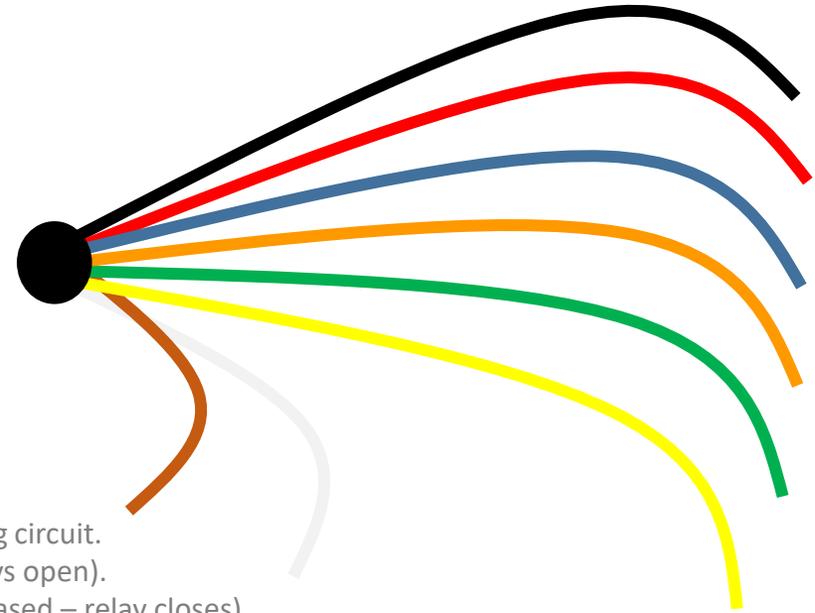
Electrical connections

Wiring Key:

- Black = ground
- Red = power in (12 VDC to 48VDC)
- Blue = Relay #1a (Max 10A @ 12VDC)
- Orange = Relay #1b (Max 10A @ 12VDC)
- Green = Relay #2a (Max 10A @ 12VDC)
- Yellow = Relay #2b (Max 10A @ 12VDC)
- White = CAN high (Optional)
- Brown = CAN low (Optional)

Notes: Blue, orange, green & yellow wires are wired into the vehicle's starting circuit.
Relay #1 (power stays on when Start button pressed and released – relay stays open).
Relay #2 (power stays on when Start button pressed and removed when released – relay closes).

*****WARNING: Do not allow any of the 4 relay wires to be connected to ground (negative)*****



Step#3b:

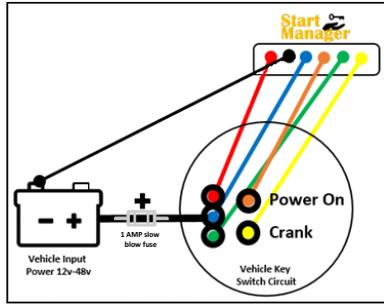


Power & Ground wires

- **RED:** Power wire should be connected direct to the main power source. Start-Manager has a built-in voltage converter. The min. of 12 VDC to a max. of 48 VDC. Any voltage over 48 VDC will require additional equipment. **NOTE: For maximum reliability, a 1 amp slow blow inline fuse is recommended between the unit and the power source.**
- **Black:** Ground wire should be securely attached to the battery of the unit. **NOTE:** A poorly attached ground wire is the leading cause of wiring issues. Scrape away any paint or coatings where the ground wire comes in contact with the battery.

Step#3c: Schematic Start-Manager wiring to by-pass key switch:

The Start-Manager System is designed to replace the key switch or start button. NOTE: Below is an example of a typical installation, all manufacturers are different, please consult manufacture's specification to reflect your application.



Color coded alternate view

Wiring Key:

- Black = ground
- Red = power in (12 VDC to 48VDC)
- Blue = Relay #1a (Max 10A @ 12VDC)
- Orange = Relay #1b (Max 10A @ 12VDC)
- Green = Relay #2a (Max 10A @ 12VDC)
- Yellow = Relay #2b (Max 10A @ 12VDC)

Notes: Blue, orange, green & yellow wires are wired into the vehicle's starting circuit.

