SATLOC®

# IntelliFlow 2™

## LIQUID INSTALLATION GUIDE

875-0387-100 Rev B

**Overview:** This installation guide lists all the parts in the IntelliFlow 2 (IF2) liquid kits and provides instructions on how to install the IF2 components, associated cables, and switches.

Read this manual thoroughly before beginning the installation.
If you have any questions, contact your local dealer or Satloc Customer Service.


# PRODUCT DESCRIPTION AND DETAILS

With the IntelliFlow 2™ (IF2) control system on board, the installed GPS, working with IF2, automatically controls aerial spray rates. This produces an accurate constant flow rate or a variable rate based on prescription maps (PMAPs) and/or 3rd party software. The required flow rates can be pilot selected, or PMAPs can be created using Satloc MapStar® desktop software.

Enter desired rates through the GPS interface, and the IF2 system will regulate and maintain selected rates. Once installed, the Satloc Falcon™, Satloc Falcon Pro™, G4™, or Bantam™ GPS controls the IntelliFlow 2 system settings. Spray rates are automatically controlled with an accurate constant flow rate or a variable rate based on application selections or prescription maps (PMAPs) in the GPS system. Fine-tune applications through the rate bump feature for more precise applications.

Satloc Falcon Pro and Satloc G4 will switch between liquid and dry settings with ease. Control your Transland Hydraulic 5", 7.5", or 10" gate system inside the Satloc Falcon Pro or G4 and IntelliFlow 2 connections. The IntelliFlow 2 control system comes with a controller, associated cabling, and required unlocks. Liquid kits include a valve with a motor and a meter with a magnetic sensor.

**Features:**

- *Liquid and Dry control options*
- *Regulate and maintain selected rates*
- *Flow control options in 0.5", 1", 1.5", 2", and 3" versions*
- *Fine tune application with rate bump*
- *Display pressure on screen and lightbar with optional transducer*

**Liquid Applications Include:**

- *Aerial agricultural crop applications*
- *Forestry applications*
- *Demanding eradication suppression spray program*

**This system sprays precise patterns using constant rate flow control, thereby reducing:**

- *Fuel*
- *Flying time*
- *Application costs*
- *Pilot fatigue*

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**Latest Version of the IntelliFlow 2 Liquid Installation Guide**

Satloc is dedicated to providing updated versions of installation guidebooks for its customers. Scan the QR code to verify you have the latest version of the IntelliFlow 2 Liquid Installation Guide or click this link to ensure this is the newest version https://satloc.com/products/intelliflow-2/. Then, scroll down to the "Documentation" section.



# SAFETY INFORMATION

## Read and Follow Safety Messages

- In these instructions, you may see the heading **⚠WARNING:** and/or the safety alert symbol ⚠. They indicate a hazardous situation that, if not avoided, could result in death or serious injury. The safety messages provide information to identify a hazard associated with potential injury.
- Read and understand this manual and all the warnings below before installing, operating, or performing maintenance or service. FAILURE TO DO SO MAY CAUSE IRREVERSIBLE DAMAGE TO YOUR SYSTEM.
- Keep this manual and all related safety information with the manuals for your aircraft.

**⚠WARNING:** Plan your installation by considering the following:
- Cable lengths
- Clearance space
- Power source
- Aircraft structure
- Visibility

**⚠WARNING:** Consider using existing hardware and hardware locations. Avoid drilling holes that may damage other equipment (such as structural frame members, electrical cables, or fluid lines).

**⚠WARNING:** Do not obstruct the view of, or access to, other instruments or the flying visibility of the operator.

**⚠WARNING:** Do not allow anyone to operate without instruction.

**⚠WARNING:** For trouble-free operation and maintenance of your IF2 system, adhere to the following recommendations.
- Avoid using IF2 in extreme environmental conditions (40-140°F is recommended operating temperature range).
- Wash the hopper/boom system thoroughly and methodically after spray sessions to avoid gumming up the flow meter unit.

