



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



$\frac{3}{4}$ " & $\frac{1}{4}$ "
Drill Bits



$\frac{1}{4}$ " bit
Driver



16ga.
Insulated wire



1 Amp slow
Blow fuse



Electric Tape
& connectors



$\frac{3}{4}$ " & $\frac{1}{2}$ "
Wrenches



Soldering
Iron



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.

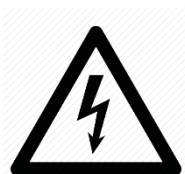
Skill Level



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



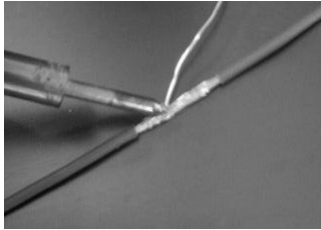
Shock
Hazard



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:



Soldered connection



Solderless Crimp
Molex, Scotchlok

- A proper electrical connection is critical when installation electronics in an industrial environment.
- When splicing in additional wire, always use a soldered connection.
- In order for an electronic device to work properly in an industrial environment it is critical that the correct connector is used.

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:



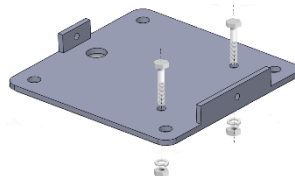
The Start-Manger unit may be affected by electrical noise, commonly emitted by the ignition circuitry of internal combustion (LP gas or gasoline) engines. It is imperative that the IC vehicle be properly suppressed by using suppressed spark plugs and wires. UNSUPPRESSED IGNITION CIRCUITRY MAY CAUSE ERRATIC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



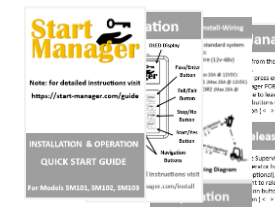
Mounting Hardware

- (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:

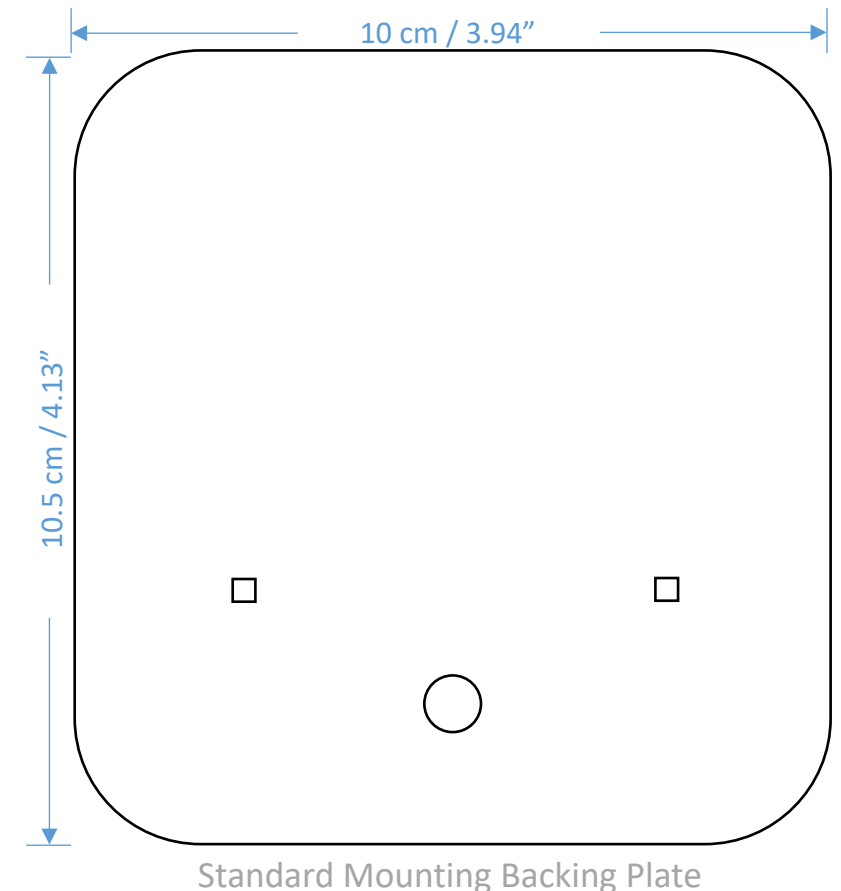
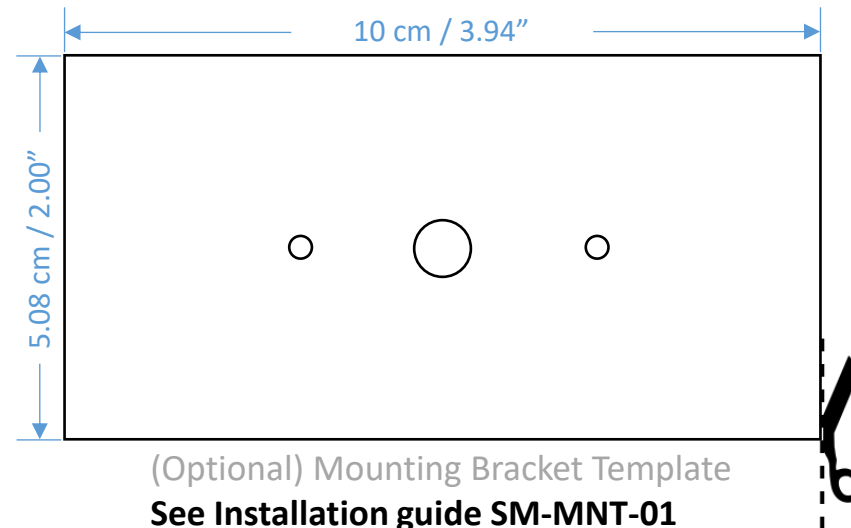
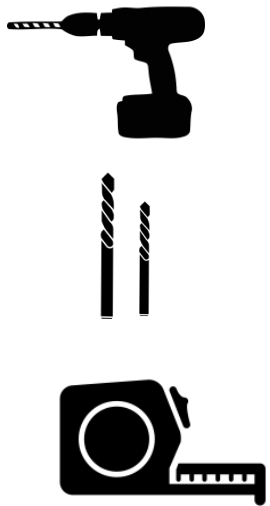
- Supply Voltage: 12 VDC – 48 VDC.
- Stand-by current:
- Max allowable contact current: 10A / 12V
- Storage for 200+ 4-digit codes
- Storage for 200 + proximity cards
 - 125 kHz frequency
 - Suitable for H10301 & H10302 HID formats
 - Suitable for EM4100, EM4305 formats
- Dust, vandal and moisture proof 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

