



Installation/Operation 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: ****NOTE: Using an incorrect connector may cause the system to fail****



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. For optimum performance please use a Scotchlok/Molex or equivalent type connector.

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:



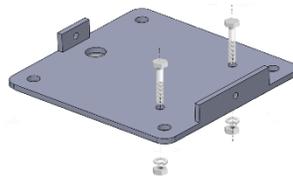
The Start-Manger unit may be affected by electrical noise, commonly emitted by the ignition circuitry of internal combustion (LP gas or gasoline) engines. It is imperative that the IC vehicle be properly suppressed by using suppressed spark plugs and wires. UNSUPPRESSED IGNITION CIRCUITRY MAY CAUSE ERRATIC 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



Backing Plate

- 12 ga. Steel
- Zinc plated



Wiring Harness

- 6 wires
- 12" long



Torx Security Set

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



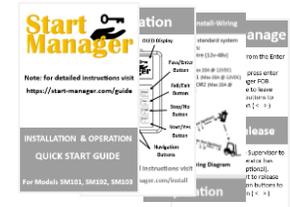
Mounting Hardware

- (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:

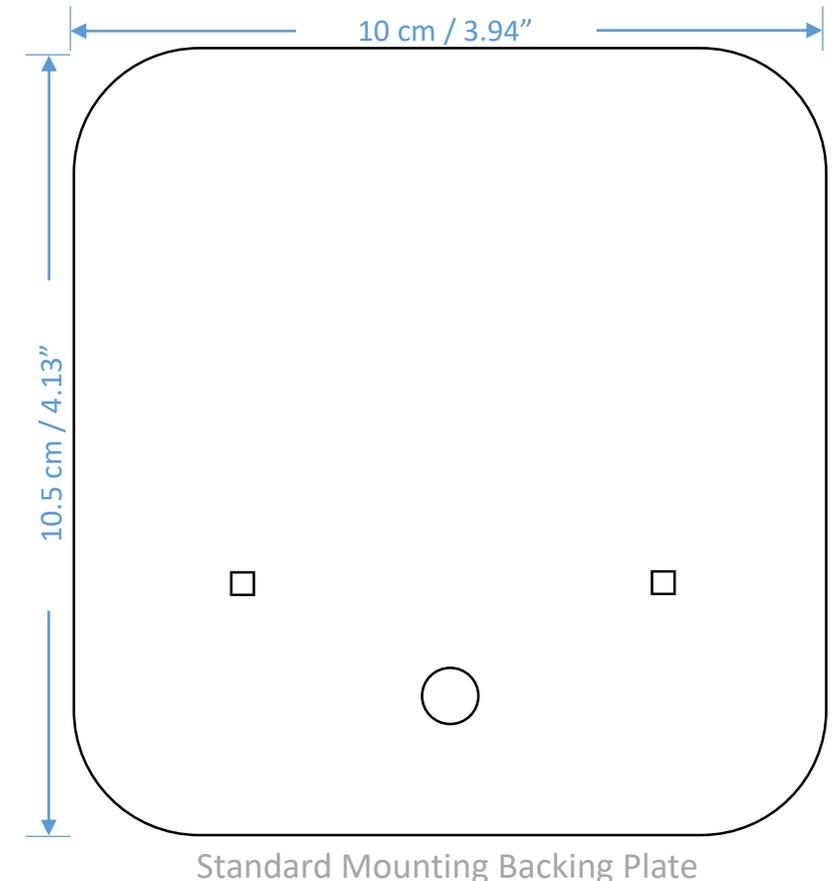
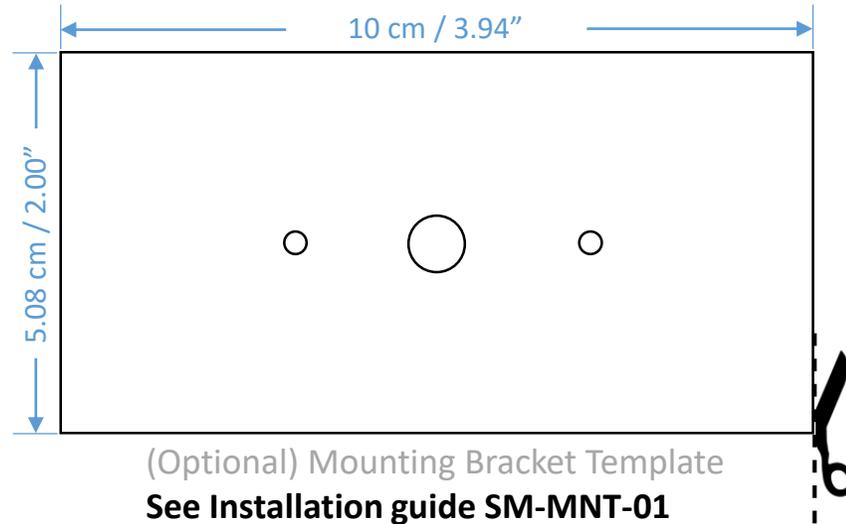
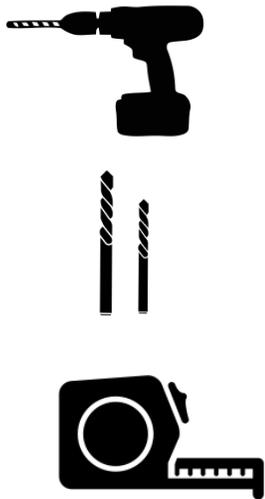
- Supply Voltage: 12 VDC – 48 VDC.
- Stand-by current:
- Max allowable contact current: 10A / 12V
- Storage for 250+ 4-digit codes
- Storage for 100 + proximity cards
 - 125 kHz frequency
 - Suitable for H10301 & H10302 HID formats
 - Suitable for EM4100, EM4305 formats
- Dust, vandal and moisture proof housing
- -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