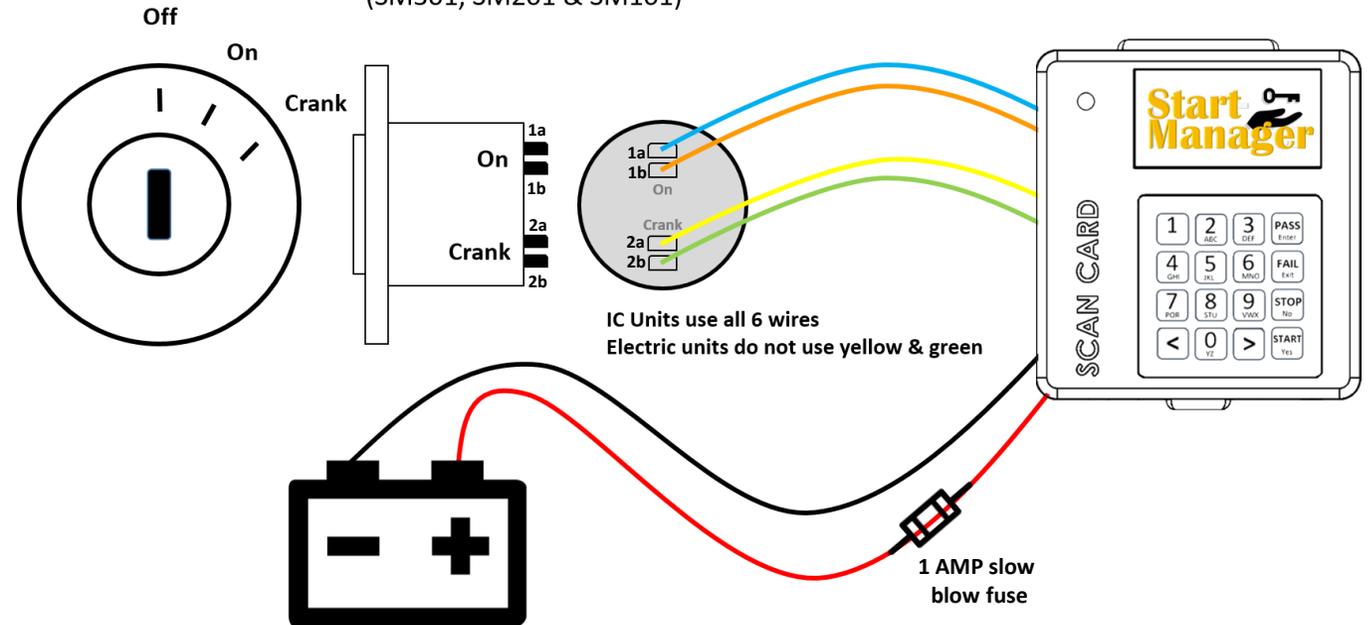
Relay #1 (power stays on when Start button pressed and released – relay stays open).

Relay #2 (power stays on when Start button pressed and removed when released – relay closes).

