COLLECTIVE INTELLIGENCE GROUP

FLEET iQ360

HARDWARE INSTALLATION GUIDE

(Ver1.2)

This manual is intended to explain in a general fashion, how to set up the system but is not specific to any type or model of vehicle.

NOTE: THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Contents

COMPONENTS

A standard Fleet iQ360 kit consists of the following components:

Main Module

Main Module Harness

Mounting Bracket & Screws

RAM Mount

Expansion Module

Expansion Module Harness

OVERVIEW

The Fleet iQ360 system is designed to capture and report information about the performance of industrial vehicles and drivers to a web-based server.
Dependant on hardware configuration and subscribed features it can provide information on driver management, vehicle and driver performance, pre-operational safety checks, impact sensing, GPS location and report it back to a web-based server via the mobile network for the information of operators and end users.

The two main components of the system are the main module and the expansion module.
These connect to each other with the expansion module harness.

The MAIN MODULE connects to the vehicle and is powered by the vehicle via the main module harness. It contains a 7" Touchscreen LCD for driver access and pre-op questions, an internal EM/HID RFID reader, as well as the smarts of the system including a microprocessor, memory, back up battery and a 4G modem for communicating to the central database.

The EXPANSION MODULE connects to the expansion module harness which in turn connects to the main module harness. This is also powered by the vehicle and contains 2 normally open relays, 4 GPIO inputs and an accelerometer. Multiple expansion modules can be chained together to increase system capacity. The expansion module's green light will flash slowly when powered up.

POSITION OF MAIN MODULE

The main module contains the driver interface and needs to be located within easy reach of the driver. Typical mounting locations would be:

- on the dash panel,
- firewall,
- on the overhead guard pillar.

It mounts to the vehicle using the supplied adjustable RAM mount and must be mounted in a position that does not obstruct the driver's vision, any warning or compliance plates and does not impede the operation of the vehicle.

Using the supplied set of three M4x16 bolts, washers and Nyloc nuts, attach the RAM base to the mounting bracket, then using the set of four M4x12 bolts, flat washers and spring washers, attach the mounting bracket to the rear of the main module.

POSITION OF EXPANSION MODULE

The expansion module contains an integrated accelerometer. To reliably detect impacts it needs to be mounted to the vehicle's chassis, but not in a position that can be kicked or knocked by the operators.

- Use nuts/bolts to secure the module to the vehicle.
- Avoid areas (engine bay) where temperatures will exceed 70°C (160°F)
- Locating close to electric motors, distributor, high tension leads may cause interference to the expansion module.
- Secure the harness as appropriate so as not to create unnecessary stress and away from moving parts such as hydraulic rams.

These positions are a recommendation only and the installer is responsible for the final position of the unit, ensuring that it does not affect the safe operation of the vehicle.

POWER CONNECTIONS

The main module has two power wires:

RED: Connects to a key switched voltage of between 10v and 30v DC.
Over 30v will cause damage to the module.

BLACK: Connects to the vehicle's battery negative.

** Power Converters are required on vehicles over 30v **

INPUTS

The expansion module contains 4 digital inputs. These are used to measure time related events for functions such as seat, engine, traction usage.
The standard configuration is:

Input #	Wire colour	Function
1	White	Hydraulics
2	Blue	Traction
3	Green	spare
4	Orange	Seat

When they detect a voltage, that input is reported as 'ON', eg. Alternator output or traction solenoid. If the seat switch switches between open circuit and negative, a relay may be needed to switch power to the input.

Operating ON voltage range is from 5-55v DC.
Operating OFF voltage is 0v DC.

OUTPUTS

The expansion module contains two normally open relays.

Relay 1 is the driver authorisation relay and will close once an authorised driver has successfully logged onto the system. Relay 1 is the black fig.8 cable on the harness.
Relay 2 is the lockout relay and will close once a driver has logged on and (1) a mandatory pre-op check is not required, and/or (2) an impact or pre-op lockout does not exist. Relay 2 is the brown and grey wires on the harness.