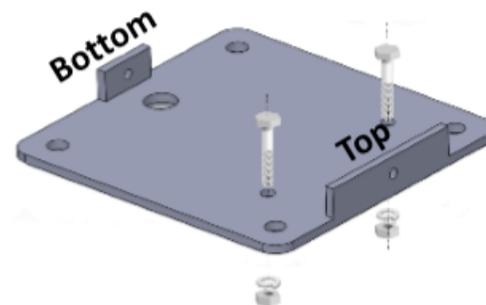


Step#2a: Mount Backing Plate



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

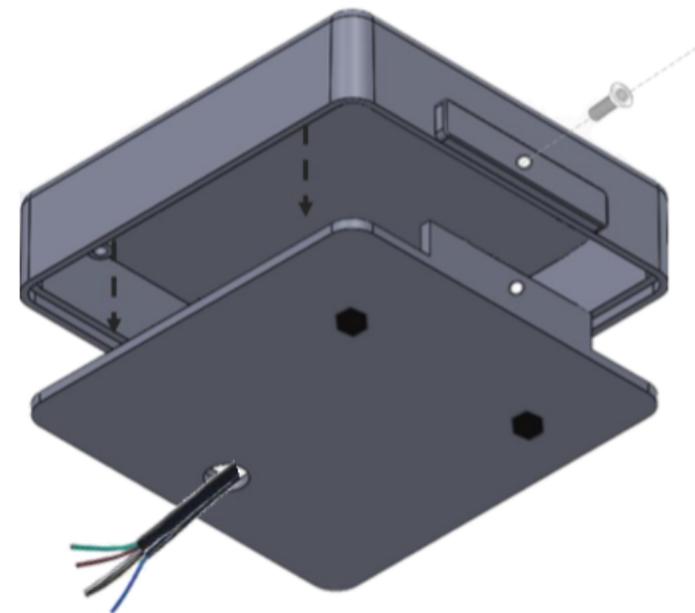


****NOTE: the clearance inside the unit is tight make sure bolt head does not extend past 8mm****

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

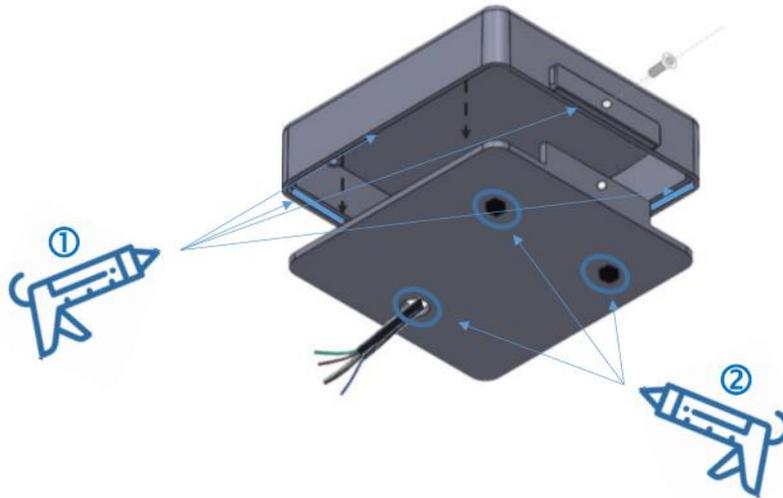


Moisture & Dust Proofing: To ensure that a moisture / dust proof installation of the Start-Manager units for outdoor, dusty or cold storage applications apply waterproof silicone as follows:

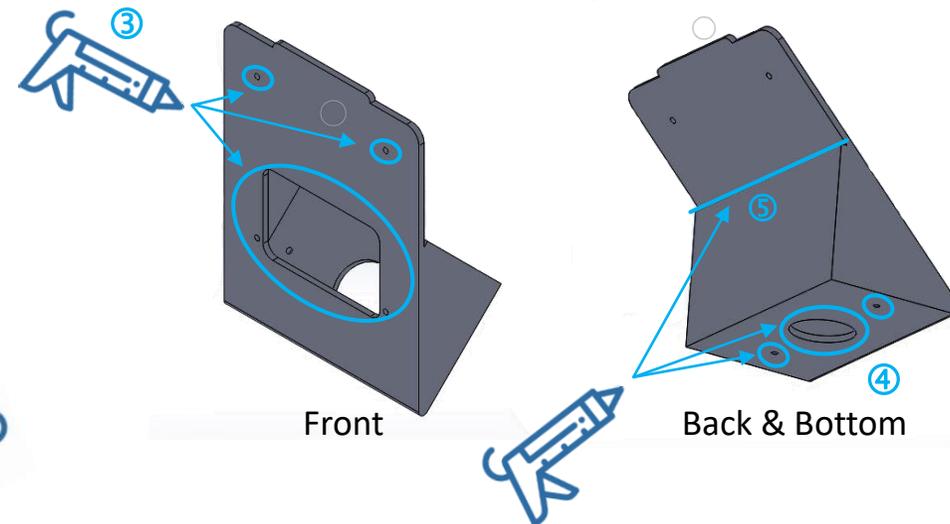
1. Apply a continuous bead of silicone along the inner edge of the housing as indicated.
2. Apply a continuous bead of silicone around each hole on the backside of the zinc plated backing plate.
3. Apply a continuous bead of silicone along each hole on the front of the (Optional) mounting bracket.
4.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

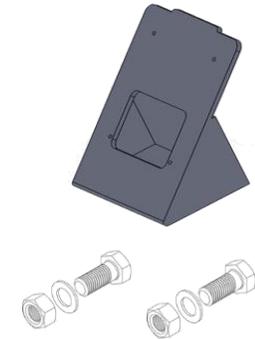
Tools required:



- 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



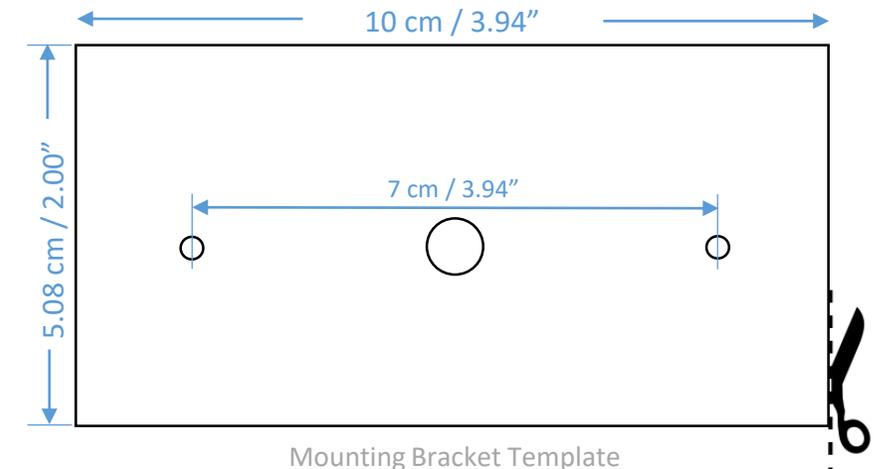
Choose a suitable mounting location



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#3:

Electrical connections

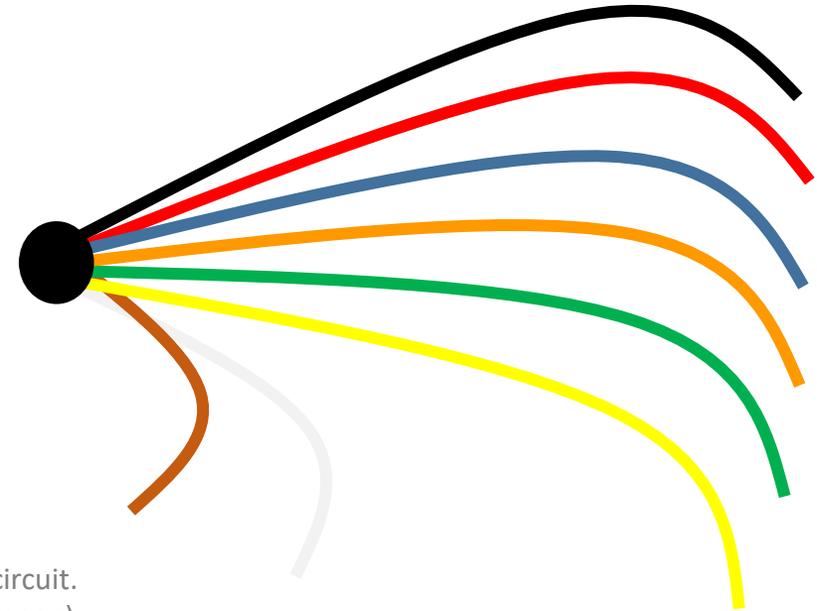


NOTE: The relay wire colors have changed from previous versions

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).



Step#4:

Power & Ground wires



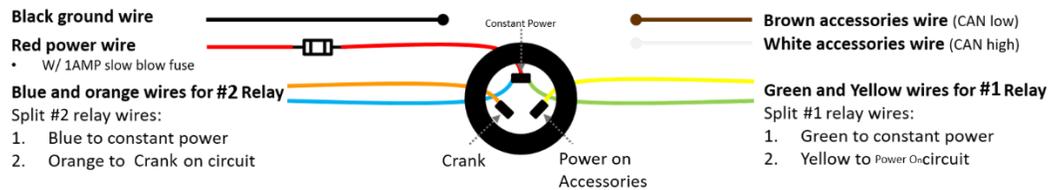
- **RED:** Power wire should be connected direct to the main power source. Start-Manager has a built-in voltage converter. The min. of 12 VDC to a max. of 48 VDC. Any voltage over 48 VDC will require additional equipment. **NOTE: For maximum reliability, a 1 amp inline fuse is recommended between the 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.