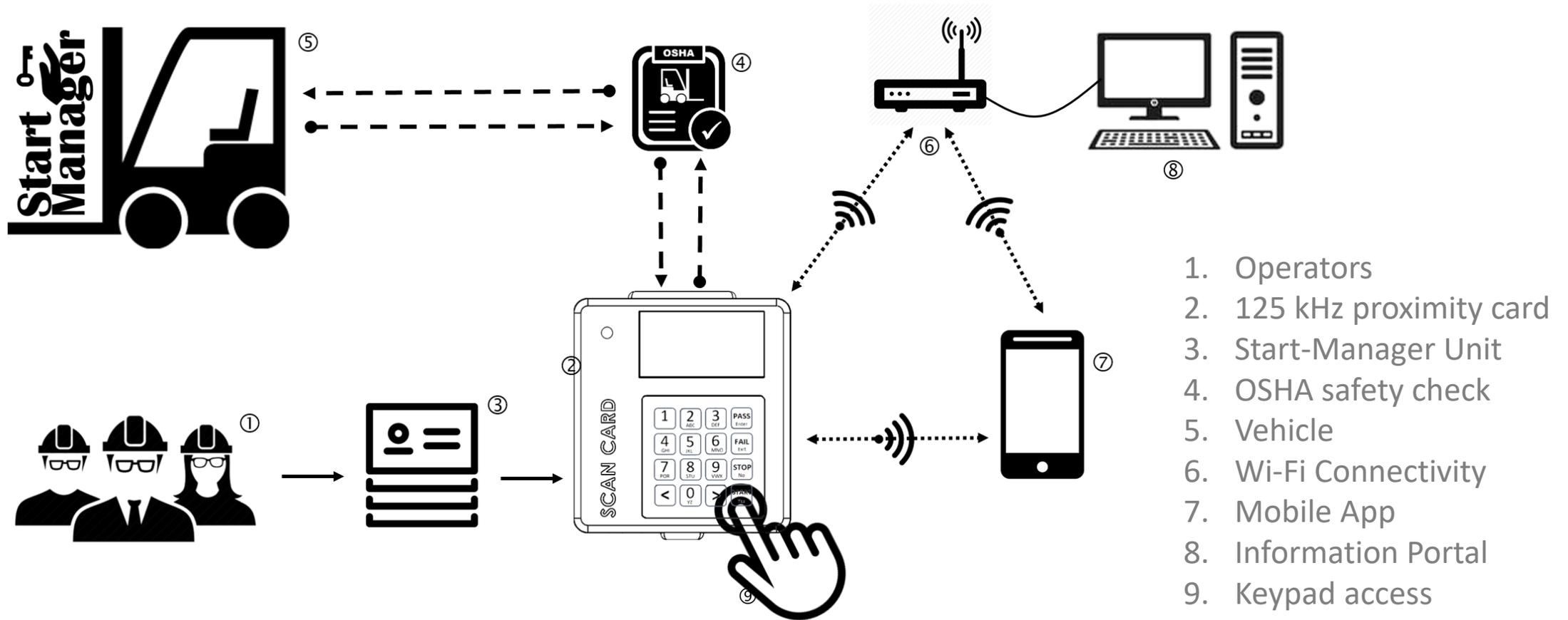
IMPORTANT NOTICE: Never allow any of the 4 relay wires to be connected to GROUND. Failure to do so may result in Damage to the relays and void of the unit's warranty.

Start-Manager wiring to by-pass key switch

(SM301, SM201 & SM101)