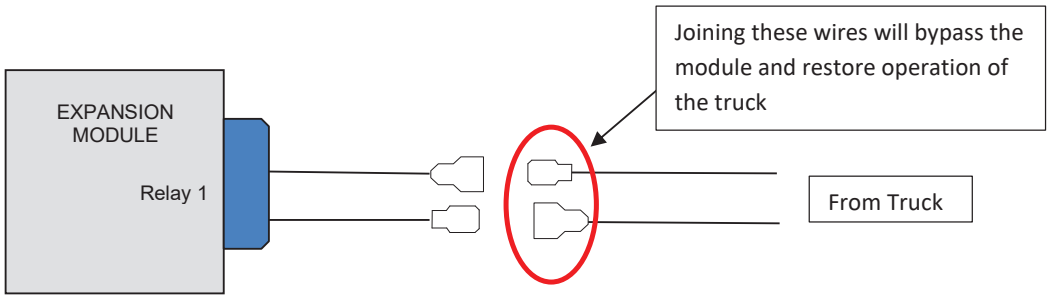
Both relays have a maximum switching current of 3A @ 30v DC

The connections to the vehicle will be dependent on the type and model of vehicle and as recommended by qualified personnel to maintain safe operation of the vehicle. However, as a general guide:

RELAY 1:

IC vehicles – in series with either the seat switch or the low power side of the starter motor (remembering the 3A current limit of the relay)
Electric vehicles – in series with the seat switch.

If the module malfunctions and prevents the driver from logging on, then the system can be bypassed to ensure the vehicle remains operational until the malfunction is rectified. This is done by disconnecting the harness's black fig.8 cable (relay 1) from the vehicle and joining the two connectors on the vehicle as shown below.

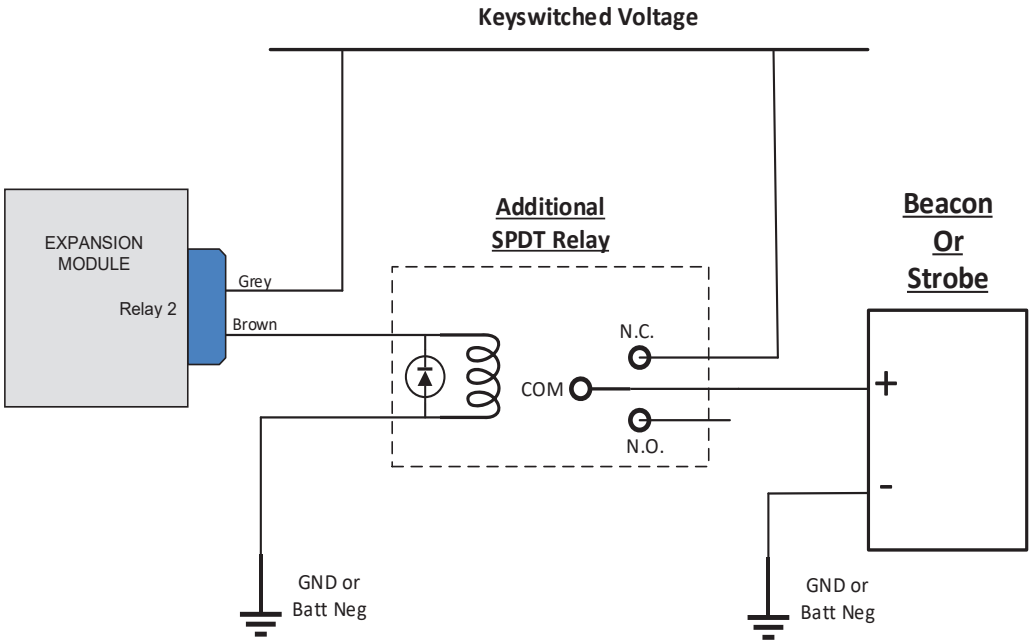


The installer will need to supply and install connectors to suit the vehicle. Spade or bullet connectors are ideal for this connection, with opposite polarity as above.

