User's Guide

"Smart Sign"

V12 & V18 Series
Programmable 63 Controller

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Introduction:

Getting Started

Welcome

Congratulations: on your purchase of Ingram Technologies, LLC "smart sign" which incorporates some of the advanced features found in other more expensive speed signs.

The Ingram Speed Sign uses Doppler, direction-sensing radar combined with the latest in microprocessor design. This combination allows for advanced features at a low cost and creates a speed sign with great reliability for many years use.

The sign is run by 12 volts Direct Current. This means that a 12 volt car battery will supply sufficient power to operate the sign (Red lead to positive). You could use a DC converter that delivers 12 volts at 3.5 Amps or better to also operate the sign. We recommend using a 12 Volt filtered DC, 5 Ampere power supply. The only other electrical connections are a keyboard connector and an alarm output (if your sign has this feature). The 5 Pin DIN Connector, or 6 pin PS-2 Keyboard Connector, located on the rear of the sign is the keyboard connection (some models may have DIN connectors located on the bottom). The alarm connector is usually specified by the client at the time of the order and is a set of 5 amp contact closures. Any standard AT keyboard with a 5 pin connector (or PS-2, depending which was supplied or requested) will operate the computer in the speed sign.

A Note Of Caution:

Our signs and trailers are water RESISTANT, not waterproof. It is wise to store the sign and trailer out of prolonged exposure to wet weather. We have sealed the sign and coated the electronics to help prevent water damage, but the best way to prevent water damage is to keep the sign and trailer away from water exposure. **Waterproof models available for V12, V18.**

Powering Up The Sign

When power is applied to the sign, the computer will automatically look for the presence of the keyboard. Action will be as follows...

Without keyboard attached:

When no keyboard is attached and present, the internal computer will do a count of the "units" digit and then the "tens" digit. The sign will then display a "10" and then "00" at which time the internal test is complete and the radar and sign are functioning properly.

After this test, the sign is ready to start reading input from the built in radar unit.

If you have already programmed the sign, all you need to do is aim the sign at the traffic you want to monitor.

With keyboard attached:

If the keyboard is present, the sign is put in the sign programming mode. In this mode you are allowed to set all the parameters needed for traffic monitoring and data collection.

The power up sequence is the same as in "Powering Up The Sign", except that the sign will display a blinking "0" in the "tens" digit at the end of the power-up test. At this point you are in the programming mode for the sign. If there is no keyboard activity for about 45 seconds, the sign will automatically go into the running mode.

Any changes made before you exit the sign programming mode, will be kept in non-volatile memory. This means that if you need the same setup numbers the next time you use the sign, they will already be set from the last session.

The one exception to this is the Data Programming (6). Data Programming capture is turned OFF whenever the sign loses power.

Programming the speed display:

Not all signs have these functions - See "Model Summary" page xx

Step 1: Turn the power OFF or disconnect the power to the sign.

Step 2: Attach the computer keyboard into the back of the sign.
(5 pin DIN connector or PS-2, 6 pin connector)
NOTE: Some keyboards have a delay on power-up built in and may not function for several minutes. This is the function of some types of keyboards to allow Windows to boot without keyboard entry.

Step 3: Apply power to the sign.

After the power-up sequence described on the previous page, you are ready to set the values for traffic monitoring.

Step 4: Sign Programming Keystroke sequence

Note: You may repeat any of the following steps as many times as you want in any order you desire. Just press the corresponding number of the action. Example - press 3 and you can set the "High Speed Cutoff", change values, press <enter> and its set. Go to the next number you want to set.

SPEED ALERT: (1) (Default = 35)

Press (1)	-	Sign will display the "speed limit" currently set.
Press (035)	-	Sets the value to "35 MPH" (Use any value you want, but must be 3 digits [035, 055, 015, etc.]
Press <enter>	-	Accept this new value

SPEED ALERT BLINK RATE: (2) (Default = 3)

Press (2)	-	Sign will display the blink rate currently set.
Press (003)	-	Sets the blink rate to 3 (Use values from 2 to 5, but must be 3 digits ie: 002, 003, 004, etc)
Press <enter>	-	Accept this new value.

HIGH SPEED CUTOFF: (3) (Default = 70)

Press (3)	-	Sign will display the cutoff speed limit currently set.
Press (070)	-	Sets the value to "70" MPH (Use any value you want, but must be 3 digits [060, 080, 100, etc.]
Press <enter>	-	Accept this new value.

