MASS AIR MODIFIER

INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002

Thank you for your purchase.
Please, read the instructions and watch the videos before installing the JMS Mass Air Modifier.

Mass Air Modifier Configuration and installation videos can be found on YouTube or at: ***www.jms-mam.com***.

If you have any questions, please contact JMS technical support via email: ***jms@jmschip.com*** or via phone ***601-766-9424*** (M-F 9:00am - 5:00pm CST).

About the Instructions:

The Mass Air Modifier is very easy to install and configure.
The print instructions and YouTube videos are very detailed on purpose. This detail is intended to provide you with the best possible visual technical product support.

Off-Road Notice:

Installation of this product signifies that you have read this document and agree to it's terms.
This product is for Off-Road or Racing use only.
It is up to the user to follow the instructions and to determine the compatibility of this product with the intended vehicle and/or other manufacturer's products. If installed or used improperly, catastrophic engine damage could occur and/or the JMS Mas Air Modifier might be damaged.
JMS Chip and Performance LLC assumes no liability or responsibility for any damages incurred from the use of this product.

Product Warnings:

- Suppression type spark plug wires must be used to avoid RFI/EMI issues.
- JMS Mass Air Modifier must be mounted inside the vehicle cabin or in the trunk. Install the unit so it does not come into contact with water or engine heat. The unit must be mounted away from ignition components or other EMI sources (ignition boxes, coil, spark plug wires).
- Take care to avoid hitting the Mass Air Modifier. The switches used to program the unit can be damaged. Switches that are broken due to neglect are not eligible to be covered under warranty.

JMS CHIP & PERFORMANCE
3247 Highway 63 South
Lucedale, MS 39452 USA

Scan the Code with your mobile device for more info!

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INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002

Kit Contents:

- (1) JMS Mass Air Modifier part number 4001 or 4002
- (1) Plug and Play Brand Specific Wire Harness (Ford/GM). Connects to your existing mass-air flow sensor.
- (1) Installation Parts Package (RING TERMINALS, WIRE TAP, SELF TAPPING SCREWS, TIE STRAPS)

Device Overview:

The JMS Mass Air Modifier has been designed to accurately Scale and Filter a MAF signal. All adjustments can be made live "on the fly". Once configured the MAF signal is shifted and filtered whenever the unit is "ON". The Mass Air Modifier is "ON" whenever the ignition key is in the "ON" position (Green Power LED is ON). Configuration is simple, there is no need for a laptop, all you need is the enclosed screwdriver.

Configuration Switch Overview:

- Turn Switch 1 (ON) - configure the Scale Amount or Percentage of MAF Signal Shift Up or Down.
- Turn Switch 2 (ON) - configure the amount of Mass Air Signal Filtering.
- Turn Switch 3 (ON) - configure the Filter Window. The Filter functions ONLY when the vehicle is operating within the Filter Window. The Filter Window can monitor the MAF Signal or an external 0-5v sensor either a - Pedal Position Sensor[PPS], Throttle Position Sensor [TPS] or Manifold Pressure Sensor [MAP].
- Turn Switch 8 (ON) - Learn the MAF Signal or Monitored 0-5V value at Idle.

Case Dimensions:

Silver Aluminum Case with four mounting tabs.

LENGTH:	3 ¾"
WIDTH:	2 ½"
HEIGHT:	1 ½"

Operating Voltage Range:

9.5V - 20V DC

Vehicle Compatibility:

- Compatible with all 12V or 16V battery systems
- PN: 4001 - Digital Mass Air Sensor (Hz)
- PN: 4002 - Analog Mass Air Sensor (0-5 Volts)
- Works with all Stock or Aftermarket Recalibrated Mass Air Sensors

Device Inputs & Outputs:

Mass Air Sensor: Plug and Play OEM Style Connectors. Plugs into MAF Sensor and the OEM vehicle harness.

Six Pin Connector: Plugs directly into the Mass Air Modifier Unit

External 0-5V Monitor: White Wire , Select Filter Window Input (exits harness near the MAF Connectors).

- White Wire Connected to Ground -> Filter Window Input = MAF Signal
- White Wire Connected to 0-5v DC Sensor Output -> Filter Window Input connected to an Electronic Throttle Body, PPS, TPS or other external sensor.

Filter Disable: Yellow Wire, Enable/Disable Filter (exits harness near the SIX pin connector)

- If the Yellow Wire is connected to Ground, Manually disables Mass Air Signal Filtering (used in setup).

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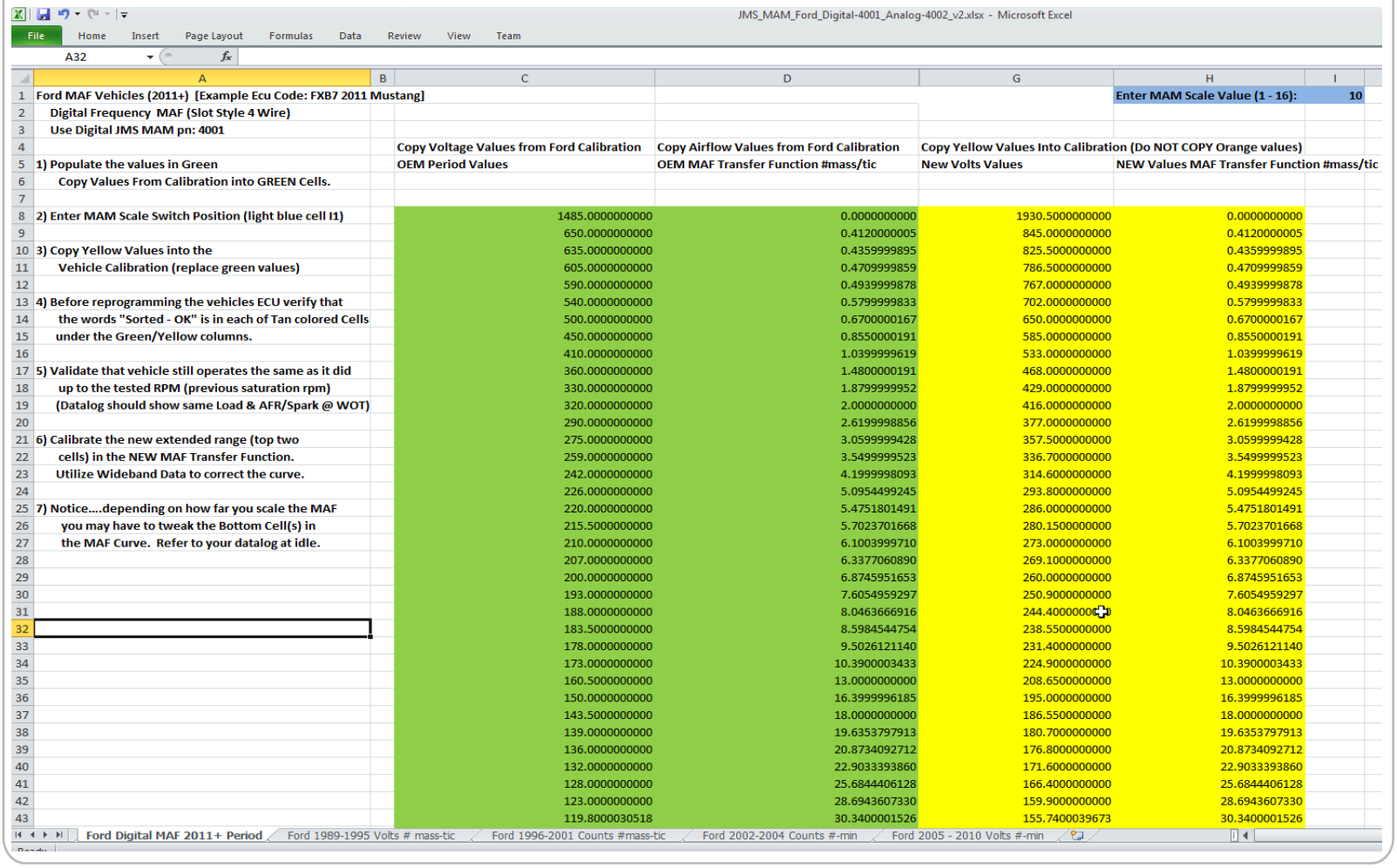
Quick Start Guide

- Plug the Mass Air Modifier Harness into the MAF Sensor and the Vehicle Harness (use the video as a guide)
- Route the cable into the vehicle cab and connect the Mass Air Modifier to the Six Pin Connector
- Choose your Filter Window Input (either Ground the White Wire or connect to a 0-5v sensor)
- Configure the SCALE Rotary Switch Setting (use the instructions and video as a guide)
- Configure the FILTER Rotary Switch Setting (use the instructions and video as a guide)
- Configure the FILTER Window Dip Switch Setting (use the instructions and video as a guide)
- Modify your ECU calibration to match using the JMS Mass Air Modifier Spreadsheet (www.jms-mam.com)
- The MAM can be used to SCALE or FILTER the MAF OUTPUT or it can do both at the same time.
- Use it to sort out COLD or HOT Start fuel problems (shift the MAF Rich or Lean to see what corrects the issue).

JMS Mass Air Modifier Tuning Software Calibration Spreadsheet

- To generate new values Copy and paste MAF values from Tuning Software into the spreadsheet (green cells)
- Select the approprate MAF TAB (spreadsheet bottom) Enter the MAM Scale Switch value (light blue cell at top)
- Copy the Yellow Values into your Tuning Software (Spreadsheet Modified Values)



JMS_MAM_Ford_Digital-4001_Analog-4002_v2.xlsx - Microsoft Excel

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A32

	A	B	C	D	G	H	I
1	Ford MAF Vehicles (2011+) [Example Ecu Code: FXB7 2011 Mustang]					Enter MAM Scale Value (1 - 16):	10
2	Digital Frequency MAF (Slot Style 4 Wire)						
3	Use Digital JMS MAM pn: 4001						
4			Copy Voltage Values from Ford Calibration	Copy Airflow Values from Ford Calibration	Copy Yellow Values Into Calibration (Do NOT COPY Orange values)		
5	1) Populate the values in Green		OEM Period Values	OEM MAF Transfer Function #mass/tic	New Volts Values	NEW Values MAF Transfer Function #mass/tic	
6	Copy Values From Calibration into GREEN Cells.						
7							
8	2) Enter MAM Scale Switch Position (light blue cell I1)		1485.0000000000	0.0000000000	1930.5000000000	0.0000000000	
9			650.0000000000	0.4120000005	845.0000000000	0.4120000005	
10	3) Copy Yellow Values into the		635.0000000000	0.4359999895	825.5000000000	0.4359999895	
11	Vehicle Calibration (replace green values)		605.0000000000	0.4709999859	786.5000000000	0.4709999859	
12			590.0000000000	0.4939999878	767.0000000000	0.4939999878	
13	4) Before reprogramming the vehicles ECU verify that		540.0000000000	0.5799999833	702.0000000000	0.5799999833	
14	the words "Sorted - OK" is in each of Tan colored Cells		500.0000000000	0.6700000167	650.0000000000	0.6700000167	
15	under the Green/Yellow columns.		450.0000000000	0.8550000191	585.0000000000	0.8550000191	
16			410.0000000000	1.0399999619	533.0000000000	1.0399999619	
17	5) Validate that vehicle still operates the same as it did		360.0000000000	1.4800000191	468.0000000000	1.4800000191	
18	up to the tested RPM (previous saturation rpm)		330.0000000000	1.8799999952	429.0000000000	1.8799999952	
19	(Datalog should show same Load & AFR/Spark @ WOT)		320.0000000000	2.0000000000	416.0000000000	2.0000000000	
20			290.0000000000	2.6199998856	377.0000000000	2.6199998856	
21	6) Calibrate the new extended range (top two		275.0000000000	3.0599999428	357.5000000000	3.0599999428	
22	cells) in the NEW MAF Transfer Function.		259.0000000000	3.5499999523	336.7000000000	3.5499999523	
23	Utilize Wideband Data to correct the curve.		242.0000000000	4.1999998093	314.6000000000	4.1999998093	
24			226.0000000000	5.0954499245	293.8000000000	5.0954499245	
25	7) Notice....depending on how far you scale the MAF		220.0000000000	5.4751801491	286.0000000000	5.4751801491	
26	you may have to tweak the Bottom Cell(s) in		215.5000000000	5.7023701668	280.1500000000	5.7023701668	
27	the MAF Curve. Refer to your datalog at idle.		210.0000000000	6.1003999710	273.0000000000	6.1003999710	
28			207.0000000000	6.3377060890	269.1000000000	6.3377060890	
29			200.0000000000	6.8745951653	260.0000000000	6.8745951653	
30			193.0000000000	7.6054959297	250.9000000000	7.6054959297	
31			188.0000000000	8.0463666916	244.4000000000	8.0463666916	
32			183.5000000000	8.5984544754	238.5500000000	8.5984544754	
33			178.0000000000	9.5026121140	231.4000000000	9.5026121140	
34			173.0000000000	10.3900003433	224.9000000000	10.3900003433	
35			160.5000000000	13.0000000000	208.6500000000	13.0000000000	
36			150.0000000000	16.3999996185	195.0000000000	16.3999996185	
37			143.5000000000	18.0000000000	186.5500000000	18.0000000000	
38			139.0000000000	19.6353797913	180.7000000000	19.6353797913	
39			136.0000000000	20.8734092712	176.8000000000	20.8734092712	
40			132.0000000000	22.9033393860	171.6000000000	22.9033393860	
41			128.0000000000	25.6844406128	166.4000000000	25.6844406128	
42			123.0000000000	28.6943607330	159.9000000000	28.6943607330	
43			119.8000030518	30.3400001526	155.7400039673	30.3400001526	

Ford Digital MAF 2011+ Period | Ford 1989-1995 Volts # mass-tic | Ford 1996-2001 Counts #mass-tic | Ford 2002-2004 Counts #-min | Ford 2005 - 2010 Volts #-min

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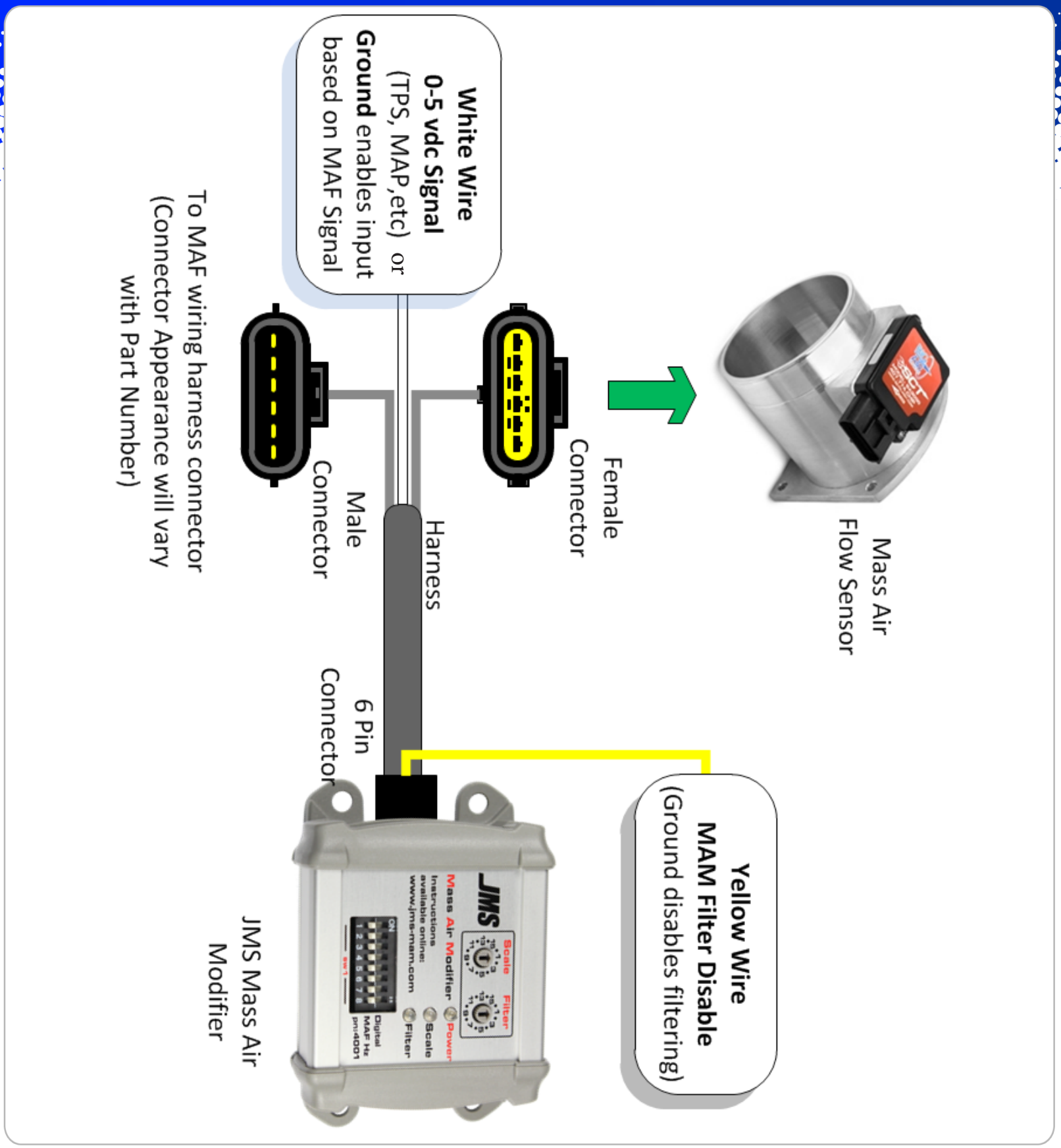
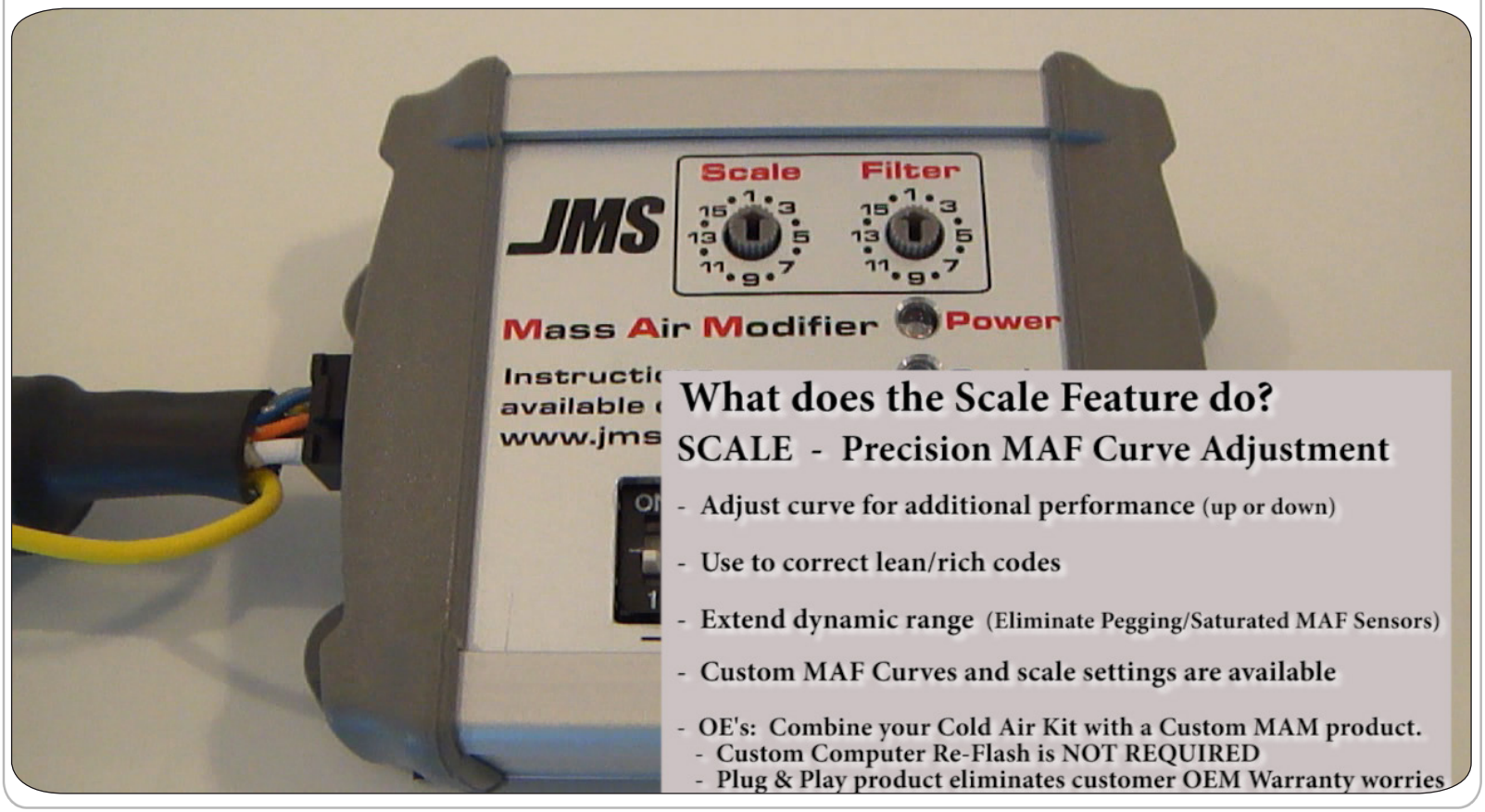


INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002

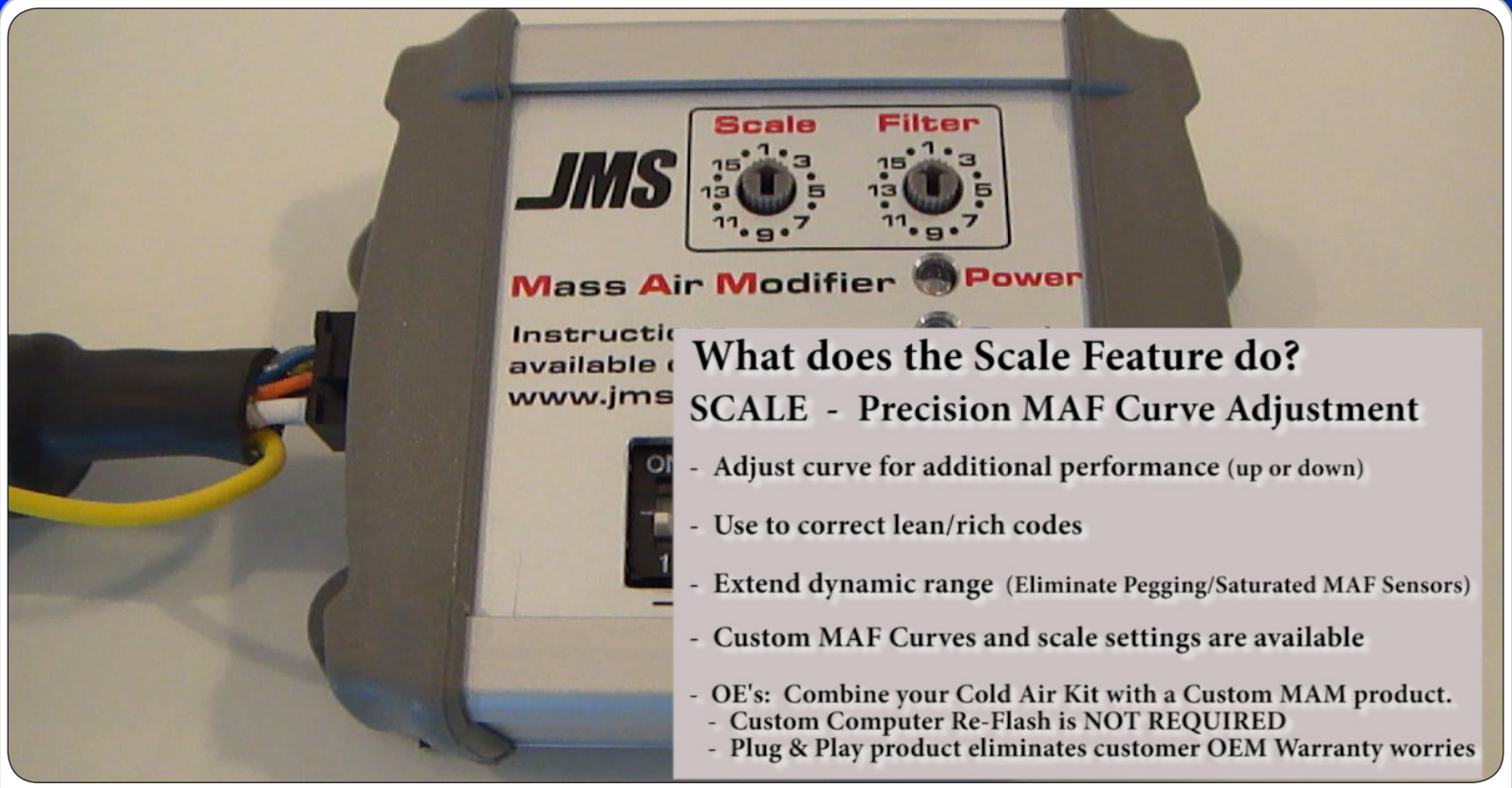
Mass Air Modifier Overview & Install

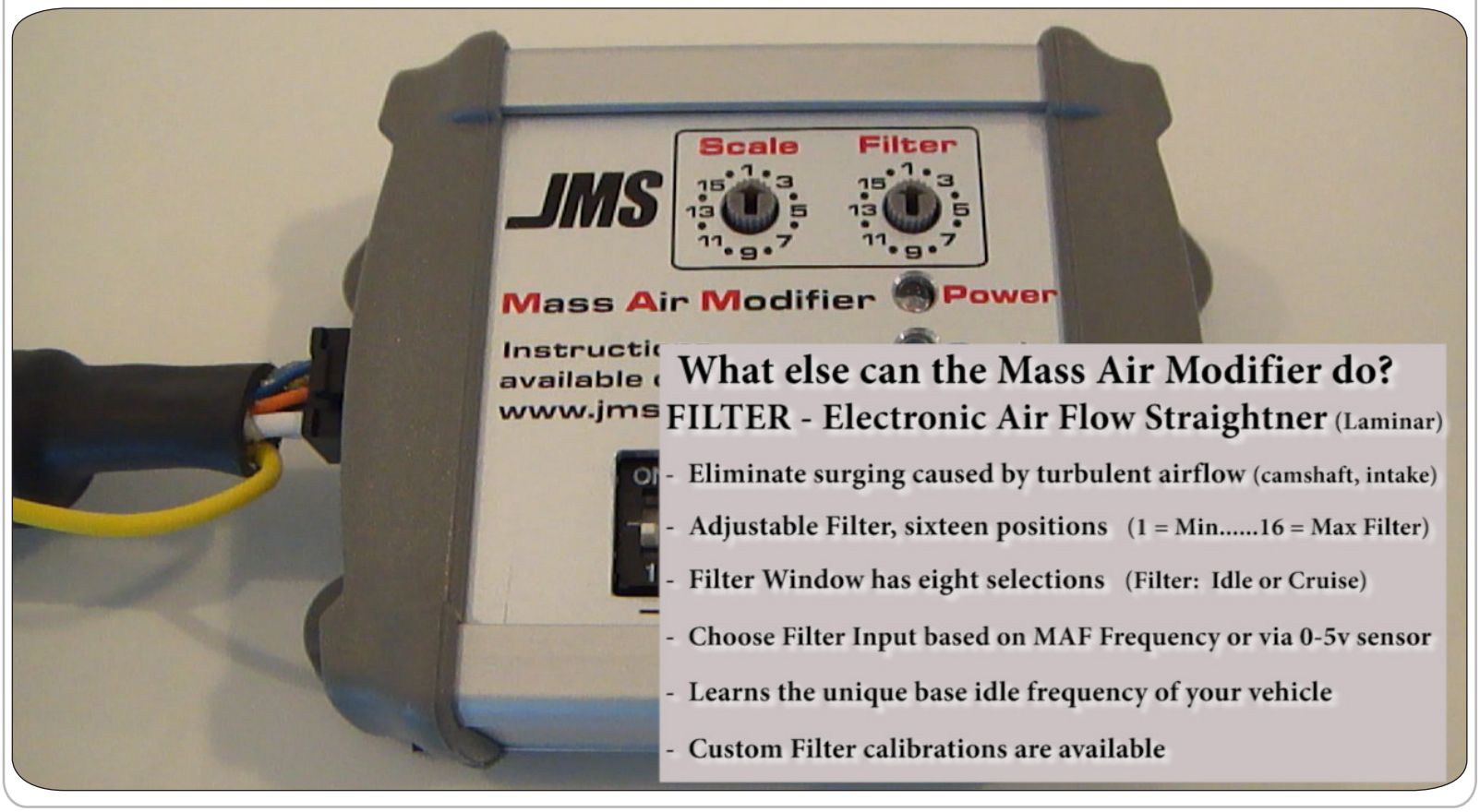
Two MAM Versions - PN: 4001 (Digital) & PN:4002 (Analog) www.jms-mam.com

- Plug and Play Design
- Real Time "On the Fly" MAF Signal Changes
- High Precision, High Reliability
- First Product with a built in adjustable Filter
- PN 4001 - Digital MAF (Frequency)
- PN 4002 - Analog MAF (Voltage)
- Quality Shielded Cable
- Not made in China!



INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002





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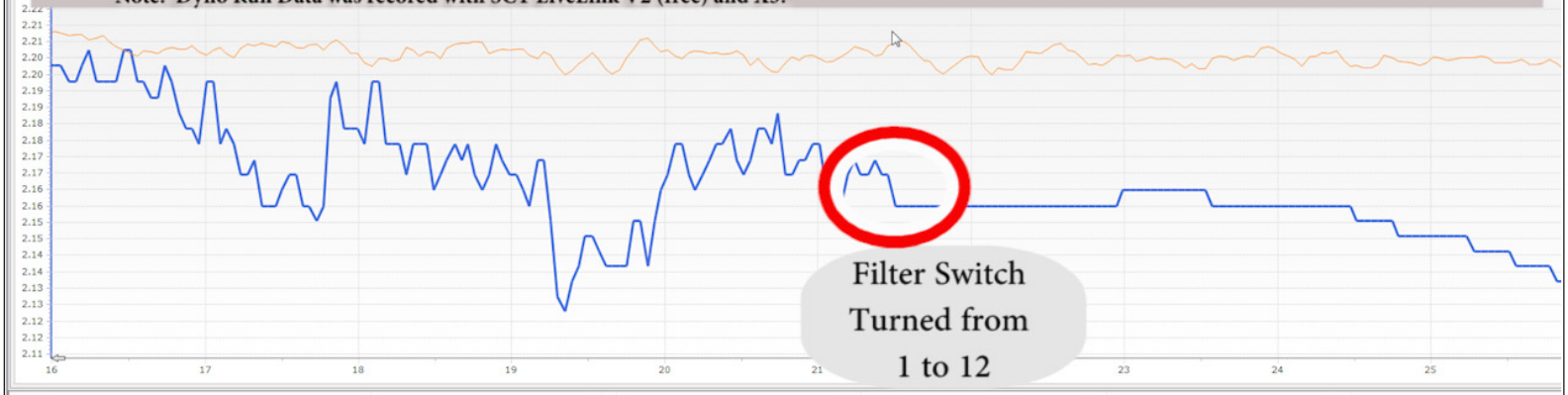
MAM Filter Example 1: Digital MAM 4001 (2012 Ford Focus - Stock)

Filter Switch Pos 12 (Higher value = more filtering)
Compare Blue Line : Stock MAF Output (Noisy) to Modified MAM Filter Value on Right (MAM = Reduced Noise).

Note: To filter an area higher than idle: adjust the filter window. In this case filter window 4 was selected (Idle + 1280HZ (above learned idle Hz)).
Note: Dyno Run Data was recored with SCT LiveLink V2 (free) and X3.

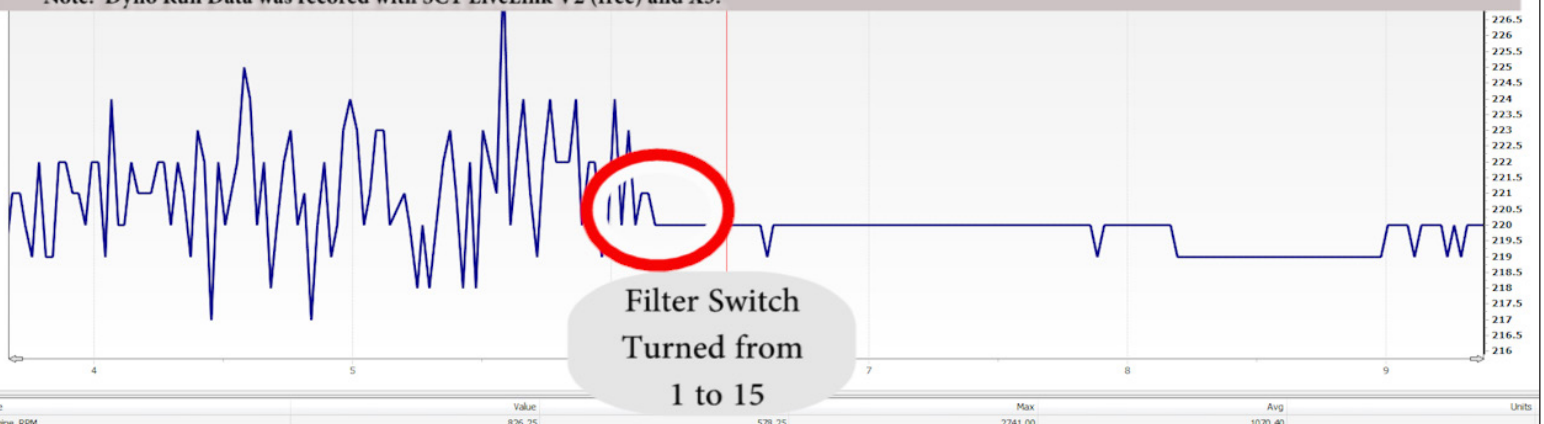


Item Name	Value	Min	Max	Avg
MAF_KHTZ	2.16	1.23	2.85	2.15
engine_speed	786.00	489.75	884.25	778.42
eqratio1_AFR	1.00	0.00	1.22	0.90
lambse[BANK1]_EQRatio1_DSD	0.99	0.98	1.01	1.00
ShortFT1_InverseTmeF	1.02	0.77	1.13	0.99
LongFT1_in_timesfuel	0.98	0.98	0.98	0.98
BARO_KpA	101.00	100.00	101.00	100.62
SPARKADV	3.50	-3.00	26.00	5.50
SPRKADV	2.00	-5.25	26.25	5.98
Knock_ind[0]	0.00	0.00	0.00	0.00
ETC_ACT	2.34	0.33	4.86	2.28
ETC_DSD	2.32	0.29	4.86	2.28

MAM Filter Example 2: Analog MAM 4002 (2000 Mustang GT - Supercharged)

Filter Switch Pos 15(Higher value = more filtering)
Compare Blue Line : Stock MAF Output (Left - Noisy) to Modified MAM Filter Value (Right MAM = Reduced Noise).

Note: To filter an area higher than idle: adjust the filter window. In this case filter window 0 was selected (Idle to 350 counts above learned idle counts).
Note: Dyno Run Data was recored with SCT LiveLink V2 (free) and X3.



em Name	Value	Min	Max	Avg	Units
Engine_RPM	826.25	578.25	2741.00	1070.40	
STFT_1	0.99	0.86	0.99	0.99	
STFT_2	0.99	0.86	0.99	0.99	
LTFT_1	1.00	1.00	1.00	1.00	
LTFT_2	1.00	1.00	1.00	1.00	
Air_Meter	220.00	207.00	481.00	228.12	
Spark	22.25	10.00	33.50	18.15	
Coolant_	198.00	196.00	198.00	197.60	
Air_Temp	164.00	162.00	164.00	162.61	
Load	0.34	0.16	0.95	0.31	
TP	200.75	198.00	953.25	213.83	
loop	1.13	1.13	1.13	1.13	
o2_v	0.00	-0.01	0.88	0.19	
fpw	8882.00	2694.00	13384.00	7557.24	

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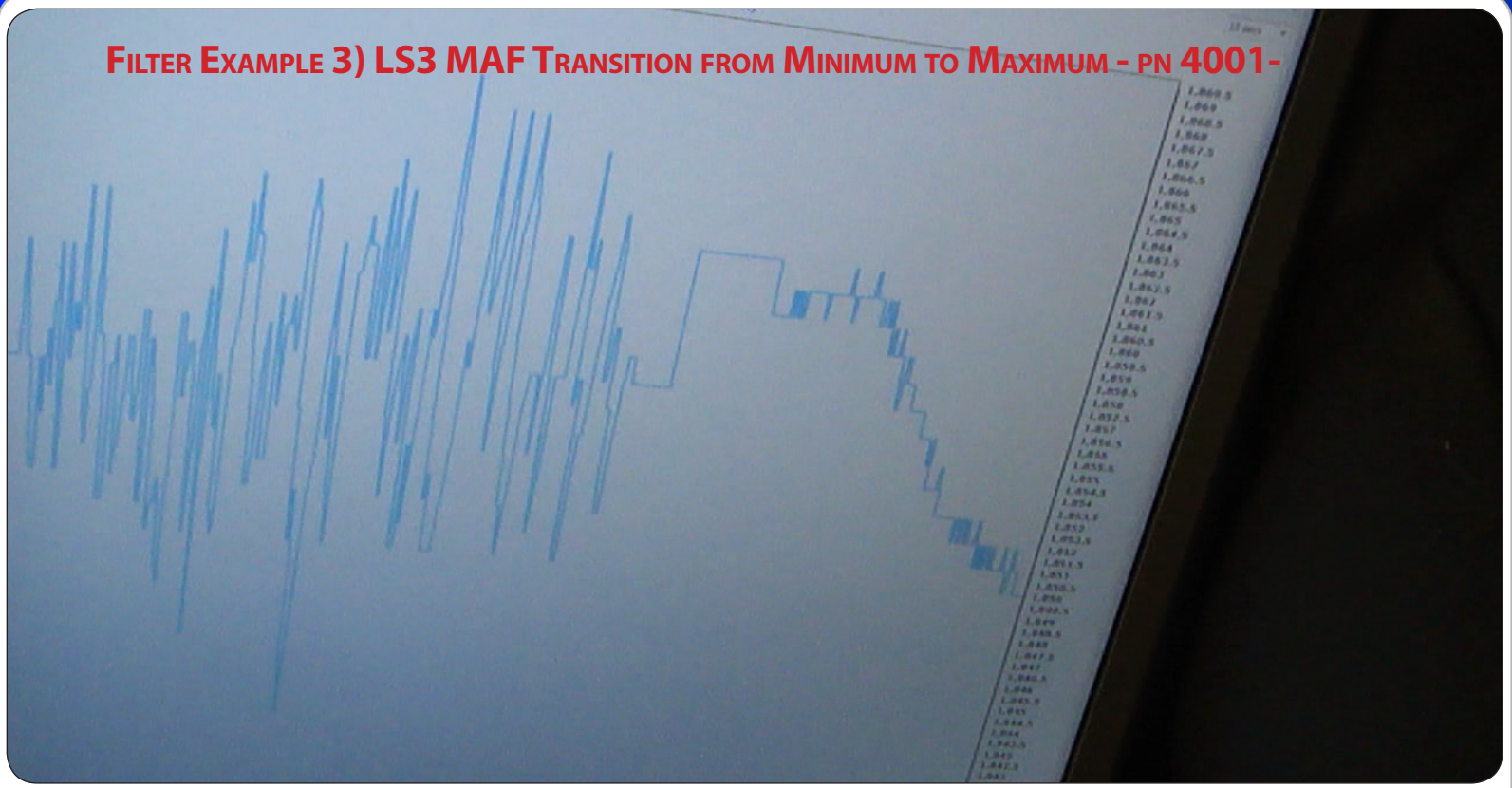
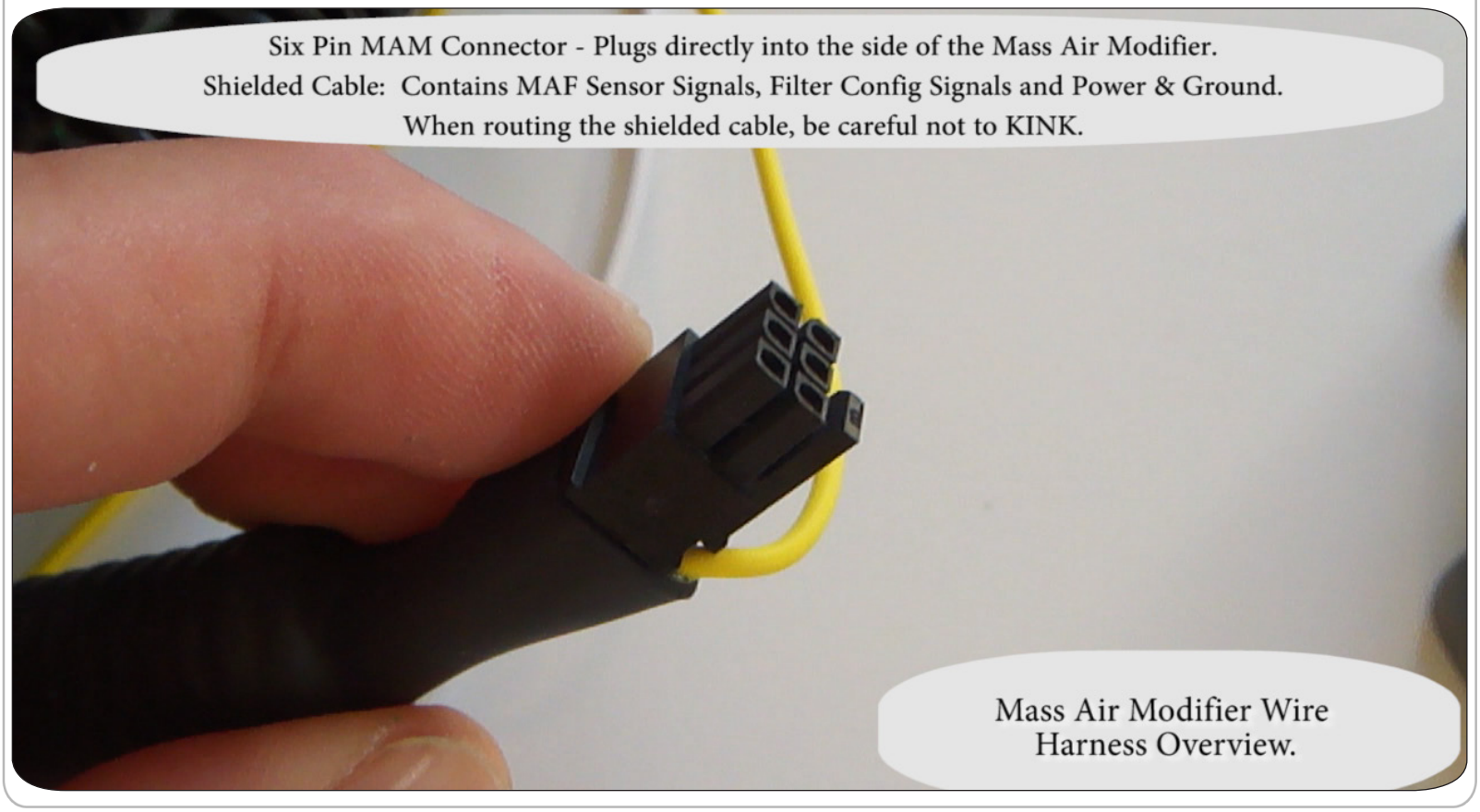
FILTER EXAMPLE 3) LS3 MAF TRANSITION FROM MINIMUM TO MAXIMUM - PN 4001-





