Designed and Engineered in the USA by:

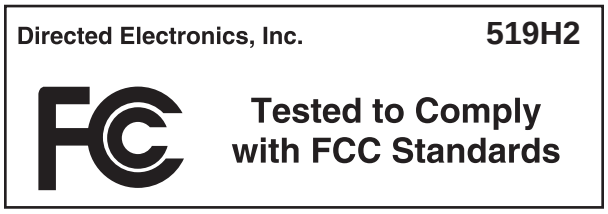
Directed ELECTRONICS

Garage Door Interface & Channel Expander – Model 519H2

FCC/ID Notice

This device complies with Part 15 of FCC rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may casue undesired operation.

> ***IMPORTANT!*** *Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this device.*



What is Included

The following is included with your purchase:

- Control Module
- Double Row 14-pin main harness
- A/C power adapter
- Program switch with attached harness
- 548T-transceiver included (see table below for transceivers to be used with transmitters)
- 4-pin transceiver cable
- 2-pin harness for closed loop sensor

  Note: *2-pin harness only applicable for garage door interface.*
- 1-magnetic reed switch

Compatible Transmitters & Receivers

The following table lists the compatible transmitters and transceivers which can be used with the 519H2.

Transmitters	Transceiver Required
474/7141 series	543T, 543X, 543H, 543R
7641 series	6601T
7701 series	6701T
479 series	546T
488 series	548T
489 series	548T

Garage Door Interface

The following section includes instructions on the installation and use of this product to remotely open/close a garage door(s).

Note: *The garage door must have an installed and functionally operating automatic opener.*

Before Installation

Before installing your 519H2 you must determine the type of control your garage door opener uses. Most current garage door openers use a normally open switch that makes contact when pressed to open or close the door. Some garage door openers use a normally closed switch. To determine which type of opener you have, use the following procedure:

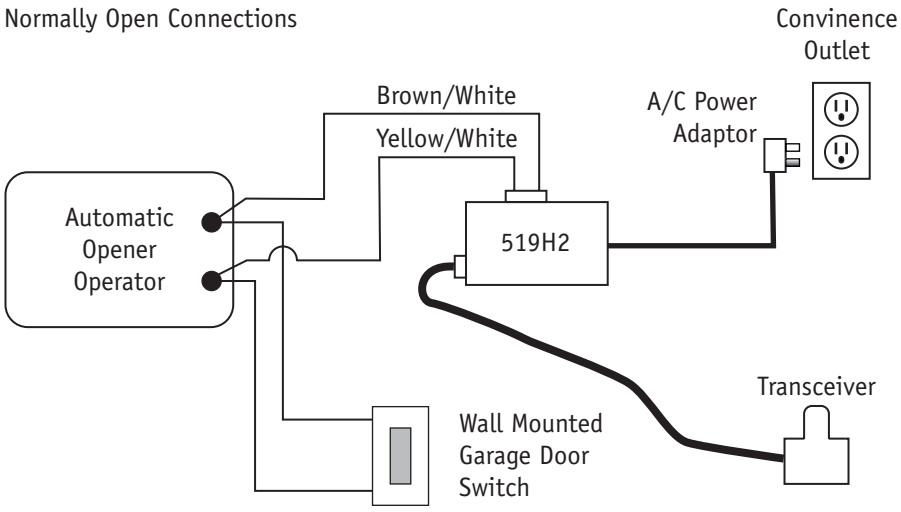
At the switch (usually mounted on the wall) or the at the opener (usually mounted on the ceiling), disconnect the two wires from the switch. Using a digital multimeter set on continuity, attach the leads from the meter to the switch side of the disconnected wires.

