

CI20
Electronic
Validators

C120 Electronic Validators

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GENERAL DESCRIPTION

1.0

The C120 incorporates the latest electronic validation technology providing unparalleled performance, features and value for money.

Designed to be compatible with most existing 3½” mechanical and electronic validators, the C120 is ideal for both new and retrofit applications, including:-

Video

Pinball

Gaming

Vending

1.1

Product Range

There are two variants available within the C120 range, each offering the same level of validation performance but with different mounting and coin accept and reject paths.

- a) Standard - This unit is suitable for retrofitting for the Money Controls S10/S7 unit, and as such can be mounted within most 3½” mechanical validator backplate assemblies, e.g. Money Controls Inc. S7 kit part assembly.
- b) Frontplate - For mounting into a host machine using a stylish compact frontplate assembly suitable for either surface or rear mounting, giving the user maximum flexibility of design.

1.2

Summary Specification

Acceptance : upto 6 different coins or tokens

Coin diameter : 15 to 31 mm

Coin thickness : 1.5 to 3.3 mm (Depending on model selected)

Temperature range : 0°C to 55°C

Power supply : 11V to 28Vd.c.

Rise time :

SERVICING

3.0

3.1

Main Components

3.1.1

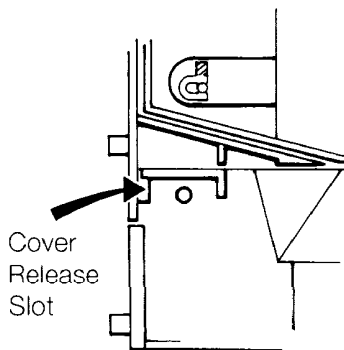
Back Cover

Removal of the back cover can be achieved by inserting a screwdriver into the release slot and pulling the cover away. This now allows access to the pcb, inhibit D.I.L. switches (see section 4.3) and the interface loom.

To replace the cover insert the two hook shaped clips on the bottom inside face of the cover into the recesses in the bottom edge of the body/pcb, and push the top edge of the cover closed until it clicks shut.

3.1.2

Accept Cover



The cover can be removed by inserting a screwdriver into the release slot and levering it open. When opening the cover, care must be taken not to damage the solenoid to pcb connection.

To replace the cover, fit the right hand edge in the locating slots provided, making sure the solenoid to pcb connection is in the channel provided and does not become trapped. Firmly press down on the left hand side until it clicks into place.

3.1.3

Accept Gate

Open accept cover as described in Section 3.1.2.

Release the solenoid retaining screw and withdraw solenoid and accept gate assembly from the cover by pushing the gate through from the inside. Care must be taken to ensure the solenoid to pcb connection is not damaged.

Refitment is the reverse of the above procedure.

3.2

Cleaning

The plastic coin rundown should be cleaned regularly to ensure accurate validation of coins and tokens. Only a damp cloth and a mild detergent should be used,

on no account can any solvent type cleaner or foam cleaner be used. Access to the rundown is gained by folding back the reject gate. Access to the accept gate is described in 3.1.2 and 3.1.3.

3.3

Fault Finding

The following information is presented for customers' guidance in determining a suspected fault, and does not cover all possible causes.

It is recommended that all faulty products be returned to a Money Controls Group company or to an authorised repair centre. For further information contact the Money Controls Technical Service Department.

Symptom	Investigate	Possible Cause
Mech does not work (all coins reject)	Connector	Poor contact Ribbon cable damaged
	Power Supply	Not Switched On Incorrect voltage Inadequate power, power supply rise time too slow.
	Inhibit Switches	Coins inhibited
	Inhibit Input	Mech inhibited
	Accept Gate	Gate not free or dislocated
	Accept Channel	Obstruction in channel
True coins reject too often	Power Supply	Voltage less than 1 IV (NB Voltage drop when solenoid activated)
	Accept Gate	Gate not free or dislocated
	Connector	Loose
	Rundown	Dirty
Coins stick or jam in mech	Rundown, Accept Channel, Reject Channel, Accept Gate	Dirt or mechanical damage/destruction
One of the true coins always rejects	Interface	Damaged ribbon cable
	Inhibit switches	Coin inhibited
No accept signal	Connector	Ribbon cable or connector loose or broken
	Accept Channel	Dirty or obstructed (mech timeout)

INTERFACING

4.0

This section describes the method of interfacing with the CI 20, if further information is required contact Money Controls Technical Services Department.

4.1

Power Supply

Voltage : 11 to 28 volts d.c.

