

Introduction
Thank you for purchasing the SP-K Single-Price Interface Kit for Single Price
type application. This interface is quite simple to install and operate. The Cype appication. This interface is quite simple to instatiand and retie. The LCD display will enable you to program the basic function and retrieve ac-
counting information such a sth value in te coin tubes of the changer and
the sales. The SP-K Single-Price kit has the DEX and Cashless fugctionalcounting
the sales.
ities.
It works with a new state-of-the-art MDB coin changer and other MDB pe-
ripherals such as a bill acceptor or a cashless system. Iipherals such as a bill acceptor or a cashless system.
The SP-K Singl--Price Kit can work in any country in the world providing you
connect the proper coin changer and bill acceptor. The SP-K can display connect tepe proper coin changer and bill acceptor. The SP-K can disslay
messages in the following four languages: English, French, Portuguese,
and and Spanish. Switching language is done using the two programming but-
tons on the board. The new $\mathrm{SP}-\mathrm{K}$ also offers a unique feature called the tons on the board. he new sp-K also oners a unique eaciece calted the
basic, price setting. Depending on your needs, you can decie to
basic value to match a specific base. In Brazil, Canada, and in the USA, the basic value to match a specific base. In Brazil, Ca,
default price base is $\$ 0.05$. In Mexico, it is $\$ 0.50$.

The SP-K Single-Price Interface contains the following components: : One $100-240 \mathrm{~V}, 50-60 \mathrm{~Hz}$ Switching Power supply. $\begin{aligned} & \text { One circuit board mounted on an aluminum plate and pro- }\end{aligned}$ One circuit board mounted on an aluminum plate and pro-
teteded by a tansparent texan.
One long harness with loss wires to adapt to your specific

Option:
$2 \times 16 \mathrm{LCD}$ display with stainless steel bezel and 24 -inch $(60 \mathrm{~cm})$ flat ribbon cable.
If distance exceeds $24^{\prime \prime}(60 \mathrm{~cm})$, an MDB display is available with a $16^{\prime}(5 m$ ) cable connecting on the MDB port.
P-K works with...
The SP-K Single-Price Interface works with one or more of the these periph-
oin changer MDB: (Coinco, Conlux, MEI, NRI, some others as well) Level 2, 3 -tube \& 4 -tube
Level 3,4 -tube, 5 -tube, \& $\&$ tube
Coin acceptor:
NRI G13. with its MDB adaptor. Please note that when using this ac-
ceptor, it is impossible to give back change (see Multi Vend parameter) Bill acceptor: The majority of MDB bill acceptors of any country.
Cashless: ${ }^{\text {The }}$ majority of MDB cashless devices on the market, prepaid or credit.
How does it work?
The SP-K Single-Price Interface can work in conventional vending machine node or in value-adding station if a prepaid card system is present. In the
atest case, a selection button is required. If you do not have a selection button, you cannot revalue a card. Once the amount inserted or the value
on the card is equal to the vend price or higher, the credit relay will click briefly closing a contact etween Lines $7 \& 6$ while opening the contract be-
tween Liines $7 \& 5$. The time this credit relay will stay active is programma-
be (see Vend Signal TTime) as well as the numer of time this relay will actitween Lines \& 5 . The time this creat relay wiil stay active is programma-
ble (see Vend Signal Time as well as the number of time this relay will acti-
vate (see Pulse per Vend). This dry contact closure will activate some sort of device in your machine. Once this is done, the customer CANNOT cancel
he transaction. The customer MUST make a choice if choice there is. Depending on the wiring of your machine, the SP-K will linhibit the insertion of
dditiona mone until the current transaction is completed. This is achieved additional money until the current transaction is completed. This is achieved
by Line 4 on the L .K (see wiring diagram) . Normally, once the product or
service delivered, the machine should tell the SP-K to enable insertion of service d
money.
If you are using an NRI G13 Coin Acceptor with its MDB adaptor, it will not
be possible to give change to the customer if he inserts more than needed. be possible to give change to the customer if he inserts more than needed.
The same will also apply if you are using a bill acceptor only. $f$ s.o, the re-
rever maining credit will stay in the memory of the SP-K enabling additio
eries until all credits are used. Consult the Muti Vend parameter.