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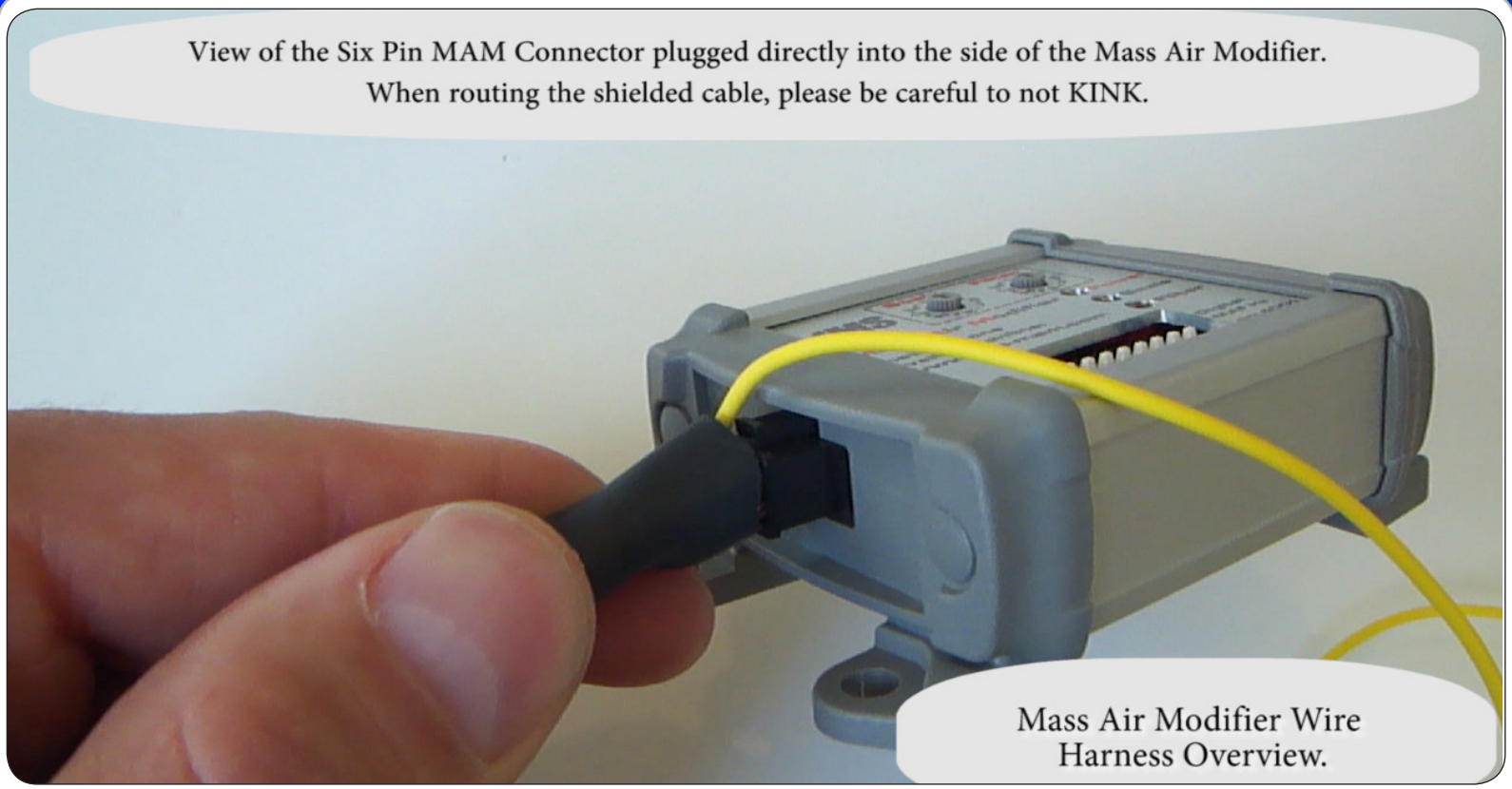
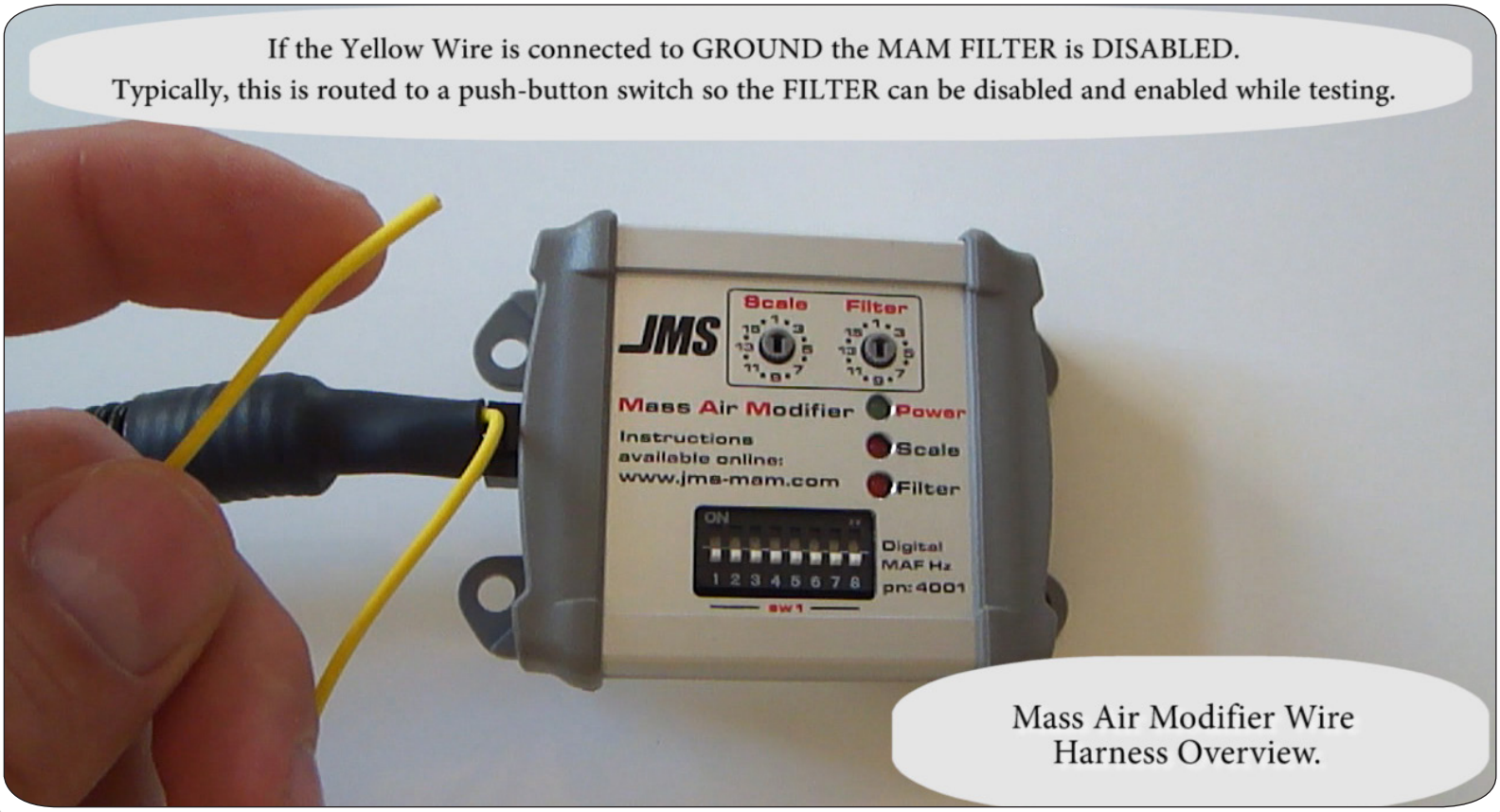
View of the Six Pin MAM Connector plugged directly into the side of the Mass Air Modifier.
When routing the shielded cable, please be careful to not KINK.



Mass Air Modifier Wire Harness Overview.

If the Yellow Wire is connected to GROUND the MAM FILTER is DISABLED.
Typically, this is routed to a push-button switch so the FILTER can be disabled and enabled while testing.



Mass Air Modifier Wire Harness Overview.

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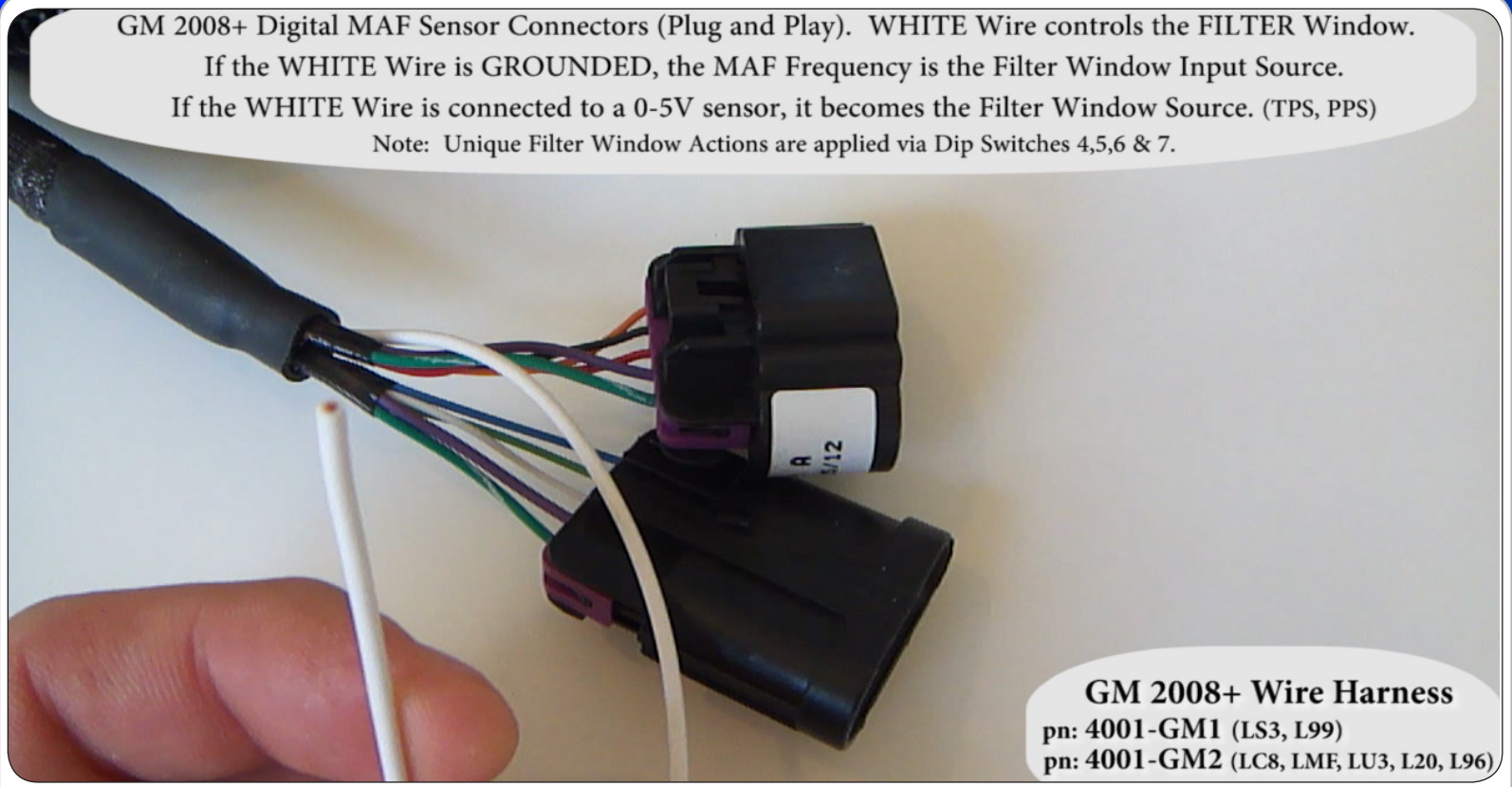
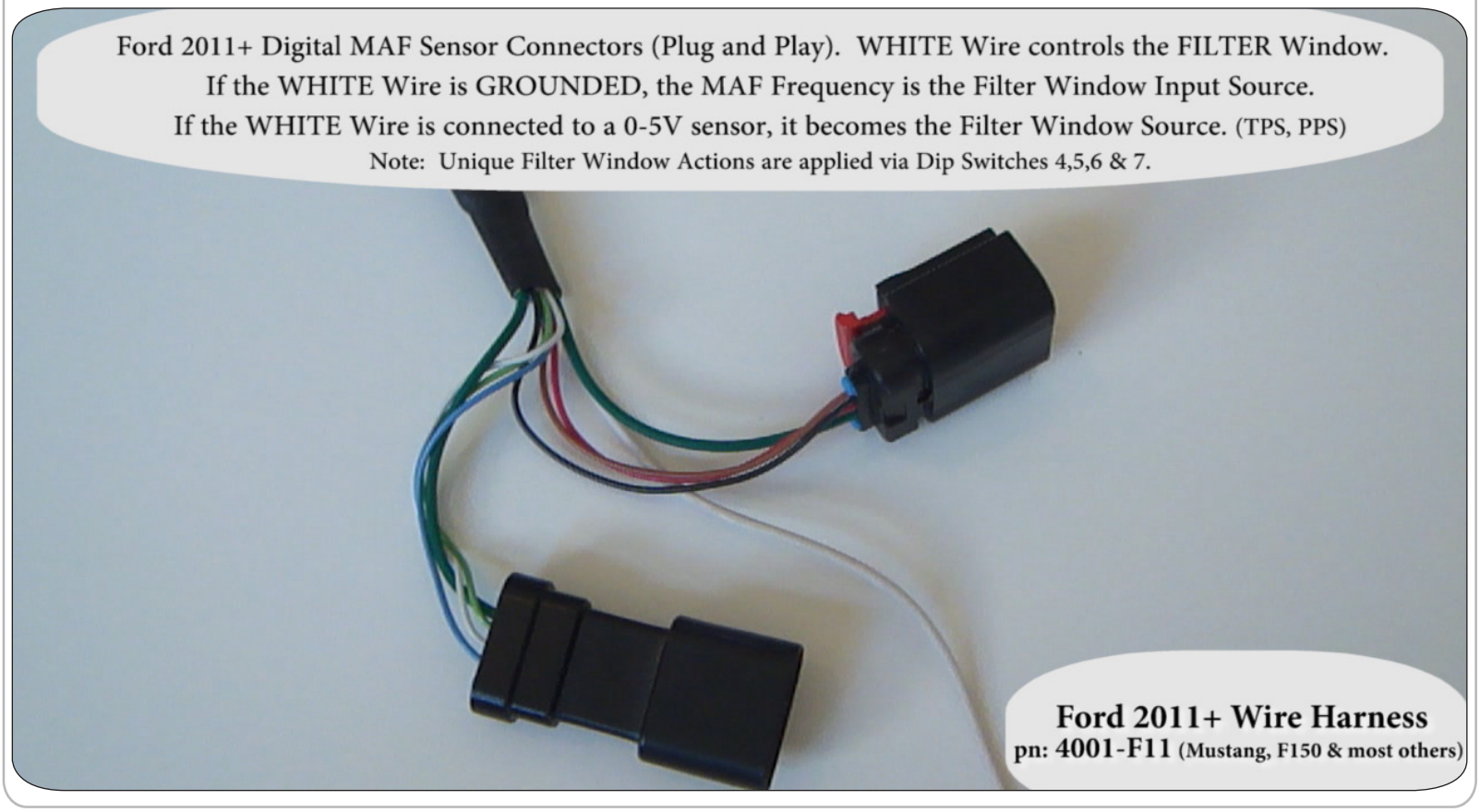
GM 2008+ Digital MAF Sensor Connectors (Plug and Play). WHITE Wire controls the FILTER Window.
If the WHITE Wire is GROUNDED, the MAF Frequency is the Filter Window Input Source.
If the WHITE Wire is connected to a 0-5V sensor, it becomes the Filter Window Source. (TPS, PPS)
Note: Unique Filter Window Actions are applied via Dip Switches 4,5,6 & 7.



GM 2008+ Wire Harness
pn: 4001-GM1 (LS3, L99)
pn: 4001-GM2 (LC8, LMF, LU3, L20, L96)

Ford 2011+ Digital MAF Sensor Connectors (Plug and Play). WHITE Wire controls the FILTER Window.
If the WHITE Wire is GROUNDED, the MAF Frequency is the Filter Window Input Source.
If the WHITE Wire is connected to a 0-5V sensor, it becomes the Filter Window Source. (TPS, PPS)
Note: Unique Filter Window Actions are applied via Dip Switches 4,5,6 & 7.



Ford 2011+ Wire Harness
pn: 4001-F11 (Mustang, F150 & most others)

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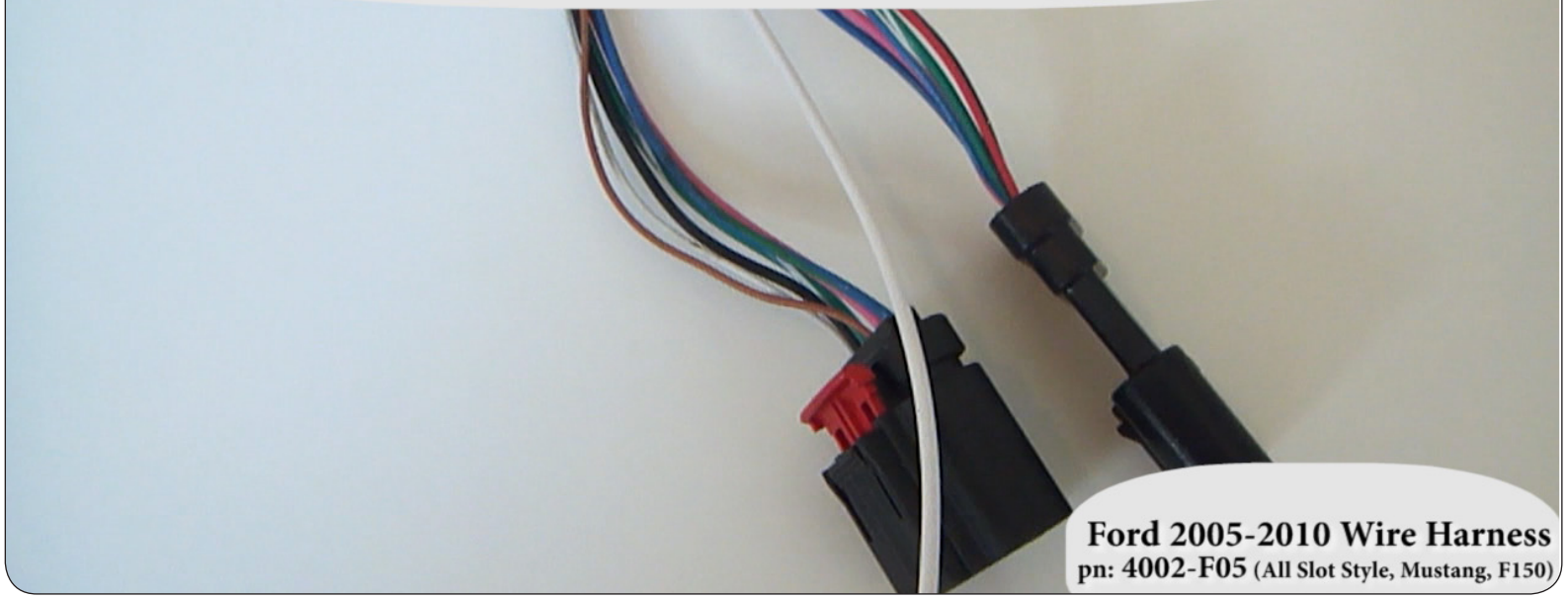
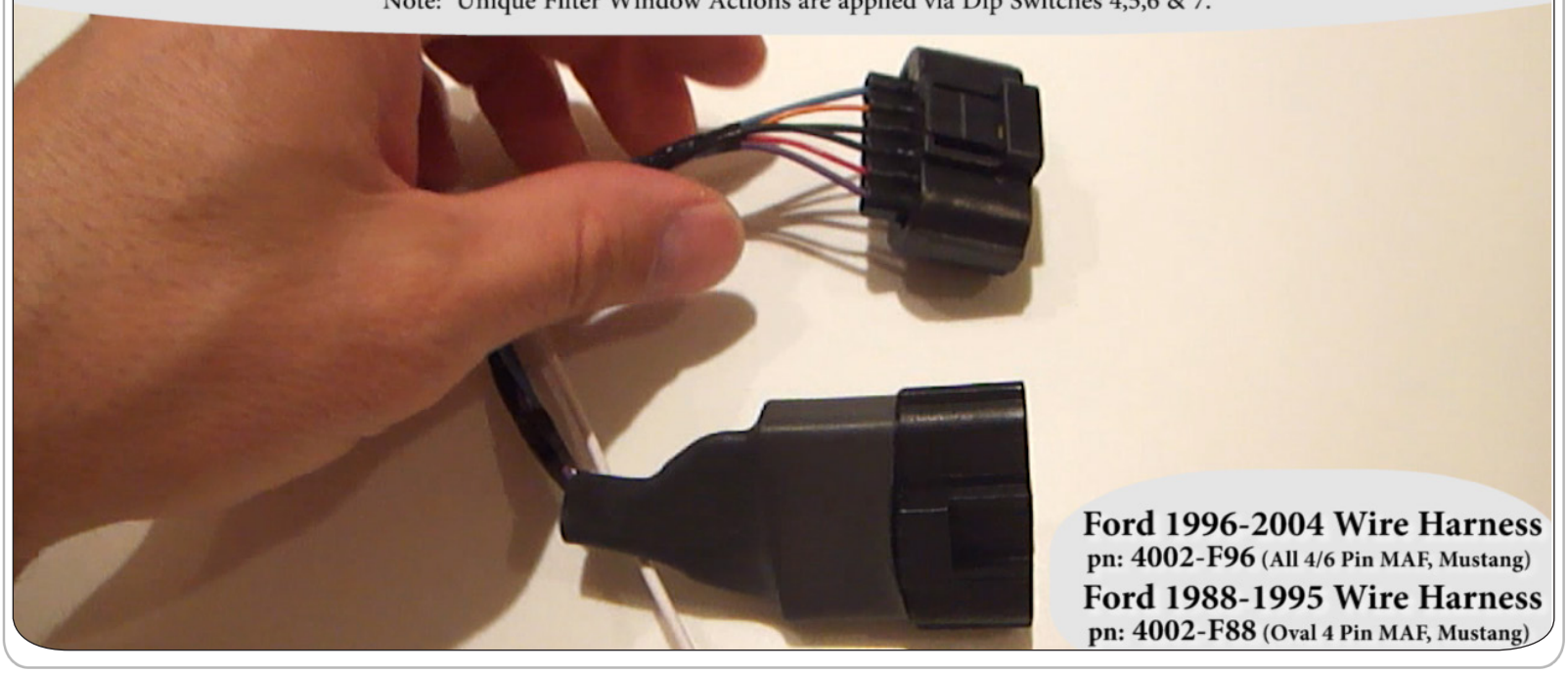
Ford 2005-2010 Analog MAF Sensor Connectors (Plug and Play). Wire harnesses for 1988 - 2004 Fords are also available, please see the jmschip.com web page. WHITE Wire controls the FILTER Window.
If the WHITE Wire is GROUNDED, the MAF Frequency is the Filter Window Input Source.
If the WHITE Wire is connected to a 0-5V sensor, it becomes the Filter Window Source. (TPS, PPS)
Note: Unique Filter Window Actions are applied via Dip Switches 4,5,6 & 7.