# PARTS COVERED BY THIS INSTALLATION GUIDE

This guide is applicable to all IntelliFlow 2 liquid installations for Falcon, Falcon Pro, G4, and Bantam systems and covers all IntelliFlow 3 kits. **Each table describes the parts that may be included in your installation.**

## Table 1: Flow Meters (Reference letter Ⓐ is for all flow meters)

| | | | | |
|---|---|---|---|---|
| 750-0046-000  0.5”x1”x1”, NPTM | 750-0122-000  1”x1”x1”, NPTM | 750-0091-222  1.5”x2”x 2”, Barbed | 752-0010-01  1.5”x1.5”x1.5”, NPTM | 752-0015-01  1.5”x2”x2”, NPTM |
| 752-0011-01  2”x2”x2”, NPTM | 752-0012-01  3”x3”x3”, Flange | | | |

## Table 2: Valve/Motor (Reference letter Ⓑ is for all valve/motor assemblies)

| | | | | |
|---|---|---|---|---|
| 806-1050-000  1”x1”x1”, NPTF | 806-1025-000  1.5”x2”x2”, Barbed | 806-1033-000  1.5”x1.5”x1.5”, Barbed | 806-1049-000  2”x2”x2”, NPTF | 806-1022-000  2”x3”x 3”, Barbed |
| 806-1090-000  3”x3”x 3”, Flange | | | | |

# Table 3: IntelliFlow 2 Liquid Installation Parts

**C** 051-0404-000

G4 CAN Cable
(1) (red cable)

Connects part I's TERMINAL cable to G4's FLOW port

**D** 051-0403-000

Bantam Serial Cable
(1) (red cable)
Connects part I's TERMINAL cable to Bantam's FLOW port

**E** 054-0101-000

IF2 Power Cable

(1) (black and white cable)
Connects part I's POWER cable to aircraft power source, see item K

**F** 054-0111-222

IF2 Motor Cable
(1) (red cable)

Connects part I's REG VALVE cable to valve/motor part B

**G** 051-0173-000

Pre-amp Sensor Extension Cable
(1) (white cable)

Connects part I's FLOW METER cable to part N

**H** 051-0405-000

Trim Pressure Switch Cable
(1) (red cable)

Connects part I's TRIM/PRESSURE cable to pressure switch part J and optional pressure transducer part S

**I** 054-0225-000

Main Harness Cable
(1) (red cable with 10 extensions)
Connects to IF2 controller part O

**J** 075-0035-222

Boom Pressure Switch
(1)
Detects boom pressure

**K** 424-0004-222

Power Switch/Circuit Breaker
(1, 10A)

Use with cable E, wire in with aircraft power

**L** 750-0110-03 (1")
or
750-0109-03 (2")
or
750-0107-03 (3")

Aviation Hose
( 1x19.75 of 1", 2" or 3")

Use between spray valve and meter; meter and valve; valve and boom. Attach with part M.

**M** 682-1053-222 (2.25")
or
682-1054-222 (2.75")
or
682-1056-222 (3.75")

Hose Clamp
(4 of 2.25", 2.75", or 3.75")
Attach to Hose L

**N** 121-0004-000

3-Pin Flowmeter Sensor
(1)

Magnetic pick-up sensor to use with flow meter part A

**O** 800-0004-01

IF2 Controller
(1)
Liquid and Dry Controller

**P** Kit #711-0001-01

Bolt, 1/4" (2)
Washer, 1/4", locking (2)
Washer, 1/4" plain, flat (4)
Nut, 1/4", locking (2)

Use items as required for your specific installation

**Q** Kit #711-0001-01


IF System Control Label
(2)

Use with switch on part F

**R** Kit #711-0001-01

Terminal Ring
(2)

**S** 121-0032-01

Pressure Transducer
(Optional, not included in kits)

If used, connect to cable H. Can set data panel or lightbar to display the pressure reading (option is 'Primary Boom PSI').

**T** 602-1142-000

Legacy IntelliFlow to IntelliFlow2 Adapter Plate
(1)
*Included in the upgrade kits

**U** 050-2207-000

Falcon, Extension Cable
(1) (red cable)

Connects part I's TERMINAL cable to one of Falcon/Falcon Pro's extension ports

# INSTALLING INTELLIFLOW 2

## New Controller Installation

Mount the controller in an available space on the aircraft, for example, in or around the baggage compartment. Ensure there is enough space for making connections. Access is needed behind the mounting surface to attach the nuts to the bolts (part P). When you have selected the mounting location, use the controller as a template to mark fastener positions. Drill 1/4" holes for the fasteners and secure the controller (part O) to the aircraft using hardware (part P).

## Replacing an Installed Legacy IntelliFlow

If you are replacing an installed Legacy IntelliFlow, and have adapter plate (part T), mount the IF2 controller (part O) on the adapter plate using hardware (part P) and mount the adapter plate to the aircraft using the existing Legacy IntelliFlow fasteners.