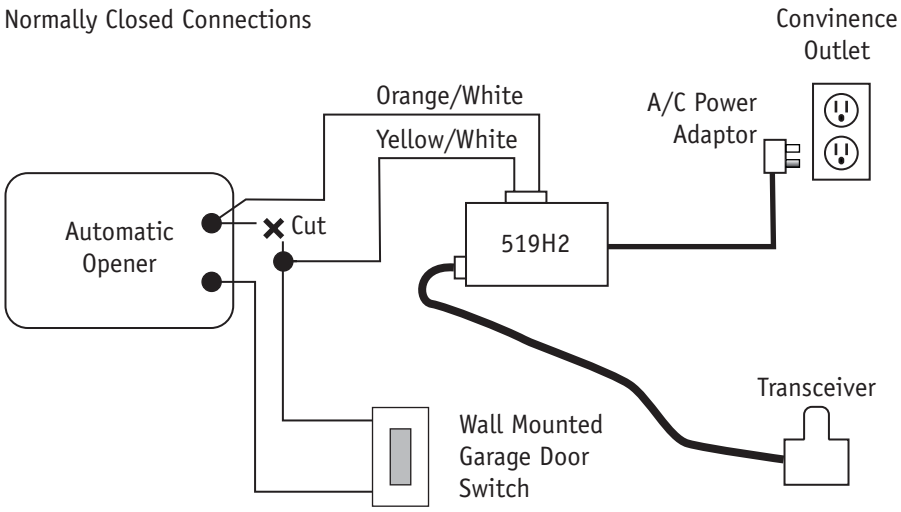
- If you have continuity without pressing the switch and you lose continuity when you press the switch, you have a normally **closed** system.
- If you have no continuity without pressing the switch and you have continuity when you press the switch, you have a normally **open** system.

Installation

The 519H2 requires a 120VAC plug within a short distance of the module. Most automatic gargage door openers have a convenience outlet near the garage door opener. This is the recommended place to mount and connect your 519H2. The two diagrams below show the normally open wiring connections 519H2 and the normally closed wiring connections for the 519H2. Use the diagram that applies for your garage door opener.

Note: *Ensure that the wiring and antenna connections are kept clear of any moving mechanical parts of your garage door opener to prevent damage to the opener and the 519H2.*





Programming

Before proceding with programming, check and ensure that the 4-pin cable is plugged into the Blue port of the 519H2, and the proper receiver is connected to the other end of the cable.

1. Press and hold the program button for 15-seconds or until the LED on the 519H2 flashes twice.

   Note: *Ignore the signel flash of the LED that occurs approximately 5-seconds after the program button is pressed.*

2. Release the Program button.
3. Press and release program button once and hold on the second press. (do NOT release until told to

below).

4. The LED on the 516H2 will flash once.
5. Press the button or buttons on the remote you wish to use to control the 519H2.
6. The LED will illuminate steady for 3-seonds.
7. Repeat step 5 for each additional remote you wish to program (maximum of 4 remotes).
8. Release the Program button.
9. Wait 15-seconds and then test to verify that each programmed remote operates the garage door.

Closed Loop Sensor

A sensor can be added to the garage door. This sensor will tell the 519H2 that the door is in the full closed position. This is very useful with use of 2-way remotes that have a garage door icon on the display screen. Now with a glance of your remote you can confirm if your garage door is open or closed.

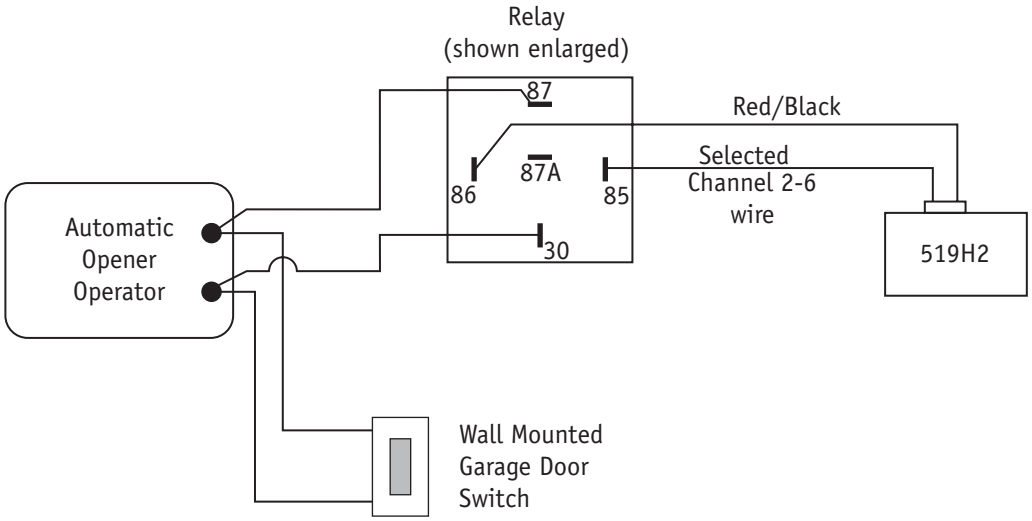
Garage Door Venting

Using channels 2-6 of the 519H2 you can automatically vent your garage door when that channel is activated. That is the garage door will open for the programmed time. The factory default for the venting duration is approximately 1-second. The button on the remote may be pressed multiple times to acheive the venting desired. The 519H2 can also be programmed in 1-90 second intervals using Directed's Bitwriter® or Pocketwriter®.

