📖 **CAUTION:** Read the instructions before using the machine. 📖

Air Machine
Model AVVL
Installation & Owner's Guide

CAUTION: Read the instructions before using the appliance!

INCREDIBLY POWERFUL

INDUSTRIAL VACUUM SYSTEMS

www.IVS-Vacuum.com
800.968.8227

INDUSTRIAL VACUUM SYSTEMS

INCREDIBLY POWERFUL

Thank You for your Purchase of an IVS Air Machine!

These heavy-duty air machines were engineered and manufactured to tackle the toughest vacuuming jobs.

Original Instructions follow for the IVS Air Machine along with detailed safety, warranty and installation information.

AIR

MODEL AVVL

Table of Contents

IMPORTANT SAFETY INSTRUCTIONS

When using an electrical appliance, basic precautions should always be followed, including the following:

READ ALL INSTRUCTIONS
BEFORE USING THIS APPLIANCE

This appliance is not intended for household use. It is intended for commercial use.
This appliance is not intended for wet pick up use.

WARNING – To reduce the risk of fire, electric shock, or injury:

1. This appliance must be connected to a permanent electrical power supply in full compliance with all applicable codes and ordinances by qualified personnel only. Read Grounding Instructions.
2. Do not use on wet surfaces.
3. Do not allow to be used as a toy. Close attention is necessary when used by or near children.
4. Use only as described in this manual. Use only manufacturer's recommended attachments
5. Do not operate or handle appliance with wet hands.
6. Do not put any object into any openings. Do not use with any opening blocked; keep free of dust, lint, hair, and anything that may reduce air flow.
7. Keep hair, loose clothing, fingers, and all parts of the body away from openings and moving parts.
8. Do not use to pick up flammable or combustible liquids, such as gasoline, or use in areas where they may be present.
9. Do not pick up anything that is burning or smoking, such as cigarettes, matches, or hot ashes.
10. Do not use without dust bags or filters in place.

GROUNDING INSTRUCTIONS

This appliance must be connected to a grounded metal, permanent wiring system; or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance.

DANGER

This appliance incorporates parts such as switches, motors, or the like that tend to produce arcs or sparks that can cause an explosion. When located in gasoline-dispensing and service stations, install and use at least 20 ft (6 M) horizontally from the exterior enclosure of any dispensing pump and at least 18 in (450 mm) above a driveway or ground level.

European Installations: Installation of this appliance must incorporate and provide full disconnection of all poles in the event an overvoltage category III condition. Such incorporation to the fixed wiring must be in accordance with the wiring rules.

SAVE THESE INSTRUCTIONS

AIR

Congratulations on Your Purchase of the
Industrial Vacuum Systems
Air Machine

As a business owner you want to ensure that all available profit centers on your property convey a clear concise message in regard to your product offerings. This all new air machine designed by Industrial Vacuum Systems is that product.

With a streamlined, sleek design, curb appeal, and the IVS name stamped on the front you know you have made the next profitable choice for your business or carwash site.

Industrial Vacuum Systems (Company) provides a limited one year warranty on components and piece of equipment produced by the Company to be free from defects in material and workmanship. Electrical assemblies see Appendix A, have a limited two year warranty on the controller to be free from defects in material and workmanship. This limited warranty does not cover equipment that has been damaged due to misuse, misapplication, modification, altered, neglected, attempted theft, vandalism, connection to improper voltage supply, modification, or such parts that are commonly recognized to be subject to wear in normal usage. Normal use products are, but not limited to, those listed on Appendix B; which are warranted for 90 days. Every component and piece of equipment is packaged to assist in safe handling of the product.