Current : Typically
50mA quiescent

: Typically
300mA peak

IMPORTANT NOTE

Operation of the coin mech outside the specification may cause ma/function or damage. It is important to ensure that the supply voltage remains within the quoted range throughout the Peak current periods of operation.

4.2

Interface

The parallel interface connector is made via a 1 O-way ribbon cable with a polarised female IDC connector.

The following signals are available on this connector.

Pin No.	Signal	Active
1	Ground (0v)	
2	+12V d.c.	
3	Accept coin 5	Low
4	Accept coin 6	Low
5	Return (reject)	
6	Inhibit all coins	High
7	Accept coin 1	Low
8	Accept coin 2	Low
9	Accept coin 3	Low
10	Accept coin 4	Low

4.2.1

Coin accept Outputs (Pins 3,4,7,8,9 and 10)

Each coin accept output consists of an open collector NPN transistor. On acceptance of a true coin the transistor is turned on for a period of 100mSec ($\pm 20\%$) at less than 0.7 volts at 50mA.

The host machine must look for valid credit pulses NOT LESS THAN 50 mS. It is not sufficient to merely detect the edges of credit pulses. This "debounce" will prevent credits being registered by the host machine as a result of any noise or false credit pulses being induced on the output lines.

4.2.2

inhibit All Coins (Pin 6)

When this input is high (>2.0 volts) all coins are rejected. When low (<1.2 volts), individual coin inhibit is determined by D.I.L. switch - see section 4.3. By default, this line is low.

4.2.3

Inhibit All Current Input

V in (max) 24V

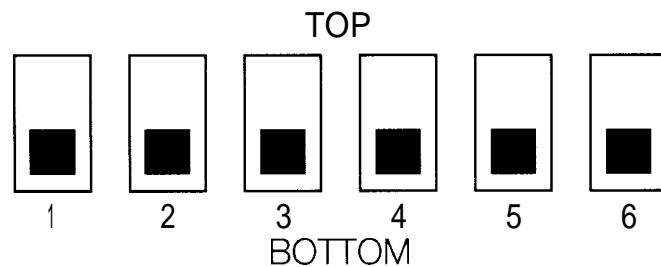
I in (max) 2.4mA

4.3

Selective Coin Inhibit

Individual coins can be inhibited/enabled through the operation of D.I.L. switches located on the pcb under the back cover. For access see section 3.1 .1

Inhibit Switches



Each coin (1 to 6) has a correspondingly numbered switch which, when in the Down position, enables the coin and when in the Up position, inhibits the coin.

4.4

High security windows

Validators programmed with high security specifications are identified by the letter h adjacent to the relevant coin on the coinage label.

Example: Coins	Coins
1 \$1	4 \$1h
2 254:	5 N/C
3 N/C	6 N/C

NOTE:

N/C = No Coin Programmed.

Each of the six coins has a correspondingly numbered DIL switch to be found under the back cover. The remaining four switches are for Money Controls use only.

4.4.t

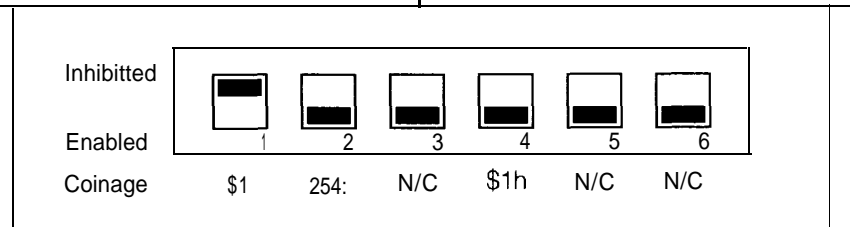
High Security Operation

Inhibiting the normal security window automatically enables the high security feature providing that the feature is available on that coin. See above.

This is achieved by switching up the appropriate DIL switch.

Example:

Enabling the \$1 high security feature



4.4.2

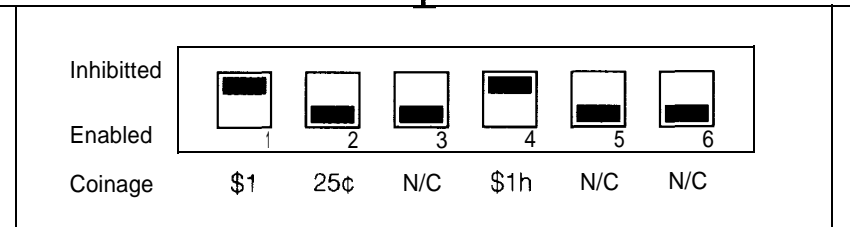
Coin Inhibit

To totally inhibit a coin both the normal and/or high security windows should be inhibited.

