

Installation Instructions

IntelliFlex™ IR Remote Control by Draper

Caution:

- ① The IR Receiver Eye must connect to an "Eye" Jack on an SC1 or Splitter. If it connects to a Splitter, then the Main Jack of the Splitter must connect to the "Eye" Jack of an SC1.
- ② Main Jack on splitters connects to Eye Jack on SC1.
- ③ Any Aux Jack can be connected to any Aux or Eye Jack.
- ④ Never connect any two Eye Jacks together.
- ⑤ For IR commands to work, or for remote programming, there must be at least one Eye connected to one of the Eye Jacks.

Installing the IR Eye

The IR Eye must connect to an Eye Jack on an SC1 (see Fig. 1) or Splitter. If the eye connects to a Splitter, then the Main Jack of the Splitter must connect to the Eye Jack of an SC1. The IR Eye is line-of-sight: It must be visible to "see" the infrared signal from the transmitter.

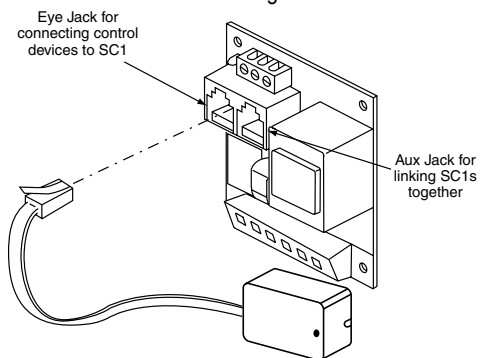


Figure 1

IR Eye in plastic box shown. IR Eye with length of modular cable is also available (see page 2), and plugs into the SC1 or other Bus control in the same fashion.

The combined length of ALL cables in the system (Eye to SC1, plus SC1 to SC1, plus Splitter to SC1, plus Eye to Splitter, plus Splitter to Splitter) can be up to 100 feet per SC1 without problems. The Repeater/Timer Interface with built-in IR filter (Part # C072.026) can be used if additional length is needed. Contact Draper for further information.

If the cable length is too long, some units may operate sporadically where the motor pulses on and off. Some units may not operate at all, or may operate intermittently.

Similar symptoms can come from interference in the room. Sunlight is a very strong infrared source. Try to place the sensor out of direct or bright reflected sunlight. The Repeater/Timer Interface with built-in IR filter (Part # C072.026) can be used to help solve this problem.

Sunlight will also reduce your effective range. Expected line-of-sight range with no interference is at least 50 feet, usually as much as 100 feet. Electronically ballasted fluorescent lighting and Halogen lights can cause similar trouble.

None of the wires associated with the IR sensor should be run next to power lines. And all wires should be kept at least 18" away if run parallel to a power line. If they must go near power lines, they should cross at a right angle. They may need to be shielded if running near very noisy power lines.

One eye can be connected to multiple boards by "daisy-chaining" SC1s together, or using a Splitter. Never use a standard telephone splitter for this connection. Larger splitters are available—contact Draper for more information. All connections are made with standard "telephone" type cord, but connectors are "flipped" so a standard phone cable will not work. See "A Note on Wiring" on page 2. The installer will need a 6P4C telephone plug crimping tool, with 6P4C plugs, and silver satin 4 conductor phone wire (all are available from Draper). 6P6C plugs will also work, as will 6 conductor wire with these plugs.

When connected together, all receivers must be powered for any of them to work. Any unit that is not powered will "short out" the IR signal. Manual

inputs will work but the IR will not.