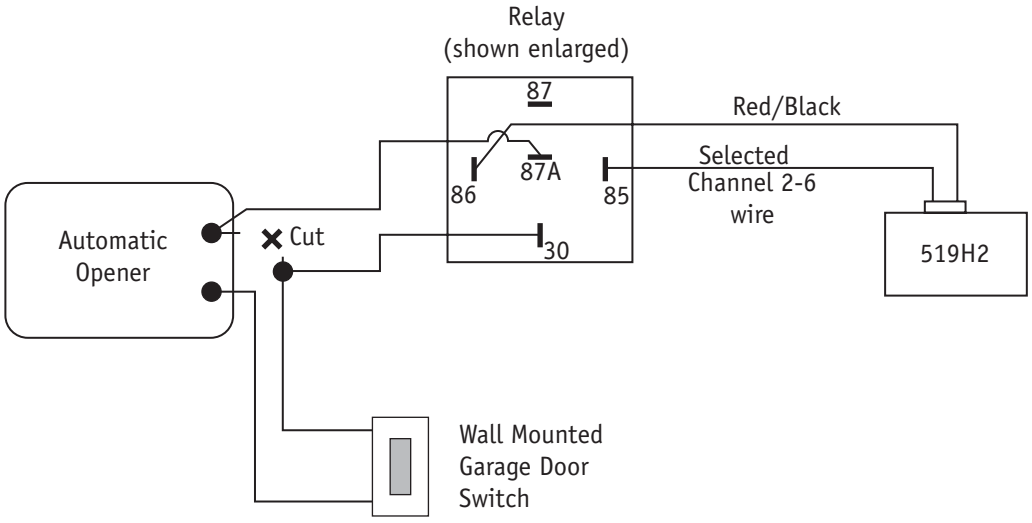
> ***Note:*** *This feature will require the use of an additional relay. This relay may be purchased at any automotive store, your local Directed retailer, or on-line at www.directedstore.com. Use Key Search* ***610T****.*

The two diagrams (normally open and normally closed) below show the wiring for the addition of this relay

Relay Wiring Normally Open Connections



Relay Wiring Normally Closed Connections



Garage Door Venting Remote Programming

1. Press and hold the Program button for 15-seconds. The LED on the 519H2 will flash twice.

   Note: *Ignore the signle flash of the LED that occurs approximately 5-seconds after the program button is pressed.*

2. Release the Program button.
3. Select the desired channel — Refer to Channel wiring table below. Press and release the Program button equal to the number of the selected channel.

   For example: To access Channel 4, press and release the Program button 4 times, and then hold on the 5th press.

4. The LED will flash the number of times corresponding to the channel selected.
5. While holding the program button press the remote button or buttons you wish to use to control that channel.

   Note: *This must be different button(s) than those used for primary open/close control.*

6. Program mode will be exited after the Program button has been released for 15-seconds.

Channel #	Wire Color
1	Orange/White (onboard relay output)
2	Red/White
3	White/Blue
4	Violet/Black
5	Grey/Black
6	White/Black

Vent Programming

For ease of programming it is highly recommended that a Bitwriter® (version 2.4) or a Pocket PC® be used. Some features can only be accessed with these tools.

To program manually:

1. Ensure that the unit is powered up.
2. Hold the Program button until the LED flashes 3 times (approximately 25-seconds).
3. Release the Program button.
4. Press and release the Program button the number of times equal to the channel you wish to access.
5. Hold the Program button.
   For example: To access Channel 5, press and release the Program button 5 times, and then hold on the 6th press.
6. The LED will flash the number of times equal to the channel selected.
7. Tap the Grey (activation input wire) to the Black (chassis ground) wire until the LED flashes 5 times. If you accidently pass the 5 flashes, it will start over at one flash and you may proceed back to the 5 flash setting.
8. To exit programming, release the Program button and wait 15-seconds.

Door Open Reminder

On 2-way remotes equipped with the garage door icon, a reminder can be programmed on which will beep the 2-way remote after the garage door has been open for 15 minutes. The default setting is OFF. Using a Directed Bitwriter® orPocketwriter®, this notification, when set ON can be set from 1 to 90 minutes.

Note: *For the Door Open Reminder to function, the closed loop sensor must be installed.*

Passive Close

This feature will automatically close the garage door after 60 minutes. The default setting is OFF. Using a Directed Bitwriter® orPocketwriter®, this feature can be programmed from 5 to 90 minutes.