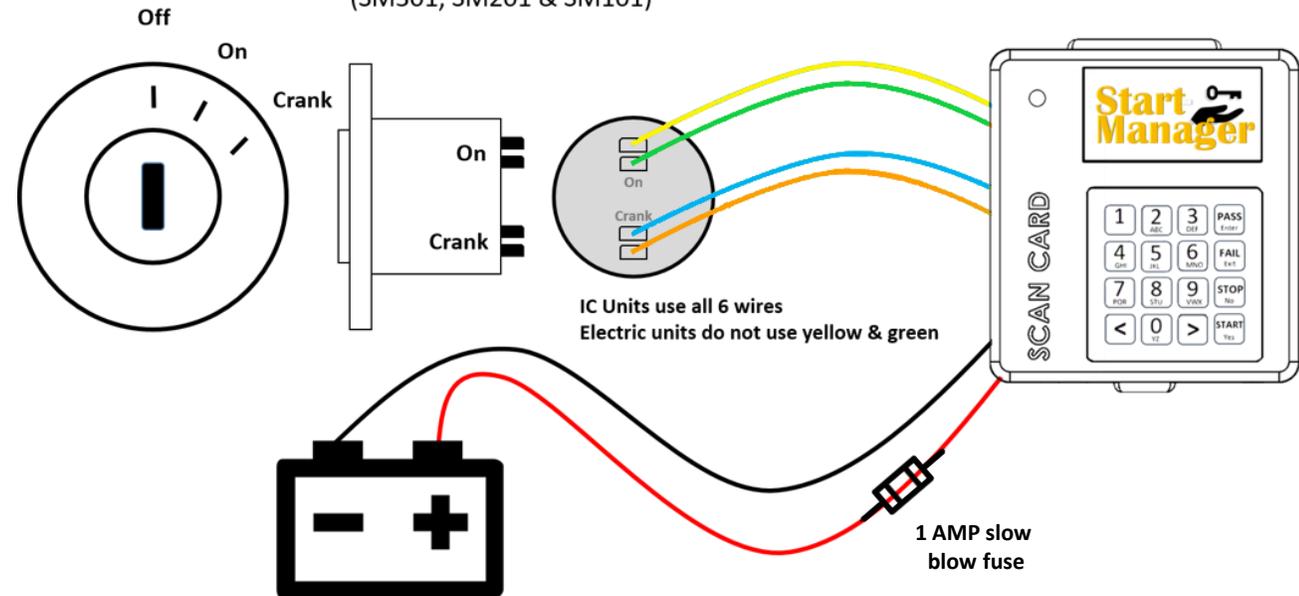


Wiring Key:

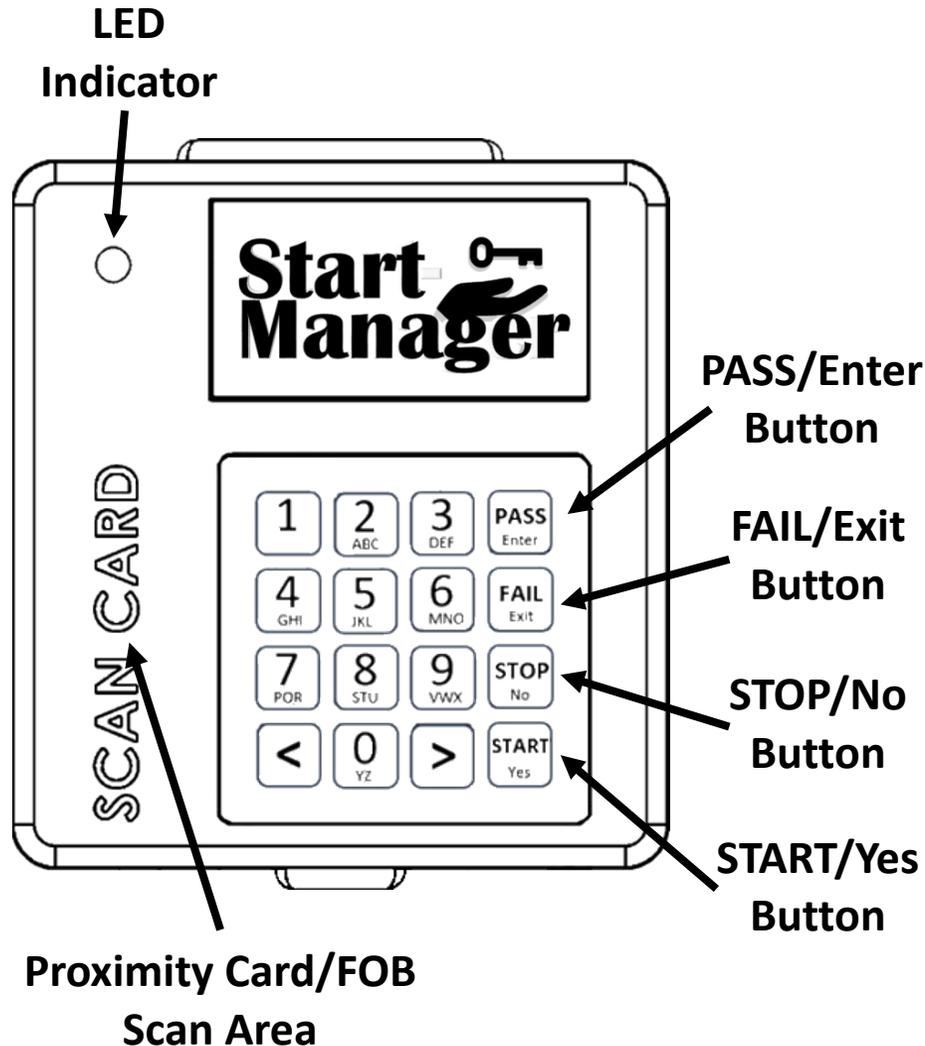
- Black = ground
- Red = power in (12 VDC to 48VDC)
- Yellow = Relay #1a (Max 10A @ 12VDC)
- Green = Relay #1b (Max 10A @ 12VDC)
- Blue = Relay #2a (Max 10A @ 12VDC)
- Orange = Relay #2b (Max 10A @ 12VDC)