Claims must be submitted in writing within the appropriate coverage period as covered by this warranty, from date of shipment, to the Company's warranty/repair department. If the return is approved an RMA and labeling instructions will be issued and the product can be returned. Returned product without the appropriate RMA and label will be issued to scrap and all warranties/replacements will be considered null and void. If the product receiving the RMA is not returned within 20 days from date of issuing the RMA then any credit toward the product will be reduced by 25%. If the product is not returned within 30 days of issuing the RMA then any credit will be reduced by 50%. A testing fee of $20.00 will be applied, if the product passes all tests related to the written claim, then the fee will be applied and paid prior to return of the product. If the product fails the test then the fee will not be applied. The Company may charge a 20% restocking fee for returned product and/or an order, which is canceled and/or material has already been ordered and/or received to fill such order.

The Company's warranty/repair department will inspect all components, submitted under warranty. Warranty replacement will be based solely on the analysis and confirmation that the product defect was caused by material and/or workmanship. The company reserves the right to change the design of the product without assuming any obligation to modify any product previously manufactured or to replace warranted product other than with redesigned product. In some cases it is easier for the customer to send a Company purchased product direct to the manufacturer for replacement. In those cases the customer will be notified that their product falls under that process and should work with that manufacturer directly. Appendix C shows the purchased parts that falls under this case.

This warranty covers the product replacement only; charges for damages, freight and/or labor will not be accepted. There are no warranties expressed or implied which extend beyond this Limited Warranty. The loss of use of the product, loss of time, inconvenience, commercial loss, incidental or consequential damages is not covered. The Company shall not be liable for incidental, special, or consequential damages including without limitation damages resulting from personal, bodily injury or death or damages to or loss of use of property.

APPENDIX A
2-Year Warranty Controllers
Sensortron, Multitron, Touchtron, 24 VAC Timer, Liberator, AVVL Compressor

APPENDIX B
90-Day Warranty Components
Pressure Hoses, Swivels, Nozzles, Safety Shut-off Guns, Seals,O-Rings, Shop Vac, Electromechanical Devices, Vacuum Motor Brushes, Valves and Regulators

APPENDIX C
Purchased Products that are Handled Direct with the Manufacturer
Shop Vac, IDX Products, Bill Acceptors, Pump Motors, Dixmor Timers, CAT Pumps, Flojet Pumps

AIR

MODEL AVVL

System Configurations*
- Industrial Vacuum Systems proprietary air compressor
- 1-85psi tire inflation
- 1/4" steel braided rubber 25' air hose assembly
- 14 gauge stainless steel construction
- Air inflation gauge
- Concealed pin lock locking mechanism
- Optional hose hanger mounting
- Internal coin drawer with lock mounting
- 110vac accumulating timer assembly

Product Options
- Imonex mechanical coin acceptor(standard)
- Sensortron single coin electronic coin acceptor
- Multitron World Edition electronic coin acceptor
- IDX MA-820 coin acceptor
- Magikist CP-900R
- Loonie mechanical coin mechanism
- Mars MEI $1 & $5 bill acceptor
- Push button with non-accumulating timer(free air option)

*Production specifications subject to change without notice

Power Requirements
- 120VAC single phase 15amp dedicated power feed circuit

MODEL AVVL

Installation Options

The IVS air machine can be mounted on an optional pedestal PN: AVVLP or attached to a wall. The unit features several knockouts for different options, the air hose and hanger can be mounted on the right or left side. There are options for power feed through the back, bottom, or via the pedestal mount.