escription of board
Description of board
LCD display intensity adjustment (POT 1)
Price settina switches
CPU LED (flashes after initialization)
Programming buttons
MDE connector (JJ)
MDB connector (J2)
DEX connector (J3)
24-volt DC Cinut ( (J1)
Credit relay (R1)
Credit relay (RLY 1)
Exact change elay (RLY 5)
0. Header to ongraness for your machine (J7)

1. Flat ribon to display (5)
2. Flat ribbon to display (J5)
3. Selection Button connector (required when revaluing cards allowed)

## Installing the SP-K Single-Price Interface

Installing the SP-K Single-Price Interface does not require great technical skills.
Just follow these simple instructions and it will take just few minutes.

- Make sure your machine is in correct working condition and ready to
- dispense products or perform a task. $\begin{aligned} & \text { Disconnect the machine from the war shut off main power } \\ & \text { switch. Make sure there is no power before starting anything. }\end{aligned}$ Switch. Make sure there is no power before starting anything.
Find a place where you can fix the circuit obard and the power supply.
Make sure no harnesses o w Make sure no harnesses or wires will interfere with the coin insertion,
and the coin return arm, or any other moving parts. Make sure the and the coin return arm, or any other moving parts. Make sure
boord cannot move.
Connect to your machine using the harness with loose wires (JT).
Install the MDB coin changer and fill the coin tubes to the top.
- Install any other MDB peripherals (bill acceptor, cashless device).
$\therefore \quad$ Connect all MDB devices together (Y harness) and then to the SP-K.
- play. eration of the machine
: Connect the flat ribbon in the proper socket on the new board. volt for the power supply. Capturing power before the main switch
keeps the SP-K energized when that switch is turned OFF. Danger! Keeps the SP-K energized when that switch is turned OFF. Danger!
Once everything poroprly connected and secured, apply power. $A$ red
LED will flash on the SP-K after the initial
- Program your $\begin{aligned} & \text { SP-K } \mathrm{K} \text { according to your specific requirements (language, } \\ & \text { prise base, vend price, etc.). }\end{aligned}$ - prige base, vend drice,



## !!! ATTENTION !!!

he voltage present in the J 7 harness has no P-K itself which delivers a steady 24 -volt DC

Depending on the type of equipment into which you are using the SP-K and how
you connect it, 120 volts can be present on the circuit.
Be Careful!
Connecting the SP-K to your equipment
Connecting the SP-K to your equipment is done using the harness that connects to
J7. This harness has loose wires. The minimum of wires you can use is two. They are \#6(N.J.) and \#7 (Common). The maximum is six wires. As seen below on the two diagrams. the vend relay on the SP-Kis only a dry contact tlosenure. The
$S P-K$ will not send any voltage or signal. The other wires ary for instructing the SP SP-K will not send any voltage or signal. The other wires are for instructing the SPgrammed Accept Line LLt o YES, your machine must tell the SP-K when have accep
payment. If it was set to No, there is no need to connect the accept line. The first diagram shows your equipment sending a voltage ( $12-24-\mathrm{v}$ ac/dc) to the
accept line (between $\# 2$ and $\# 4$ ) when it is ready to accept payment. The second accept line (between \#2 and \#4) when it is ready to accept payment.
diagram shows a special harness (\#A09840) with a 24 -v.d.c. Output.
In both diagrams, there is an Accept Line Switch located in your machine and it wil
be activated when your machine is ready to accept payment. If the switch is not activated like visible in in both diagrams, payment will not be accepted

Both diagrams show also a small Exact Change Light that will go on when the
change level is very low. This light indicator is not required if you have the LCD display as the low change warning will be visibise on that display.. In Exact Change
situation, you will hear a relay clicking once every second on the SPK.