HIGH SPEED ALARM: (4) (Default = 55)

Press (4) - Sign will display the "alarm trigger speed" currently set.

Press (055) - Sets the value to "55 MPH" (Any value you want, but must be 3 digits - 055, 067, 088, etc.)

Press <enter>- Accept this new value

NOTE: this will close the contacts (two each) on the 5 pin connector while there is a vehicle being read at or over the number (speed) set. [This option not available on all signs]

POWER SAVER: (5) (Default = 05) (7 units equal about 1 second)

Press (5) - Sign will display the currently set time for the sign to automatically turn the display off.

Press (005) - Sets turn off time to this value (Any value you want, but must be 3 digits - 005, 007, etc)

Press <enter>- Accept this new value.

Time Table (Hour) Input Values

000	MIDNIGHT	012	NOON
001	1 AM	013	1 PM
002	2 AM	014	2 PM
003	3 AM	015	3 PM
004	4 AM	016	4 PM
005	5 AM	017	5 PM
006	6 AM	018	6 PM
006	7 AM	019	7 PM
008	8 AM	020	8 PM
009	9 AM	021	9 PM
010	10 AM	022	10 PM
011	11 AM	023	11 PM

Data Capture Programming: not available on all signs

NOTE: First set the values for the speed display.

The following sequence is linear and will cycle step by step as you press <enter>

DATA CAPTURE MODE: (6) (Default = OFF)

Press (6)	-	Sign will briefly display the currently selected number and then the units digit will blink.
Press (001)	-	Sets the location number (Any value you want from 001-255, but must be 3 digits)
Press <enter>	-	Accept this location value

[Display]	Sign will briefly display a (7) and then a blinking units digit.
Press (011)	Enters the month, ie: (011) = November
Press <enter>	Accept this month value

[Display]	Sign will briefly display a (8) and then a blinking units digit.
Press (021)	Enters the day of the month, ie: (021) for the 21st of the month.
Press <enter>	Accept this day of the month

[Display]	Sign will briefly display a (9) and then a blinking units digit.
Press (001)	Enters the year, ie: (001) = year 2001
Press <enter>	Accept this year

[Display]	Sign will briefly display a (1) and then a blinking units digit.
Press (015)	Enters the start hour (24 hour time) ie: (015) = 3 PM, (006) = 6 AM, (021) = 9PM [See time input table on previous page]
Press <enter>	Accept this time set

[Display]	Sign will briefly display a (2) and then a blinking units digit.
Press (035)	Enters the start minutes ie: (035) = 35 minutes after the hour.
Press<enter>	Accept this time set

You will now see (88) displayed and steady for about fifty seconds.
The computer is clearing all of its memory for the new data to be stored.

What if I make a mistake in the entry sequence:

If you pressed the <enter> key for any entry, you will need to go through the entire sequence again from the beginning.

If you have not pressed the enter key on an entry, you can correct it by re-entering the numbers again.

For Example:

If you were at the programming step of the year and typed <002> to represent the year 2002 and had not yet pressed <enter>, you would correct this by typing <001> - the year would now be 2001. When you have the correct number for the entry, press <enter> and the value is accepted for that entry.

I finished the last entry - now what:

After the last entry in the sequence the sign will display (00) and then will display a (0) in the units digit. In a few more seconds the unit will be displaying the radar speed and begin recording.

CAUTION: If you turn the radar unit OFF you will have to start the Data Capture Programming (6) over again. Turning the unit off sets the record mode to **off**. If you mistakenly turn the sign off, be patient and let the sign go through the long (50 seconds) (88) display restart cycle.

Data Capture Downloading: (7) (Default = OFF)

Complete details of the download process are in the ATLite software manual

Press (7) - the sign will immediately start downloading the collected data via the serial cable to the host computer. You can download the data multiple times. Data is not erased unless you press (6) to start the setup process again or press (9) to restore factory settings.

Final program settings:

RADAR DIRECTION:

Factory set to "see" approaching vehicles only (+).

RESTORE FACTORY DEFAULTS: (9)

Press <9> - Sign will reset all settings to the original factory settings.
(This will also erase any survey data collected)

EXIT THE PROGRAMMING MODE: (Use any one of the following)

Press <enter>- After any settings are accepted.
Press <esc> - After any settings are accepted.
Unplug the keyboard or wait until the keyboard routing has timed-out (around 50 seconds)

Turning power OFF then ON resets the computer.
This also turns OFF the data capture if running.