## Cables and Connections for IF2 Liquid Install

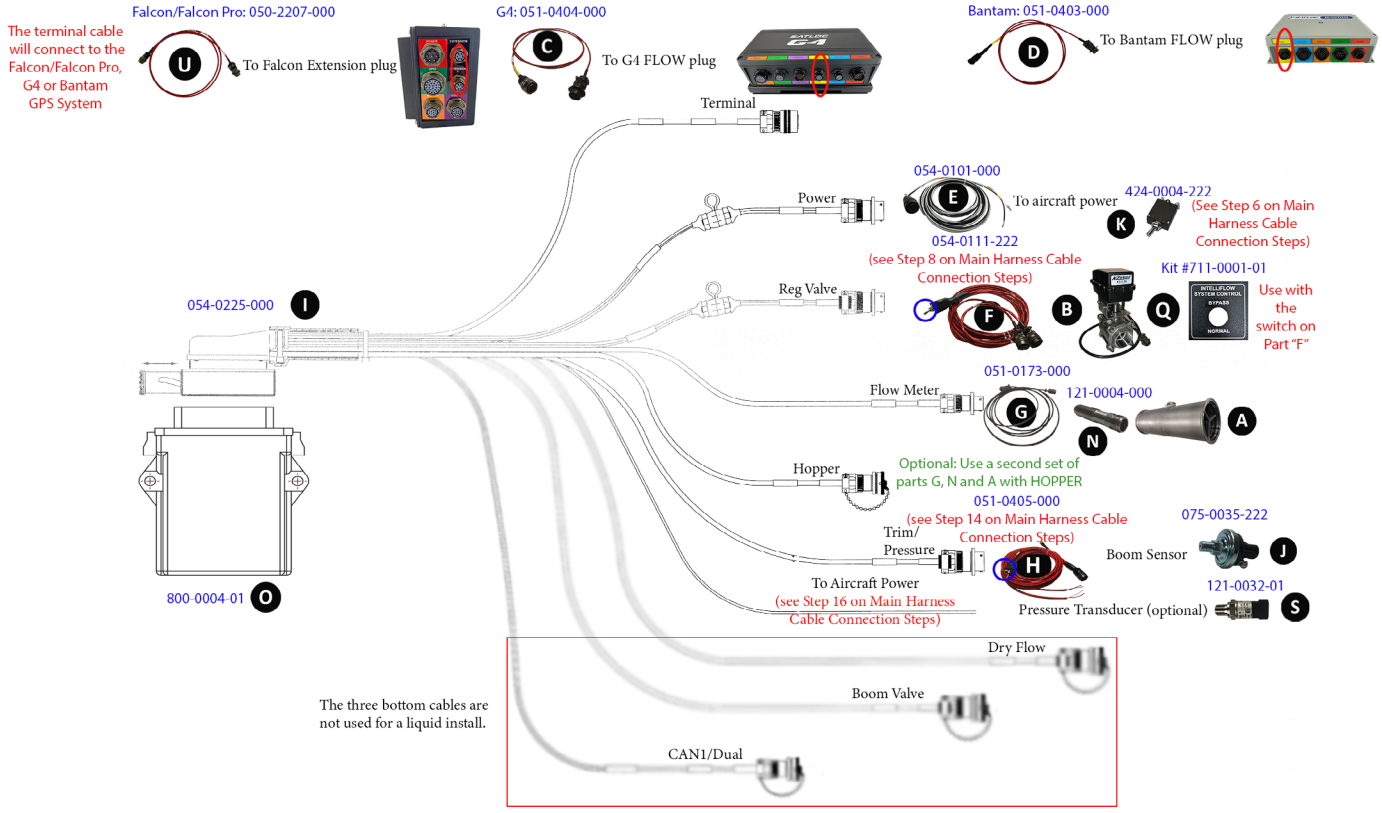


*Figure 1: Display of How to Connect Cables and Parts for an IntelliFlow 2 Liquid Install*

**⚠WARNING:**

- Store excess cable lengths with a minimum six-inch bend radius.
- Do not coil cables (introduces noise).
- Avoid high-temperature exposure (for example - the exhaust, exhaust manifold) when routing.
- Hand tighten connections only; do not use tools (overtighten).