Ford 2005-2010 Wire Harness
pn: 4002-F05 (All Slot Style, Mustang, F150)

Ford 1996-2004 Analog MAF Sensor Connectors (Plug and Play). Wire harnesses for 1988 - 1995 Fords are also available, please see the jmschip.com web page. WHITE Wire controls the FILTER Window.
If the WHITE Wire is GROUNDED, the MAF Frequency is the Filter Window Input Source.
If the WHITE Wire is connected to a 0-5V sensor, it becomes the Filter Window Source. (TPS, PPS)
Note: Unique Filter Window Actions are applied via Dip Switches 4,5,6 & 7.



Ford 1996-2004 Wire Harness
pn: 4002-F96 (All 4/6 Pin MAF, Mustang)
Ford 1988-1995 Wire Harness
pn: 4002-F88 (Oval 4 Pin MAF, Mustang)

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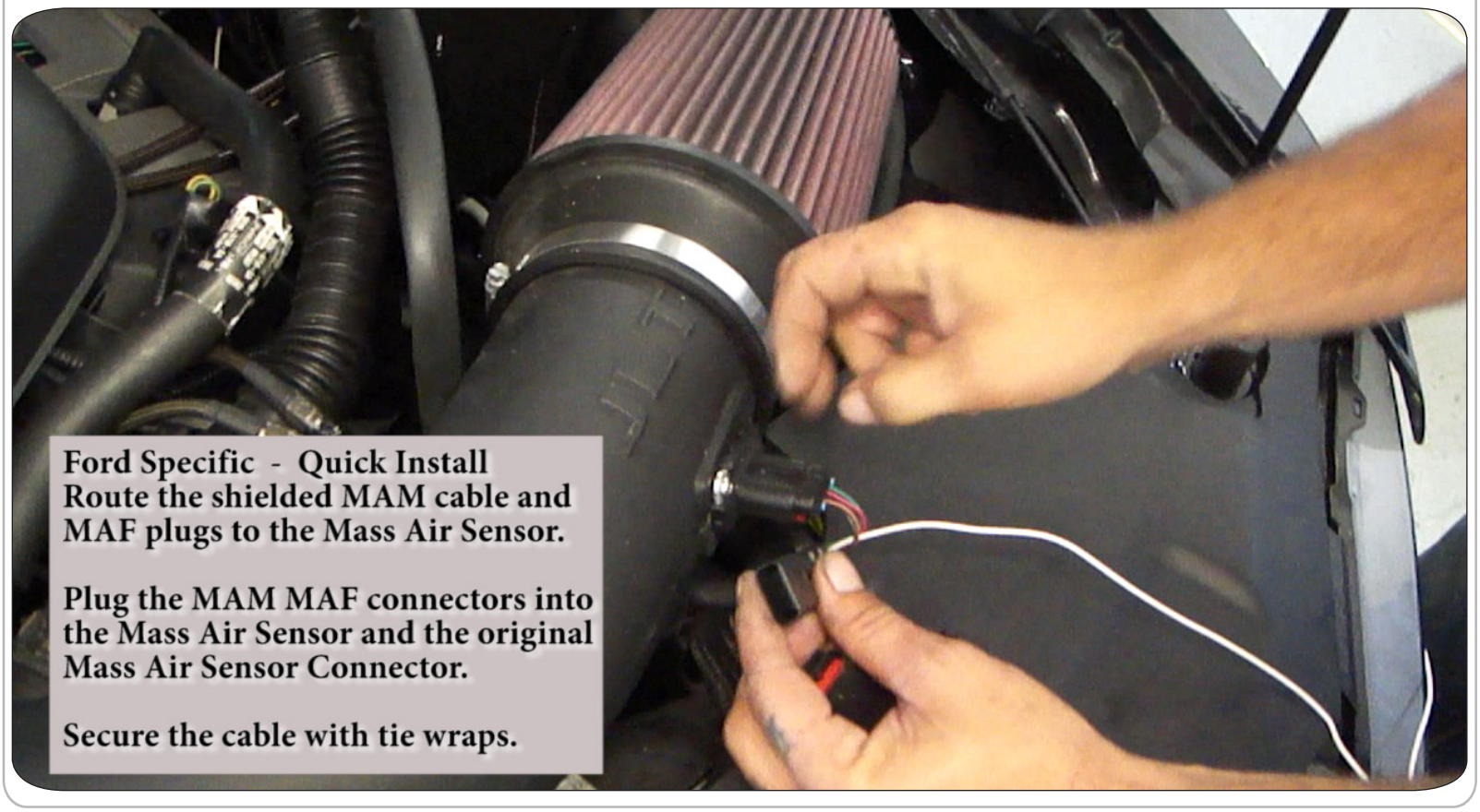

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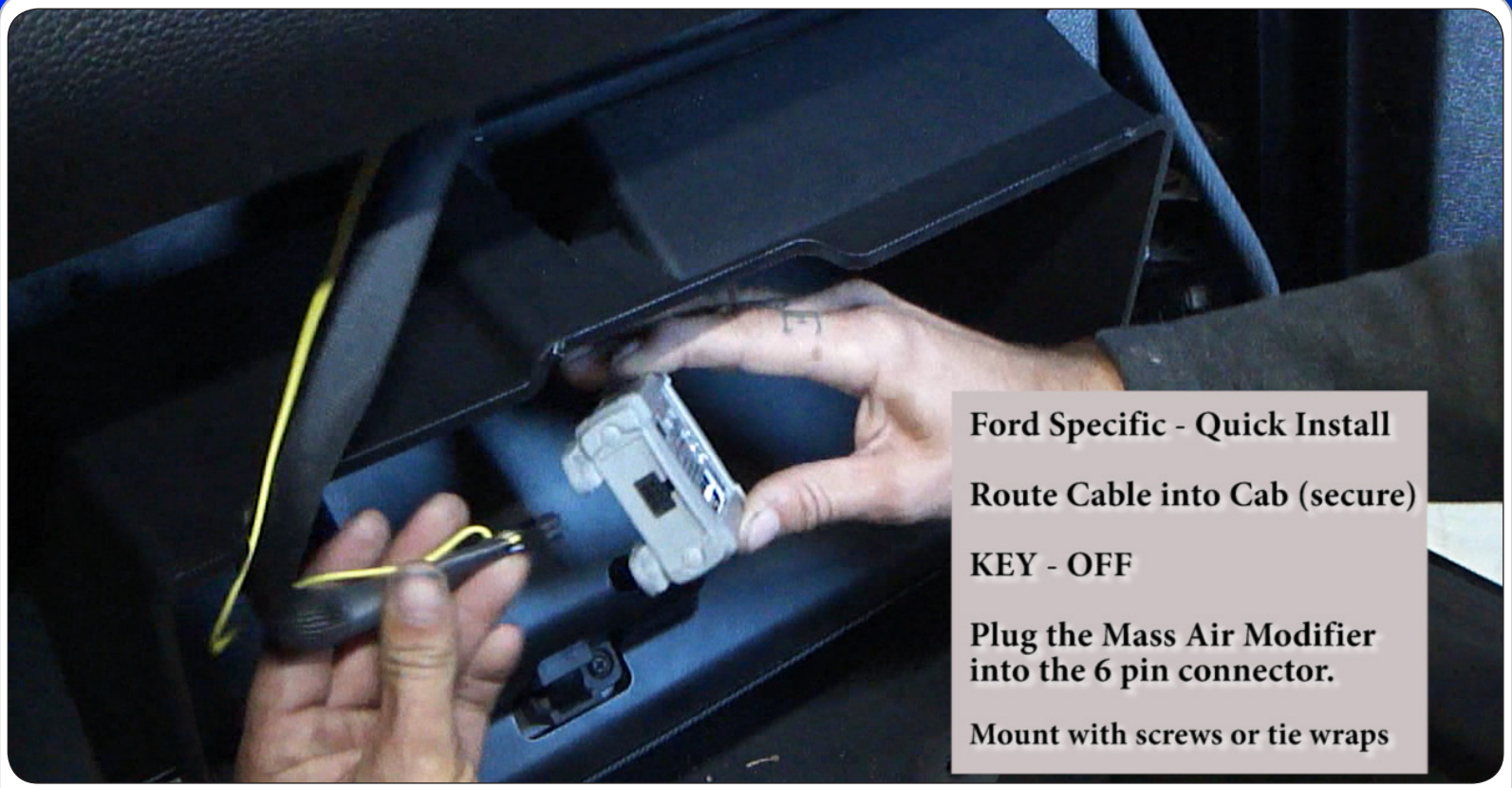

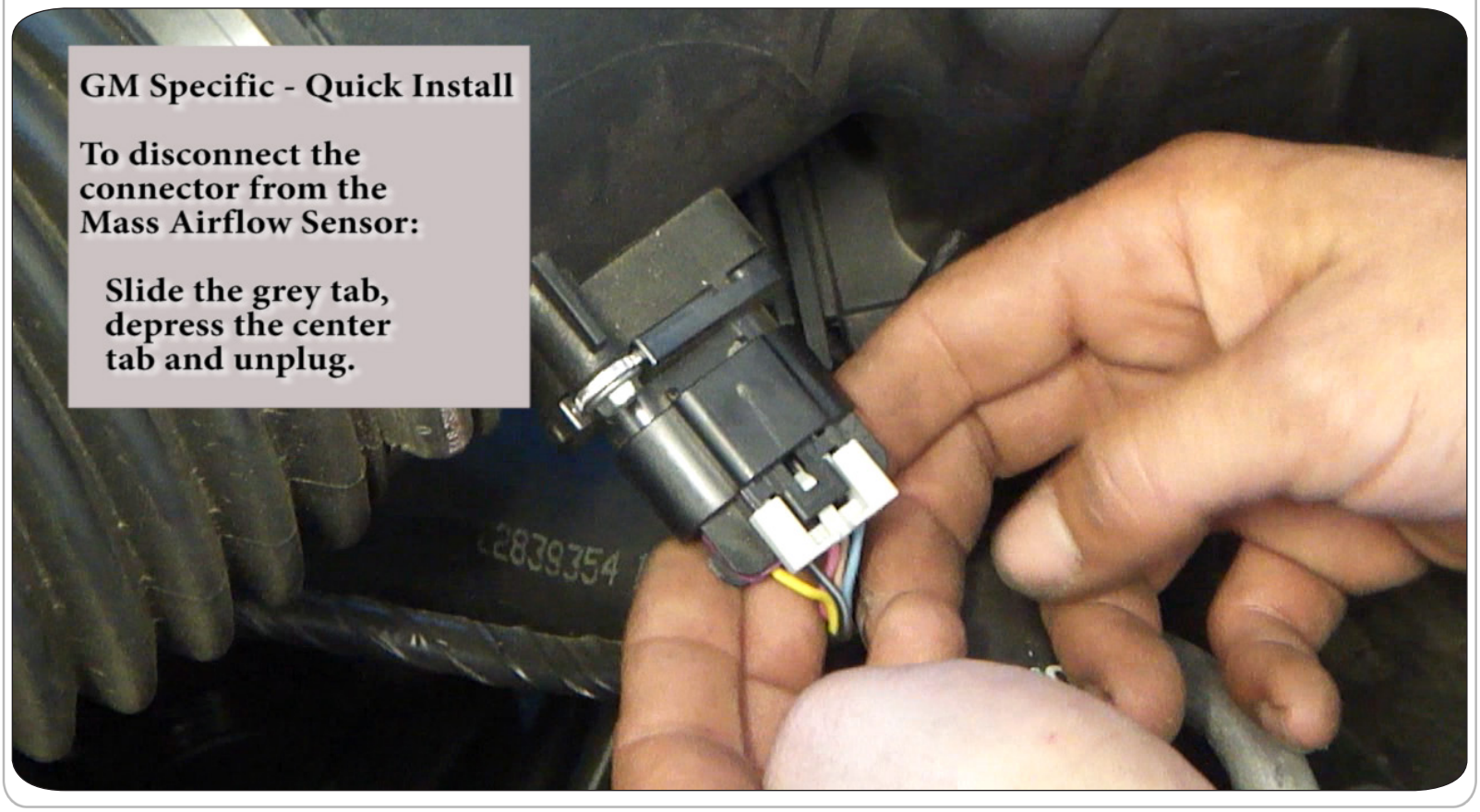

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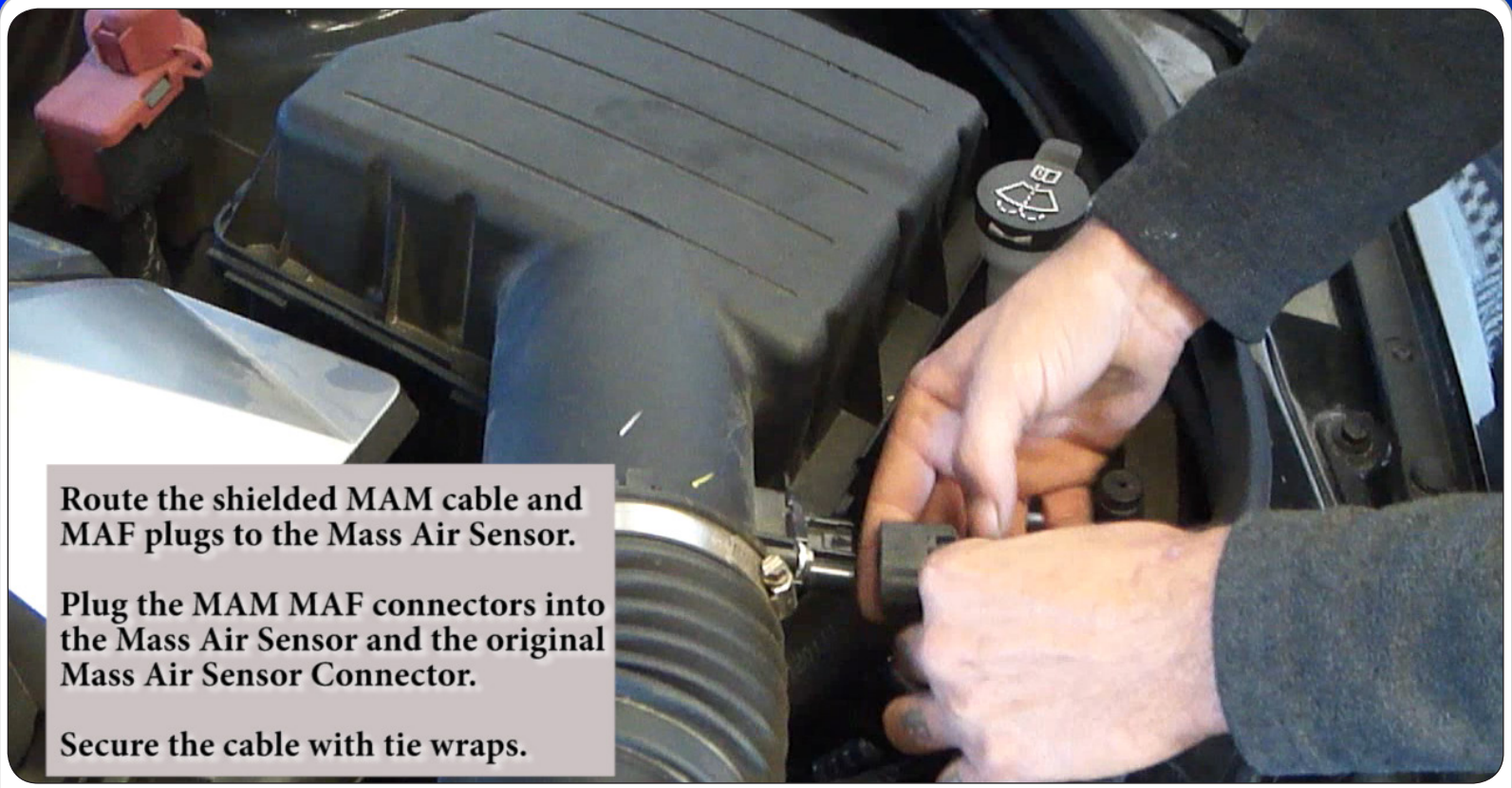