Wall or Post Mount
Pedestal Mount
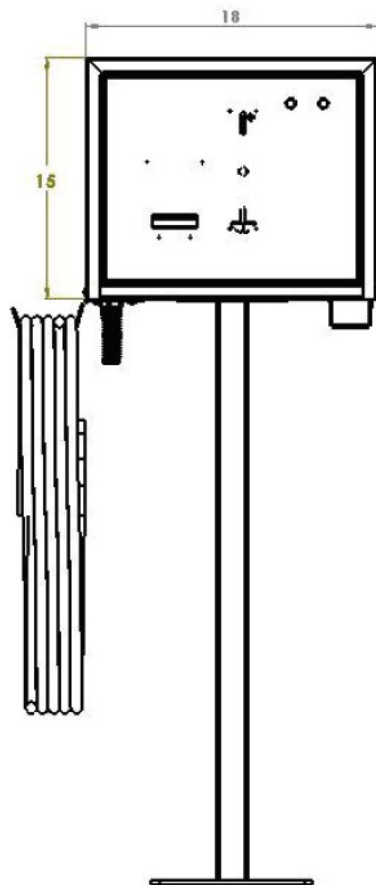
Side View
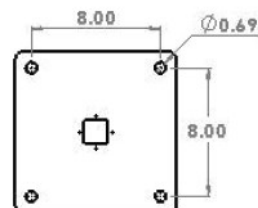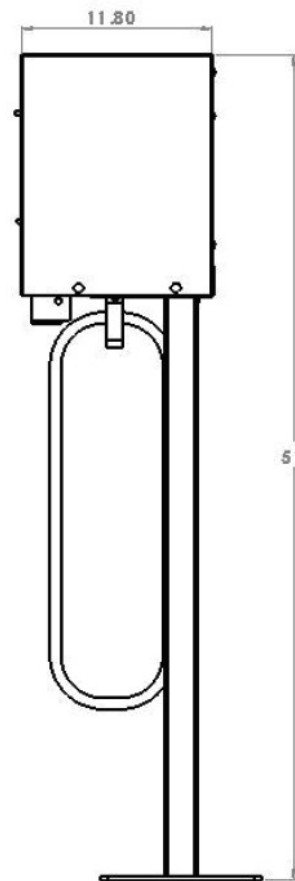
Pedestal Mounting Plate

Bleeder Valve Adjustment

Adjusting the Bleed Valve for Optimum Performance

If you notice that the unit fails to start quickly enough after additional coins are deposited, you will need to adjust the bleed valve.

Set the pressure relief valve for approximately 10 PSI above the desired pressure limit.

Adjust the bleeder valve by loosening the locking nut and backing the adjustment screw out, to bleed the air pressure faster. Be careful as this also decreases the maximum pressure output.

Locking Nut ➤

Adjustment Screw

MODEL AVVL
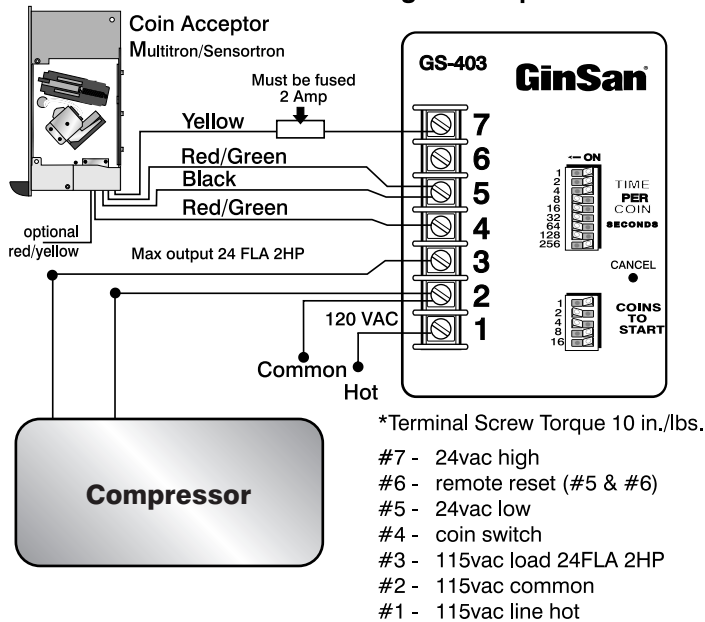
GS-403 Timer Wiring Hook-Up

Coin Acceptor
Multitron/Sensortron

Must be fused 2 Amp

Yellow
Red/Green
Black
Red/Green

optional red/yellow

Max output 24 FLA 2HP

120 VAC

Common
Hot

GS-403 **GinSan®**

7
6
5
4
3
2
1

TIME **PER** COIN SECONDS

CANCEL

COINS TO START

Compressor

*Terminal Screw Torque 10 in./lbs.