## Main Harness Cable Connection Steps

1. Pull the red sliding lock on part I's interface and connect it to part O.
2. Push the red sliding lock until it snaps back into place.
3. Connect part I's TERMINAL cable to part C, part D, or part U (depending upon the use of a G4, Bantam, Falcon/ Falcon Pro GPS).
4. Connect cable C or D to the respective G4's or Bantam's FLOW port or part U to one of Falcon/Falcon Pro's extension ports.
5. Connect part I's POWER cable to part E.
6. With part E and part K, ensure part K is a) wired into the aircraft's power supply and b) cockpit-mounted within easy reach of the pilot. *(Install per pilot's preference.)*
7. Connect part I's REG VALVE cable to part F.
8. Ensure the bypass switch on part F (circled in blue) is cockpit-mounted within easy reach of the pilot. *(Install per pilot's preference.)* Use part Q with part F's switch.
9. Connect part F to part B.
10. Connect part I's FLOWMETER cable to part G.
11. Securely connect part N to part A.
12. Connect part G to part N.
13. Connect part I's TRIM/PRESSURE cable to part H.
14. Ensure the trim bump switch on part H (circled in blue) is cockpit-mounted within easy reach of the pilot. *(Install per pilot's preference.)*
15. Connect part H's BOOM SENSOR cable to part J.
16. Connect the single red ignition wire of part I to +24VDC at part K, for fused protection.

# FLOW METER AND VALVE INSTALLATION

Install the flow meter and valve/motor assembly in the aircraft's existing boom supply tube. Figure 2 shows the recommended configuration of IntelliFlow 2's flow meter and valve/motor assembly. If you cannot install the flow meter and valve/motor vertically (as shown) because of the physical limitations of the aircraft, you may vary the rotational position of either as required.

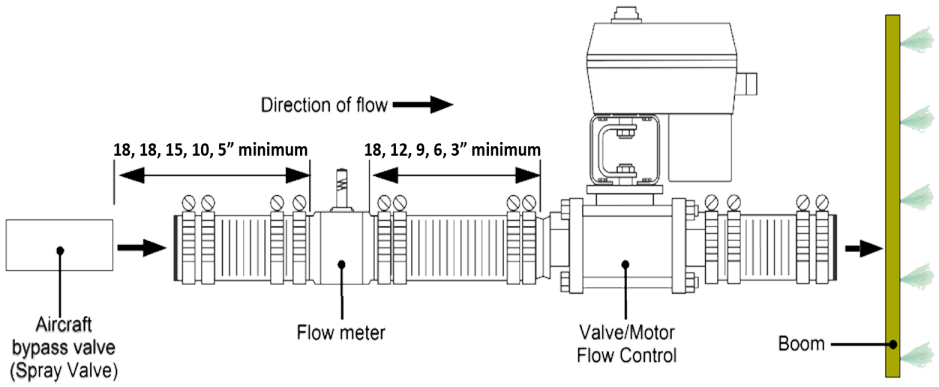


*Figure 2: Recommended Configuration of Flow Meter and Valve/Motor Assembly*

The flow meter must be installed before the valve/motor assembly to avoid excessive turbulence. To minimize the turbulence around the flow meter, cut the hoses (at step 1 below) to maintain the following minimum hose-length to diameter ratios (i.e., 10:1 or 6:1).

The length between the bypass valve and the flowmeter is the **most critical**; this section should be as long and straight as possible, exceeding the minimums below when possible. However, it is acknowledged that the recommended minimum distances are very often not possible. In such cases, install the meter and valve as far apart as possible.

## Table 4: Minimum Hose Length Between Components

**⚠WARNING:**

| Flow Meter Size | Distance Between Spray Valve and Flow Meter | Distance Between Flow Meter and Flow Control Motor |
|---|---|---|
| 3” | 10:1 Recommended Min – ≥ 30”<br>Due to aircraft limitations 18” is acceptable absolute minimum | 6:1 Recommended Min – ≥ 18” |
| 2” | 10:1 Recommended Min – ≥ 20”<br>Due to aircraft limitations 18” is acceptable absolute minimum | 6:1 Recommended Min – ≥ 12” |
| 1.5” | 10:1 Recommended Min – ≥ 15” | 6:1 Recommended Min – ≥ 9” |
| 1” | 10:1 Recommended Min – ≥ 10” | 6:1 Recommended Min – ≥ 6” |
| .5” | 10: 1 Recommended Min – ≥ 5” | 6:1 Recommended Min – ≥ 3” |

To install the flow meter and valve/motor:

1. Measure and cut hoses to connect (see warning above):
   - Spray valve to the flow meter
   - Flow meter to the valve/motor assembly
   - Valve/motor assembly to the boom
2. Secure the hoses using two clamps at each connection. This now constitutes the ‘IntelliFlow2 assembly’.
3. Attach the IntelliFlow 2 assembly to the boom supply plumbing.
4. Install one or two support fittings from supporting structures of the belly skin of the aircraft close to the valve and flow meter.

**⚠WARNING:** Do not connect support fittings directly to the flowmeter or valve/motor. Use stainless wrap-around straps and supports.

# Technical Support

**To find an authorized dealer near you, visit www.satloc.com.**

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