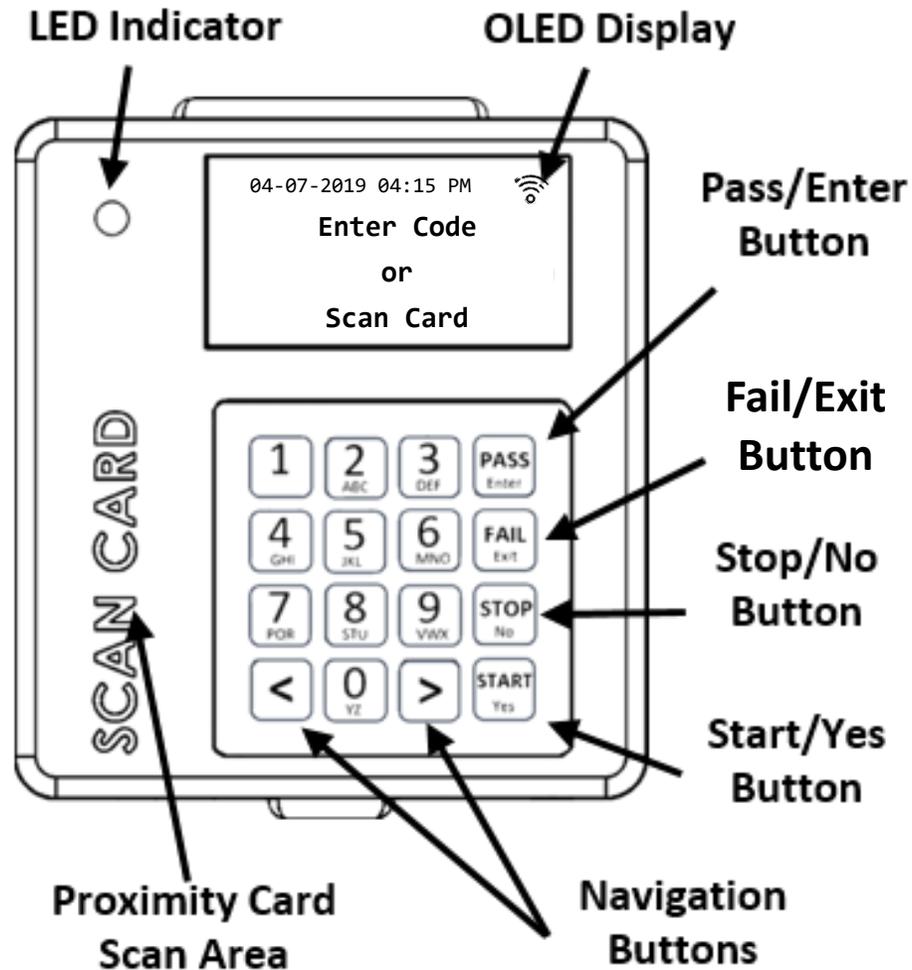


Start-Manager Operational Overview



1. Operators
2. 125 kHz proximity card
3. Start-Manager Unit
4. OSHA safety check
5. Vehicle
6. Wi-Fi Connectivity
7. Mobile App
8. Information Portal
9. Keypad access

Start-Manager OPERATION



- **OLED Display:** Provides instructions and status of the device.
- **LED Indicator:** Three colors provide vehicle status. Yellow indicates 'in process', Red indicates that there is an issue, Green indicates that everything is operational.
- **Proximity Card Scan Area:** Area provided for scanning proximity card and key fobs.
- **Stainless Steel Keypad:** Manually interact with device.
 - **Pass/Enter Button:** This button is used to "Pass" safety questions, and to enter data.
 - **Fail/Exit Button:** This button is used to "Fail" safety questions, and to exit from certain screens.
 - **Stop/No Button:** This button is used to shut the device/vehicle off, and to decline certain questions.
 - **Start/Yes Button:** This button is used to Start the vehicle/device, and accept certain questions.
 - **Navigation Buttons:** These buttons is used to navigate through the different screens in the

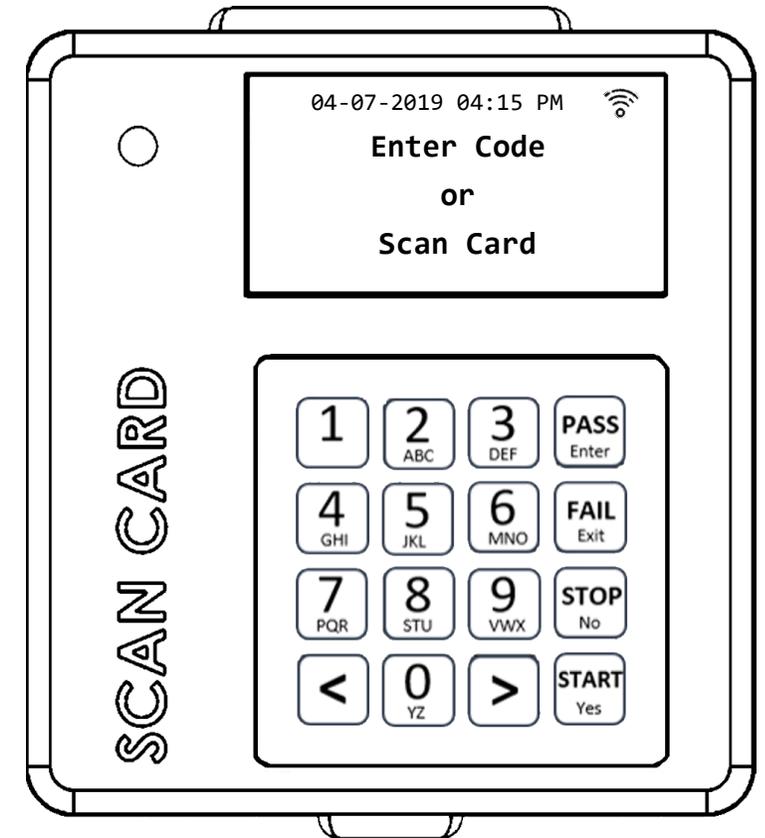
Start-Manager OPERATION - Access Control

Every time you start your vehicle you will be required to Enter a Valid 4-digit code or scan a valid proximity card/fob

Starting From the 'Enter Code or Scan Card' screen

- A. Enter your 4-digit code and press the enter Pass/Enter key
or
- B. Scan your proximity card or fob
 - a. For best results, hold the card or fob directly against the Start-Manager housing.
 - b. Make sure you are holding the card or fob as close to the center of the SCAN CARD text as possible.
- C. Valid "Card" or "Code Entered"
 - a. The OLED screen will indicate that you have entered a valid #
 - b. The LED indicator will turn Yellow
- D. Invalid "Card" or "Code Entered"
 - a. The OLED screen will indicate that you have entered an invalid
 - b. The LED indicator will turn Red
 - c. You will be brought back to the "Enter Code or Scan Card" screen to repeat the process