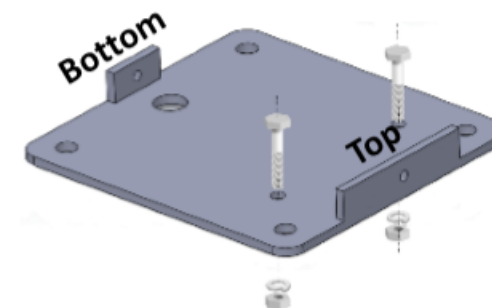


Step#2a: Mount Backing Plate



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

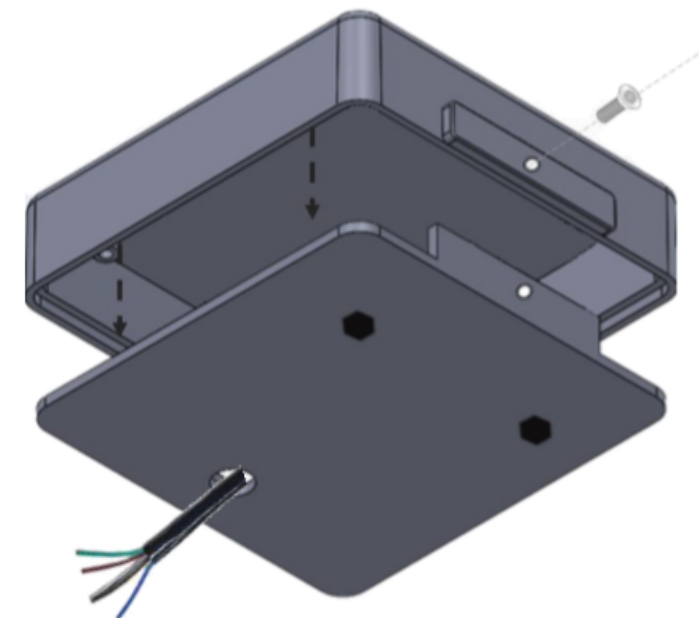


****NOTE: the clearance inside the unit is tight make sure bolt head does not extend past 8mm****

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:



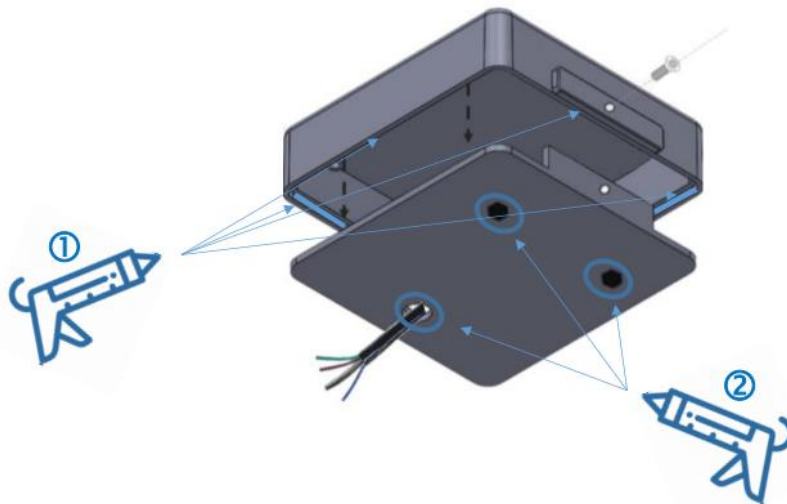
Special mounting instructions for outdoor, dusty & cold storage applications

Note: The SM101 & SM301 units should never be directly exposed to rain, snow, direct sunlight or extreme temperatures or conditions.

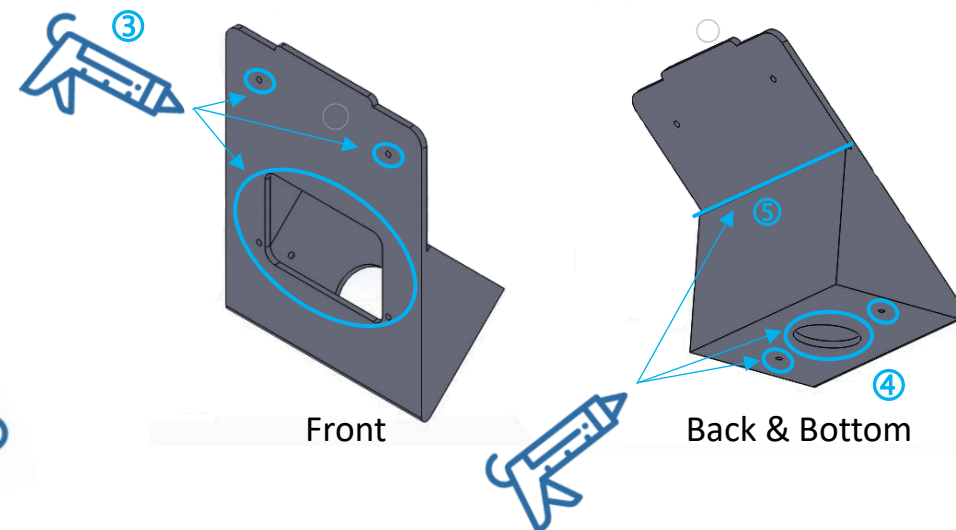
- Moisture & Dust Precautions:** To ensure that a moisture / dust resistant installation of the Start-Manager units for outdoor, dusty or cold storage applications apply waterproof silicone as follows:
1. Apply a continuous bead of silicone along the inner edge of the housing as indicated.
 2. Apply 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.

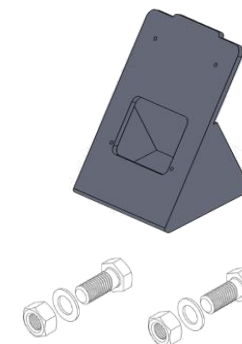
Tools required:



- 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



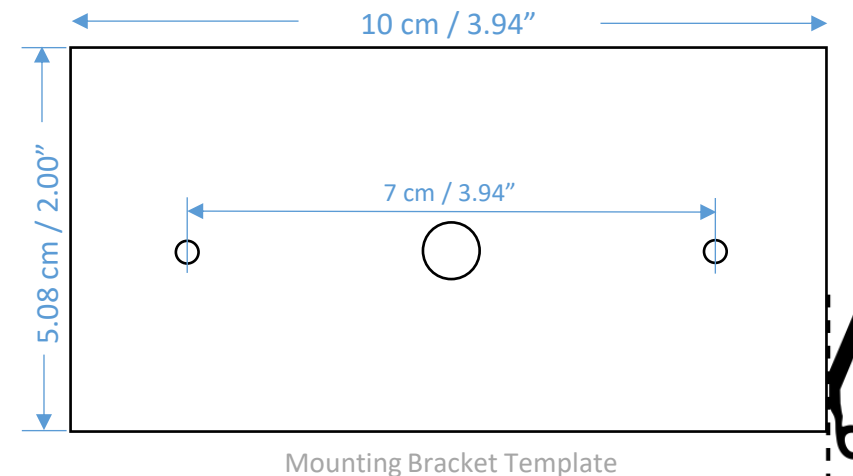
Choose a suitable mounting location



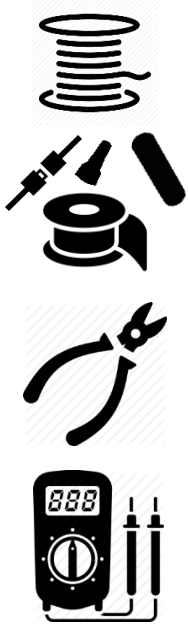
Start-Manager's compact 45 degree mounting bracket is designed to fit in the tight confines of today's forklifts and on various pieces of industrial equipment. Choose a location that is easily accessible to the operator, typically close to the ignition switch. Allow for a 2" x 4" surface space.