Note: *For the Passive Close feature to function, the closed loop sensor must be installed.*

Feature Bypass

To bypass the Passive Close and the Door Open Reminder, press and hold the Program button on the 519H2 for 5-seconds. The LED on the 519H2 will flash once. The Feature Bypass will remain active for 8-hours or until you open and close the garage door.

Programming Door Open Reminder

1. Press and hold the Program button until the LED flashes 3 times (approximately 25-seconds).
2. Release the Program button.
3. Press the Program button 8 times and hold on the 9th press. The LED will flash 8 times.
4. Tap the Grey activation input wire to the Black chassis ground wire once. The LED on the 519H2 will flash twice to indicate the feature has been turned ON.
5. Release the Program button. The 519H2 will exit programming in 15-seconds.

Programming Passive Close

1. Press and hold the Program button until the LED flashes 3 times (approximately 25-seconds).
2. Release the Program button.
3. Press the Program button 7 times and hold on the 8th press. The LED will flash 7 times.
4. Tap the Grey activation input wire to the Black chassis ground wire once. The LED on the 519H2 will flash twice to indicate the feature has been turned ON.
5. Release the Program button. The 519H2 will exit programming in 15-seconds.

Slave 6-Channel Expander

Your 519H2 can be used to add 6 additional channels to an existing aftermarket keyless entry or alarm system. The master system must have 1 available (-) output. This output must be instant (the output present as soon as you press the remote's button) and must be repeatable up to 6 times.

Connections—Main Wire Harness Chart

Pin	Wire Function	Color
H1/1	12V main power input	Red (10A fused)
H1/2	(+) 12V output to power external relays with the highest possible output per circuit design	Red/Black
H1/3	Chassis ground	Black
H1/4	(+) 12V Ignition Input	Yellow
H1/5	Auxilary Channel 6 output (-200mA)	White/Black
H1/6	Auxilary Channel 3 output (-200mA)	White/Blue
H1/7	Auxilary Channel 4 output (-200mA)	Violet/Black
H1/8	On-board relay pole #30 (Channel 1)	Yellow/White
H1/9	On-board relay pole #87A (Channel 1)	Orange/White
H1/10	On-board relay pole #87 (Channel 1)	Brown/White
H1/11	(-) input to activate channel outputs	Grey
H1/12	(-) Siren Output (200mA) *NOTE	Brown
H1/13	Auxiliary Channel 5 Output (-200mA)	Grey/Black
H1/14	Auxiliary Channel 2 Output (-200mA)	Red/White

***Note:** The siren will chirp the number of times for the channel it is outputting.*

***Note:** Channels 2-6 of the 519H2 are (-) 200mA devices. They cannot be used to drive high current loads directly. Relays must be used to drive high current loads. Since the unit can generate latching outputs, take care to ensure that relays are not latched on directly when the vehicle is left for extended periods. This will prevent battery drain.*

***Important:** Damage to the output devices will occur if they are connected to motors, solenoids, or other high current loads.*

Feature Options Chart

Chirp/LED	Channel/Feature	1-Flash/Chirp (Default)	2-5 Flash/Chirp
1	Channel 1	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
2	Channel 2	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
3	Channel 3	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
4	Channel 4	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
5	Channel 5	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
6	Channel 6	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
7	Not Applicable		
8	Not Applicable		
9	Feature	Code Hopping - ON	Code Hopping - OFF
Bitwriter® and Pocket PC® only			
	ALL	Timed output	1-90 seconds
	ALL	Startstop pulse	Pause length: 1-90 seconds

Output Descriptions

All six outputs of the system are programmable. There are 5 possible output types. Each is described below. After reading the descriptions, the unit can be programmed for the type of outputs that meet the needs of your particular installation.

Pulse/Validity

An output that lasts as long as you hold the transmitter button. If the button is not held, a 1-second pulse will be generated.

Standard Latch

An On/Off switch. When this type of output is used, it will turn on if it was off, or off if it was on. It will only change state if it is accessed again. Care should be taken when using this type of output, since it will remain on forever, until it is turned off. It is possible to drain the vehicle's battery if a relay is latched on for long periods of time, without running the engine.

Latch Reset with Ignition

A latching output is an on/off switch. Whenever a latching channel is used, it will turn on if it was off, or off if it was on. This particular latching output will turn off automatically (if it is on), each time the ignition is turned on and then back off.