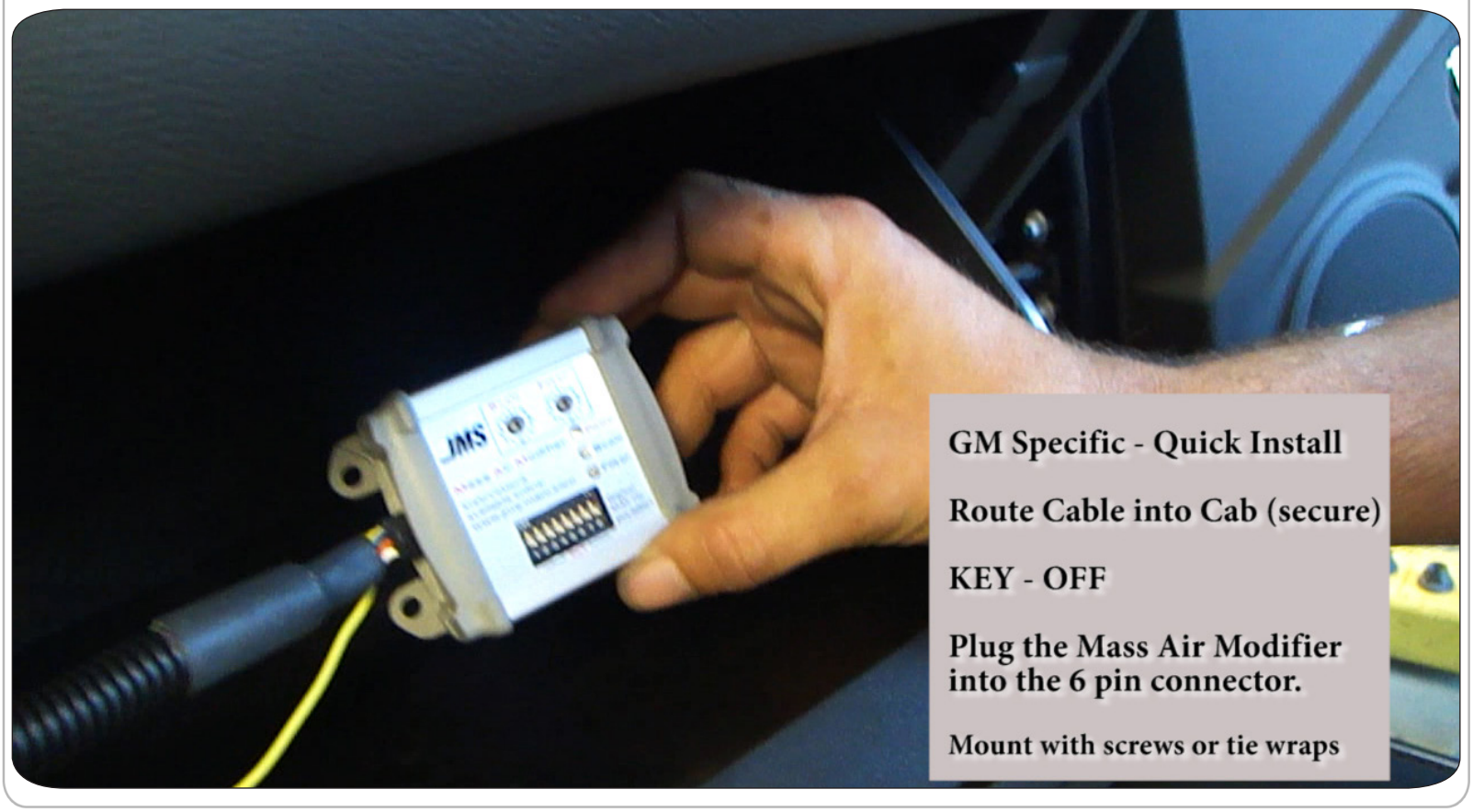

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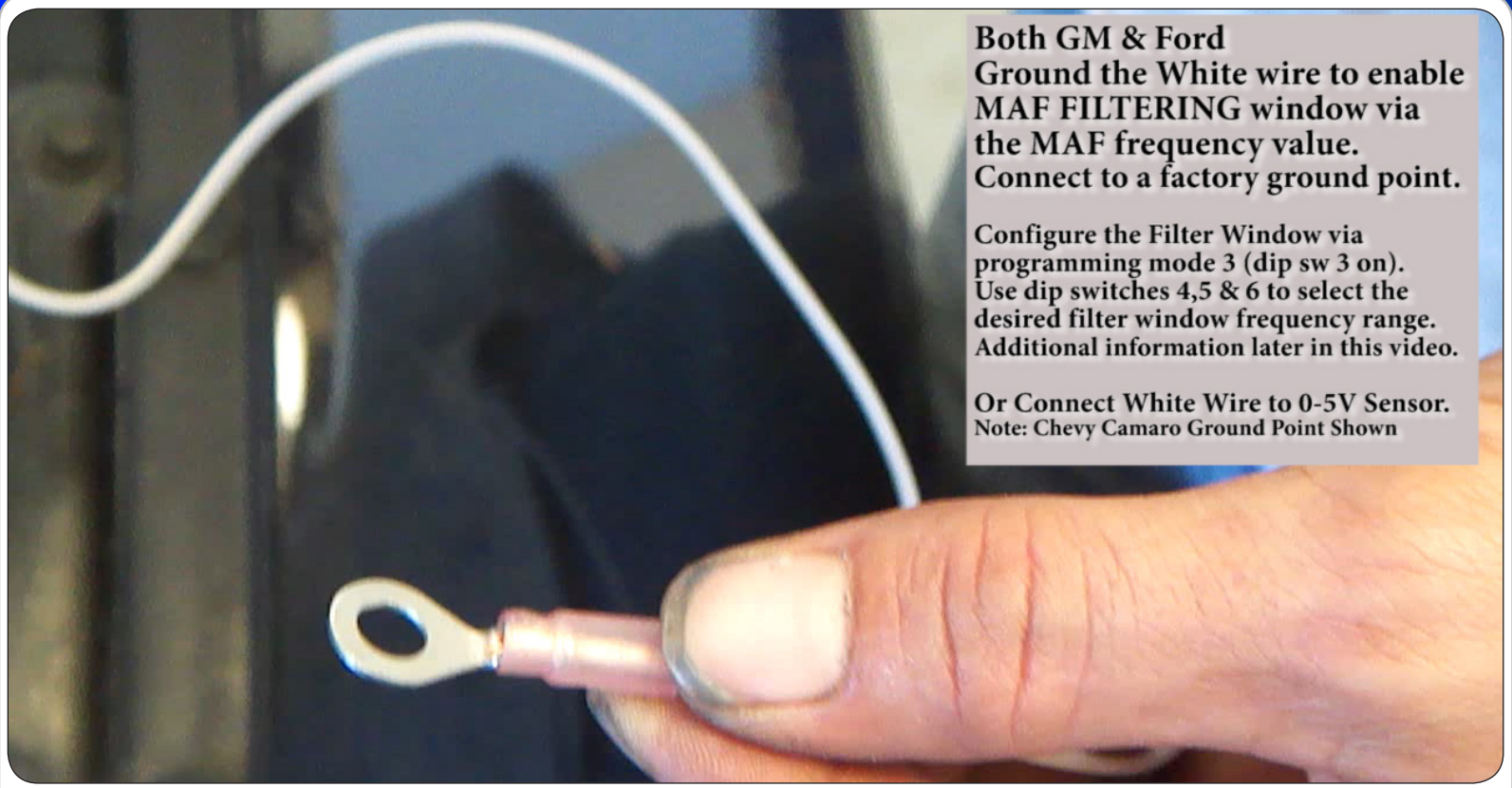

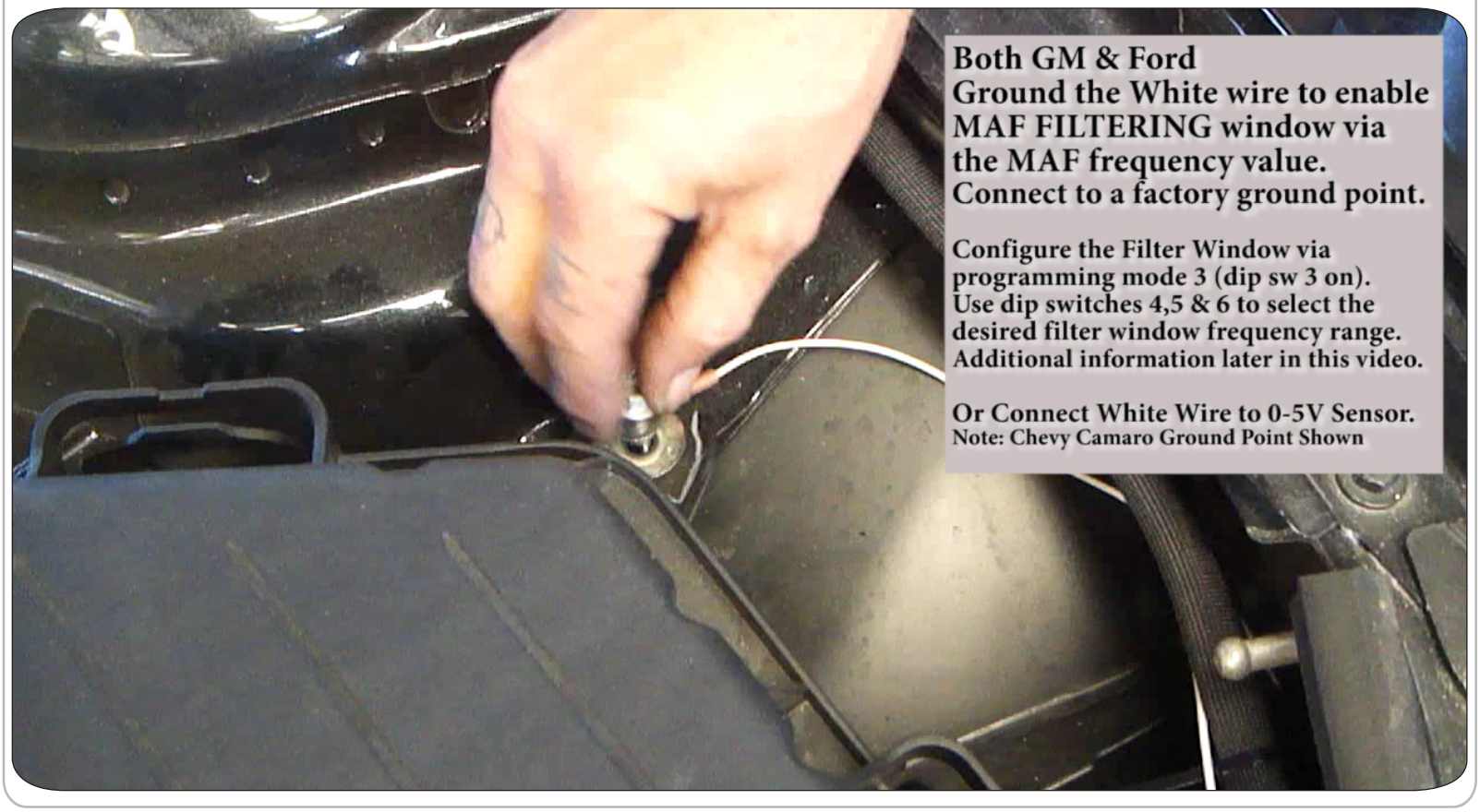

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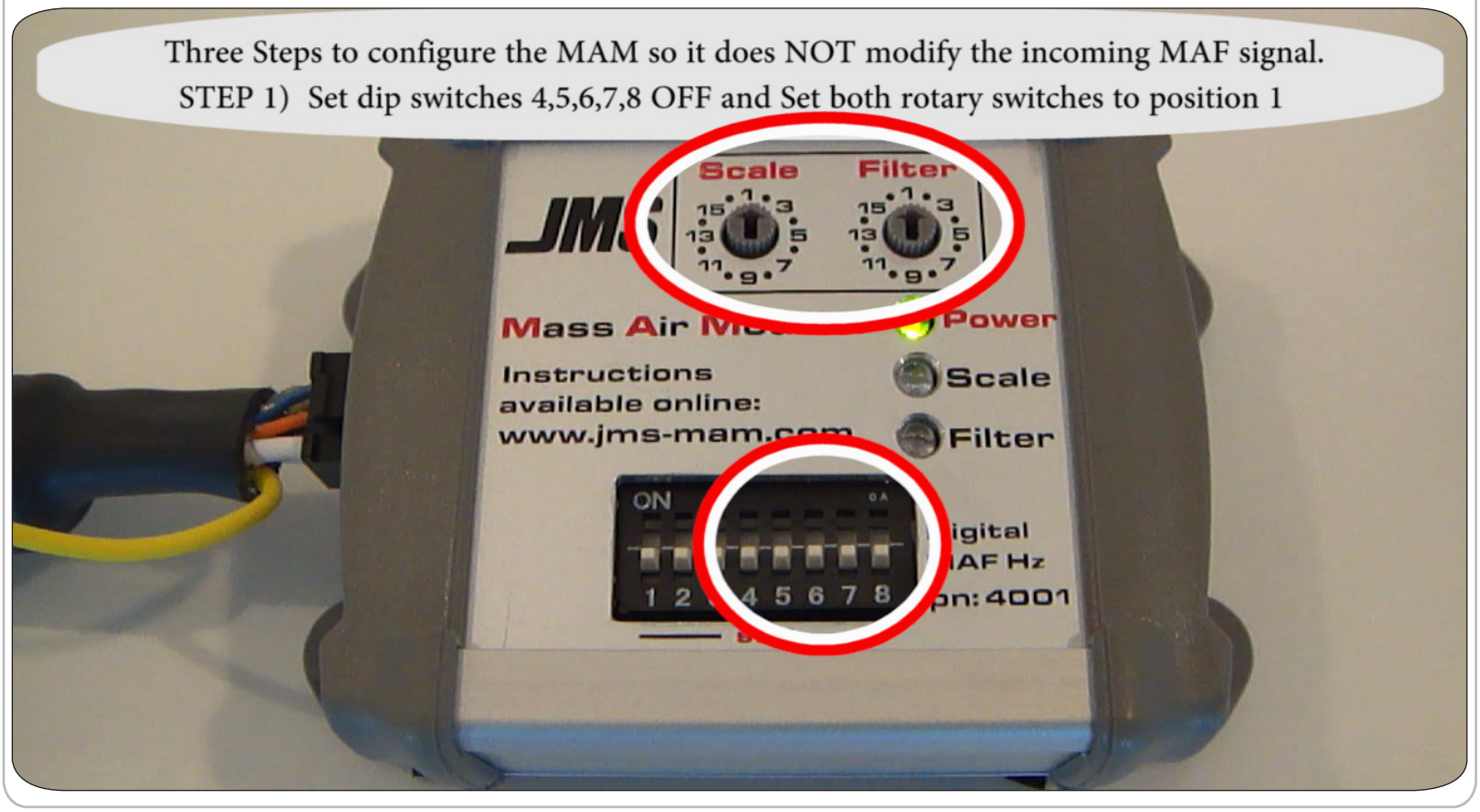
To Configure: Turn the ignition key ON: Power LED illuminates (MAM is ON).
Anytime the MAM unit is powered ON: MAF signal is modified based on stored settings.

Three Steps to configure the MAM so it does NOT modify the incoming MAF signal.
STEP 1) Set dip switches 4,5,6,7,8 OFF and Set both rotary switches to position 1

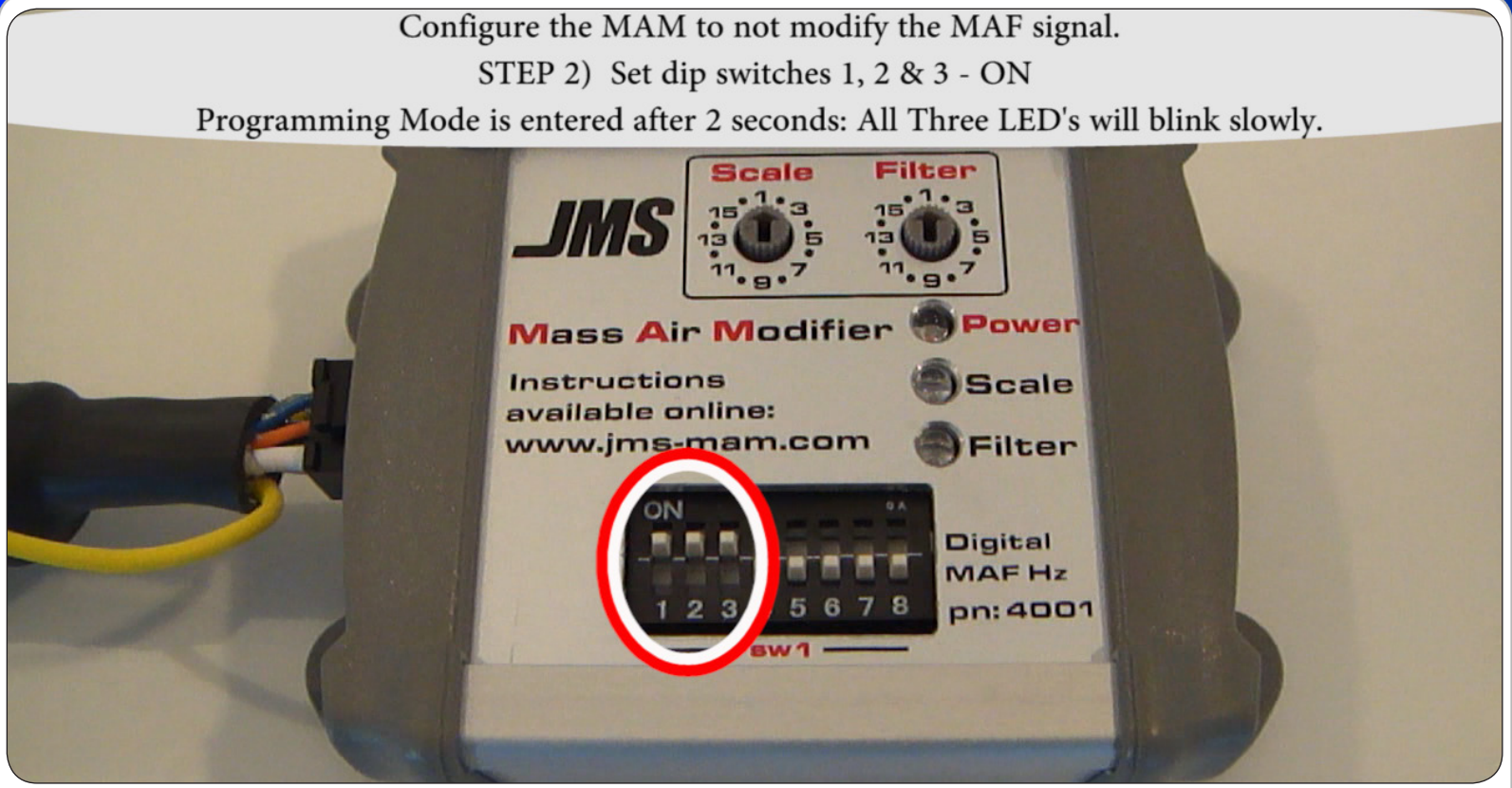


INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002

Configure the MAM to not modify the MAF signal.

STEP 2) Set dip switches 1, 2 & 3 - ON

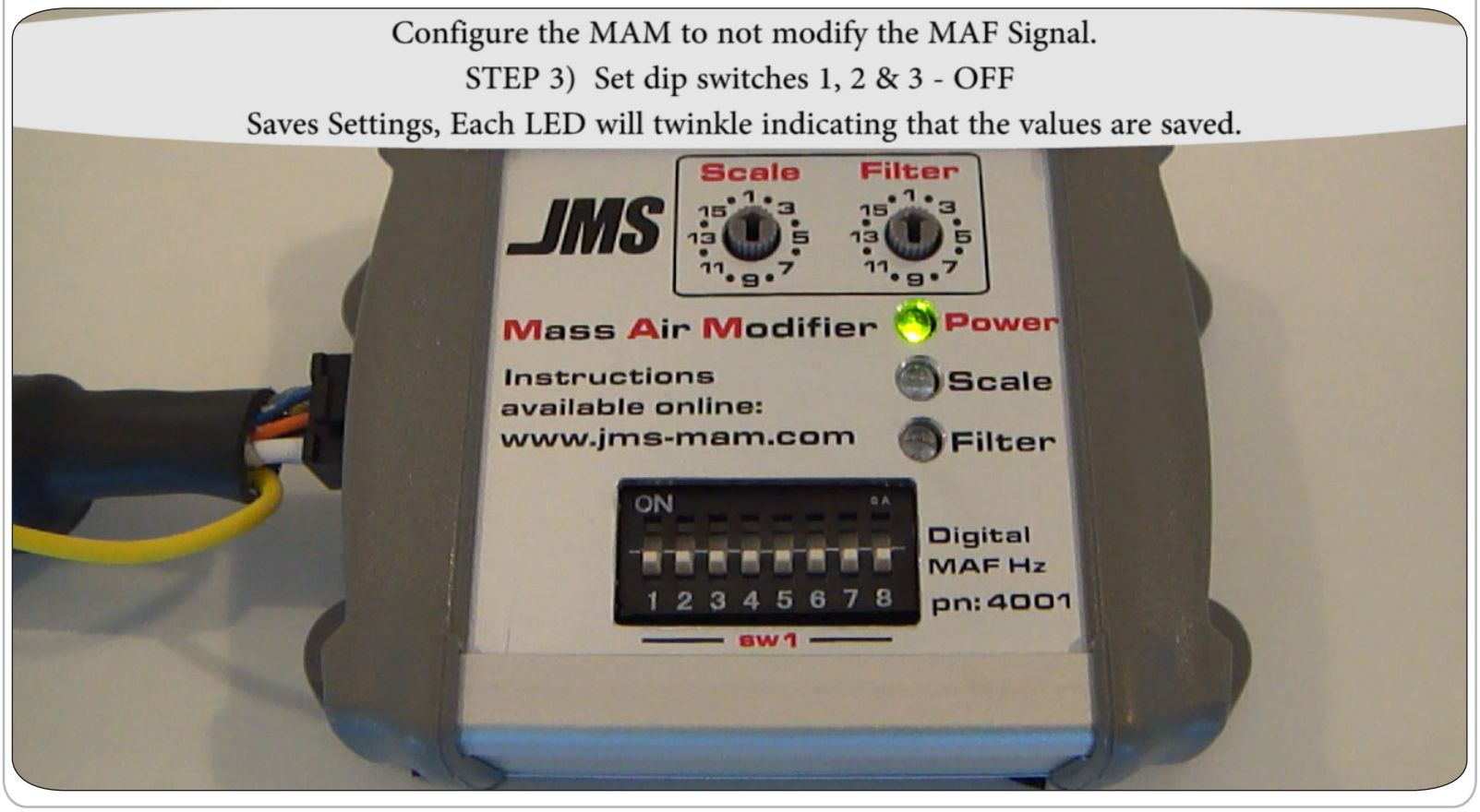
Programming Mode is entered after 2 seconds: All Three LED's will blink slowly.