NOTE: If unit is in 'Sleep Mode" press any key to activate device



Default Access Code: **1379**

or

Use Default Grey FOB

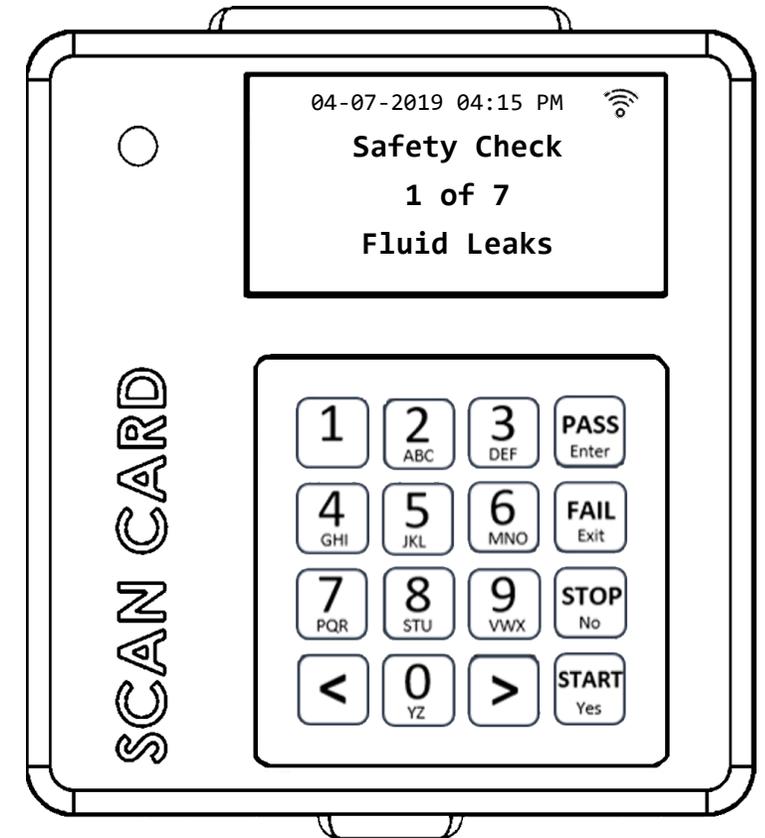


Start-Manager OPERATION - Safety Check

If this feature is activated, you will be prompted to complete the safety check at the start of each shift.

You will be expected to answer a series of questions

- A. Physically inspect the area that you are prompted to examine
- B. Press the ‘PASS’ key if this area meets your company’s standards
 - a. There will be an audible beep
 - b. You will advance to the next question
- C. Press the “FAIL” button if it does NOT meet your company standard
 - a. There will be an audible beep
 - b. You will be prompted “Are You Sure?” to make sure you want to fail
 - i. If you press the “No” button you will return to the question
 - ii. If you press the “Yes” button
 - The LED will turn red
 - You will be prompted to complete the balance of the questions
- D. If the ‘Continue on failure’ feature is enabled
 - a. The sign in screen will be presented
 - b. The vehicle will not start until your supervisor “releases’ the unit.
- E. If the ‘Continue on failure’ feature is disabled
 - a. The information will be record and the vehicle will start normally



To maximize the effectiveness of your daily safety checks, use our detailed Daily Safety Check Guide

Start-Manager OPERATION – Start & Stop

After you have successfully logged onto the vehicle (and completed the safety check if applicable).

Start-Manager without existing key switch

- A. Press and hold the START button when prompted
 - a. The LED will blink green
 - b. Keep the button pressed until vehicle turns over (IC only)
 - c. When button is released LED will be solid Green (started)
 - d. Safety messages will be displayed while driving
- B. Press and hold “STOP” button to shut off
 - a. Always turn off vehicle when exiting

(alternate) Start-Manager with existing key switch

- A. Press the Start button when prompted
 - a. LED will flash Green
- B. Use the key switch as normal to start
- C. Use the key switch as normal to stop



ALWAYS turn your vehicle off (STOP) when exiting.