#7 - 24vac high
#6 - remote reset (#5 & #6)
#5 - 24vac low
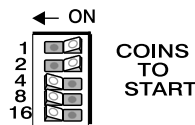#4 - coin switch
#3 - 115vac load 24FLA 2HP
#2 - 115vac common
#1 - 115vac line hot

Setting the COIN to START Switch

The *Coins to Start* is determined by adding the total number of switches in the "On" position.

Example: 1+2 = 3 coins to start

COINS TO START

Starting the Timer

Jump a wire between terminals #4 and #5. A count will register in the timer for every jump, which is the same as putting coins in the coin acceptor

If Timer Fails to Start

Disconnect the switch wire on terminal #5 and repeat starting procedure.

If timer starts at this point, the trouble may be...

1. A bad coin switch or acceptor.
2. Broken wire or bad connection.
3. Wires shorted between terminals #4 and #5 or shorted between #5 and #6.

Timer Starts on One Less Coin than Setting

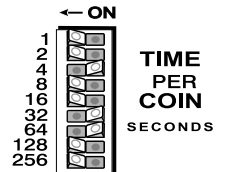Coin switch wired wrong (should be wired to normally open terminal & common terminal).

Setting the TIME PER COIN Switch

Determine amount of coins to start the timer.
Example: 3 coins to start

Convert time desired to seconds.
Example: 5 min. = 300 seconds

TIME PER COIN SECONDS

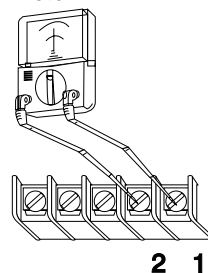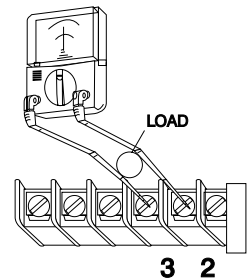Divide the total time (seconds) by the coins to start the timer.
Example: 300 sec. / 3 = 100 seconds per coin

The *Time per Coin* is determined by adding the total seconds of the switches in the "On" position. If for instance, the desired time is 100 seconds, switch on the number of switches needed to add up to 100 seconds.
Example: 100 sec. = 64+32+4

Checking Power Out to Compressor

A load of no less than .5 amps has to be hooked across terminals #2 and #3, to indicate time turning on. Without a load on the timer, it may not turn on or shut off. A volt meter across terminals #2 and #3 will indicate timer turning on and read output voltage. Check amp draw of motors using a clamp-on type amp meter.

LOAD

3 2

Checking Power to Timer

Using a volt meter across terminals 1 and 2 will indicate incoming voltage.

2 1

Stopping the Timer

Use a jumper wire and touch across terminals #5 and #6. Or Press the Cancel button.

6 5

CANCEL

COINS TO START

If Timer will Not Stop

All time switches are in the off position.

GS-409 Wiring Instructions

MODEL AVVL

GS-409 Timer Wiring HookUp

Coin Acceptor
Multitron/Sensortron

GS-409 GinSan

Yellow — 7
Red/Green — 6
Black — 5
Red/Green — 4
optional red/yellow
Max output 24 FLA 2HP — 3
— 2
120 VAC — 1

TIME PER COIN SECONDS
1 2 4 8 16 32 64 128 256
CANCEL
COINS TO START
1 2 4 8 16

Common
Hot

Compressor

*Terminal Screw Torque 10 in./lbs.

#7 - 24vac high
#6 - remote reset (#5 & #6)
#5 - 24vac low
#4 - coin switch
#3 - 115vac load 24FLA 2HP
#2 - 115vac common
#1 - 115vac line hot

Setting the COIN to START Switch

The *Coins to Start* is determined by adding the total number of switches in the "On" position.

Example: 1+2 = 3 coins to start

← ON
1 2 4 8 16
COINS TO START

Starting the Timer

Jump a wire between terminals #4 and #5. A count will register in the timer for every jump, which is the same as putting coins in the coin acceptor

If Timer Fails to Start

Disconnect the switch wire on terminal #5 and repeat starting procedure.