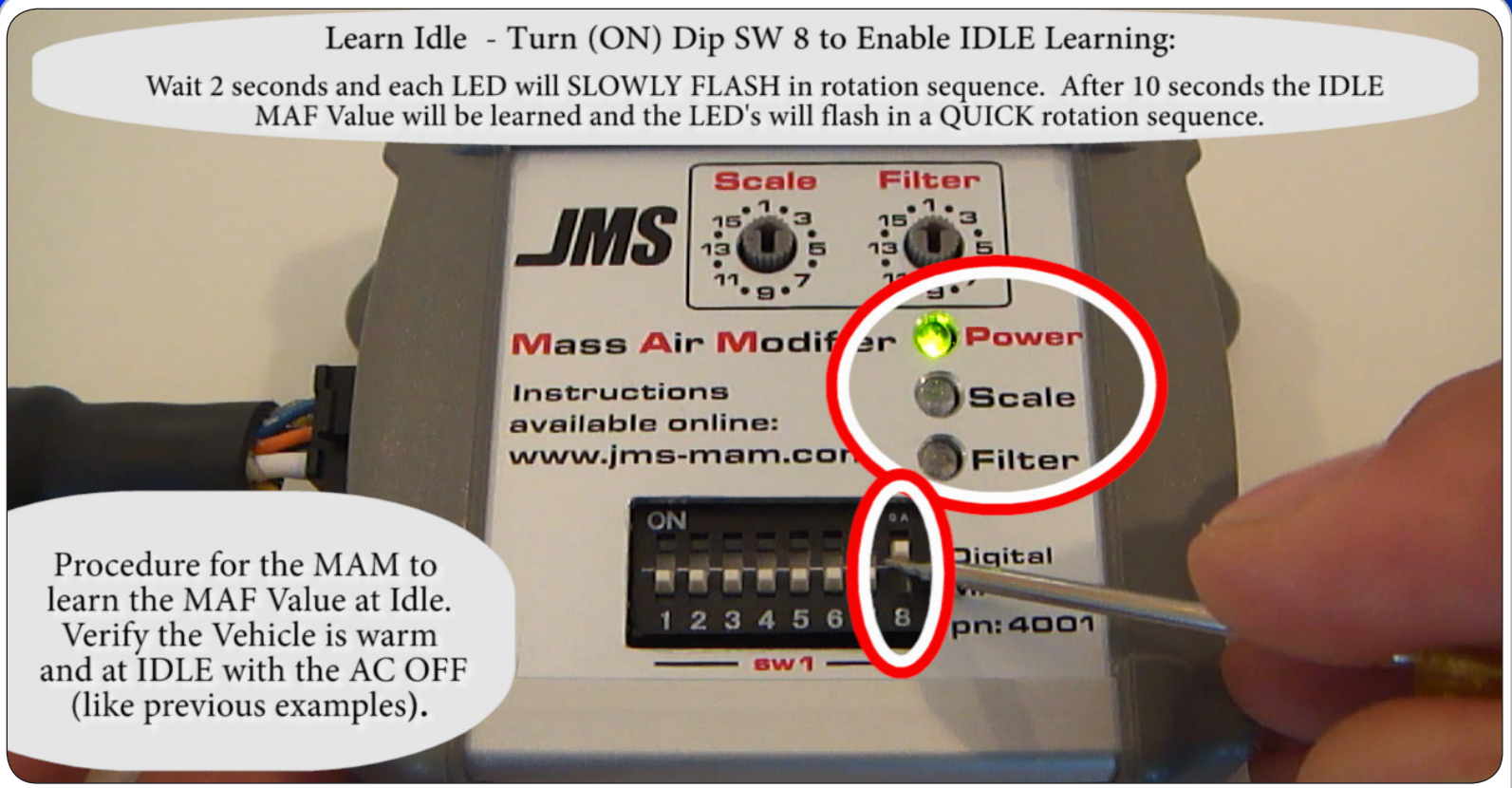
Configure the MAM to not modify the MAF Signal.

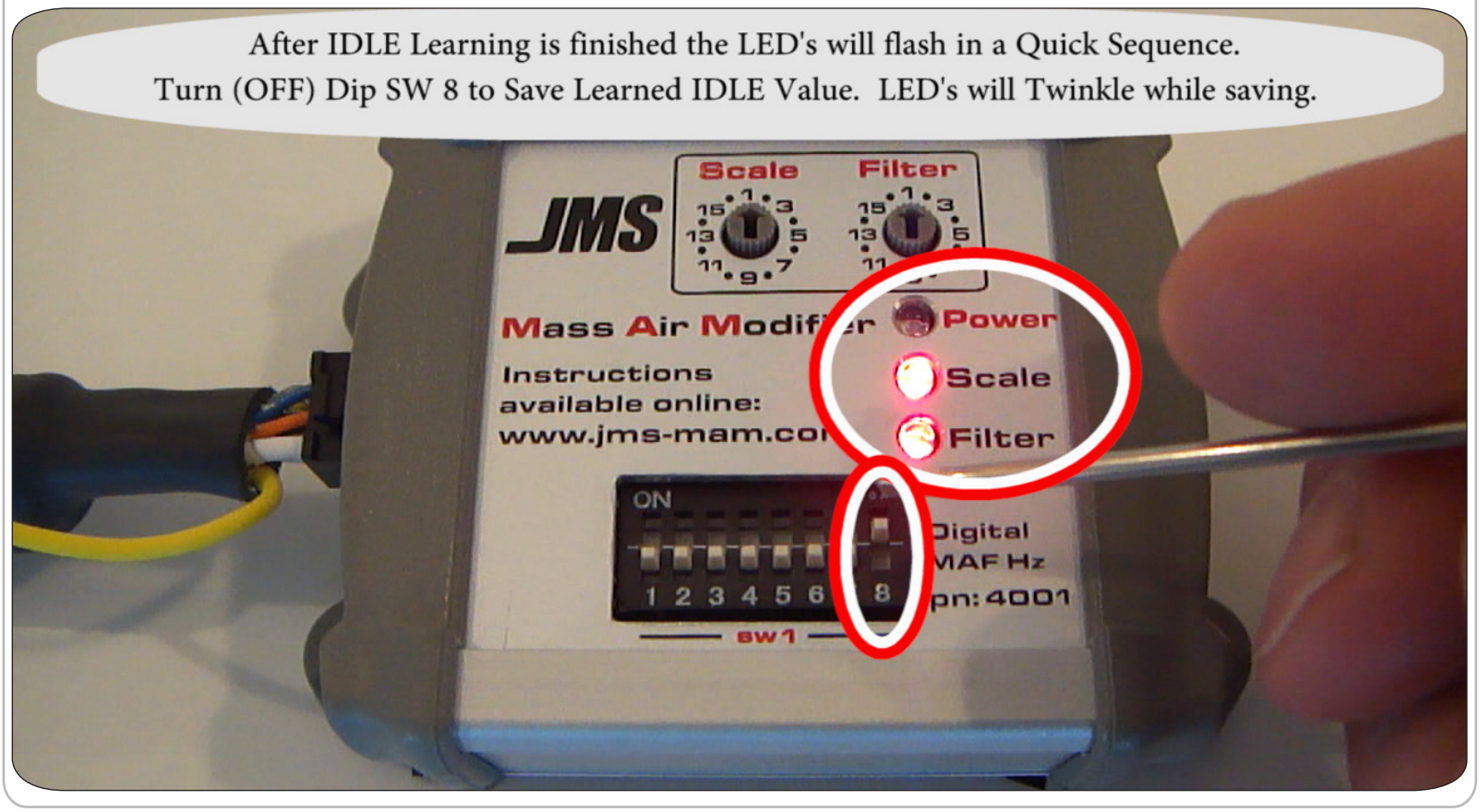
STEP 3) Set dip switches 1, 2 & 3 - OFF

Saves Settings, Each LED will twinkle indicating that the values are saved.

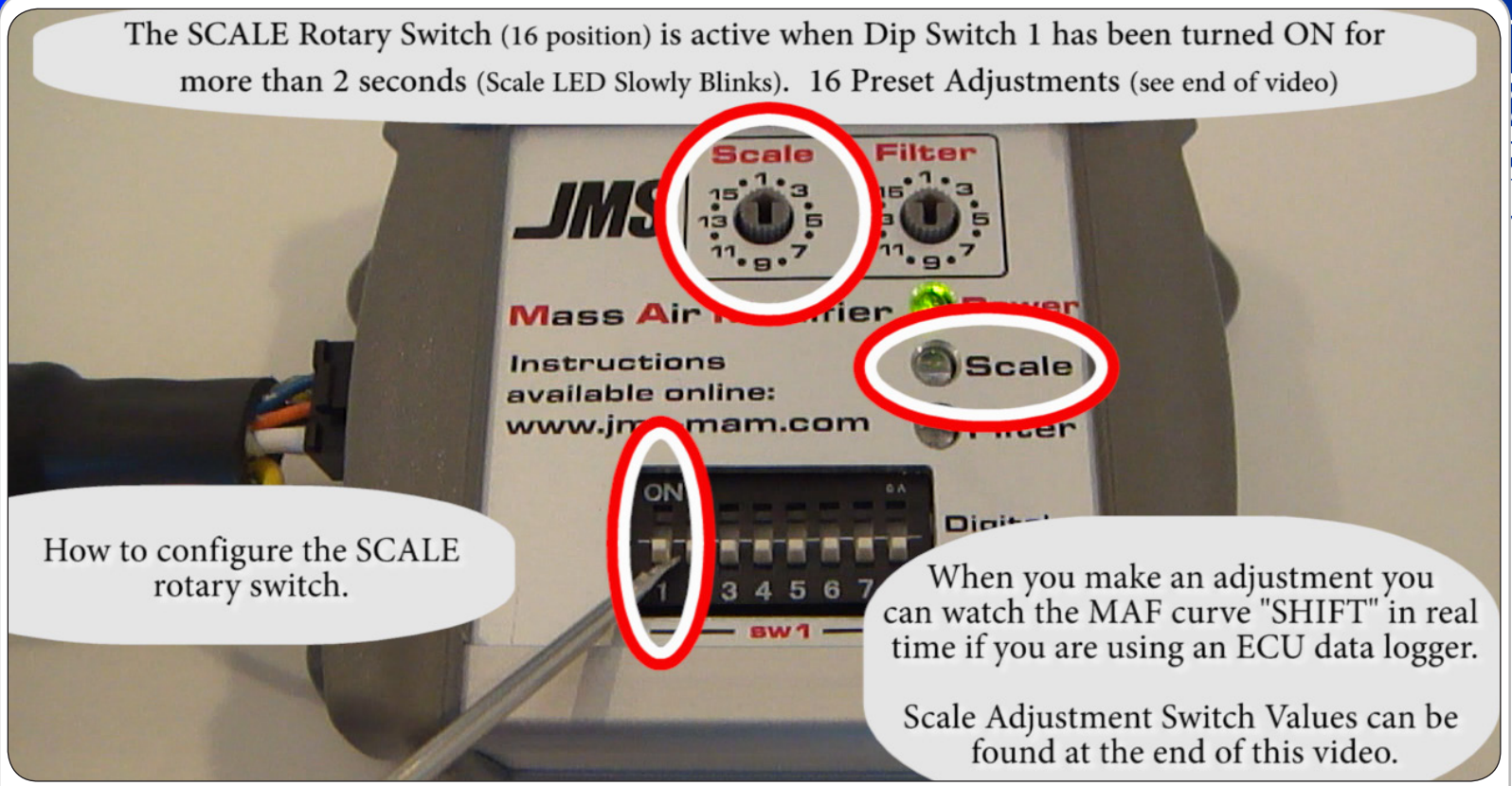


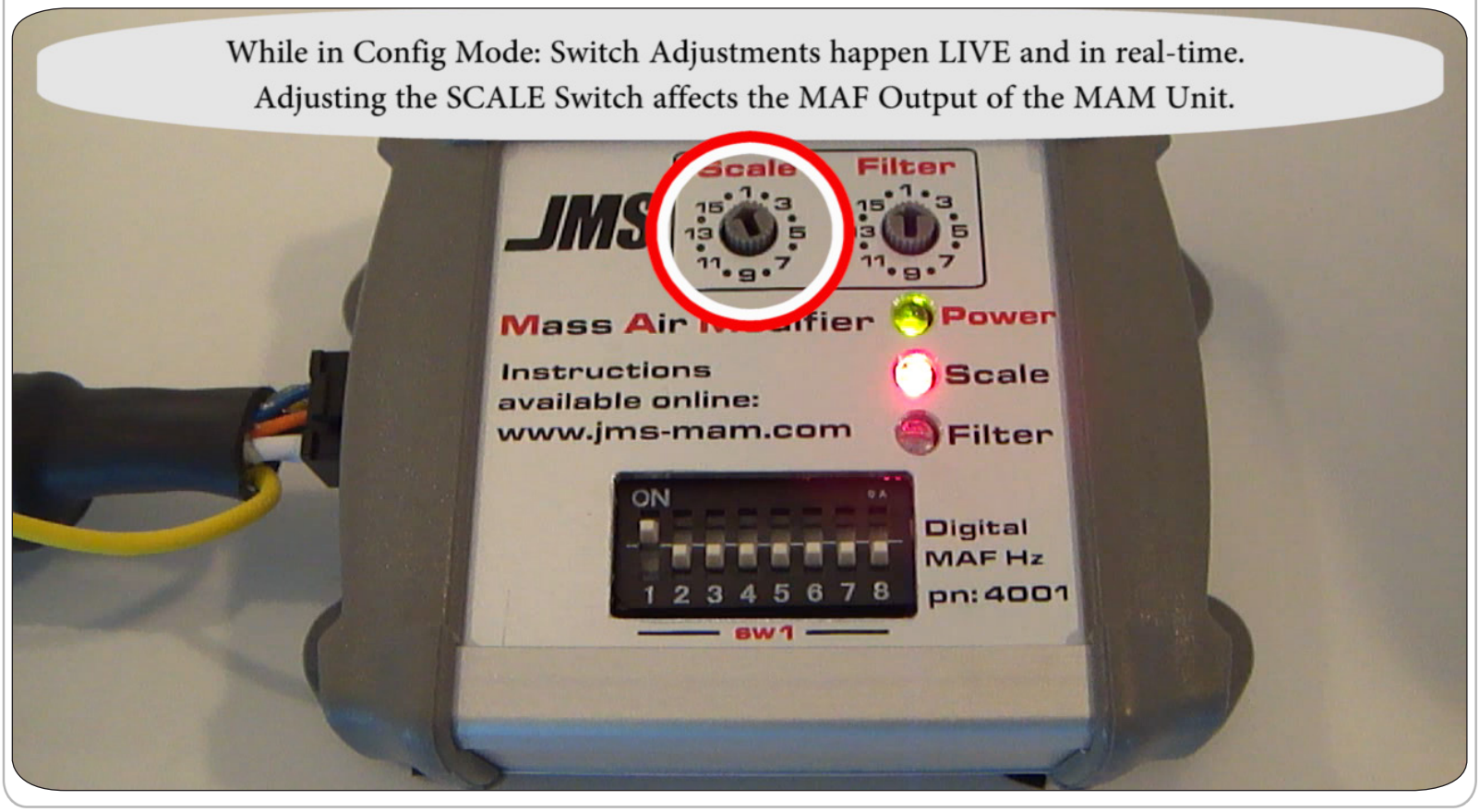
INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002





INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002

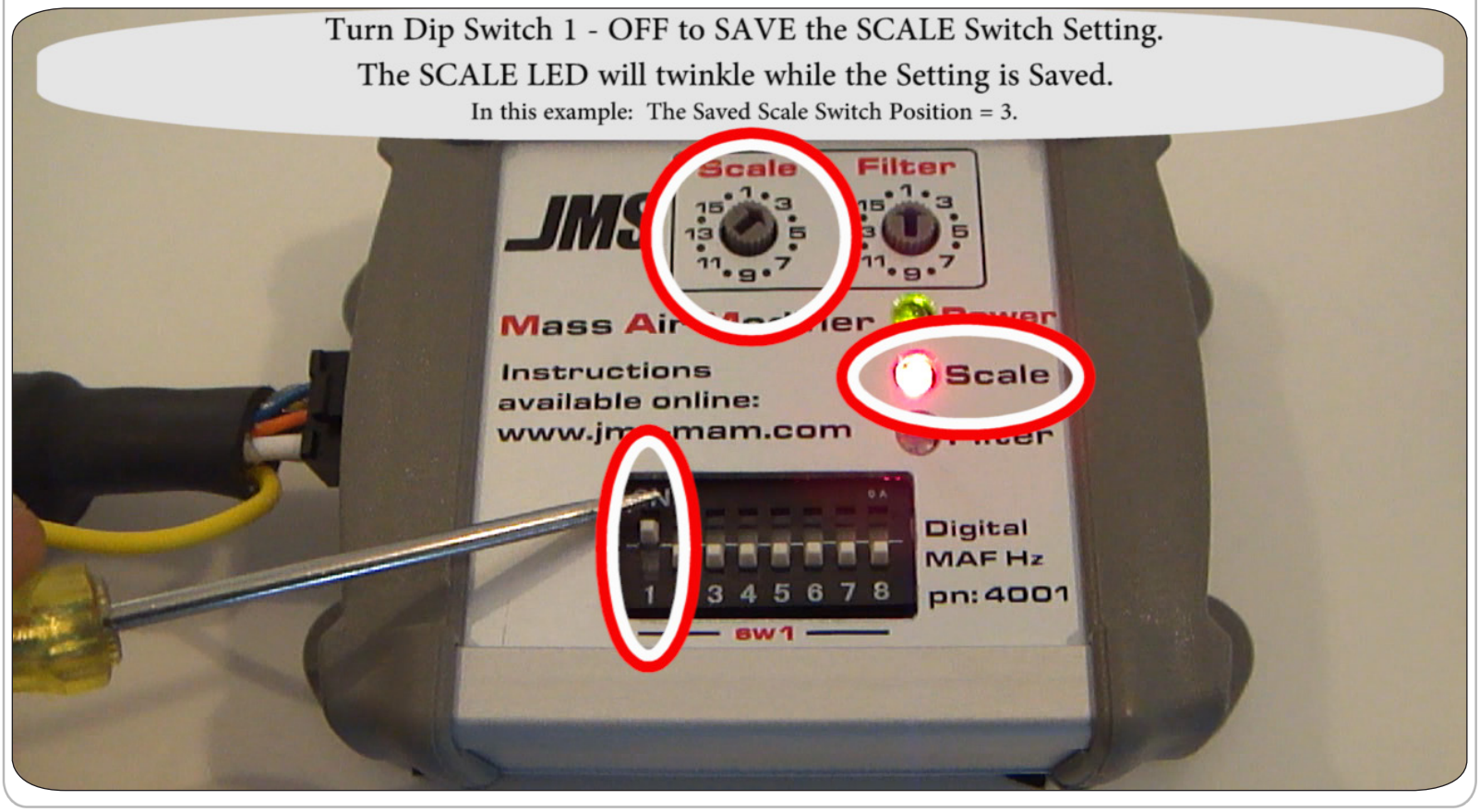




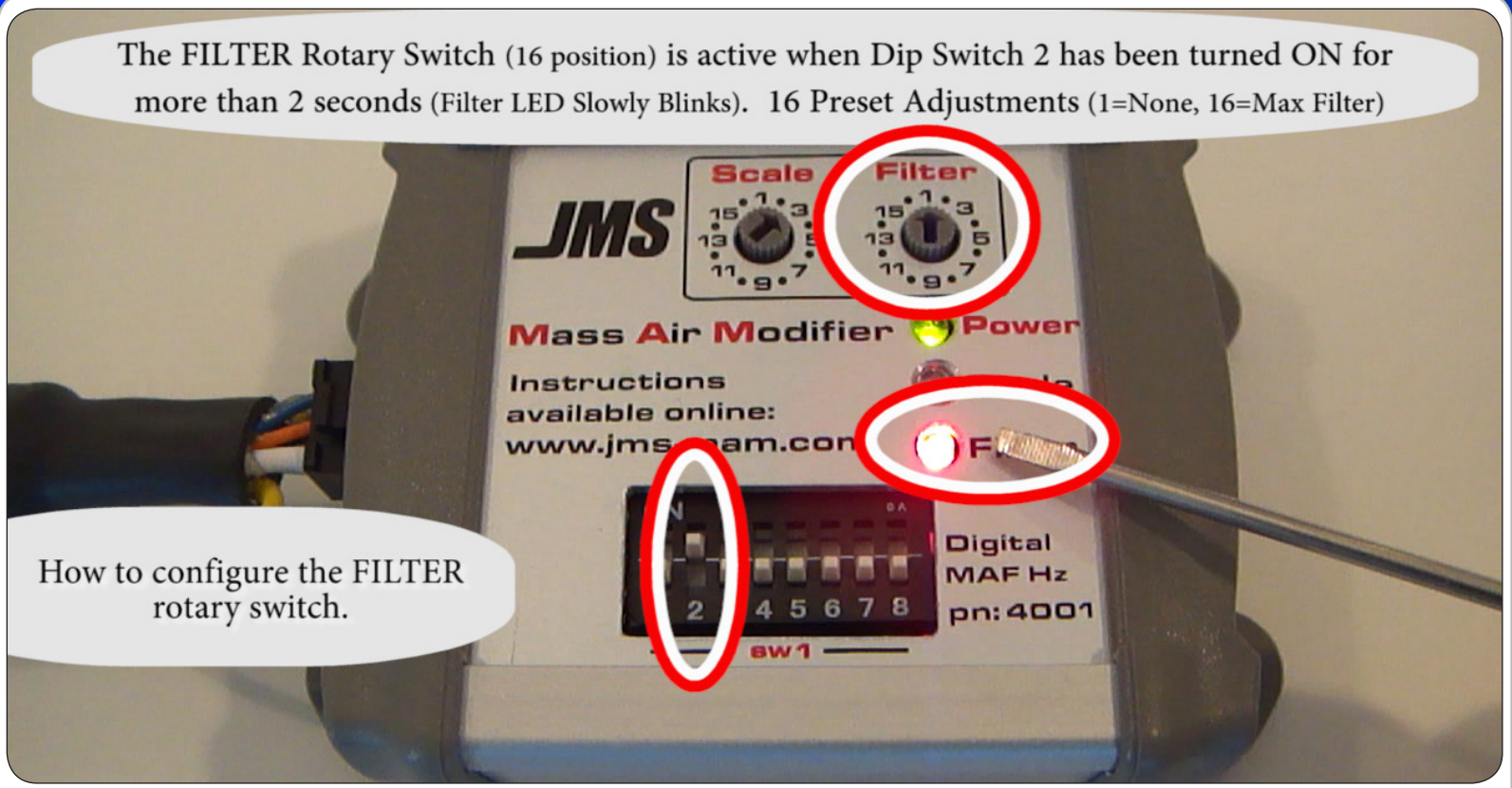
Scale Rotary Switch Settings

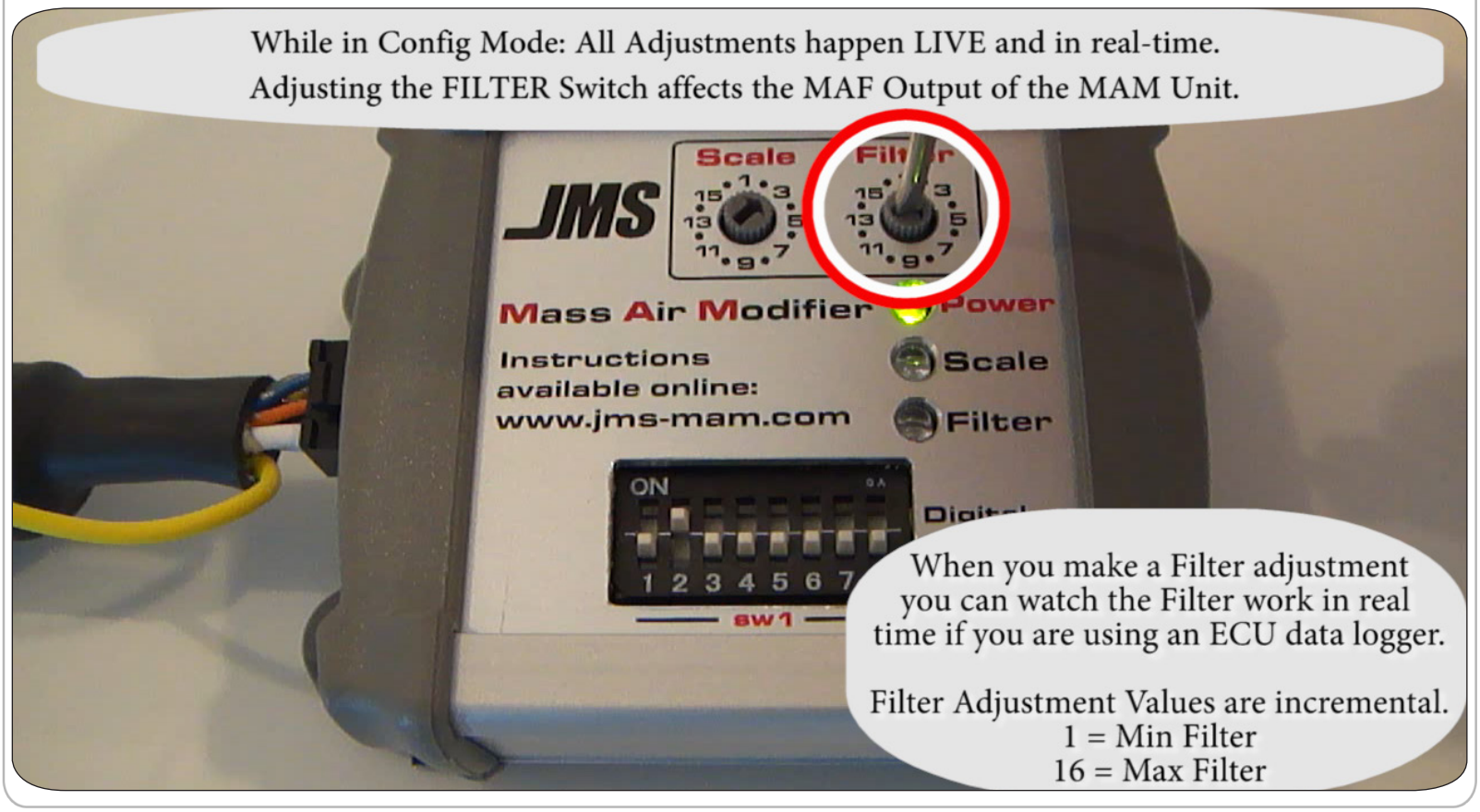
1 = Stock No change	9 = 25% Less (Leaner)
2 = 1% Less (Leaner)	10 = 30% Less (Leaner)
3 = 2% Less (Leaner)	11 = 35% Less (Leaner)
4 = 3% Less (Leaner)	12 = 5% More (Richer)
5 = 4% Less (Leaner)	13 = 4% More (Richer)
6 = 10% Less (Leaner)	14 = 3% More (Richer)
7 = 15% Less (Leaner)	15 = 2% More (Richer)
8 = 20% Less (Leaner)	16 = 1% More (Richer)

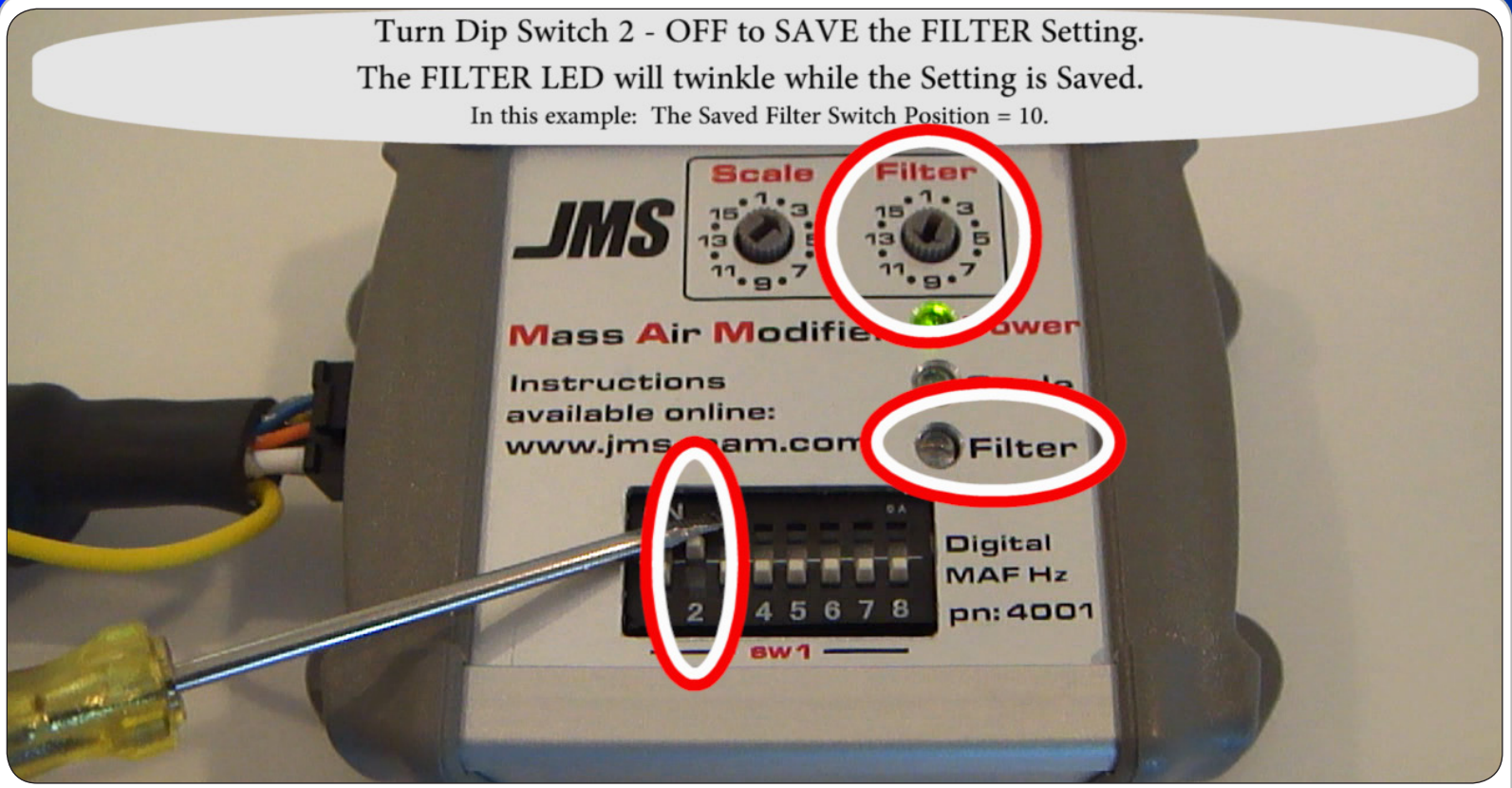
Note: The scale percentage values are the same for both the digital (period) and analog (voltage) MAM units.



INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002



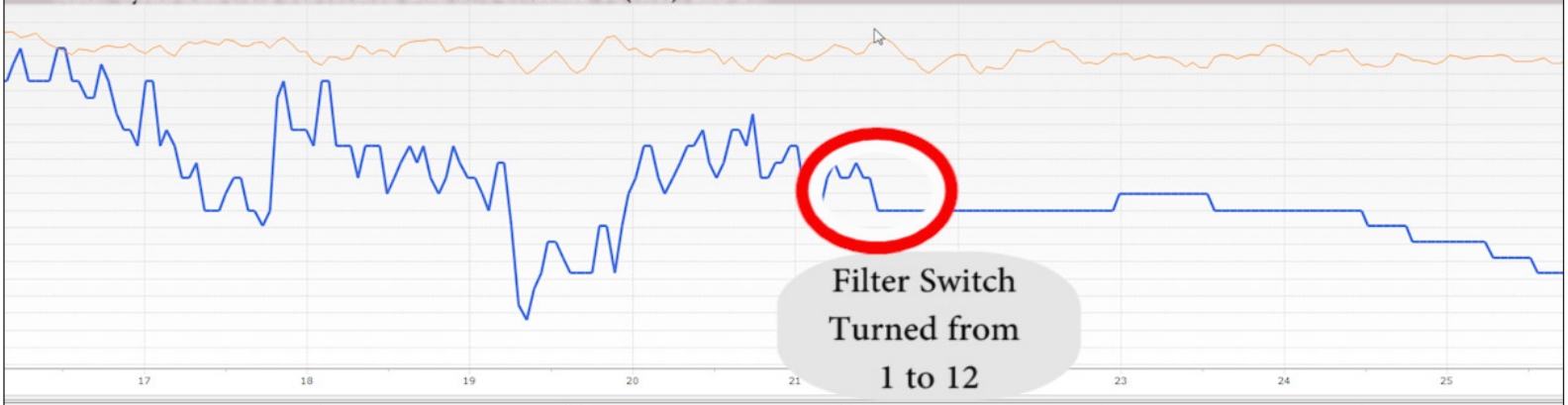




MAM Filter Example 1: Digital MAM 4001 (2012 Ford Focus - Stock)

Filter Switch Pos 12 (Higher value = more filtering)
Compare Blue Line : Stock MAF Output (Noisy) to Modified MAM Filter Value on Right (MAM = Reduced Noise).

Note: To filter an area higher than idle: adjust the filter window. In this case filter window 4 was selected (Idle + 1280HZ (above learned idle Hz)).
Note: Dyno Run Data was recored with SCT LiveLink V2 (free) and X3.

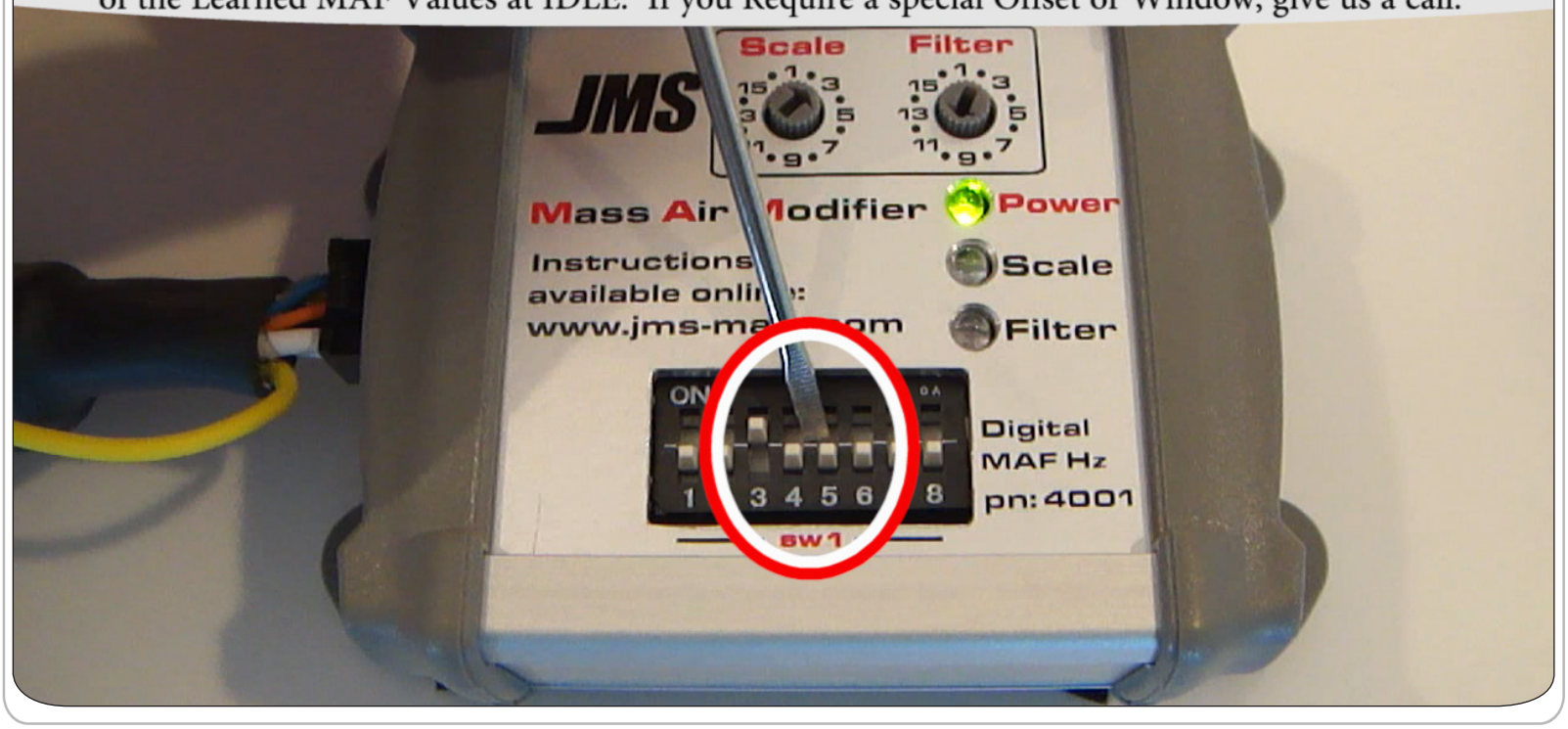


	Value	Min	Max	Avg
TZ	2.16	1.23	2.85	2.15
speed	786.00	489.75	884.25	778.42
_AFR	1.00	0.00	1.22	0.90
BANK1]_EQRatio1_DSD	0.99	0.98	1.01	1.00
1_InverseTmeF	1.02	0.77	1.13	0.99
_in_timesfuel	0.98	0.98	0.98	0.98
pA	101.00	100.00	101.00	100.62
DV	3.50	-3.00	26.00	5.50
V	2.00	-5.25	26.25	5.98
d[0]	0.00	0.00	0.00	0.00
T	2.34	0.33	4.86	2.28
	2.32	0.29	4.86	2.28

INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002

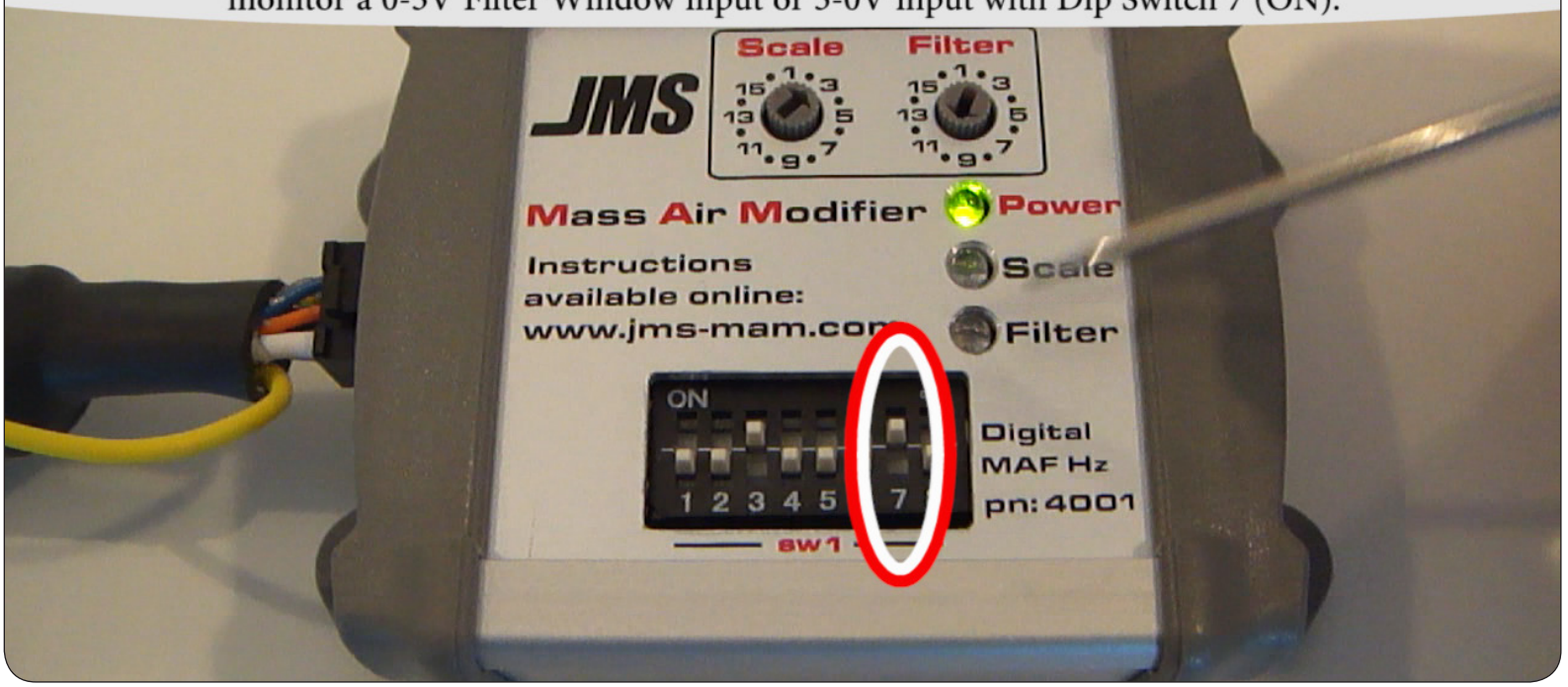
Enter the Filter Window Configuration Mode by turning Dip Switch 3. (Power LED Blinks after 2 seconds) Filter Window is adjusted by setting Dip Switches 4, 5 & 6. The MAF Filter only operates within the Filter Window. All offsets are based off of the Learned MAF Values at IDLE.

Filter Window is adjusted by setting Dip Switches 4, 5 & 6. The MAF Filter only operates within the Filter Window. Dip Switches 4, 5 & 6 define the offsets for the MAF Filter. The Offset is based off of the Learned MAF Values at IDLE. If you Require a special Offset or Window, give us a call.

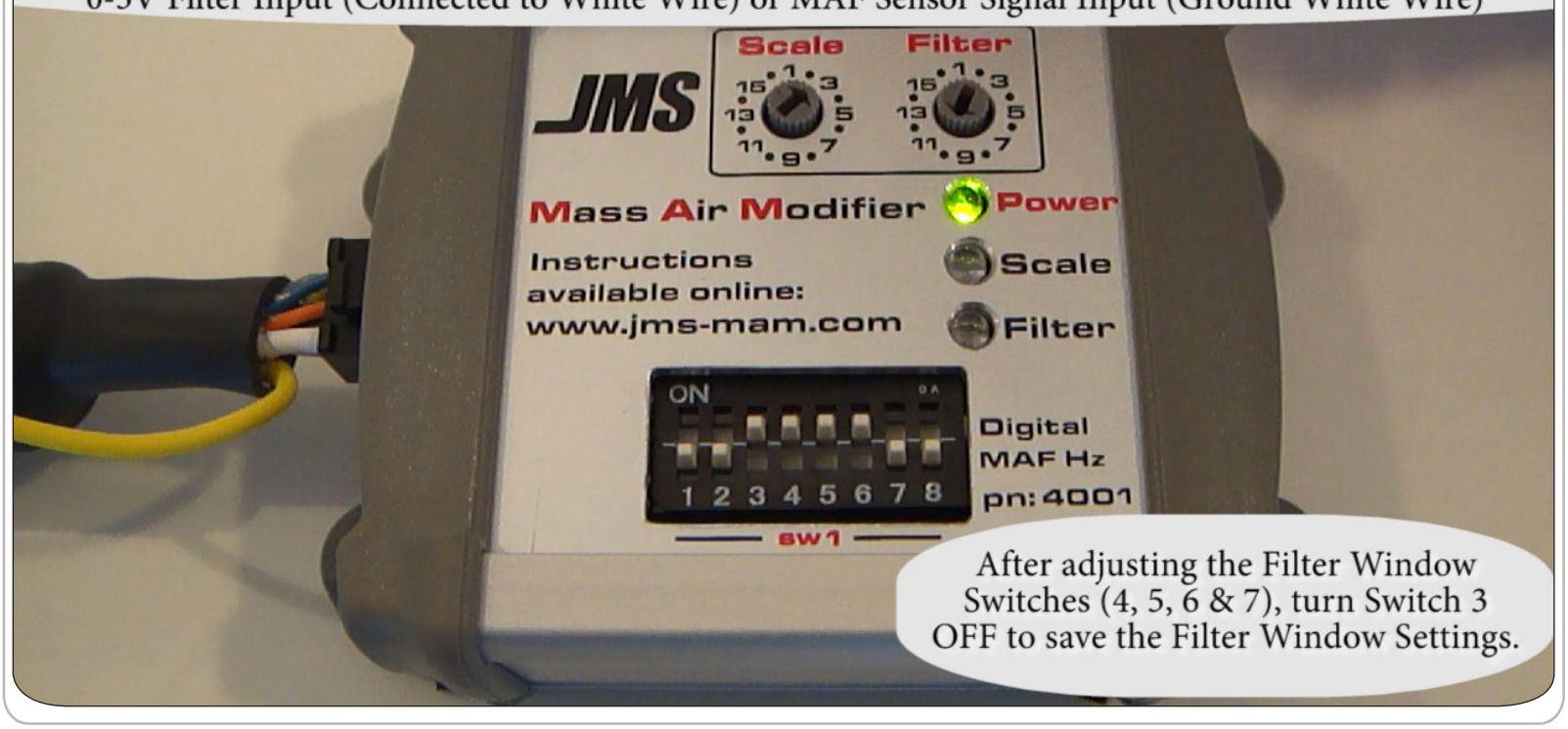


INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002

Setting Dip Switch 7 - (ON) INVERTS the 0-5V Filter Input.
The white wire can either be connected to GROUND (uses the MAF Signal as filter input) or it can monitor a 0-5V Filter Window input or 5-0V input with Dip Switch 7 (ON).



