SEM INC.

LS1

LOGIC
to
MDB

Conversion kit

Version 1,8

April 2013   *Part # i00460*

<u>INTRODUCTION</u>

This manual provides instructions for installing, programming and operating the S.E.M. LS1 conversion kit. Therefore, once you have installed your kit, <u>DO NOT DISCARD</u> this manual. Keep it for future references.

Your LS1 conversion kit can work with one of the following peripherals attached: MDB Coin changer, MDB Bill reader and/or some MDB Card reader *. Furthermore, a MDB LCD display can be added to make your machine user-friendlier in case you are using a cashless system that does not have a built-in display.

Versions 1.6 and up do have the change machine configuration. This means that upon insertion of a bill, the kit will <u>automatically</u> send an escrow signal to the coin changer. Upon this signal, the coin changer will give back in change the entire value of the bill inserted. When this feature is activated, a customer cannot make a purchase when inserting a bill. Be sure to have a high-capacity coin changer capable of having a high value of change in its tube.

 * Compatibility not assured with some cashless devices on the market

Question?

For any question or technical support, you can contact us by email at the address support@sem.ca.

S.E.M. Inc. 3610 Valiquette, St-Laurent, Qc, Canada, H4S 1X8
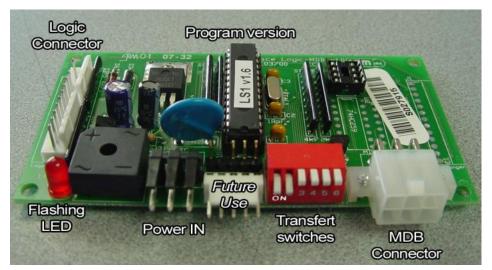Tel. : 514-334-7569   Toll Free : 1-888-334-7569   Fax : 514-334-5922

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Description

Each kit contains the following items:

- Small Logic to MDB circuit with a 16-inch long, 12-pin Logic harness.
- A 120/24 v, 2500 ma power supply.
- A 120-volt power cable for the power supply.
- A bag of accessories including 2 metal screws, 2 tie-wraps, 2 tie-wrap holder and 2 T-splice red connectors.
- This instruction manual.

Installation

To install the LS1 MDB into the Logic machine:

1. **SHUT POWER OFF IN THE ENTIRE MACHINE** by unplugging for the wall outlet.
2. Remove the old coin changer. Do not forget to take change out of the tubes as you will need it for the new coin changer. (see filling up tubes section). Locate the best location possible, close enough to the female 12 or 15-pin Logic connector.
3. Make two small holes using an appropriate size bit in order to fix the kit in the machine. Remember to leave enough room to access the dip-switches and the connectors.
4. Pass the Logic harness so that it does not interfere with any existing device in the machine.
5. Pass the black power harness so that it does not interfere with any already existing device in the machine.
6. Locate an **interrupted** 120 volts A.C. source where you can tap your power supply. By interrupted source, we mean after the main switch of the machine so that if you shut the power down, it will shut down power to the LS1. If you take your power from an uninterrupted source (before the main switch), it means power will still be present into the LS1 even if you shut main power OFF on the machine therefore representing a real danger.
7. Once connected, install your MDB coin changer and any other MDB device you wish to add in the machine such as bill acceptor and card reader. As there is a wide variety of machines on the market, we cannot instruct you on how to physically install any bill acceptor or card reader if the machine was not originally intended to host those additional devices.
8. Plug the MDB devices into the MDB plug on the LS1. MDB devices need only one plug on the board. Bill acceptor and card reader will have a "Y" harness.
9. Apply power to machine.
10. Program your LS1 MDB interface. (see transfer amount)

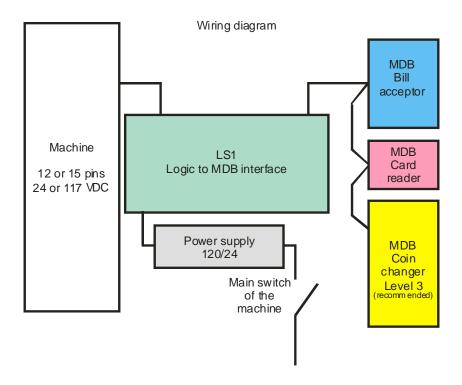# How to set your LS1 interface and other information

Power requirement

A 2500ma power supply gives the energy needed for the new MDB peripherals. This transformer can supply tall MDB peripheral currently on the market.

LOGIC connector

The same Retrofit kit fits into 24 VDC or 117 VDC. A 12-pin connector is included. It is compatible with any 12 or 15-pin female receptacle.

Level 2 or level 3 coin changers

The LS1 can work with MDB Level 2 coin changers (3-tube Coinco) and MDB Level 3 changers (the majority of 4-tube and more). It is recommended, when coupled with a bill acceptor, to use a Level 3 changer. A Level 3 changer is constantly monitoring the change level in the tubes. This feature is important when it comes to rejecting a high-value bill (10$ or $20) when

Wiring diagram

Machine	MDB Bill acceptor
12 or 15 pins 24 or 117 VDC	LS1 Logic to MDB interface
	MDB Card reader
	Power supply 120/24
	MDB Coin changer Level 3 (recommended)

Main switch of the machine

the tubes are low in change. A Level 2 coin changer will not be able to prevent the insertion of a particular bill while a Level 3 changer will enable a bill insertion providing it can give the change back.