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.



Step#3a:



NOTE: The relay wire colors have changed from previous versions

Electrical connections

Wiring Key:

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

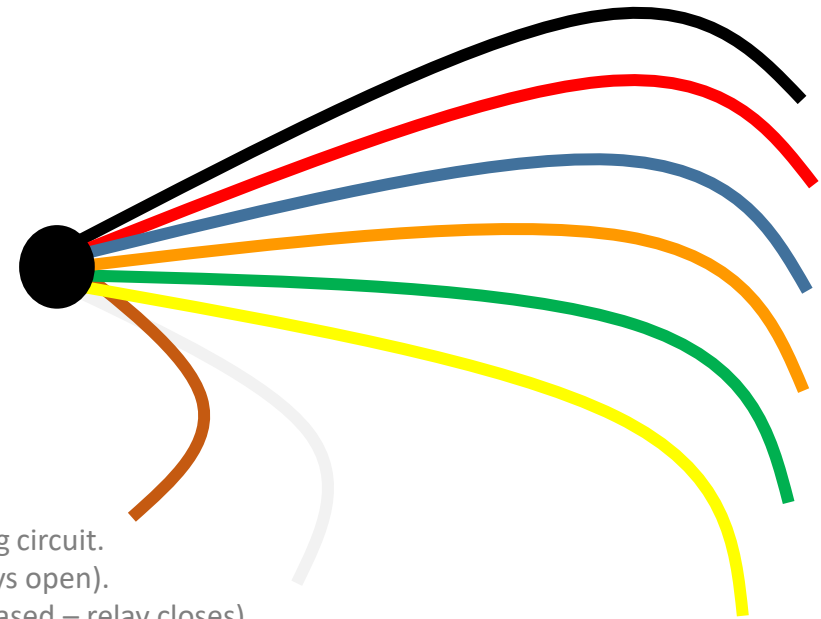
Notes: Blue, orange, green & yellow wires are wired into the vehicle's starting circuit.

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)*****

*****WARNING: Always connect black ground wire first to prevent short circuit*****



Step#3b:

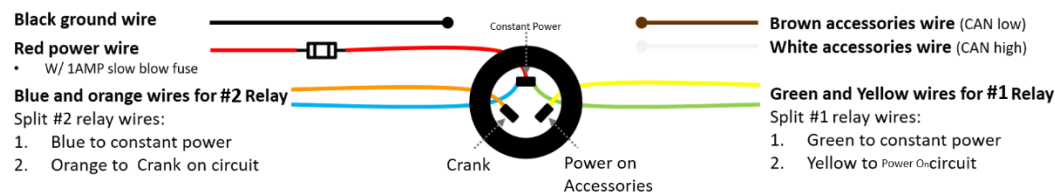


Power & Ground wires

- **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.

The SM301 & SM101 units are designed to replace the key switch of any material handling vehicle or machine. The unit's built-in relays mimic the key switch's Start, Stop & Crank (for IC units) functions. We suggest wiring the unit directly into the key switch's wiring harness for simplest installation. Check with equipment OEM manuals for more details.



Wiring Key:

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

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

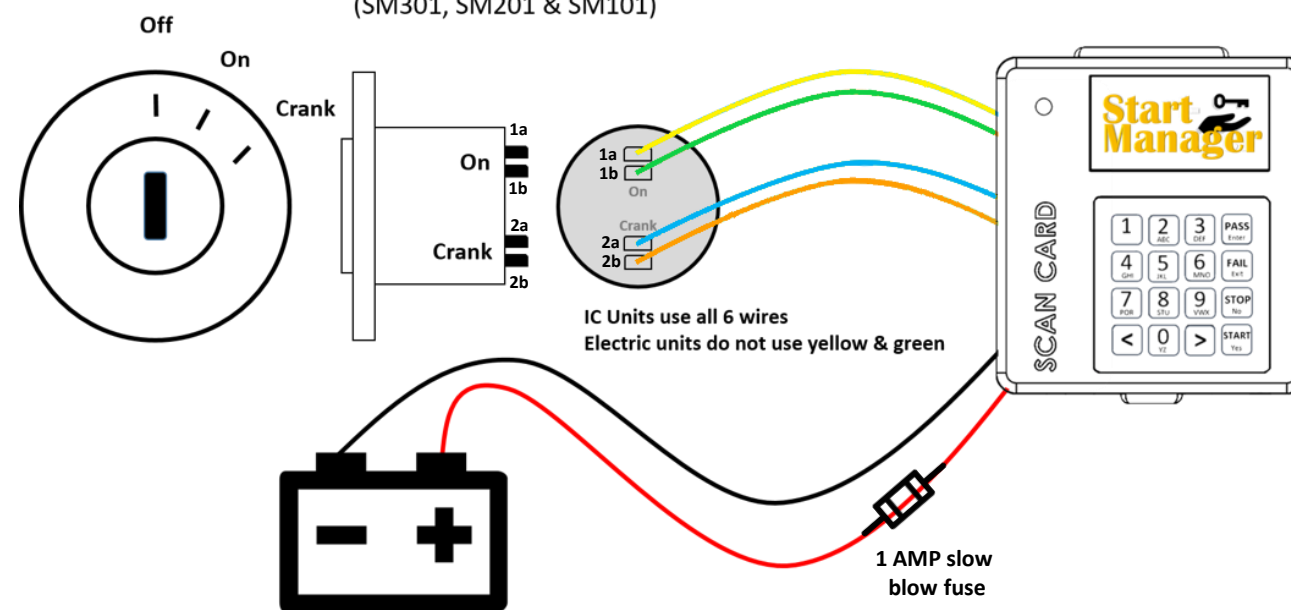
Relay #1 (power stays on when Start button pressed and released – relay stays open).

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.

*****WARNING:** Always connect black ground wire first to prevent short circuit***

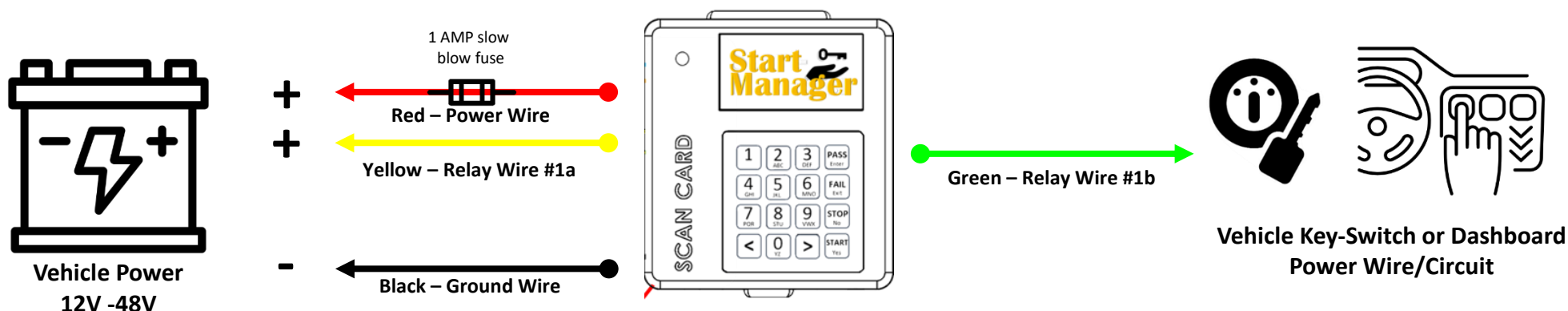
Start-Manager wiring to by-pass key switch (SM301, SM201 & SM101)



Step#3d: Schematic

****Alternative wiring****

Start-Manager wiring with key switch functionality: The Start-Manager can be used to power the key switch or dashboard. Use this option when you want to utilize your existing key-switch, when cold-start or glow plug conditions are required. Also use to power electronic dashboards. NOTE: Below is an example of a typical installation, all manufacturers are different, please consult manufacture's specification to reflect your application.