If timer starts at this point, the trouble may be...

1. A bad coin switch or acceptor.
2. Broken wire or bad connection.
3. Wires shorted between terminals #4 and #5 or shorted between #5 and #6.

Timer Starts on One Less Coin than Setting

Coin switch wired wrong (should be wired to normally open terminal & common terminal).

Setting the TIME PER COIN Switch

Determine amount of coins to start the timer.
Example: 3 coins to start

Convert time desired to seconds.
Example: 5 min. = 300 seconds

← ON
1 2 4 8 16 32 64 128 256
TIME PER COIN SECONDS

Divide the total time (seconds) by the coins to start the timer.
Example: 300 sec. / 3 = 100 seconds per coin

The *Time per Coin* is determined by adding the total seconds of the switches in the "On" position. If for instance, the desired time is 100 seconds, switch on the number of switches needed to add up to 100 seconds.
Example: 100 sec. = 64+32+4

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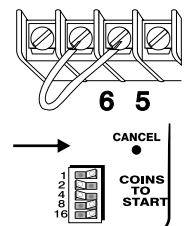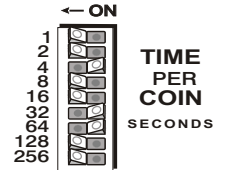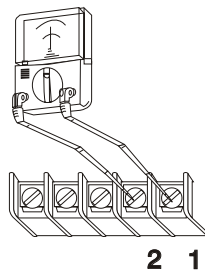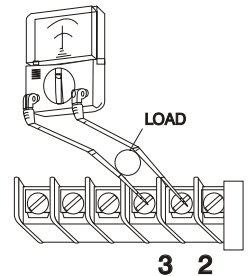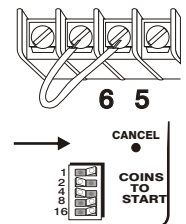
LOAD
3 2

Checking Power to Timer

Using a volt meter across terminals 1 and 2 will indicate incoming voltage.

2 1

Stopping the Timer

Use a jumper wire and touch across terminals #5 and #6. Or Press the Cancel button.

6 5
CANCEL
1 2 4 8 16
COINS TO START

If Timer Will Not Stop

All time switches are in the off position.
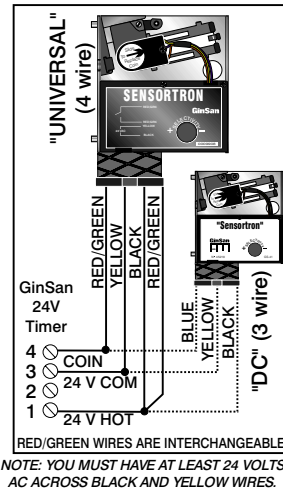
TO INSTALL SAMPLE COIN OR TOKEN:

1. Slide sensor coil to the right and replace plastic chip with coin or token.

2. Release sensor coil, making sure sample coin or token is held firmly in place.

3. Do not use a 1965 or 1974 quarter as a sample.

REMOVE PLASTIC CHIP
INSERT COIN
SENSOR COIL
"SENSORTRON"

SELECTIVITY ADJUSTMENTS:

Sensortrons are preset for use with U.S. quarters.

SELECTIVITY ADJUSTMENT

The selectivity control is designed to enable field adjustments for closer coin scrutiny, thereby providing greater rejection of slugs.

1. Remove black rubber plug.

REMOVE PLUG

2. Using small screwdriver, locate adjusting slot on potentiometer (pot.). (Slot is difficult to see in the jelly-like substance.)

SENSORTRON WIRING:

"UNIVERSAL" (4 wire)
"Sensortron"
"DC" (3 wire)
RED/GREEN
YELLOW
BLACK
RED/GREEN
BLUE
YELLOW
BLACK

GinSan 24V Timer
4 — COIN
3 — 24 V COM
2 —
1 — 24 V HOT

RED/GREEN WIRES ARE INTERCHANGEABLE

NOTE: YOU MUST HAVE AT LEAST 24 VOLTS AC ACROSS BLACK AND YELLOW WIRES.