30-Seconds Timed

When activated, the output will turn on for 30-seconds and shut off at the end of 30-seconds.

Start/Stop

When activated, the channel will pulse for 0.8 seconds, pause for 1-second, then pulse a second time for 0.8 seconds. The pause duration can be programmed with a Bitwriter® or Pocket PC® from 1-90 seconds in 1-second intervals.

Programming

For ease of programming it is suggested that a Bitwriter® (Version 2.4) or Pocket PC® be used as some features can only be accessed with these tools.

To program manually:

1. Ensure that the 519H2 is powered up and the ignition is OFF.
2. Hold the Program button until the LED flashes 3 times (approximately 25-seconds).
3. Release the Program button.
4. Press and release the Program button the number of times equal to the channel you wish to access.
5. Press and hold the Program button one more time.
   For example: To access Channel 5, press and release the Program button 5 times, and then hold on the 6th press.
6. The LED will flash a number of times equal to the channel selected.
7. Input a ground to the Grey activation input wire. Each (-) input will toggle the selected channel through the various options. The LED will flash 1–5 times showing the setting.

To exit programming, release the Program button and turn the ignition On.

Activating a Channel

Press and release the Program button on the Slave unit the number of times equal to the channel you wish to access. For example: To access Channel 5, press and release the Program button 5 times. After 2–3 seconds Channel 5 will activate.

Stand-Alone 6-Channel Receiver

Your 519H2 can be used as a stand-alone 6 channel receiver. This allows flexibility in controlling special features and applications such as those on handicap vans.

> ***Note:*** *If there is another alarm, remote start, keyless entry, etc., on the vehicle that operates off of an RF signal, it is* ***advisable*** *to use the 519H2 as a slave unit. Using tthe 519H2 as a separate entity can cause intermittent operation due to cross-signaling of the RF devices.*

Connections—Main Wire Harness Chart

Pin	Wire Function	Color
H1/1	12V main power input	Red (10A fused)
H1/2	(+) 12V output to power external relays with the highest possible output per circuit design	Red/Black
H1/3	Chassis ground	Black
H1/4	(+) 12V Ignition Input	Yellow
H1/5	Auxilary Channel 6 output (-200mA)	White/Black
H1/6	Auxilary Channel 3 output (-200mA)	White/Blue
H1/7	Auxilary Channel 4 output (-200mA)	Violet/Black
H1/8	On-board relay pole #30 (Channel 1)	Yellow/White
H1/9	On-board relay pole #87A (Channel 1)	Orange/White
H1/10	On-board relay pole #87 (Channel 1)	Brown/White
H1/11	(-) input to activate channel outputs–see note for use as 6 channel slave	Grey
H1/12	(-) Siren Output (200mA)–see note for use as 6 channel slave	Brown
H1/13	Auxiliary Channel 5 Output (-200mA)	Grey/Black
H1/14	Auxiliary Channel 2 Output (-200mA)	Red/White

> ***Note:*** *Channels 2-6 of the 519H2 are (-) 200mA devices. They cannot be used to drive high current loads directly. Relays must be used to drive high current loads. Since the unit can generate latching outputs, take care to ensure that relays are not latched On when the vehicle is left for extended periods. This will prevent battery drain.*

> ***Important:*** *Damage to the output devices will occur if they are directly connected to motors, solenoids, or other high current loads.*

Feature Options Chart

Chirp/LED	Channel/Feature	1-Flash/Chirp (Default)	2-5 Flash/Chirp
1	Channel 1	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
2	Channel 2	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
3	Channel 3	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
4	Channel 4	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
5	Channel 5	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
6	Channel 6	Pulse/Validity	Latch, Latch/Reset by ignition, 30-sec timed/Startstop
7	Not Applicable		
8	Not Applicable		
9	Feature	Code Hopping - ON	Code Hopping - OFF
Bitwriter® and Pocket PC® only			
	ALL	Timed output	1-90 seconds
	ALL	Startstop pulse	Pause length: 1-90 seconds

Output Descriptions

All six outputs of the system are programmable. There are 5 possible output types. Each is described below. After reading the descriptions, the unit can be programmed for the type of outputs that meet the needs of your particular installation.

Pulse/Validity

An output that lasts as long as you hold the transmitter button. If the button is not held, a 1-second pulse will be generated.

Standard Latch

An On/Off switch. When this type of output is used, it will turn on if it was off, or off if it was on. It will only change state if it is accessed again. Care should be taken when using this type of output, since it will remain on forever, until it is turned off. It is possible to drain the vehicle's battery if a relay is latched on for long periods of time, without running the engine.