Wiring Key:

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

Notes: Green & yellow relay wires are wired in line with the key-switch / dashboard power circuit.

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

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.

*****WARNING: Always connect black ground wire first to prevent short circuit*****

Installation option(s): Start-Manager Options: The Start-Manager SM301E telematic hub has additional options available for different installation requirements.

Optional Installation Equipment

- **CON V12-90 Voltage converter / Surge protection:** Used for applications where the input voltage exceeds 48 volts and where additional protection is required.
 - DC 20-90V step down converter. 12 volt output.
 - Over-current protection; over-temp protection; input reverse connection protection; short-circuit protection
- **SMTR100 Start-Manager Seat Timer:** Safety device that shuts down the Start-Manager SM301E if the operator is not seated on equipment for more than a prescribed amount of time.
 - 12 Volt (13.8V) input signal required to device. • 12 Volt (13.8V) input signal required from seat switch/dead-man switch/tiller arm etc. • Device provides 12-volt power to the start-manager SM301 unit. • Surge protection Included
- **SM-Super Start-Manager Super Capacitor:** In-line supercapacitor is used where more power is required for hard to crank applications.

Contact your Start-Manager representative for more information 1-800-674-9320

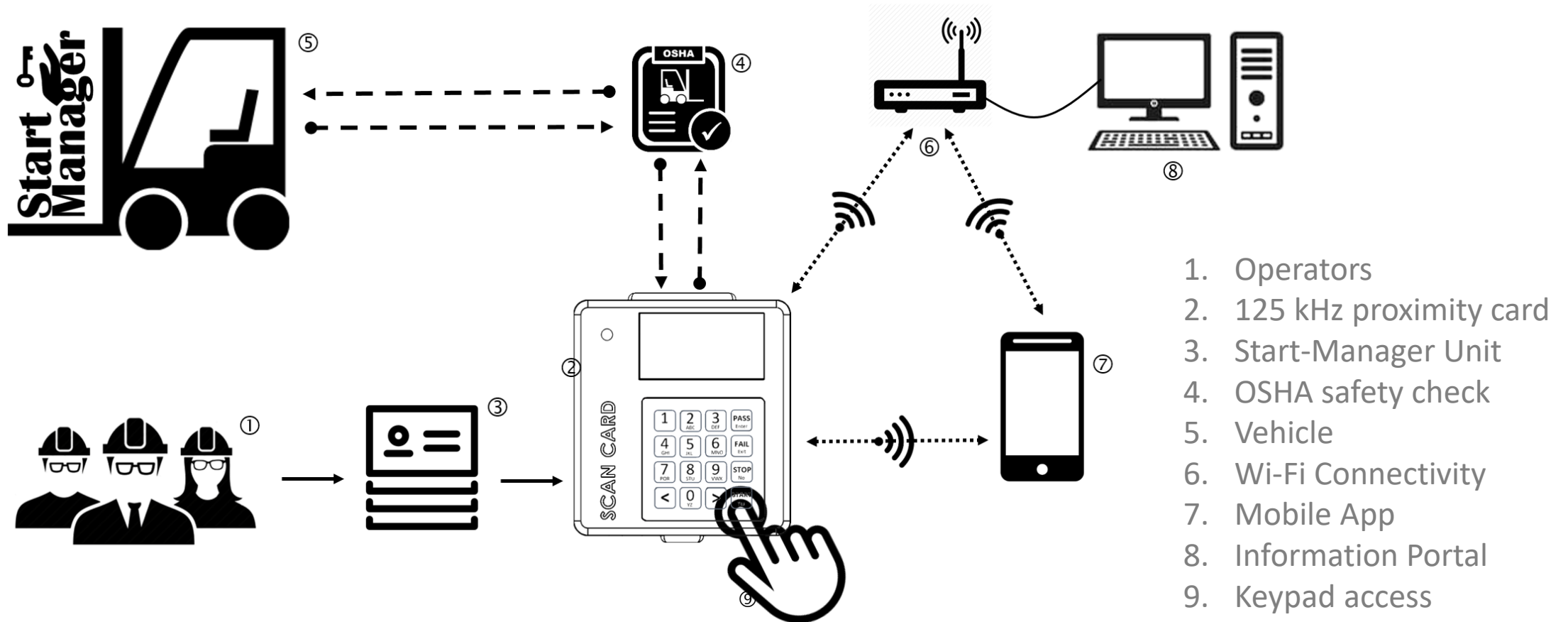
Maintenance / Care

Start-Manager maintenance and care: The Start-Manager SM301E telematic hub will last a long time in most industrial environments, provided that it is properly cared for.