Connexion using an external voltage ( $112-24 \mathrm{vac} / \mathrm{dc}$ c) for the accept line and the exact


Snubber filter
Snubber filters are used in electrical systems with an inductive load
(solenoid, motor) where the sudden interuption of the current flow would lead to a sharp rise in self-inducted voltage across the device creating a
brief or permanent failure of the SP-K. The filter prevents this undesired brief or permanent failure of the SP-K. The filter prevents this undesired
self-inducted voltage by conducting current around the device. This is es self-inducted voltage by conducting - current around the device. This is es
pecially important if the circuit treaker feeding the controlled device is the
same as the same as the SP-K or if the load is so important that it can induce a voltage
in the wiring eading to the SP-K. The value of the snubber components will In the wiring leading to the SP-K. The value of the snubber components will
vary depending the eoad (vottage, current, etc.) The snubber will then go in
paralle with the load. Snubbers available from S.E.M. parallel with the load. Snubbers available from S.E.M. are usually made of
the following: 33 ohms, $1 / 2 \mathrm{~W}$ in series with a $1 \mu \mathrm{f} 275$ volts condenser (part $\#$ the follow
A00390).

## Нー~N

## Programming your SP-K Controll

Programming the SP-K requires the LCD display. The display is an LCD 2 -
lines by 16 characters.
To access the programming of the different parameters, you must access the hidden menu. Disconnect power to the SP-K. Press on both the Black
$\&$ Green buttons on the board while applying power. Release the buttons
when the display becomes blank Price Base is then visible Parameters.
 referring to a missing MDB peripherals will be ignored (i.e. No bill accepto
$=$ no mention of bills anywhere)

Price base - (or programming the value of dipswitch \#1)
As the SP-K works in many countries around the world, it must adapt to the price level in each country. To achieve this goal, we added a interesting
feature that enablos you to set the basic value of swith \#1. This basic value starts at $\$ 0.05$ and goes up to $\$ 12.75$. If the price base is not wha
you want, press on the green button to increase it. To decrease, press and you want, press on the green button to increase it. To decrease, press and
hold the green button and press on the black button. The maximum value is
sid $\$ 12.75$. The settion can wrap a round. So, if you are at $\$ \$ .05$ and wish t
fix a value of $\$ 12.75$, it will be faster to decrease rather than to increase fix a value of $\$ 12.75$, it will be faster to decrease rather than to increase
This Price abse is the value of switch number one on the dipswitch block
Once the price base set This Price base is the value of switch number one on the dipswitch block
Once the price base set, , tress on the black button to confirm. The display
will will show you the new setting is being registered.
Please note that the price base will vary depending the country. It is no
mally equal to the lowest value coin the coin changer canl accent mally equal to the lowest value coin the coin changer canl accept.
course, the higher the price base, the higher you can go in the vend price. Next are some examples of the values you can get depending the Price
Base value. The yellow column is the default value with an American and Base value. The yellow column is the default value with an American and be possible to have a avend price with cents. A $\$ 1.50$ vend price will then be
bimossibe (see the $\$ 1$ column).


IMPORTANT! Do not use the Price Base as your primary tool to set the vend price. If you do not need to change the value of the dipswitch \#1
leave it the way it is and use the dipswitches as your primary too for setting
the vend price.
Accept line (L4) -
The accept line (LL) is the signal your machine sends to inform the SP-K
that everything is ready and payment is allowed. This line normally goes off if your machine is not in a working condition (ie.e. empty or defective), or wher the machine is either waiting for the customer to make a choice or currently performing a task. If you set this parameter to YES, you must
make the proper connection seen on reverse. If you set it to NO, the SP-K will authorize payment even if the machine is not capable of dispensing a

## anguage -

You have the choie between English, French, Portuguese, and Spanish.
If the current language in ont yours, , ress the green button until you see
your language. Press the black button again to confirm. your language. Press the black button again to confirm.

## Currency symbol -

You have the choice between the dollar sign (\$), the Euro sign ( $($ ) or none.
Press on the green button to change it. Confirm with black. Multi Vend - (only visible if NO coin changer connected \& L4 set to YES)
If you do not have a coin changer connected to the SP-K but only have a
bill or a coin acceptor, you can set your SP-K to make multiple sales upon single insertion of money. When set to ON, the SP-K will make as many ransactions the amount inserted allows it. Additional insertion of money
will not be allowed until the remaining credit is below the vend price (i.e. Vend price $\$ 1$, rem unining the remaining creadit is below the vend price $95 \phi)$. Press the green button to pass to
YES. Confirm with black.