Supervisor / Set-Up Screens

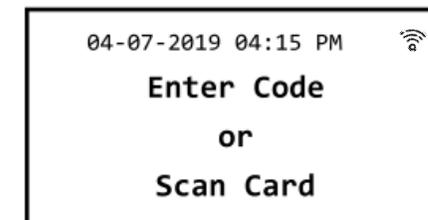
This screen can be activated by a 5-digit security code or the provided key fobs.

You can access the Supervisor /Set-up screen from the 'Enter Code of Scan Card' screen.

- Enter the 5-digit supervisor's code then enter to access these screens
- Or use the Start-Manger key fobs (included)
- Use the navigation buttons to move through to the next section (< >)



Yellow
Supervisor FOB



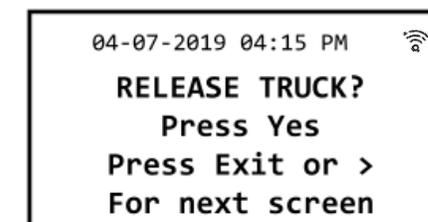
Supervisor's Access Code: **55150**

Supervisor / Set-Up Screen- Release Truck (After a 'Failed' Safety)

If activated, this is the first screen in the Supervisor area that allows the

The first screen allows the Supervisor to release a vehicle if the operator has failed a safety question (optional)

- Press Yes if you want to release
- The system will prompt you to press and hold the START button
- Or, use the navigation buttons to move to next section (< >)
- Press the Exit button to exit



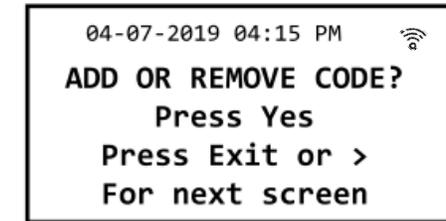
Supervisor should physically inspect the issue, and put a plan of action in place: Monitor issue, Schedule repair, Take out of service, etc.

Supervisor / Set-Up Screen

Add / Subtract a 4-digit code

The second screen allows the supervisor to easily add or remove access codes.

- Press Yes if you want to add or remove 4-digit access codes
- Enter 4 digit code then press the Enter button
- Press Yes to add code, press No to remove code
- Repeat process to add more
- Use the navigation buttons to move to next section (< >)
- Press Exit to leave

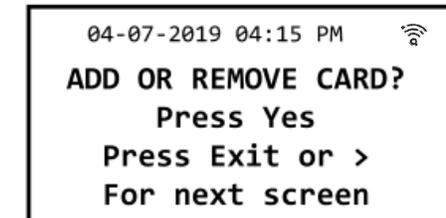


Supervisor / Set-Up Screen

Add / Subtract a 125kHz proximity card or FOB

The third screen allows the supervisor to easily add or remove 125kHz proximity cards/fobs.

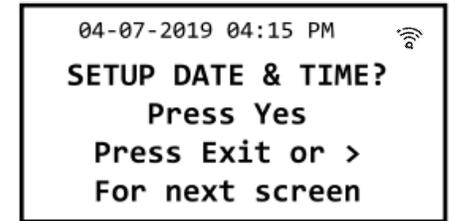
- Press Yes if you want to add or remove Proximity Cards/FOBs
- Scan Card/FOB
- Press Yes to add card, press No to remove card
- Repeat process to add more
- Use the navigation buttons to move to next section (< >)
- Press Exit to leave



Supervisor / Set-Up Screen

Set-up or change Date & Time

- Press Yes to set up Date & Time
- Use navigation buttons to move through each section (< >)
- Press enter after correct selection
- Repeat process for Day, Month, Year, Hour, Minute, AM/PM
- Or, use the navigation buttons to move to next section (< >)

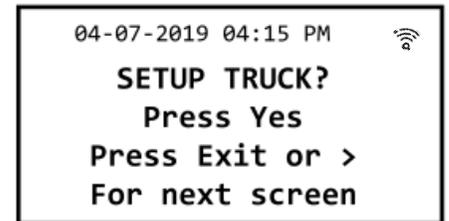


Supervisor / Set-Up Screen

Set-Up or change Vehicle Information

This information is captured in reports and for unit identification

- Press Yes to set up truck details
- Enter current truck hours then press the Enter button
- Enter Truck Identification Number then press the Enter button
- Enter Service Intervals
- Or, use the navigation buttons to move to next section (< >)