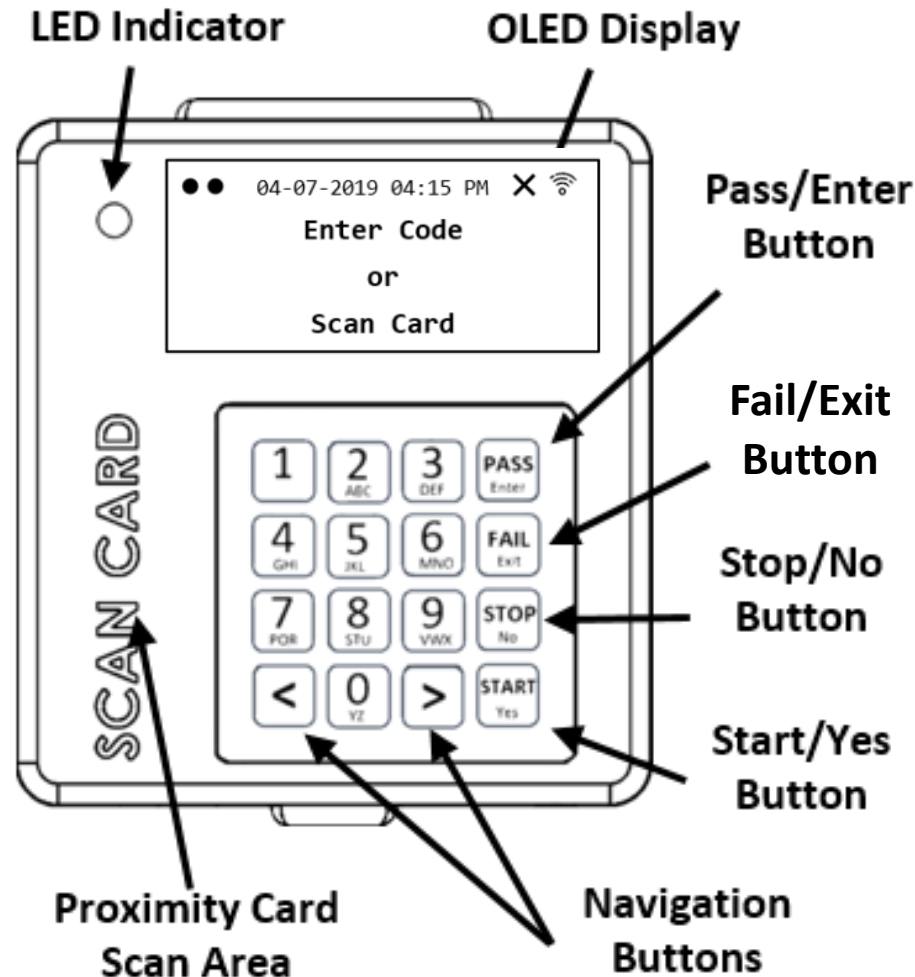
Key Maintenance Strategies

- **Daily Cleaning:** Wipe down the SM301E with a damp cloth once a day to prevent dirt and dust build up. Never spray cleaning agents directly onto electronics; spray onto a cloth first. Ensure equipment is de-energized before cleaning.
- **Regular Cleaning:** Use non-static generating vacuums or low pressure compressed air to remove dust and dirt from the devices at least once a week. **Never use a pressure washer directly on the face of the SM301E.**
- **Inspection and Testing:** Regularly inspect for loose connections, corrosion, and damaged cables.
- **Additional Protection:** Please refer to step #2C for additional protective steps for dusty, outdoor and cold storage conditions.
- **Best Practice:** During regular Preventative Maintenance (PM), the forklift technician should adjust the unit hours to match the forklift hour meter if required.

Start-Manager Operational Overview



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

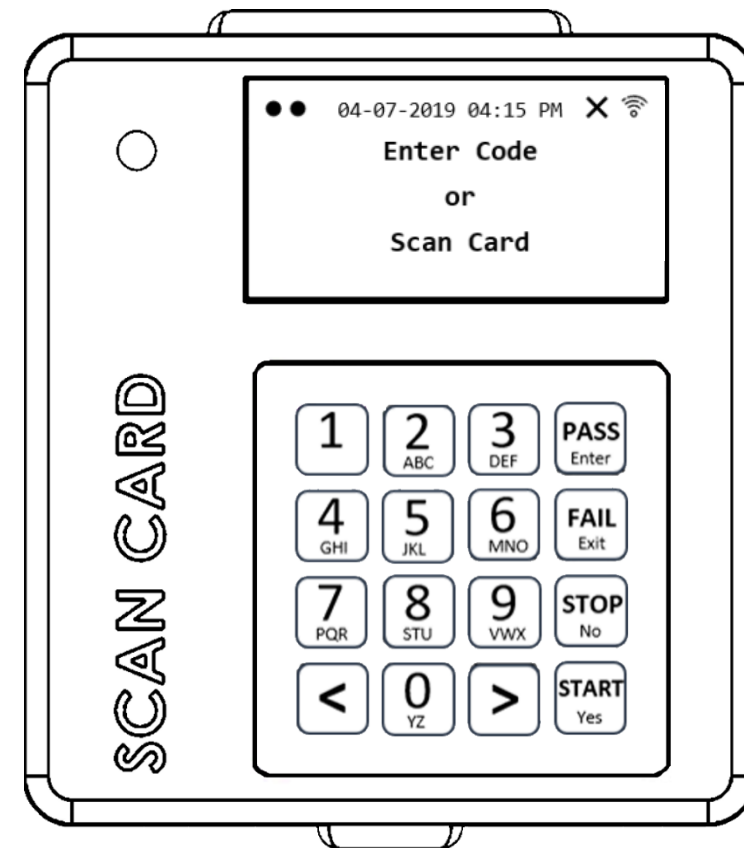
Start-Manager OPERATION - Access Control