Cashless type -
There are many cashless systems in use worldwide. Some are magnetic, ome are chip, some are contactless, etc. You can adapt the message on
he display to fit your system. You have the choice between: Insertion, in
Swipe, Proximity, Kevy, and Tag. Press on the green button to scroll. Press
on the black to confirm the setting. on he black to confirm the setting.
Token type - (only visible if detected on power up)
Coin changer can be programmed to accept a token and bill acceptor can
be programmed to accept a coupon. In both cases, you can set a value or be programmed to accept a coupon. In both cases, you can set a value or ree transaction will be allowed, no matter the vend price. The customer
 in the next step will be sent to the borard. If the value is higher than the
vend price, the sale can be done but no change will be dispensed. If the
value is lower than the vend price, the customer can add money to value is lower than the vend price, the customer can add money to com-
plete the sale.

## Token value -

If you have set the previous parameter to "Value", you must assign that
value here. To increase, press on the green button. To decrease, press value here. . increase, press on the green button. To decrease, press and hold the green button and press on the black button. The maximum
value is $\$ 12.75$. The setting can wrap around. Therefore, if you are at $\$ 0.00$ and wish. to fif a a value of $\$ 12.75$, it faster decreasing rather than
ncreasing. A value set at $\$ 0.00$ will make the changer accepting the token ncreasing. A value set at $\$ 0.00$ will make
without sending any credits to the board.

## Machine ID -

It is possible to assign an ID to your machine. The ID is numeric between
000 and 999 . This number will appear in the proper field of the DEX X ransfer. Press on green to increase it, press and hold green while pressing on black to decrease. Press black to confirm.
L4 Time out -
This setting is used to set the time the SP-K will wait for the accept line to return. During this period, the display will show «Please wait ». After this
period, the display will show the message «Out of service » or «Sory sold -out „, according the setting of the next menu. Time is adjustable between
00:04 and $99: 59$ minutes. Press on green to increase it, press and hold
green while pressing on black to decrease. Press black to confirm. vend cycle


L4 OFF message -
You have the choice between Out of service or Sorry sold-out when the Accept line is not present
Pulse per vend Allows you to decide how many time the
single transaction. Maximum 99 pulses.
Vend signal time -
Enables you to program the time the vend relay will close once the amount inserted is equal or higher that the vend price. Time is by increments of $0,05 \mathrm{sec}$
onds. Minimum is 0,05 ; maximum is 9,95 In case on multiple pulses, close time onds. Minimu.
$=$ open time.
Selection button -
If you allow revaluing cards in your machine, you must have a selection button and this parameter must be est to YES. The selection button can be used without a card reader such as allowing a delayed start of your machine. No button
automatic start. automatic start.

## Max card revalue -

Enter here the maximum amount you authorize for the function revalue. The amount set here will not modify the maximum programmed into the cashless
device itself and must be lower that this one by at least $\$ 20$ (ex.: maximum mount into the reader $\$ 100$; set an $\$ 80$ maximum amount here).
\$accept vending followed by \$ accept revalue -
If you have a bill acceptor, you can decide the bills you wish to accept either for a purchase or a revalue. Note that
bills. You can't revalue with coins.

## Programming the vend price -

Programming the vend price is done using the dipswitches directly on the board
Those switches work the same way the dipswitches were working in the Those switches work the
single price coin changer.

If you are not familiar with this, keep in mind the following word: Double
The base value is on switch \#1 (default value 0.05 or $5 \phi$, see Price Base on
reverse).
Switch $\# 2$ doubles the value of switch $\# 1(2 \times 5 \phi=10 \phi)$.
Swwitch $\# 3$ doublest the ealue of swith $\#(2 \times 10 \phi=20 \phi)$.
Switc $\# 4$ doubbest the ealue of swith $\# 3(2 \times 20=40 \phi)$.
Switch $\# 5$ doubles the value of switch $\# 4(2 \times 40 \phi=80)$.
Switch \#5 doubles the value of swith $\# 3(2 \times 204=40 \phi)$.
$\cdots$ dound so on.
You can use more than one switch to set your vend price. If you want to set a $\$ 1$
 price will see switches $\# 4$ and $\# 6 \mathrm{ON}(40 \phi+\$ 1,60=\$ 2)$.
The price resulting from the combination of the switches is visible on the display All switches ON will give the maximum vend price of $\$ 12,75(5 \phi+10 \phi+20 \phi+$
$40 \phi+80 \phi+\$ 1,60+\$ 3,20+\$ 6,40=\$ 12,75)$. If you want to go higher, you need an
to change the default value of switch $\# 1$. To do do so, consult the chart in the Price to change the derault value
Base parameter on reverse.