Transfer amount

In a Logic machine, the process of giving change back to the customer is achieved with 3 payout lines (5¢, 10¢ and 25¢). This way of doing things results into a slow payout if the amount of change to give back is high. In order to speed things up, the LS1 will limit the amount transferred to the amount upon a bill insertion. This setting will then send to the machine only a part of the amount while keeping the rest into its memory. Therefore, when the transaction is completed or when the customer activate the coin return arm, the LS1 will send the amount memorized to the changer immediately while the machine sends the change through the payout lines. You must program a transfer amount using switches 1 to 4. The transfer amount must be higher than the highest vend price of the machine.

SW1 = $1   SW2 = $2   SW3 = $4   SW4 = $8

Default transfer value is $1. Switches 1 to 4 will add to this amount. (i.e. : For a $2 transfer amount: $1 default + #1 = $2; for a $5 transfer: $1 default + #3 = $5).

End-of-sale signal; switch #5

The default setting on switch #5 in OFF meaning Line 6 (a.k.a. Accept Line) to signal the end of a transaction. The signal on this line is normally interrupted during a vend cycle. However, on some machines, this signal can come and go during a vend cycle. Putting switch #5 ON will make the LS1 close the transaction only when it detects a change payout. When switch #5 in ON, whatever amount inserted into the coin changer or bill acceptor will be transferred to the machine until the machine itself permits it. (i.e. If you insert a $20 bill, the entire value will be transferred to the machine if the machine allows it.)   Most machine on the market will stop accepting money once the maximum price has been reached. In such a case the over will simply be memorized in the buffer of the LS1.

Switch #6

This switch transform your LS1 kit into a change machine. This means that upon insertion of a bill, the kit will automatically send an escrow signal to the

coin changer. Upon this signal, the coin changer will give back in change the entire value of the bill inserted. When this feature is activated, a customer cannot make a purchase when inserting a bill.

Filling up the tubes of an MDB coin changer

If you are using an MDB Level 3 coin changer as recommended, you must use one of these two tube fill methods:

- Use Tube Fill mode as proposed by the manufacturer of the coin changer.
- Insert coins into the coin acceptor (not directly into the tubes) followed by a power OFF and a power ON of the machine.

My machine does not display the amount inserted.

It is very important here to understand that the amount transferred from the LS1 to the machine is not necessarily the full value of the bill inserted. For example, if you insert a 10$ bill into the bill reader and your LS1 is set to transfer $2 to the machine, the display of the machine will **ONLY SHOW** $2. The remaining $8 worth of credit will be buffed into the LS1. This can be confusing to some users of the machine. To display the entire amount inserted, you must then transfer the entire amount to the machine. However, this will slow down the entire vend cycle of the machine depending the payout speed of the machine. The fastest machine on the market will have a maximum payout speed of 3 coins per second. Therefore, giving back 10$ worth of change will take a minimum of 14 seconds. If you have a slow machine and if you insert a $20 bill, the change remittance can take more than 30 seconds. The maximum transfer amount is $16 (default $1 + $1 + $2 + $4 +$8 = $16). This means that a $20 bill inserted into the machine will only prompt $16 on the display of the machine. The remaining $4 will remain in the buffer of the LS1. To transfer entire amount, set switch #5 ON.

S.E.M. INC. – WARRANTY AND LIABILITY CONTRACT

By purchasing a product from S.E.M. Inc., clients are accepting the terms of this Warranty and Liability Contract.

S.E.M. Inc. warrants all parts of new equipment for one (1) year, from date of invoice against DEFECTIVE MATERIAL OR WORKMAN-SHIP, but not against damage caused by vandalism, accident or improper operation and installation.

S.E.M. Inc. shall not be liable for any direct, indirect and/or consequential damages or losses, including loss of revenue or any other consequences as a result of the use of the work carried out by S.E.M. Inc. for the client, including any loss resulting from equipment failure or malfunctions, design or programming errors or any other use of the work carried out in this contract.

S.E.M. Inc.'s obligation under this warranty is limited to correcting, or at its option replacing, without charge at its factory any equipment, components or parts thereof which are returned to its factory (transportation charges prepaid) within one year after date of invoice. The part(s) returned under this warranty that are found without any problem after examination may be object of fees not covered under this warranty.

Any changes in design or improvements added to the line of S.E.M. equipments shall not create any obligation to upgrade or modify free of charge equipments previously sold and delivered to the client.

Any unauthorized alteration or wrong use of the equipment voids this warranty.

Equipment or components returned for Warranty repair must be accompanied by a copy of the original invoice as verification of purchase date. Equipment or components returned without a copy of original invoice will be charged to the customer at the regular repair rates.