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

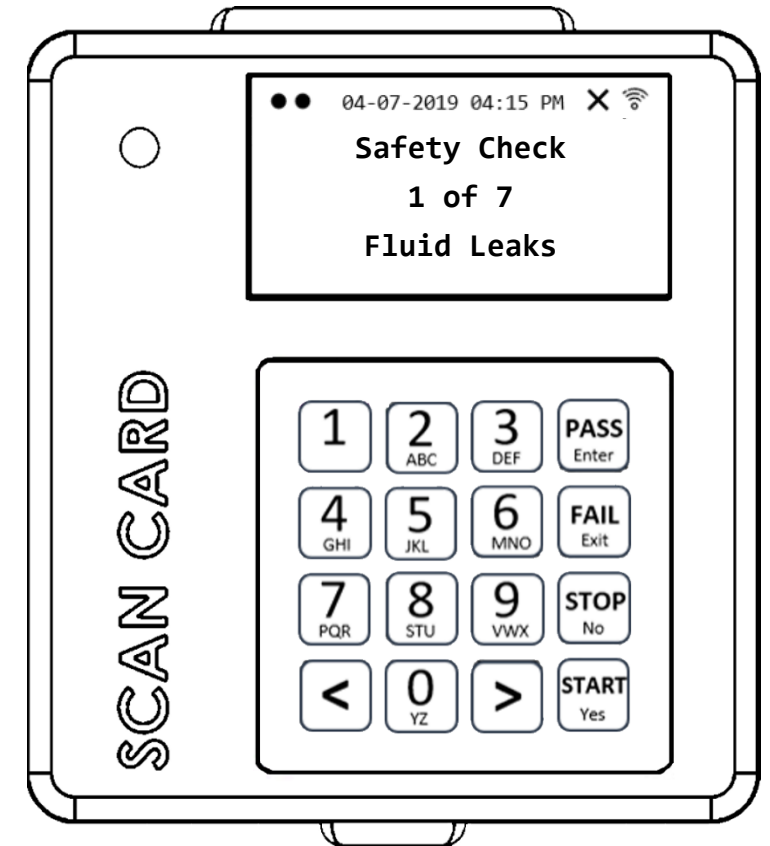


Start-Manager OPERATION - Safety Check

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

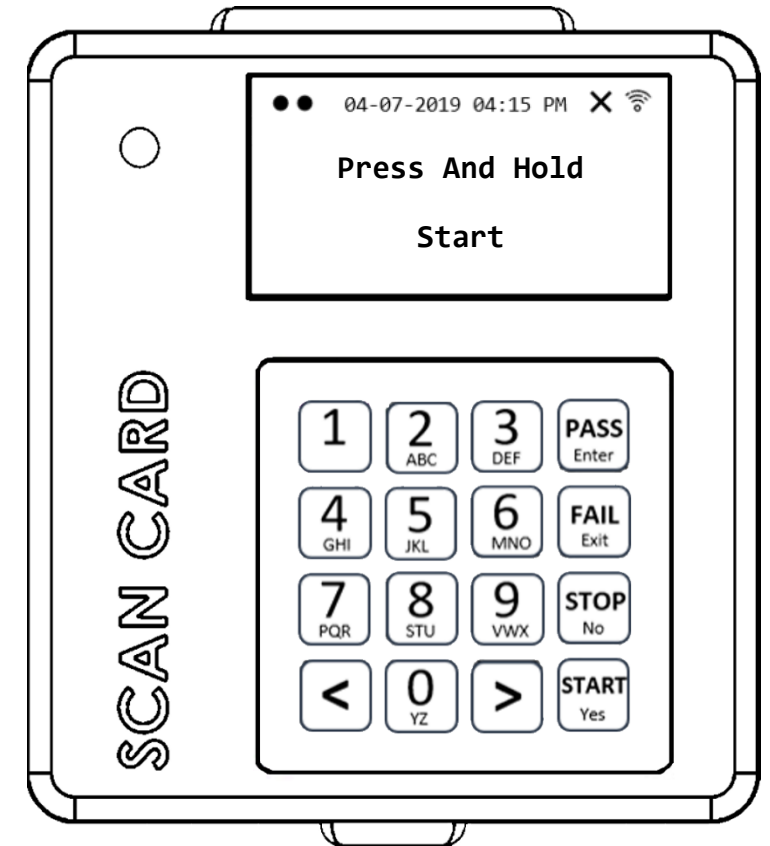
After you have successfully logged onto the vehicle (and completed the safety check if applicable).

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

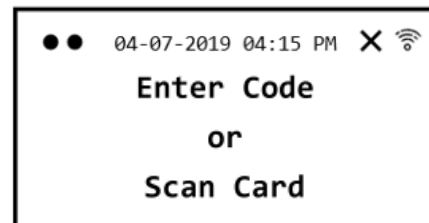
This screen can be activated by a 5-digit security code or the provided key fobs.

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



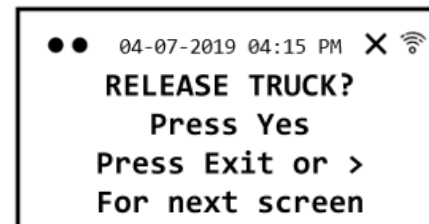
Supervisor's Access Code: **55150**

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



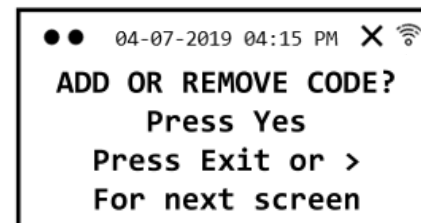
Supervisor should physically inspect the issue, and put a plan of action in place: Monitor issue, Schedule repair, Take out of service, etc.

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

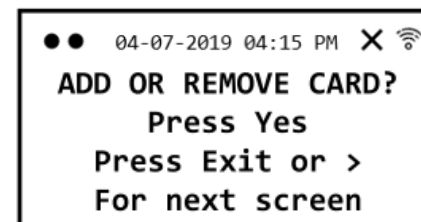


Supervisor / Set-Up Screen

Add / Subtract a 125kHz proximity card or FOB

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

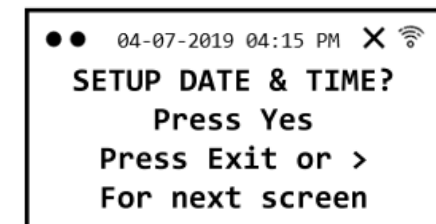
- Press Yes if you want to add or remove Proximity Cards/FOB's
- Scan Card/FOB
- Press Yes to add card, press No to remove card
- Repeat process to add more
- Use the navigation buttons to move to next section (< >)
- Press Exit to leave



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 (< >)

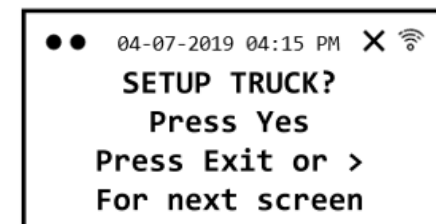


Supervisor / Set-Up Screen

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 Arial 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

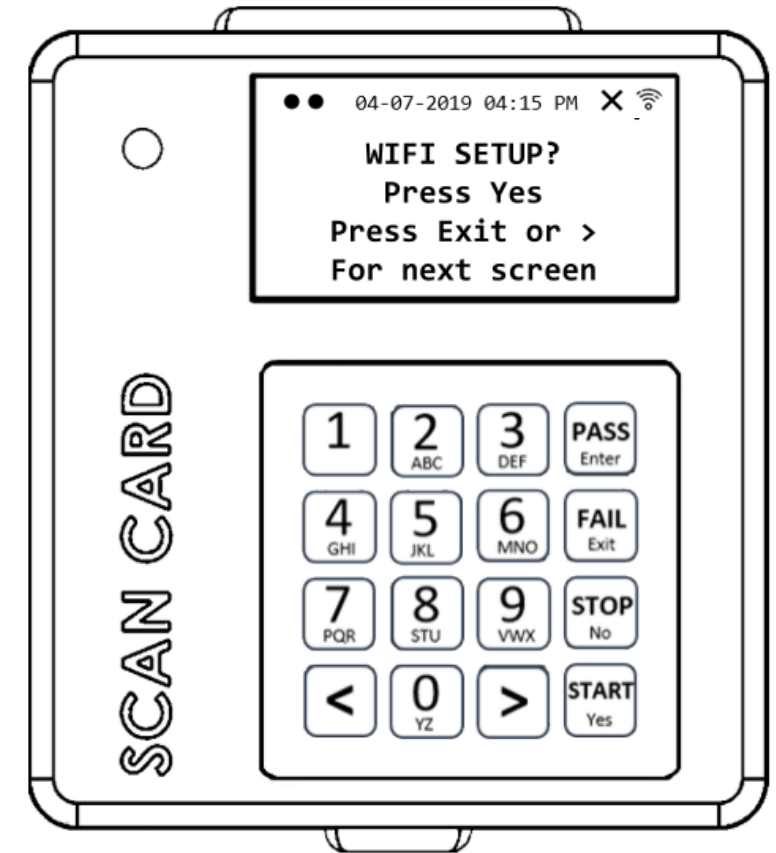
Set-up or Change Wi-Fi Features

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

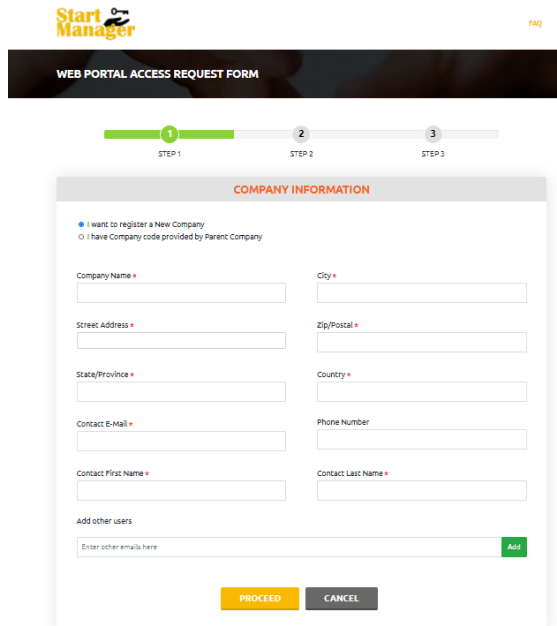
Go to <https://smportal.start-manager.com/devc> to register

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



Start Manager logo and FAQ link at the top right.