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).

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



Start-Manager SM101 OPERATION



- **LED Indicator:** Four (4) colors provide unit status. **Yellow** indicates 'in process', **Red** indicates that there is an issue, **Green** indicates that everything is operational, **Purple** indicates adding or subtracting codes and cards/FOBs.
- **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 ADD codes and cards/FOBs, and to enter data.
 - **Fail/Exit Button:** This button is used to REMOVE codes and cards/FOBs.
 - **Stop/No Button:** This button is used to shut the device/vehicle off, and exit Add/Subtract screen.
 - **Start/Yes Button:** This button is used to Start the vehicle/device, and accept certain questions.

Start-Manager OPERATION - Access Control 4-digit Code

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

1. If LED is off, press and hold any key until unit wakes up and LED is turns solid **Yellow**.
 - A. Touch any key, unit beeps (quick) and **Yellow** LED flashes once
 - B. Sequence resets after 5 seconds of inactivity
2. Enter 4-digit code, and press the Enter button. If the code is correct, the unit will double beep and flash **Green** continuous.
3. If you enter an incorrect code, the unit will beep (longer) and LED light will be solid **Red** for 1.5 seconds.
4. When the LED light is flashing **Green**, Press and hold START button then unit beeps (quick) and **Green** LED stays solid (NOTE: the green LED stays solid **Green** until STOP button is pressed).
5. Press STOP then **Red** LED is solid for 2 seconds, then turns solid **Yellow**. then turns off when in sleep mode

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 - Access Control SCAN proximity Card/FOB

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

1. If LED is off, press and hold any key until unit wakes up and LED is turns solid **Yellow**.
 - A. Touch any key, unit beeps (quick) and **Yellow** LED flashes once
 - B. Sequence resets after 5 seconds of inactivity
2. SCAN proximity Card/FOB. If the code is correct, the unit will double beep and flash **Green** continuous.
3. If you SCAN an incorrect Card/FOB, the unit will beep (longer) and LED light will be solid **Red** for 1.5 seconds.
4. When the LED light is flashing **Green**, Press and hold START button then unit beeps (quick) and **Green** LED stays solid (NOTE: the green LED stays solid **Green** until STOP button is pressed).
5. Press STOP then **Red** LED is solid for 2 seconds, then turns solid **Yellow** then turns off when in sleep mode

NOTE: If unit is in ‘Sleep Mode’ press any key to activate device



Default Access Code: **1379**

or

Use Default Grey FOB



Start-Manager Supervisor – Adding New Codes

Supervisor Mode - ENTER New Codes:

1. If LED is off, press and hold any key until unit wakes up and LED is turns solid **Yellow**.
 - A. Touch any key, unit beeps (quick) and **Yellow** LED flashes once
 - B. Sequence resets after 5 seconds of inactivity
2. Enter 5-digit supervisor code and press the Enter button (or SCAN Start-Manager Supervisor FOB) to access the supervisor mode. If the code is correct the unit double beeps and flashes **Yellow** continuous
3. Adding a new 4-digit code
 - a) Press and hold **PASS** button, unit beeps and flashes **Purple**
 - b) Enter new 4-digit code, then press and hold the Enter button, the unit double beeps and flashes **Green** for 1 sec. when successfully added.
 - c) When unit flashes **Purple** again, repeat steps if required
 - d) If the 4-digit number is already entered, the unit will long beep and the LED will flash **Red**.
 - e) When finished press and hold STOP button. Unit will beep and LED turns solid **Yellow**.



Default Supervisor Code: **55150**
or
SCAN Supervisor FOB



Start-Manager Supervisor – Remove Existing Codes

Supervisor Mode – REMOVING Existing New Codes:

1. If LED is off, press and hold any key until unit wakes up and LED is turns solid **Yellow**.
 - A. Touch any key, unit beeps (quick) and **Yellow** LED flashes once
 - B. Sequence resets after 5 seconds of inactivity
2. Enter 5-digit supervisor code and press the Enter button (or SCAN Start-Manager Supervisor FOB) to access the supervisor mode. If the code is correct the unit double beeps and flashes **Yellow** continuous
3. Removing an existing 4-digit code
 - a) Press and hold **FAIL** button, unit beeps and flashes **Purple**
 - b) Enter existing 4-digit code, then press and hold the Enter button, the unit double beeps and flashes **Green** for 1 sec. when successfully removed.
 - c) When unit flashes **Purple** again, repeat steps if required
 - d) If the 4-digit number is not entered, the unit will long beep and the LED will flash **Red**.
 - e) When finished press and hold STOP button. Unit will beep and LED turns solid **Yellow**.



Default Supervisor Code: **55150**
or
SCAN Supervisor FOB



Start-Manager Supervisor – Adding New Cards/FOBs

Supervisor Mode - Add New Cards/FOBs:

1. If LED is off, press and hold any key until unit wakes up and LED is turns solid **Yellow**.
 - A. Touch any key, unit beeps (quick) and **Yellow** LED flashes once
 - B. Sequence resets after 5 seconds of inactivity
2. Enter 5-digit supervisor code and press the Enter button (or SCAN Start-Manager Supervisor FOB) to access the supervisor mode. If the code is correct the unit double beeps and flashes **Yellow** continuous
3. Adding a new proximity cards/FOBs
 - a) Press and hold **PASS** button, unit beeps and flashes **Purple**
 - b) SCAN new card/FOB, the unit double beeps and flashes **Green** for 1 sec. when successfully added.
 - c) When unit flashes **Purple** again, repeat steps if required
 - d) If the card/FOB is already entered, the unit will long beep and the LED will flash **Red**.
 - e) When finished press and hold STOP button. Unit will beep and LED turns solid **Yellow**.



Default Supervisor Code: **55150**
or
SCAN Supervisor FOB



Start-Manager Supervisor – Remove Existing Cards/FOBs

Supervisor Mode – REMOVING Existing Cards/FOBs:

1. If LED is off, press and hold any key until unit wakes up and LED is turns solid **Yellow**.
 - A. Touch any key, unit beeps (quick) and **Yellow** LED flashes once
 - B. Sequence resets after 5 seconds of inactivity
2. Enter 5-digit supervisor code and press the Enter button (or SCAN Start-Manager Supervisor FOB) to access the supervisor mode. If the code is correct the unit double beeps and flashes **Yellow** continuous
3. Removing an existing card/FOB
 - a) Press and hold **FAIL** button, unit beeps and flashes **Purple**
 - b) SCAN existing card/FOB, the unit double beeps and flashes **Green** for 1 sec. when successfully removed.
 - c) When unit flashes **Purple** again, repeat steps if required
 - d) If the card/FOB is not entered, the unit will long beep and the LED will flash **Red**.
 - e) When finished press and hold STOP button. Unit will beep and LED turns solid **Yellow**.



Default Supervisor Code: **55150**
or
SCAN Supervisor FOB