3. Turn pot. clockwise as far as it will go.

4. Turn pot. counterclockwise (a little at a time until it rejects all unwanted coins).

COUNTER CLOCKWISE

5. Replace rubber plug.

When using coins smaller than a quarter (in size), the coin slot opening must be made smaller to prevent jamming.

METAL COVERING TOP OF SLOT
SHIM PLATE P/N 74137
COIN SLOT

SPECIAL INSTRUCTIONS:

- Do Not allow a coin box heater to come n contact with the Sensortron.
- To interface a 24 volt mechanical coin counter with a Sensortron, order a GS-17 interface, Part Number 77060.
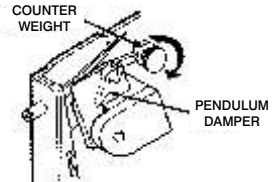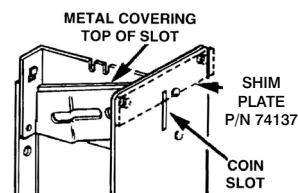
Problem/Symptom:
Sensortron accepts unwanted slugs.

Cause:
In 1986 the counter weight was removed from the pendulum damper on the Sensortron to correct isolated problems of coins sometimes jamming on the pendulum damper. Counter weights are available through customer service at GinSan Industries in Grand Rapids, MI.

Solution:
Turn the silver colored counter weight with star washer clockwise to attach in the mounting hole of the pendulum damper. (See drawing)

Do Not install Counter Weight unless there is a problem accepting unwanted Slugs or Coins!!!

Selectivity Adjustments may be necessary after above procedure is completed.

COUNTER WEIGHT
PENDULUM DAMPER

Universal Sensortron Wiring Instructions
For Various Timers
Note: Red/Green wires are interchangeable.

GinSan Timer (GS-9 110 Volt) to Universal GS-41
Black wire to Terminal #5
Yellow wire to Terminal #7
Red/Green wires to Terminal #4 & #5

GinSan Timer (GS-11 110 Volt) to Universal GS-41
Black wire to Terminal #4
Yellow wire to Terminal #1
Red/Green wires to Terminal #3 & #4

D & S Timer to Universal GS-41
Black wire to 24 Hot(L1)
Yellow wire to 24 Common(L2)
Red/Green wires to 24 Common(L2) & Coin Terminal

Paraplate Timer to Universal GS-41
Black wire to -Coin Switch
Yellow wire to Jumper for 24 V AC
Red/Green wires to +Coin Switch & -Coin Switch

Keltner Timer 24 Volt to Universal GS-41
Black wire to Terminal #2
Yellow wire to Terminal #1
Red/Green wires to Terminals to #2 & #4

Parker Timer to Universal GS-41
Black wire to Terminal #1
Yellow wire to Terminal #3
Red/Green wires to Terminals #1 & #4

Dixmor Digital Timer to Universal GS-41
Black wire to 24 V AC Hot (IN)
Yellow wire to 24 V AC Common (IN)
Red/Green wires to Coin Common & Coin Signal

MODEL AVVL

Coin Learn Procedure for the IDX MA-800

Slide the front cover up and identify the three controls to be used in coin memory storage procedure.
    Black or red button located near bottom right corner.
    Rotary switch with sixteen positions (0 to 6 are memory positions) also located near
    bottom right corner.
    LED half way up on right side (green in RUN mode and red memory mode).

Turn the Rotary switch to one of the learn positions (1 to 6) and observe the LED turn red to indicate that the MA-800 is ready to store data.

Push black or red button once for each credit pulse you wish to have issued for this coin. Example, a $1 coin would be equaled to 4 pulses.

Slide the cover back on the unit to make sure outside light does not interfere with the sensors; light shield must click into place.

Deposit the coin through the acceptor between 6 to 10 times until the LED flashes red and green; this indicates the acceptor is storing.