With Dip Switch 3 Set to (ON): Adjust the Filter Window Dip Switches.
Note: The Filter Window offset depends on which Filter Input you use.
0-5V Filter Input (Connected to White Wire) or MAF Sensor Signal Input (Ground White Wire)



Filter Window Input Dip Switch Settings - Digital MAF Mass Air Modifier pn 4100 :

White Wire Connected to Ground (Filter Window uses MAF Frequency as INPUT)

- **Filter from IDLE to** (IDLE+1500Hz) - (SW 4 - OFF)(SW 5 - OFF)(SW 6 - OFF)
- **Filter from IDLE to** (IDLE+1000Hz) **-** (SW 4 - ON)(SW 5 - OFF)(SW 6 - OFF)
- **Filter from IDLE to** (IDLE+500Hz) **-** (SW 4 - OFF)(SW 5 - ON)(SW 6 - OFF)
- **Filter from** (IDLE+640Hz) **to** (IDLE+1640Hz) **-** (SW 4 - ON)(SW 5 - ON)(SW 6 - OFF)
- **Filter from** (IDLE+1280Hz) **to** (IDLE+2280Hz) **-** (SW 4 - OFF)(SW 5 - OFF)(SW 6 - ON)
- **Filter from** (IDLE+1920Hz) **to** (IDLE+2920Hz) **-** (SW 4 - ON)(SW 5 - OFF)(SW 6 - ON)
- **Filter from** (IDLE+2560Hz) **to** (IDLE+3560Hz) **-** (SW 4 - OFF)(SW 5 - ON)(SW 6 - ON)
- **Filter from** (IDLE+3200Hz) **to** (IDLE+4200Hz) **-** (SW 4 - ON)(SW 5 - ON)(SW 6 - ON)

White Wire Connected to 0 - 5 V Input(Filter Window uses External Sensor as INPUT) - [TPS, PPS, MAP])

- **Filter from IDLE to (IDLE+100 Counts[0.48v]) -** (SW 4 - OFF)(SW 5 - OFF)(SW 6 - OFF)
- **Filter from IDLE to (IDLE+40 Counts[0.19v] -** (SW 4 - ON)(SW 5 - OFF)(SW 6 - OFF)
- **Filter from (IDLE+30 Counts[0.14v]) to (IDLE+110 Counts[0.53v]) -** (SW 4 - OFF)(SW 5 - ON)(SW 6 - OFF)
- **Filter from (IDLE+60 Counts[0.29v]) to (IDLE+140 Counts[0.68v]) -** (SW 4 - ON)(SW 5 - ON)(SW 6 - OFF)
- **Filter from (IDLE+90 Counts[0.44v]) to (IDLE+170 Counts[0.83v]) -** (SW 4 - OFF)(SW 5 - OFF)(SW 6 - ON)
- **Filter from (IDLE+120 Counts[0.58v]) to (IDLE+200 Counts[0.97v]) -** (SW 4 - ON)(SW 5 - OFF)(SW 6 - ON)
- **Filter from (IDLE+150 Counts[0.73v]) to (IDLE+230 Counts[1.12v]) -** (SW 4 - OFF)(SW 5 - ON)(SW 6 - ON)
- **Filter from (IDLE+180 Counts[0.87v]) to (IDLE+260 Counts[1.27v]) -** (SW 4 - ON)(SW 5 - ON)(SW 6 - ON)

Filter Window Input Dip Switch Settings - Analog MAF Mass Air Modifier PN 4200 :

White Wire Connected to Ground (Filter Window uses MAF Voltage as INPUT)

- **Filter from IDLE to (IDLE+350 Counts[1.71v]) -** (SW 4 - OFF)(SW 5 - OFF)(SW 6 - OFF)
- **Filter from IDLE to (IDLE+250 Counts[1.22v]) -** (SW 4 - ON)(SW 5 - OFF)(SW 6 - OFF)
- **Filter from IDLE to (IDLE+150 Counts[0.73v]) -** (SW 4 - OFF)(SW 5 - ON)(SW 6 - OFF)
- **Filter from (IDLE+50 Counts[0.24v]) to (IDLE+350 Counts[1.71v]) -** (SW 4 - ON)(SW 5 - ON)(SW 6 - OFF)
- **Filter from (IDLE+75 Counts[0.36v]) to (IDLE+375 Counts[1.83v]) -** (SW 4 - OFF)(SW 5 - OFF)(SW 6 - ON)
- **Filter from (IDLE+100 Counts[0.48v]) to (IDLE+400 Counts[1.95v]) -** (SW 4 - ON)(SW 5 - OFF)(SW 6 - ON)
- **Filter from (IDLE+150 Counts[0.73v]) to (IDLE+450 Counts[2.19v]) -** (SW 4 - OFF)(SW 5 - ON)(SW 6 - ON)
- **Filter from (IDLE+200 Counts[0.97v]) to (IDLE+500 Counts[2.44v]) -** (SW 4 - ON)(SW 5 - ON)(SW 6 - ON)

White Wire Connected to 0 - 5 V Input (Filter Window uses External Sensor as INPUT) - [TPS, PPS, MAP]

- **Filter from IDLE to (IDLE+100 Counts[0.48v]) -** (SW 4 - OFF)(SW 5 - OFF)(SW 6 - OFF)
- **Filter from IDLE to (IDLE+40 Counts[0.19v]) -** (SW 4 - ON)(SW 5 - OFF)(SW 6 - OFF)
- **Filter from (IDLE+30 Counts[0.14v]) to (IDLE+110 Counts[0.53v]) -** (SW 4 - OFF)(SW 5 - ON)(SW 6 - OFF)
- **Filter from (IDLE+60 Counts[0.29v]) to (IDLE+140 Counts[0.68v]) -** (SW 4 - ON)(SW 5 - ON)(SW 6 - OFF)
- **Filter from (IDLE+90 Counts[0.44v]) to (IDLE+170 Counts[0.83v]) -** (SW 4 - OFF)(SW 5 - OFF)(SW 6 - ON)
- **Filter from (IDLE+120 Counts[0.58v]) to (IDLE+200 Counts[0.97v]) -** (SW 4 - ON)(SW 5 - OFF)(SW 6 - ON)
- **Filter from (IDLE+150 Counts[0.73v]) to (IDLE+230 Counts[1.12v]) -** (SW 4 - OFF)(SW 5 - ON)(SW 6 - ON)
- **Filter from (IDLE+180 Counts[0.87v]) to (IDLE+260 Counts[1.27v]) -** (SW 4 - ON)(SW 5 - ON)(SW 6 - ON)

INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002

LED DETAILS:

Power GREEN LED - Six potential states:

- OFF = Unit is not powered. Vehicle is OFF or the MAM Unit is not plugged into 6 pin or MAF Vehicle Harness.
- ON Solid = MAM unit is powered and functioning.
- Slow Flash = Dip Switch 3 (ON) - Configuring Filter Window Range via Dip Switches 4-7.
- Twinkle = Dip Switch 3 (OFF) - Power LED Twinkles while saving the Filter Window Dip Switch Values (sw 4-7).
- Note: Fast and Slow Rotation Sequence = Learn Idle Values, LEDS Sequence ON/OFF from Bottom to Top
- Slow Rotation Sequence = Dip Switch 8 (ON) - Sampling the Idle MAF Value and 0-5V external sensor value
- Fast Rotation Sequence = Dip Switch 8 (ON) - Idle MAF and 0-5v external sensor values have been learned.

Scale RED LED - Five potential states:

- OFF = Operate using Saved SCALE Rotary Switch Value from Memory
- Slow Flash = Dip Switch 1 (ON) - Configure SCALE Rotary Switch Setting: If you Adjust the SCALE Rotary Switch the MAF Signal is Modified "Live, On the Fly".
- Twinkle = Dip Switch 1 (OFF) - Scale LED Twinkles while saving the SCALE Rotary Switch Value.
- Note: Fast and Slow Rotation Sequence = Learn Idle Values, LEDS Sequence ON/OFF from Bottom to Top
- Slow Rotation Sequence = Dip Switch 8 (ON) - Sampling the Idle MAF Value and 0-5V external sensor value
- Fast Rotation Sequence = Dip Switch 8 (ON) - Idle MAF and 0-5v external sensor values have been learned.

Filter RED LED - Five potential states:

- OFF = Operate using Saved FILTER Rotary Switch Value from Memory
- Slow Flash = Dip Switch 2 (ON) - Configure FILTER Rotary Switch Setting: If you Adjust the FILTER Rotary Switch the MAF Signal is Filtered "Live, On the Fly".
- Twinkle = Dip Switch 1 (OFF) - FILTER LED Twinkles while saving the FILTER Rotary Switch Value.
- Note: Fast and Slow Rotation Sequence = Learn Idle Values, LEDS Sequence ON/OFF from Bottom to Top
- Slow Rotation Sequence = Dip Switch 8 (ON) - Sampling the Idle MAF Value and 0-5V external sensor value
- Fast Rotation Sequence = Dip Switch 8 (ON) - Idle MAF and 0-5v external sensor values have been learned

WIRE HARNESS & COLOR INFORMATION:

ACTIVATION WIRES:

White Wire (18 GAUGE) - This wire determines which Filter Input to use. If connected to GROUND the MAF Signal itself will be used as the Filter Input. If connected to monitor a 0-5V Signal the 0-5V signal will be used as the Filter Input (external sensor [Pedal Position or Throttle Position or Manifold Pressure])

Yellow Wire (18 GAUGE) - Grounded = Disable the Filter Not Connected = Filter is Operational

SIX WIRE CONNECTOR:

Pin 1 Yellow - Enable Circuit 1 (GROUND ENABLE)

Pin 2 Black - Ground / Wire Shield

Pin 3 Red - +12V Power

Pin 4 Blue - Modified MAM Output to ECU

Pin 5 Brown - Input from MAF Sensor

Pin 6 White - Filter Input Select: Ground = Use MAF Signal as Filter input or connect to 0-5V ext sensor.

FAQ - Frequently Asked Questions

Compiled list of questions from Mass Air Modifier Customers.
If you have product feedback, or if you don't see you question here, please email us your question at: jms@jmschip.com

Filter Window Question - How do you decide which input method to use?

- Testing is the best way to decide which filter method to use.
- When Filtering the MAF signal at idle, typically the MAF Sensor Signal is used as the Filter Input. (Ground White Wire)
- It is recommended to monitor the Throttle Position (TPS) or Pedal Position Sensor (PPS) voltage, if you are trying to focus on correcting a noisy Mass Air Signal issue at cruise.

Filter Window Question - Do I have to run another wire if the MAF is selected as the input method?

- No, when the WHITE Wire is Grounded the MAF Sensor Signal (internal to the MAM) is used as the Filter Input.
- If the WHITE wire is connected to an external 0-5V sensor, the sensor voltage is the Filter Input (TPS, PPS or MAP).

Filter Window Question - When do I need to adjust the filter window?

- The Filter Window should be adjusted if you want to change the area or the range of the filter. The Filter Window Setting set at the factory filters the MAF signal between the Learned Idle Value and an Offset to the Learned Idle Value.

Filter Question - How do you Disable the Filter?

- To Disable the Filter Feature, set the Filter Rotary Switch to position 1 (minimum filter). Turn on Dip Switch 2, wait until the Filter LED Blinks slowly. Turn off Dip Switch 2 (Filter LED will twinkle and the Filter Rotary Switch Setting is saved).
- Grounding the Yellow Wire disables the filter.
- The filter is disabled if the engine is operated outside of the range of the filter window.

Filter Question - Can I just set the filter to the highest setting and go?

- Yes, as long as the vehicle functions normally at the highest filter setting (16).
- Typically we adjust the filter level to the lowest setting that will correct the issue.

Filter Question - What are the downsides to a filter setting that is too high?

- If the filter setting is too high the vehicle may fail to idle after rpm transition.
- If the engine stumbles on heavy tip in, the filter setting might be too high or you need to adjust the filter window.

How much range can be added to a Mass Air Sensor?

- Analog MAF (0-5V) - Conisistent MAF Voltage (+12v) is the main factor that determines how much range can be added. Typically it is safe to scale a MAF sensor up to 20% (Scale Switch Setting 8). Some customers run 35% without issues. For the ultimate in consistency and scaling reliability a JMS PowerMAX can be used to provide a consistent 14v to the ECU/MAF/Ignition.
- Digital MAF (Hz) - The amount of range depends on the maximum output of the sensor. On the GM LS1/LS2 you can install a LS3 sensor and then scale the output down below the ECU maximum using the JMS Mass Air Modifier.

Can a stock Ford MAF (analog) be used on my Supercharged Vehicle?

➛ Yes, however it depends on the total amount of air-flow that the vehicle requres. Scaling over 20% will require testing and data logging on the vehicle to validate that the voltage available at the MAF will support the desired scaling.

How much Horsepower can I make with the stock Ford MAF (analog)?

➛ It depends on the model year, type of vehicle and type of power adder, 90mm MAF Sensors from the 2003-2004 Cobra and 2000-2004 Lightning routinely support 550+rwhp with the addition of a JMS Mass Air Modifier.

What Aftermarket MAF sensors are recommended by JMS?

➛ GM - We recommend all vehicles utilize the OEM LS3 MAF combined with the JMS Mass Air Modifier. LS1/LS2: We offer plug and play adapters that allow the LS3 MAF and MAM to work with the OEM wire harnesses.

➛ Ford - We recommend the 90MM Cobra/Lightning MAF Sensor, Ford GT Supercar MAF Sensor and the SCT BA2600/BA3000 and BA5000 sensors.

Can you use the same calibration/tuning method that the other analog MAF scale devices use?

➛ Yes, you can use their method. However because the JMS MAM is a precision device, it makes the most sense to calibrate the MAF curve up until saturation/pegging and then plug the numbers into the JMS MAM Spreadsheet.

➛ Reduce the value of three parameters - Fuel Injector Low Slope, Fuel Injector High Slope, Engine Displacement

➛ MAM Scale Switch Position 1 - No Change, stock MAF Signal

➛ MAM Scale Switch Position 2 - Multiply the parameters by 0.976 (reduce values by 2.4%)

➛ MAM Scale Switch Position 3 - Multiply the parameters by 0.952 (reduce values by 4.8%)

➛ MAM Scale Switch Position 4 - Multiply the parameters by 0.928 (reduce values by 7.2%)

➛ MAM Scale Switch Position 5 - Multiply the parameters by 0.904 (reduce values by 9.6%)

➛ MAM Scale Switch Position 6 - Multiply the parameters by 0.76 (reduce values by 24%)

➛ MAM Scale Switch Position 7 - Multiply the parameters by 0.66 (reduce values by 36%)

➛ MAM Scale Switch Position 8 - Multiply the parameters by 0.54 (reduce values by 46%)

➛ MAM Scale Switch Position 9 - Multiply the parameters by 0.42 (reduce values by 58%)

➛ MAM Scale Switch Position 10 - Multiply the parameters by 0.36 (reduce values by 64%)

➛ MAM Scale Switch Position 11 - Multiply the parameters by 0.26 (reduce values by 74%)

➛ MAM Scale Switch Position 12 - Multiply the parameters by 1.12 (increase values by 12.0%)

➛ MAM Scale Switch Position 13 - Multiply the parameters by 1.096 (increase values by 9.6%)

➛ MAM Scale Switch Position 14 - Multiply the parameters by 1.072 (increase values by 7.2%)

➛ MAM Scale Switch Position 15 - Multiply the parameters by 1.048 (increase values by 4.8%)

➛ MAM Scale Switch Position 16 - Multiply the parameters by 1.024 (increase values by 2.4%)

What are the Differences between the JMS MAM and other MAF Shift Devices?

➛ MAM is a precision microprocessor device. Each MAM has the same predictable performance characteristics.

➛ Other devices on the market utilize resistors. Even high quality resistors have a margin of error. In our testing of competitor's products, we have not found two of their units that perform the same. How can you remote tune a vehicle if you are unable to have a repeatable predictable MAF output? Even a 2% error introduces a 5% air fuel error. A 5% air fuel error is the difference between your vehicle running at 12.0 to 1 and 12.6 to 1 AFR.

➛ Once the MAM is programmed, the configuration is saved and will not change until YOU change it.

➛ The MAM is designed to mount in the cab away from water and the elements. It utilizes a shielded cable with high quality plug and play MAF connectors. Your car deserves the best and the MAM delivers.

➛ Other devices on the market can change their output because they depend on a cheap switch to be in the correct position each time that the vehicle is started. Water, Heat and Vibration are the enemies of switches. The solution is to mount the product away from the problem.

➛ The red rubber plug that other products use to keep water out of their switch compartment is NOT an acceptable solution. Water, Vibration and heat is a big reason why these produts fail.

Can the MAM be used to just SCALE or FILTER the MAF Signal?

➛ Yes, the Mass Air Modifier can be used to only SCALE or only FILTER the MAF OUTPUT.

➛ It can perform both functions at the same time.

➛ You can also set the MAM up so it does not modify the signal at all. (Set All Rotary/Dip Switches to [**1**], Turn Dip Switches 1,2,3 [ON], Wait a few seconds and all of the LED's will blink, Set Dip Switches 1,2,3[OFF]).

What else can I do with the Mass Air Modifier?

➛ Use it to sort out COLD or HOT Start fuel problems (shift the MAF Rich or Lean to see if it corrects the issue).

➛ At the track it can be used to quickly add or remove fuel before a making a pass.

➛ On the dyno, use it to add or remove fuel to quickly see the results of a fuel change.

➛ Note - If your vehicle utilizes wideband fuel correction you will not be able to see the AFR change due to the correction of the wideband sensors unless you are in open loop. (2011+ Mustang utilizes wideband AFR correction)=-

INSTALLATION INSTRUCTIONS - PN: 4001 & PN: 4002

WARRANTY:

JMS warrants to the original purchaser the following:
The Mass Air Modifier Product will be free from defects in materials and workmanship for a period of twelve months from the original purchase date. The warranty only covers the product itself and not the cost of removal and re-installation of the product.

Specific conditions that will VOID the product warranty:
If the product has been opened, modified or repaired.
If the product was not installed or used correctly.
If the product has been tampered with by: negligence, misuse or accident.
If the product is returned without explanation of the problem or Return Authorization.

Contact JMS @ 601-766-9424 for a Return Authorization Number: All warranty returns should be returned freight pre-paid and should include inside of the box: Proof of Purchase and a Letter that contains both the Return Authorization Number and a Clear Explanation of the EXACT problem. The Return Authorizaton Number should also be clearly written on the outside of the box.

Send all returns to: JMS MAM WARRANTY, 3247 HWY 63 S, Lucedale, MS 39452

JMS Chip & Performance LLC is not liable for any and all consequential damages arising from the breach of any implied or written warranty in reguards to the sale of this product, in excess of the purchase price.

SERVICE:

If your Mass Air Modifier (4001 OR 4002) needs service:
Please contact JMS @ 601-766-9424 for a Return Authorization. All service returns should be sent freight pre-paid to: JMS MAM SERVICE, 3247 HWY 63 S, Lucedale, MS 39452. The Return Authorization Number should be clearly written on the outside of the box, and a letter should be included in the box that contains a clear explanation of the exact problem and the Return Authorization Number.

TECHNICAL SUPPORT & CONTACT INFORMATION:

JMS 3247 Hwy 63 S, Lucedale, MS 39452

601-766-9424

Technical Support Hours: Monday - Friday 9:00am - 5:00pm (Central Standard Time)

Configuration and installation videos are available online: *www.jms-mam.com*
www.youtube.com/jmschip

If you have any questions, please contact JMS technical support via email: *jms@jmschip.com*

Follow JMS on FaceBook: *www.facebook.com/jmschips*

JMS on YouTube: *www.youtube.com/jmschip*

JMS Website: *www.jmschip.com*