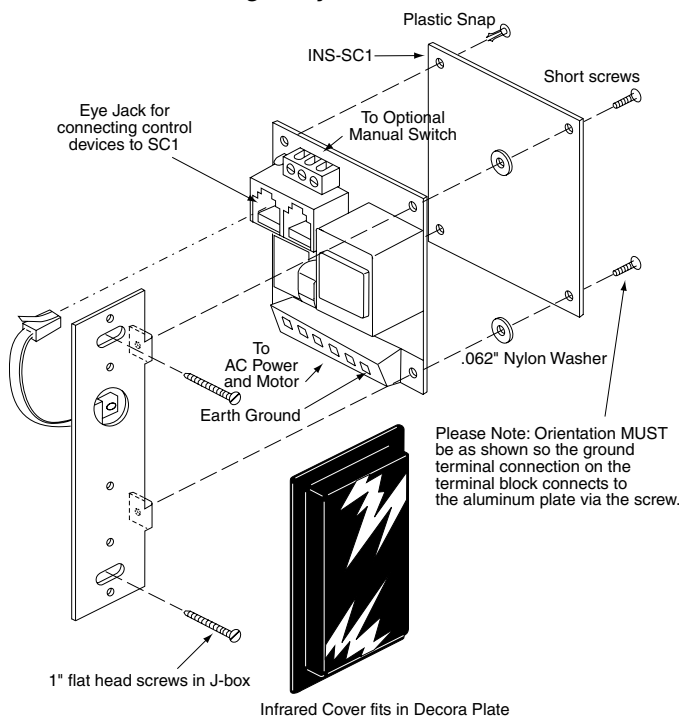
If a splitter is not available, the wiring can be done manually. Assuming the yellow wire is on the right of the plug with the cable toward you and the "flipper" away from you (this is how all SC1s are wired), then:

- ① The black wire is common or "ground" (not AC or earth ground) which is the same as the common pin on the 3 wide screw terminal for manual switch. Connect all black wires together.
- ② The yellow wire (sometimes white) is the demodulated IR signal. This line is normally about 5 volts (pulled high by a resistor on the SC1). Connect all these wires together.
- ③ The red wire is 5 Volt power. Do not connect 5 volt lines of multiple receivers together. Connect the red wire from any one receiver to the red wire from the eye or the accessory unit.
- ④ All green wires are unused and should be cut off and isolated from each other.
- ⑤ Make sure that none of the wires "flip"—i.e., yellow is always on the right. Multiple eyes allow operation from more than 1 room, or to cover the room more completely.

Operation from multiple rooms can also be done using standard IR repeater systems, such as X-10 Powermid® or products from Xantech. Radio repeaters such as a remote extender or Leapfrog® can also be used.

When using a Xantech IR repeater system, do not attempt to run the signal directly from the connecting block into the SC1. Simply place an emitter near one of the IR Eyes.

Installing IR Eye and SC1 into JBox



Please Note: Orientation MUST be as shown so the ground terminal connection on the terminal block connects to the aluminum plate via the screw.

Please see page 2 for more installation information and IR codes.

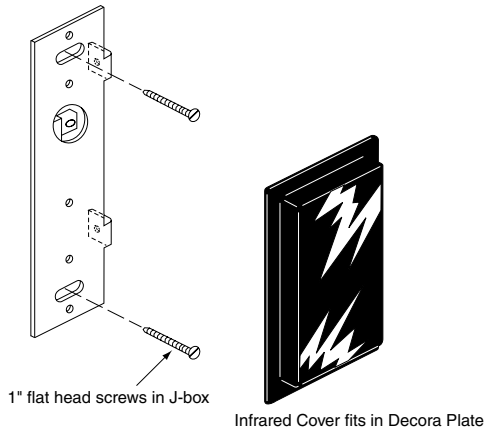
Powermid™ is a registered trademark of X-10.
Leapfrog® is a registered trademark of Terk Technologies Corporation.

Please Note:

Draper recommends using a PDA or PC to program your IntelliFlex controls. Software is available at www.draperinc.com. For button press sequences to manually program, see "SC1 Quick Reference Guide" at www.draperinc.com

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Installing IR Eye Only into J-Box



IR Codes

IR wavelength is 950 nm. Light is modulated at 38 KHz with 1/3 duty cycle.