WEB PORTAL ACCESS REQUEST FORM

Progress bar: STEP 1 (active), STEP 2, STEP 3

COMPANY INFORMATION

• I want to register a New Company
○ I have Company code provided by Parent Company

Company Name *
City *

Street Address *
Zip/Postal *

State/Province *
Country *

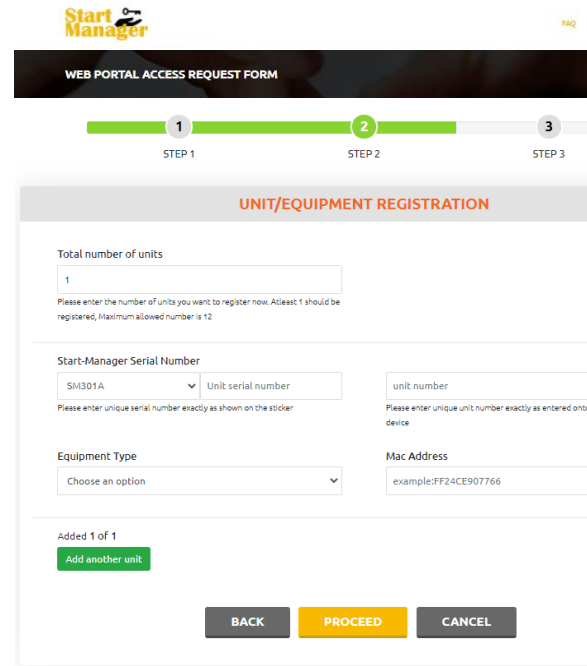
Contact E-Mail *
Phone Number

Contact First Name *
Contact Last Name *

Add other users
Enter other emails here Add

PROCEED CANCEL

Step #2



Start Manager logo and FAQ link at the top right.

WEB PORTAL ACCESS REQUEST FORM

Progress bar: STEP 1, STEP 2 (active), STEP 3

UNIT/EQUIPMENT REGISTRATION

Total number of units
1
Please enter the number of units you want to register now. At least 1 should be registered, Maximum allowed number is 12

Start-Manager Serial Number
SM301A Unit serial number
Please enter unique serial number exactly as shown on the sticker

unit number
Please enter unique unit number exactly as entered onto the device

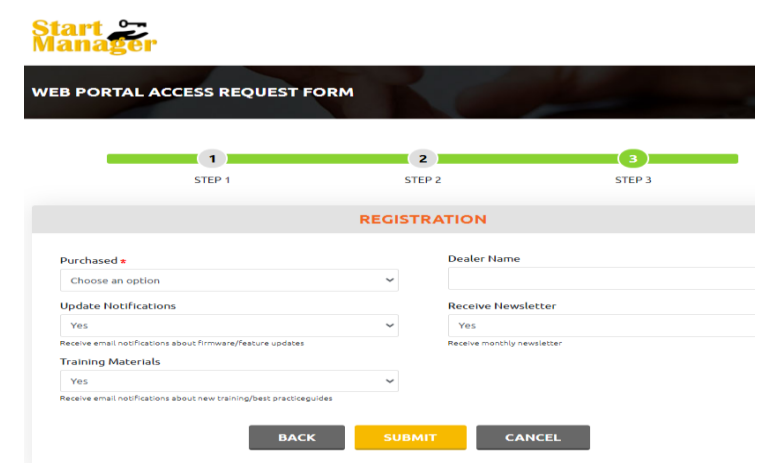
Equipment Type
Choose an option

Mac Address
example:FF24CE907766

Added 1 of 1
Add another unit

BACK PROCEED CANCEL

Step #3



Start Manager logo and FAQ link at the top right.

WEB PORTAL ACCESS REQUEST FORM

Progress bar: STEP 1, STEP 2, STEP 3 (active)

REGISTRATION

Purchased *
Choose an option

Update Notifications
Yes
Receive email notifications about firmware/feature updates

Training Materials
Yes
Receive email notifications about new training/best practice guides

Dealer Name

Receive Newsletter
Yes
Receive monthly newsletter

BACK SUBMIT CANCEL

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



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INFORMATION PORTAL

Company Info

Sample-Technologies Inc.

1234 Address Street

Anywhere , California

90815

Units Connected

1

Units Registered

12

Messages for you:

- 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

View Data

Maintain Operators

Maintain Questions

Maintain Units

Update Firmware

Sample-Technologies Inc.

0000022

Total safety checks completed

Start Manager

0018311

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

IMPACT MONITOR INTRODUCTION

Start-Manager's IMP-Mod Impact Monitor helps change operator behaviors by displaying to them when 2 levels of vehicle impacts occur. The low Impact Setting displays impact W/ audible alarm (15 sec.), reminding the operator to be careful. The High Impact Settings, displays impact W/ audible alarm (30 sec), records data, and has an optional alarm that will continually sound until it is released by a supervisor. Optional email alerts can also be set through the portal.

- Does not interrupt vehicle operation and safety
- Easy to use and set-up

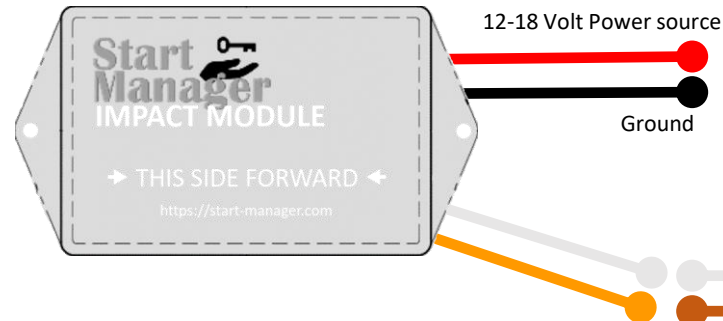
Best Practice and Roll out

1. Properly setting up an impact monitor can take time and patience
2. Not all equipment types and applications are the same, and sensor settings will reflect this fact.
3. Start with only one impact monitor on one type of equipment in one area (IE: production, shipping, yard, etc.)
4. Make sure all the other impact monitors are turned off until a proper setting can be determined
 1. Manually set the low setting first at least at 2g and keep the high setting higher than 4g
 2. Turn 'Continue on high impact' to "on"
 3. Monitor these setting for a few days and adjust as necessary
 4. Run final settings for at least a week on one unit to ensure accuracy
 5. After desired settings are achieved roll out to all vehicles of that type and application
 1. To ease this process create custom settings and assign to groups of trucks through the portal.
5. Re-start testing process for each type of equipment and application.
6. Activate 'Continue on high impact' to "off", and email alerts if desired.

IMPACT MONITOR SPECIFICATIONS (IMP-MOD)

- Voltage input can range from 12VDC to 18VDC. voltage must be regulated and free from voltage spikes and dips above or below the input voltage specified above.
- Current requirements are 50mA minimum.
- 12 VDC is available from the SM301E device (additional steps required)
- Operating temperature 10° F (-12C) - 120° F (49C)
- Size: 3" x 2" x .90" polyethylene case. 2 rare earth magnets (2-3/8" x 3/8") for mounting.