NOTE: The programming feature will automatically halt and the computer will go into operation mode after about 45 seconds of keyboard inactivity.

Factory Default Settings:

Key 1: Speed Alert:
This is the "Speed Limit" setting for you current area. (Default = 35)

Key 2: Speed Alert Blink Rate:
The setting for how fast the digits blink on over speed. (Default = 3)

Key 3: High Speed Cutoff:
Speed at which the sign will turn itself off - prevents drivers from trying to see how high they can make the sign read. (Default = 70)

Key 4: High Speed Alarm:
Speed setting at which an external alarm is triggered. Can be a light, siren, flash, etc. (Default = 55)
Each contact set (2 supplied) will handle 5 Amperes at 12 to 220 Volts.

Key 5: Power Saver:
Time in which the sign will turn off its display if no activity is present to save power drain on the batteries. The sign/radar are still active and will display the next moving reading automatically and without dealy. (Default = 05)

Key 6: Data Capture Programming:
Used to set the values for the capture location.

Key 7: Data Capture Downloading:
Used to start the data download from the sign to a host computer.

Key 9: Restore Factory Defaults:
Resets all the internal values to the defaults outlined above.

Key - Function Summary.

(Functions will or will not function depending on your model)

1 = Speed Alert
2 = Speed Alert Blink Rate
3 = High Speed Cutoff
4 = High Speed Alarm
5 = Power Saver
6 = Data Capture Programming
7 = Data Capture Downloading
8 =
9 = Restore Factory Defaults
0 =

<enter> = (By itself) Exit Programming mode & Run Speed Sign
<ESC> = (Escape) Exit Programming mode & Run Speed Sign
Unplug Keyboard = Exit Programming mode & Run Speed Sign
Turning Power OFF then ON Resets the computer.

The programming feature will automatically go into the operation mode after about one minute of keyboard inactivity.

Power - AC Models:

The sign will be marked for the voltage to be supplied. The **BLACK** wire is **HOT,** the **WHITE** wire is **NEUTRAL** and the unclad wire is **GROUND.** The fuse is 2 Ampere fast blow.
DO NOT WIRE THE 12 VDC INPUT TO AC.

Model Summary:

Basic:

No Keyboard
Power saver preset to 5 seconds
Reports oncoming vehicles only

Model: V12-2M, V18-2M, V12-3K, V18-3K

Computer Controlled:

Keyboard input control
Speed Alert
Speed Alert Blink
High Speed Cutoff
High Speed Alarm
Power Saver Set

Model: V12C-2M, V18C-2M, V12C-3K, V18C-3K

Computer Controlled / Data Capture:

Keyboard input control
Speed Alert
Speed Alert Blink
High Speed Cutoff
High Speed Alarm
Power Saver Set
Data Capture Programming
Data Capture Downloading & Reporting

Model: V12CD-2M, V18CD-2M, V12CD-3K, V18CD-3K

Models ending in M are MPH versions
Models ending in K are KPH versions

Specifications:

Materials Enclosure	Molded fiberglass, aluminum, stainless
Enclosure	Weather and sunlight resistant
Dimensions V12 series:	16.5" x 22.0" x 8.5"
Dimensions V18 series:	21.0" x 31.0" x 8.5"
Digit Height V12 series:	11.6"
Digit Height V18 series:	17.9"
Digit Output - All models:	
Amber:	3,200 mcd each LED
Red:	2,900 mcd each LED
Operating Temperature:	-25 F to +150 F
Operating Voltage DC Version	11.2Vdc to 13.6Vdc
Operating Voltage AC Version	110~125, 208~230 Vac (in), 12.5 Vdc typical
Computer	Ingram Tech. 16C63A 0-2 Meg 20 Mhz
Memory	32K to 2 Meg
Relay contact rating (2)	3Amp at 220 VAC MAX each
Keyboard plug	6 Pin mini-DIN Standard AT
Keyboard	Standard AT
Mounting Fixtures (V-18)	4 - .25 x 20 (V12), 4 - .375 Course (V18)
Bezel	Red or Amber Acrylic or Lexan ®
Radar	Decatur SI-2 K Band, direction sensing
Mounting accessories	See enclosed manufacturer data sheet
Power Connector	CB-4 M&F, optional Cigarette plug
Relay Connector	CB-5 M&F
Shock resistance	4 G min