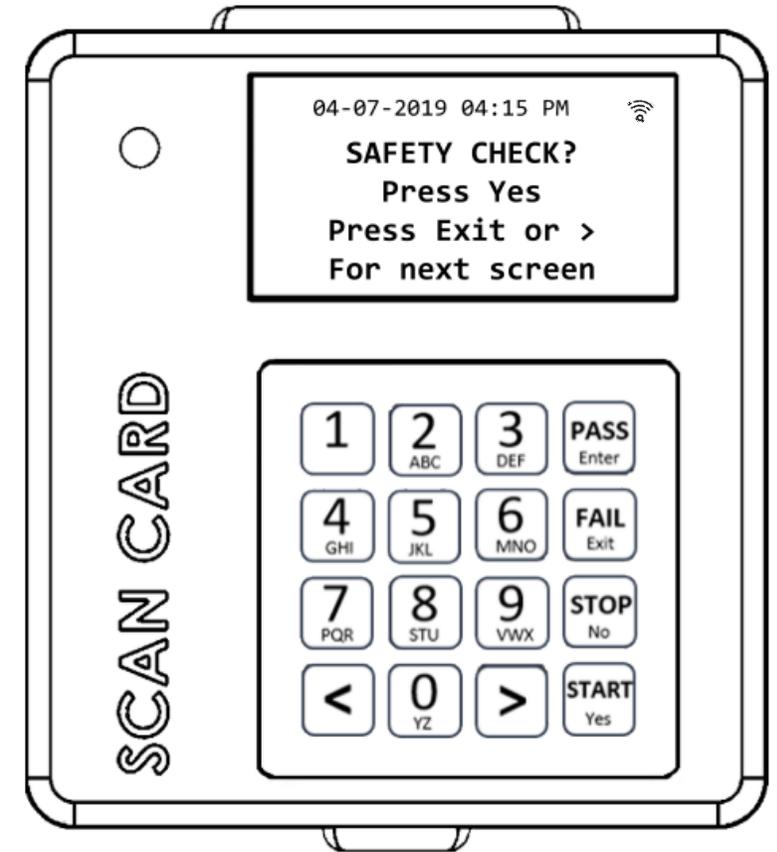
Supervisor / Set-Up Screen

Set-Up or Change Safety Check feature(s)

The safety check feature will automatically prompt the user to perform a safety check at the start of each shift (based on the information that you provide). The unit will not allow the vehicle to start until the check has been completed.

- Press Yes to set up Safety Check
- Use (< >) buttons to turn this feature on or off. Hit enter.
- Using (< >) choose the time of your first shift. Hit enter.
- Using (< >) choose how many shifts per day. Hit enter.
- Using (< >) select IC or Electric Forklift, Pallet Truck or Aerial Lift. Hit Enter.
- Using (< >) select 7 or 11 safety questions. Hit enter.
- Using (< >) select whether or not you want the truck not to start after a 'failed' safety question. Hit enter. Note: The truck is easily released through by the supervisor.

To maximize the effectiveness of your daily safety checks, use our detailed Daily Safety Check Guide



Shift information:

Time of 1st shift _____

No. of Shifts / day _____

Supervisor / Set-Up Screen

Set-up or Change Wi-Fi Features

You will need your Wi-Fi Router SSID (Name) and Password. This unit will automatically connect to your Wi-Fi network when in range.

- Press Yes to set up Wi-Fi
- Use (< >) buttons to turn this feature on or off. Hit enter.
- Enter Your SSID (Name)
- Enter your password
- Enter your IP Address (Optional)

NOTE: Our system uses **Multi-tap**. The alphabet is printed under each key (beginning on "2") in a three-letter sequence as follows; ABCabc2 under 2 key, DEFdef3 under 3 key, etc. The system is used by repeatedly pressing the same key to cycle through the letters for that key. Press the > to move onto the next character. Press enter when completed.

Note: To maximize your data collection you will need to have each vehicle within Wi-Fi range for at least 5 minutes per day.