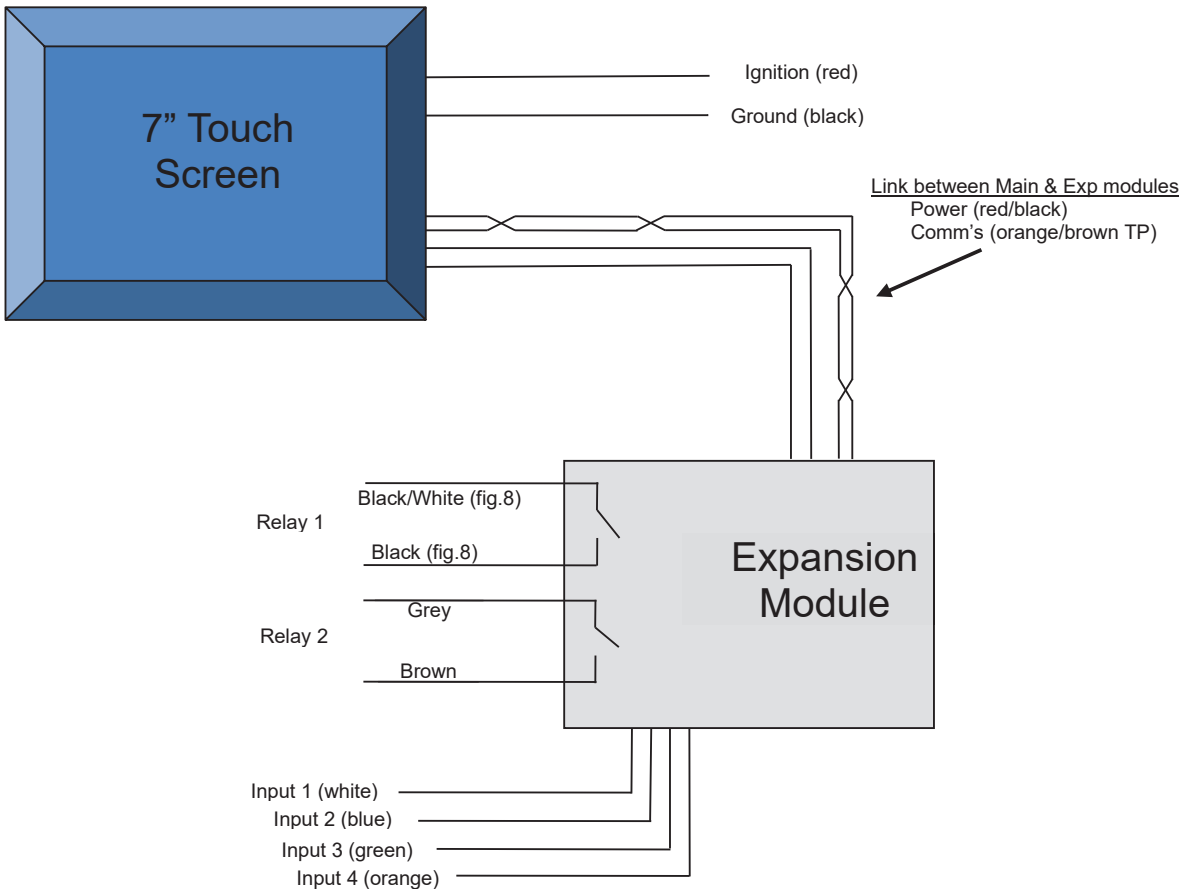
RELAY 2:

This is a Normally Open relay and will be open under the following conditions: before a driver logs on, once a driver has logged on and is required to perform a pre-op check, has failed a pre-op check or when the truck has had a red level impact. Once a driver logs on and there are no outstanding or failed pre-op checks and no red impact, then the relay will be closed.
It is intended to connect to a truck's speed reduction circuit to limit the speed before the driver completes a pre-op check or in the event of a red level impact. It can also connect to a warning device such as a beacon or siren for pre-op/impact notification - in this case an additional relay may be needed to reverse the functionality of the internal SPST relay.
It can switch a ground signal or up to 30vDC @ 3A.
Relay OPEN = alarm condition, ie, slow speed or beacon/strobe operating.
Relay CLOSED = normal operating, ie fast speed or beacon/strobe is off.

The below circuit can be used to trigger the operation of a beacon or strobe and shows how to connect an additional relay to operate the device when the internal relay is open.



BLOCK DIAGRAM



*** Power Converters required on vehicles over 48v**

DIAGNOSTICS

EXPANSION LED	STATUS	CONDITION	ACTION
GREEN	Flashing	Module operating normally	None required
GREEN	On Steady	Module is locked up	Reboot module
GREEN	Off	Module is off	Check power to Expansion module (red and black wires from main module should have 12v.)

ELECTRICAL SPECIFICATIONS

MAIN MODULE:

Operating Voltage:	10-30 volts DC
Operating Current:	< 1.2A @ 12v DC

EXPANSION MODULE:

Operating Voltage:	10-30 volts DC (if not connected to main module pwr)
Operating Current:	< 0.1A @ 12v DC (both relays closed)
Relay Outputs:	Max. switched current=3A @ 30v DC
Digital Inputs:	Max. voltage = 50v DC