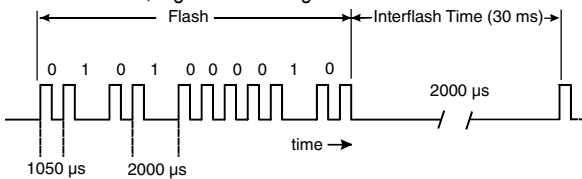
An on pulse must be at least 158 μseconds (μs) long (6 cycles) and should not be longer than 448 μs (17 cycles).

From the start of a pulse till the start of the next pulse is 1050 μs for a "0", and 2000 μs for a "1 bit".

A Flash is 11 pulses (10 bits), minimum time between flashes (interflash time) is 11 mseconds (ms). When using the small eye the minimum interflash time is 25 ms, 30 ms is recommended. There is NO preamble.

Channel 1 OPEN sequence is 0101000010. The sequence always starts with 01, so for simplicity strip that off, and we get 0100 0010 = hex 42 (see figure below).

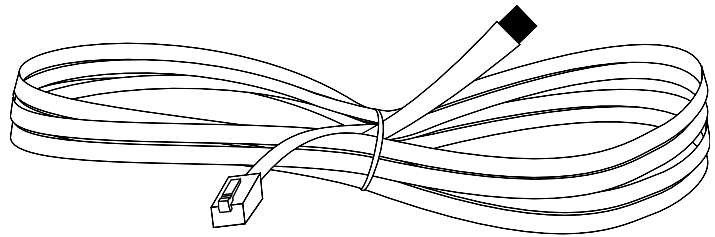
Please Note: low = off, high =38 KHz signal on.



The complete table of codes (in hex) is:

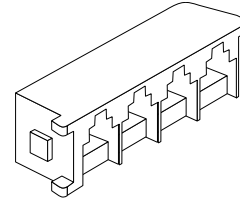
OPEN1	42	OPEN13	40
CLOSE1	22	CLOSE13	20
OPEN2	62	OPEN14	60
CLOSE2	12	CLOSE14	10
OPEN3	32	OPEN15	30
CLOSE3	0a	CLOSE15	08
OPEN4	4a	OPEN16	48
CLOSE4	2a	CLOSE16	28
OPEN5	1a	OPEN17	18
CLOSE5	06	CLOSE17	04
OPEN6	46	OPEN18	44
CLOSE6	26	CLOSE18	24
OPEN7	16	OPEN19	14
CLOSE7	0e	CLOSE19	0c
OPEN8	56	OPEN20	54
CLOSE8	36	CLOSE20	34
OPEN9	4e	OPEN21	4c
CLOSE9	2e	CLOSE21	2c
OPEN10	5a	OPEN22	58
CLOSE10	3a	CLOSE22	38
OPEN11	02	OPEN23	1c
CLOSE11	72	CLOSE23	70
OPEN12	6a	OPEN24	68
CLOSE12	66	CLOSE24	64
OPEN ALL (1-12)	76	OPEN ALL (13-24)	74
CLOSE ALL (1-12)	6e	CLOSE ALL (13-24)	6c
STOP	52		

IR Eye Only

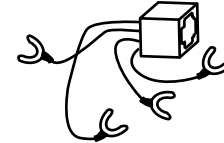


Optional Cable Accessories

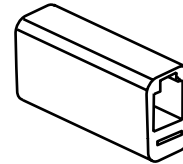
Splitter



Modular Jack Adapter



Modular Cable Coupler



A Note on Wiring

The IR Receiver Eye must be plugged in to an open "Eye" jack (see diagram on page 1). All input devices connect using **electrically straight** 4-conductor modular cable.

Please note: If you use standard telephone cable, you must first remove one connector, turn it over and re-attach, to ensure that the cable is electrically straight (see diagram below).



Please Note:

Draper recommends using a PDA or PC to program your IntelliFlex controls. Software is available at www.draperinc.com. For button press sequences to manually program, see "SC1 Quick Reference Guide" at www.draperinc.com