Wi-Fi Router Information:

SSID (Name) _____

Password _____

Start-Manager OPERATION – Web Portal Registration

To access your reports you will need to register your units on our web portal
 Go to <https://smportal.start-manager.com/devc> to register
 Follow the simple 3 step registration (see below)

Note: You will require the following

1. Serial numbers for each SM unit
2. Equipment number entered into SM unit
3. MAC Address
 (see page 19 of this guide “set up vehicle info”)

Step #1

The screenshot shows the 'WEB PORTAL ACCESS REQUEST FORM' with a progress bar indicating Step 1 of 3 is active. The form is titled 'COMPANY INFORMATION' and includes two radio button options: 'I want to register a New Company' (selected) and 'I have Company code provided by Parent Company'. The form contains several input fields: Company Name, City, Street Address, Zip/Postal, State/Province, Country, Contact E-Mail, Phone Number, Contact First Name, and Contact Last Name. There is also a section for 'Add other users' with an 'Add' button. At the bottom, there are 'PROCEED' and 'CANCEL' buttons.

Step #2

The screenshot shows the 'WEB PORTAL ACCESS REQUEST FORM' with a progress bar indicating Step 2 of 3 is active. The form is titled 'UNIT/EQUIPMENT REGISTRATION'. It features a 'Total number of units' input field with the value '1'. Below this is a note: 'Please enter the number of units you want to register now. At least 1 should be registered, Maximum allowed number is 12'. The form is divided into two columns. The left column has a 'Start-Manager Serial Number' dropdown menu (set to SM301A) and a 'Unit serial number' input field. The right column has a 'unit number' input field. Below these are 'Equipment Type' and 'Mac Address' input fields. At the bottom, it shows 'Added 1 of 1' and an 'Add another unit' button, along with 'BACK', 'PROCEED', and 'CANCEL' buttons.

Step #3

The screenshot shows the 'WEB PORTAL ACCESS REQUEST FORM' with a progress bar indicating Step 3 of 3 is active. The form is titled 'REGISTRATION'. It includes a 'Purchased' dropdown menu (set to 'Choose an option'), a 'Dealer Name' input field, 'Update Notifications' and 'Training Materials' dropdown menus (both set to 'Yes'), and a 'Receive Newsletter' input field (set to 'Yes'). At the bottom, there are 'BACK', 'SUBMIT', and 'CANCEL' buttons.

Start-Manager OPERATION – Automated Web Portal

Go to <http://smportal.start-manager.com/devc> and enter your email address and the password that you were sent to access your secure portal.

- Click on any heading to sort
- Download your reports as required

Note: After you register you will be sent a password to log on to your own secure portal

The screenshot shows the Start Manager web portal interface. At the top left is the Start Manager logo. A navigation menu includes links for FAQ, Dashboard, Data, Operators, Questions, Units, Company, Logout, and a user icon. Below the navigation is a dark banner with the text "INFORMATION PORTAL".

On the left, there is a "Company Info" section for "Sample-Technologies Inc." with address details: 1234 Address Street, Anywhere, California, 90815.

On the right, there are two summary cards: "Units Connected" showing 1 unit and "Units Registered" showing 12 units.

Below these is a "Messages for you:" section with a list of recent events:

- Last report sent on :13 March 01:00
- Last operator update performed on :22 March 12:01
- Last custom questions update performed on :22 March 12:02
- Last unit update performed on :09 March 16:06

At the bottom, there are five yellow buttons: "View Data", "Maintain Operators", "Maintain Questions", "Maintain Units", and "Update Firmware".

At the bottom left, it says "Sample-Technologies Inc." followed by a counter "0000022" and the text "Total safety checks completed".

At the bottom right, it says "Start Manager" followed by a counter "0018311" and the text "Total safety checks Worldwide".



INFORMATION PORTAL

Company Info

Start-Manager Inc.
520 Westheights Drive
Kitchener, Ontario
N2N1M5

Units Connected

1



Units Registered

3

Messages for you:

- Last report sent on : 4/30/2021, 9:00:22 PM
- Last operator update performed on : 5/7/2021, 8:00:25 AM
- Last custom questions update performed on : 5/4/2021, 11:01:09 AM
- Last unit update performed on : 5/5/2021, 11:06:43 AM

[View Data](#)

[Maintain Operators](#)

[Maintain Questions](#)

[Maintain Units](#)

[Update Firmware](#)

Start-Manager Inc.

0 0 0 0 1 6 0

Total safety checks completed



0 0 1 8 4 4 7

Total safety checks Worldwide