The audit
The SP-K keeps track of all sales. It also keeps track of the money present in the coin changer, the coin box, and the bill box. Sales in cash are apart from the

Some of those meters can be reset upon each visit. Below are the details of all the counters. Please note the example below shows a SP-K with a coin changer a bill acceptor, and a castless device. Depending on the absence or the ty
peripherals and the country you are in, the information will vary accordingly.

| Tube $\phi$ | Value of the coins in each tube (3 to 5) | Non-resettable |
| :---: | :---: | :---: |
| Coin / Bill box: | Money present in each box (coin and bill) | Press Green to |
| Cash sales tot | Sales with cash since last clear | Press Green to clear |
| Cash sales cumu. | Cumulative sales with cash since day 1 | Non-resettable |
| Cashless sales tot. | Sales with card since last clear | Press Green to clear |
| Cashless sales cumu. | Cumulative sales with card since day 1 | Non-resettable |
| $\begin{array}{\|c} \text { Sales with token } \\ \text { total } \end{array}$ | Units sold with token since last clear | Press Green to clear |
| Sales with token cumu. | Units sold with token since day 1 | Non-resettable |
| Sales w/value tk total | Value sold with token since last clear | Press Green to clear |
| Sales w/value tk cumu | Value sold with token since day 1 | Non-resettable |
| Unit sales total | Units sold since last clear | Press Green to clear |
| Unit sales cumul. | Units sold since day 1 | Non-resettable |
| Card revalued Total | Value of the money sent on cards since the last clear. | Press Green to clear |
| Card revalued cumul. | Value of the money sent on cards since day 1. | Non-resettable |

## S.E.M. INC. - WARRANTY AND LIABILITY CONTRACT

By issuing a Purchase Order or contracting with S.E.M. Inc. to carr out the supply of products, clients are accepting the terms of this War ranty 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 WORKMANSHIP, but no against damages caused by accident, abuse, faulty installation, or imprope operation and installation.
S.E.M. Inc. shall not be liable for any direct, indirect and/or consequentia damages or losses, including loss of use, revenue, profit incurred by the client, its customers and/or any third party 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 ailure or maffunctions, design or programming errors or any
other use of the work carried out in this contract. The client specifically waives any claim or recourse he may have against S.E.M. Inc. in any of the above instances.
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, comp prepaid) within one year after date of invoice, examination of which disclose to S.E.M. Inc.'s satisfaction that the equipment, components, or parts thereo were originally defective
Any changes in design or improvements added to the line of equipment shal and delivered to the client.
Any unauthorized alteration of, or addition to, articles of the contrac tors manufacture voids this warranty

Personal notes:
$\qquad$

Clear all meters
Once you have consulted the audit, you can clear all meters in one operation When the display shows Clear Counters? Hold GREEN, you must then pres and hold the green button for few seconds. If you release too soon, no
cleared. The cumulative counters are not touched by this manoeuvre.

A word on the DEX transfer. A DEX transfer of the audit through the DEX port will not erase the counters. You must erase those manually after the transfer.

On the SP-K, the audit is also available for DEX transfer. Just connect your DEX transfer handheld computer to the port to capture the information
If you need to adapt your DEX harness, the pin-out information
below. is below.

| SP1 | DB9 serial port PC |
| :--- | :--- |
| pin $\# 1=$ GND |  |
| pin $\# 2=R X ~$ | $5-G N D$ |
| pin $\# 3=T X$ | $2-R X$ |
| pin $\# 4=N O$ conNECTION |  |
| pin $\# 5=5$ volts (reserved use) |  |

The DEX header ( J 3 ) is located beside the MDB connector.

S.E.M. Inc.

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