Once LED starts to flash red and green, slide cover back up and turn rotary switch back to position 0. Be careful not to turn the switch too far or the acceptor will not accept coins.

Once the switch is back in the zero position slide the cover back to closed position and the programming is complete.

> ***THE COIN YOU DO NOT WANT TO ACCEPT MUST BE STORED IN POSITION ONE.*** *Turn rotary dial to position one and press black or red button 13 times, then drop coin that you don't want to accept through 6 to ten times until LED flashes. Turn Dial back to 0 and close light shield.*

Coin De-Learn Procedure

Slide the front cover up and turn rotary switch to the coin # position you wish to remove from memory
Push the black or red button once to initiate the memory storage sequence.
Turn the rotary switch back to position #0 without depositing any coins to signal the unit that you wish to erase.
The LED will flash red-green to indicate completion.
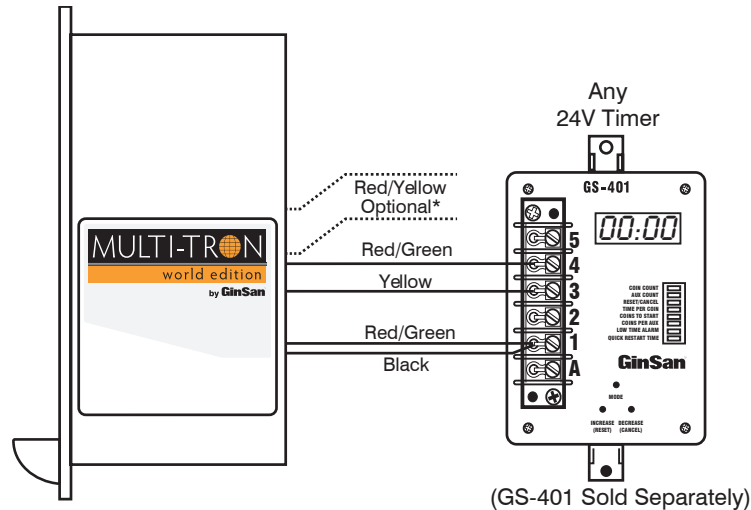Slide the front cover back down.

MODEL AVVL

Any
24V Timer

GS-401

00:00

MULTI-TRON
world edition
by GinSan

Red/Yellow
Optional*

Red/Green
5
4
Yellow
3
2
Red/Green
1
Black
A

COIN COUNT
AUX COUNT
RESET/CANCEL
TIME PER COIN
COINS TO START
COINS PER AUX
LOW TIME ALARM
QUICK RESTART TIME

GinSan

MODE

INCREASE DECREASE
(RESET)   (CANCEL)

(GS-401 Sold Separately)

Wire Color	Function
Red/Green	Solid state relay common (see note below)
Black	24 VAC hot (recommended supply voltage of 22-30 VAC)
Yellow	24 VAC common (recommended supply voltage of 22-30 VAC)
Red/Yellow	Solid state relay common (see note below)

Note: Outputs for all coins are sent via the Red/Green and Red/Yellow wires.

*The Red/Yellow wire is a solid state output to be used with any auxiliary product (i.e. digital counter, coin vacuum system, etc.)

PLEASE NOTE: EACH UNIT SHIPS PRE-PROGRAMMED FOR THE DOMESTIC CURRENCY SPECIFIED WHEN ORDERED.

Programming Instructions
for Tokens or Non-Domestic Coins - Channels 1 - 5

1. Power down the Multitron GS-44WE coin acceptor.
2. Switch "on" the six (6) dip switches located on the side coin acceptor.
3. Power up the coin acceptor.
4. Insert 2 of the coin to be programmed.
5. Turn off all dip switches (except the one that equals the value of your coin.) See *Table A*.
6. Insert 15 more of the coin to be programmed.
7. Turn "off" the switch left on in Step 5.
8. Power down for a minimum of 5 seconds then power up.
9. Repeat above steps to program additional coins.