Latch Reset with Ignition

A latching output is an on/off switch. Whenever a latching channel is used, it will turn on if it was off, or off if it was on. This particular latching output will turn off automatically (if it is on), each time the ignition is turned on and then back off.

30-Seconds Timed

When activated, the output will turn on for 30-seconds and shut off at the end of 30-seconds.

Start/Stop

When activated, the channel will pulse for 0.8 seconds, pause for 1-second, then pulse a second time for 0.8 seconds. The pause duration can be programmed with a Bitwriter® or Pocket PC® from 1-90 seconds in 1-second intervals.

Remote Programming

1. Press and hold the Program button for 15-seconds. The LED on the 519H2 will flash twice and then extinguish. If a siren is connected it will chirp twice.

   Note: *Ignore the signel flash of the LED that occurs approximately 5-seconds after the program button is pressed.*

2. Release the Program button.
3. Select the desired channel — Refer to Channel wiring table below. Press and release the Program button equal to the number of the selected channel. (For example: to program channel 4, press and release the program button 4 times).
4. Press and hold the Program button one more time. If a siren is connected it will chirp the number of times corresponding to the channel accessed. The LED will also flash the number of times corresponding to the channel accessed.
5. While holding the Program button press the remote transmitter button or buttons you wish to use to control that channel. If a siren is connected, a chirp will be heard to confirm successful programming.
6. Program mode will be exited after the Program button has been released for 15-seconds or when the ignition is turned On.

Channel #	Wire Color
1	Orange/White (onboard relay output)
2	Red/White
3	White/Blue
4	Violet/Black
5	Grey/Black
6	White/Black

Programming

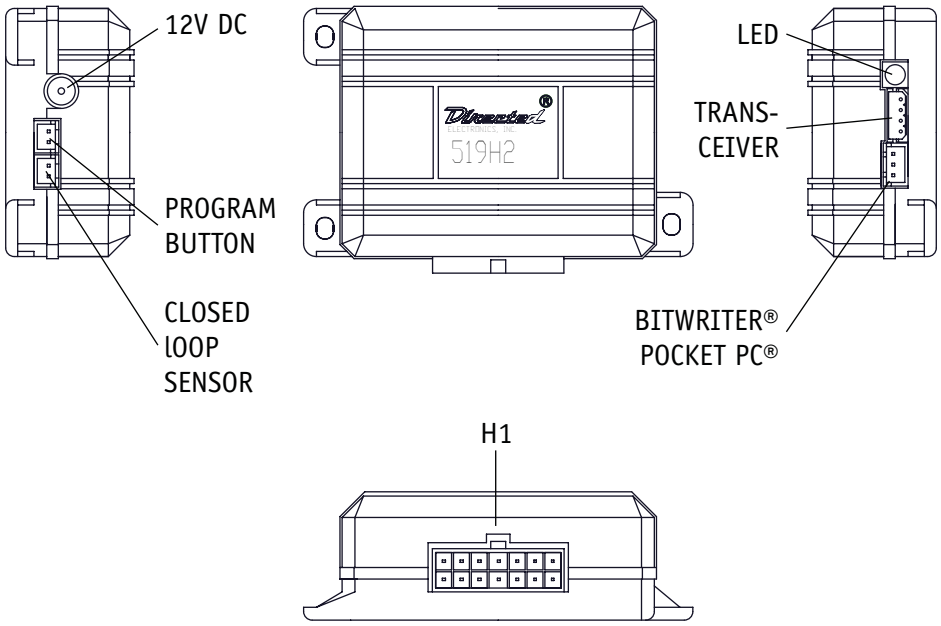
For ease of programming it is suggested that a Bitwriter® (Version 2.4) or Pocket PC® be used as some features can only be accessed with these tools.

To program manually:

1. Ensure that the 519H2 is powered up and the ignition is OFF.
2. Hold the Program button until the LED flashes 3 times (approximately 25-seconds).
3. Release the Program button.
4. Press and release the Program button the number of times equal to the channel you wish to access.
5. Press and hold the Program button one more time.
   For example: To access Channel 5, press and release the Program button 5 times, and then hold on the 6th press.
6. The LED will flash a number of times equal to the channel selected.
7. Input a ground to the Grey activation input wire. Each (-) input will toggle the selected channel through the various options. The LED will flash 1–5 times showing the setting.

To exit programming, release the Program button and turn the ignition On.

519H2 Module



H1 Harness