IMPACT MONITOR (IMP-MOD) WIRING



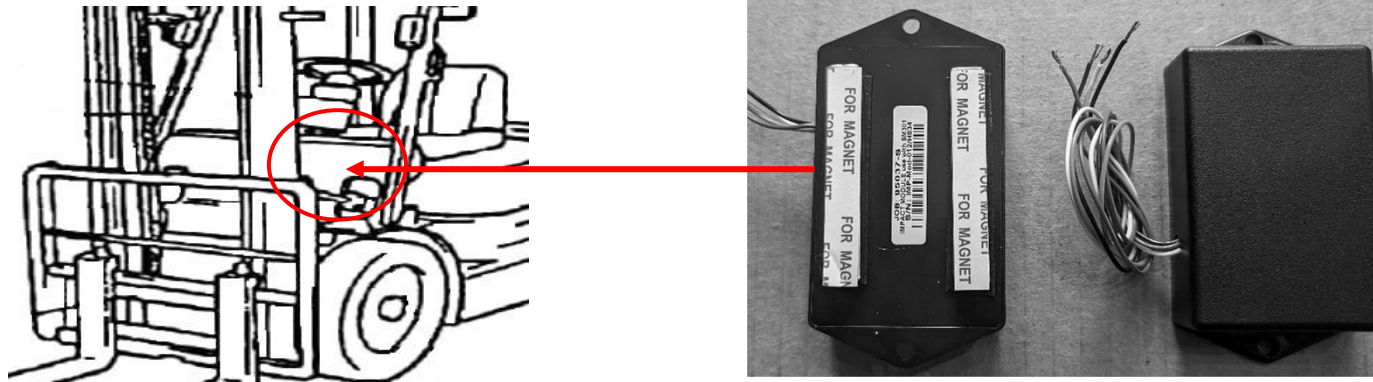
IMP-Mod Wiring Key:

- Black = Connect to a solid ground spot
- Red = Connect to power (Voltage input can range from 12VDC to 18VDC)
- White = connects directly with the white wire on SM301E
- Brown/Orange= Connects directly to the brown wire on the SM301E



IMP-Mod Mounting

Start-Manager IMP-Mod should be mounted on the frame of the vehicle facing forward, with the wires facing downward.



- Find a suitable spot to mount the IMP-Mod on the frame
- Thoroughly clean the area on the frame
- Remove the tape from the 2 rare earth magnets on the back of device
- Securely fasten the device to the frame
- Wire the device as per the previous section
- Splice in wire between the SM301E & the IMP-Mod with a soldered connection.

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.

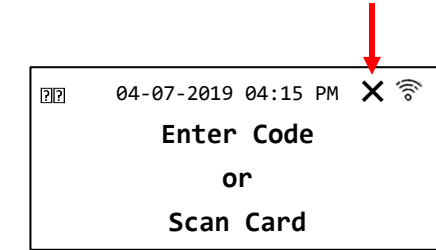
Start-Manager Impact Module Set-up

The below symbols are displayed at the top of the SM301E between the time and Wi-Fi status:

✕ = Impact feature not turned on

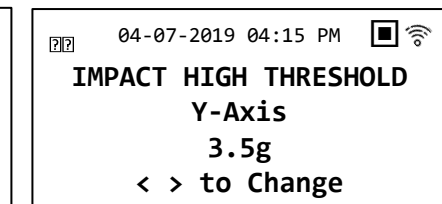
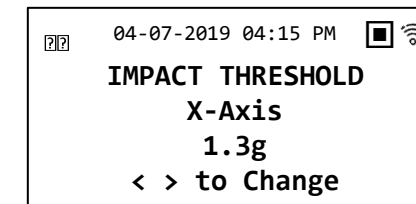
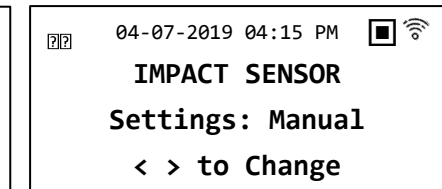
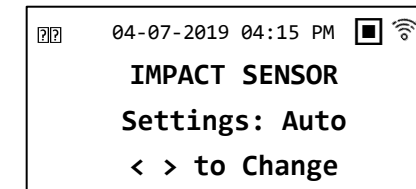
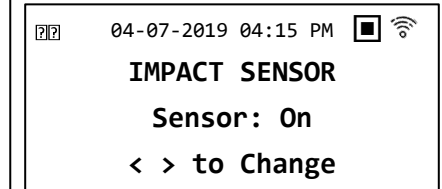
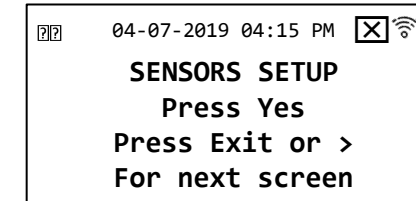
☒ = Impact feature on and IMP-Mod NOT connected

■ = Impact feature on and IMP-Mod is connected



From the device's 'sign-on' screen:

- Enter or scan the yellow supervisor FOB
- Use the < > keys to move to the SENSORS SETUP screen
- Press Yes to access
 - Turn this feature on (the ☒ will appear or ■ if IMP-Mod is connected and powered)
 - Press the 'enter' key to move on to each screen
 - Choose between 'Auto' or 'Manual' settings
 - If 'Auto' setting is chosen then you move on
 - If 'Manual' is chosen, then adjust each setting
 - Use < > keys to adjust each setting
 - Adjust for X, Y & Z axis for basic Impact threshold
 - Adjust for X, Y & Z axis for high Impact threshold
 - Press the enter key after completing each adjustment
 - Choose 'on high impact continue'
 - Off = buzzer continues after HIGH impact until supervisor releases
 - On = buzzer for 15 seconds then normal operation



Start-Manager Set-up From the Portal

The Start-Manager portal allows you to easily set-up and manage your Impact settings.

- Fine tune each setting by axis
- Create and save multiple custom setting categories
- Assign to individual Vehicles
- Create equipment groups and assign settings by group
- High impact action warning on dashboard
- Add notes to high impacts warnings
- Turn on high impact email notifications
- IMP-Mod is automatically assigned to vehicle (when connected and powered) and is indicated on the equipment page



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Impact Adjustment - Setting

Adjust I.C. Forklift Light default Impact Settings

Adjust each axis up or down to arrive at the proper setting for your application

Low Threshold Setting

X-Axis

3.1

▲ ▼

Y-Axis

3.8

▲ ▼

Z-Axis

4.2

▲ ▼

*Adjust for minimum threshold to be recorded

☒ Unlock Chart

High Threshold Setting

X-Axis

8.1

▲ ▼

Y-Axis

8.3

▲ ▼

Z-Axis

9.5

▲ ▼

*Adjust for minimum threshold to send E-mail

☒ Unlock Chart

Start Manager

Impact Module Axis Guide



Create Custom Impact Settings List

List name *

List Description *

Assigned Units *

Select Assigned Units

Back

Save

For additional assistance please visit www.start-manager.com/support (Password: SM-Support)