Programming Instructions
for Tokens or Non-Domestic Coins - Channel 6

1. With machine off, put the 6 dip switches to ON.
2. Energize and insert 15 coins / tokens.
3. Wait for the double "clack" of programming end.
4. Put dip switches to OFF.
5. Switch off the validator, then switch it on again..

*If a value other than the preset amount is needed, a handheld programmer is required. Part Number: 1102800

Dip Switch		Pulses
1	=	1
2	=	4
3	=	5
4	=	6
5	=	7
6	=	8

Table A

Specifications:
- Accepts 30+ different coins
- Accepts coin size 0.64 - 1.26" diameter (16 mm - 31.5 mm)
- No permanent sample coin required
- 24 VAC and 24 DC compatible
- Adjustable output pulse (with programmer)
- Program with or without external programmer
- Power loss will not affect memory
- Corrosion proof chassis
- 2" mounting footprint
- 2 year warranty

MODEL AVVL

GS-403 or 409

7 - 24VAC Common
6 – Cancel Switch
5 – 24VAC Hot
4 – Coin Switch
3 – Load
2 – 110 VAC Common
1 – 110 VAC Hot

Pressure valve
PN:108700

Bleeder valve
PN: 108701

PN:101707

Starter
Cap.

Red
Red

GinSan

TIME
PER
COIN

SECONDS

ON

1
2
4
8
16
32
64
128
256

CANCEL

COINS
TO
START

1
2
4
8
16

PN:7740300(Immonex)
PN:7740900(pushbutton)

7 6 5 4 3 2 1

Black
Black

Black 20awg

Yellow 20awg

Blue 20awg

Push button switch
PN:517704

Power

PN:524605

Red 20awg

Pump

White 20awg

Yellow 20awg

Blue 20awg

COM NO

120vac Common

120vac Hot

GS-403

7 - 24VAC Common
6 – Cancel Switch
5 – 24VAC Hot
4 – Coin Switch
3 – Load
2 – 110 VAC Common
1 – 110 VAC Hot

Pressure valve
PN:108700

Bleeder valve
PN: 108701

PN:101707

Starter Cap.

Transformer for bill acceptor
PN:1078030

Red
Orange
White
Black

Yellow
Blue

GinSan

TIME PER COIN
SECONDS

CANCEL

COINS TO START

ON

1 2 4 8 16 32 64 128 256

1 2 4 8 16

7 6 5 4 3 2 1

PN:7740300

MEI Bill Acceptor

Red
Black
Green
White

Power

Black

PN:524605

Pump

Red

White 20awg

Yellow
Red
Blue

Electronic Coin Acceptor*
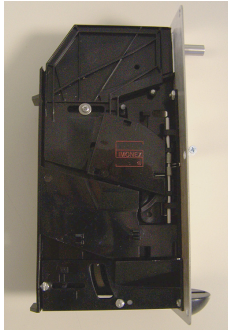
Red/green & Black

Red/green

Yellow

120VAC Common

120VAC Hot

AIR

MODEL AVVL

Part Number
1002300

Imonex Coin Acceptor
(US Quarters)

Part Number
1002020

Magikist 900R
Canadian
Coin Acceptor

Part Number
7704200

Sensortron
Coin Acceptor

Part Number
1002240

2" Coin Acceptor
Loonie
Mechanical

Part Number
10027800

Multitron World Edition
Coin Acceptor

Part Number
2387100

Mars Canadian
Bill Acceptor

Part Number
1002650

IDX-MA820
CoinAcceptor

Part Number
283500

Mars Bill Acceptor
US $1 & $5

MODEL AVVL

Part Number
1040020

Air Hose -
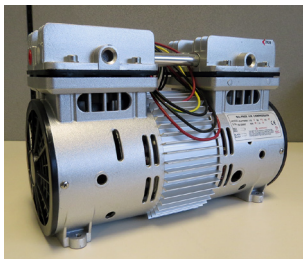Cut Resistant 25'

Part Number
1034020

Inflator with Whip
and Gauge

Part Number
1048010

Lock with 2 Keys

Part Number
1017070

Compressor
110V
(GinSan)