This is achieved by switching up a single DIL switch if no high security feature is available, or by switching up both normal and high security DIL switches if a high security feature is available.

Example:

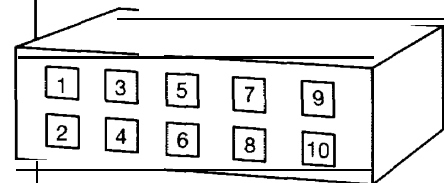
Inhibiting the \$1 coin completely



4.5

Insulation Displacement Connector

Pin layout



Pin no	Signal	Active	Pin no	Signal	Active
1	Ground (0V)		6	Inhibit All	High
2	+ 12V d.c.		7	Accept Coin 1	Low
3	Accept Coin 5	Low	8	Accept Coin 2	Low
4	Accept Coin 6	Low	9	Accept Coin 3	Low
5	Reject	Low	10	Accept Coin 4	Low

ENVIRONMENTAL CONDITIONS

5.0

5.1

Operating Conditions

Temperature
range : 0°C to 55°C

Relative
Humidity : 20% to 75%
non-
condensing

5.2

Storage Conditions

Temperature
range : -30°C to 55°C

Relative
Humidity : 10% to 85%
non-
condensing

5.3

Orientation

The C120 is designed to operate vertically with a maximum angle of operation of 2° from the vertical in any plane.

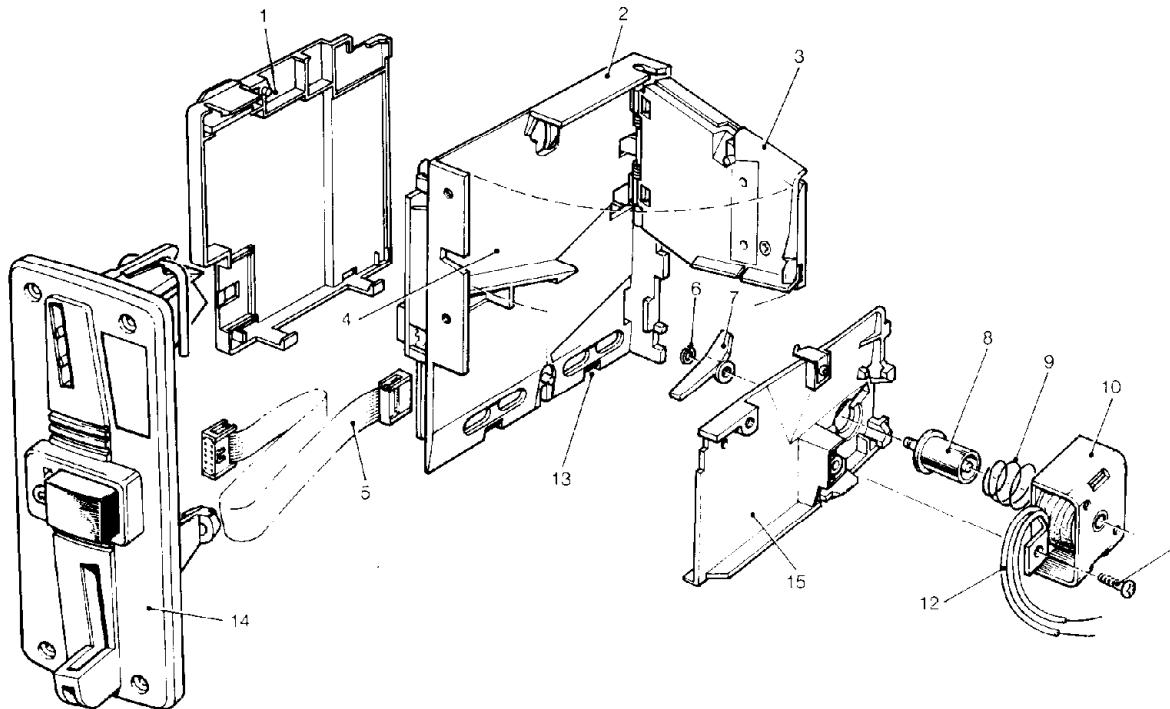
EXPLODED DIAGRAM -
C120 SERIES.
FIG. 1

- 1. Back cover
- 2. Main body
- 3. Reject gate
- 4. Rundown
- 5. Interface loom
- 6. Accept gate circlip

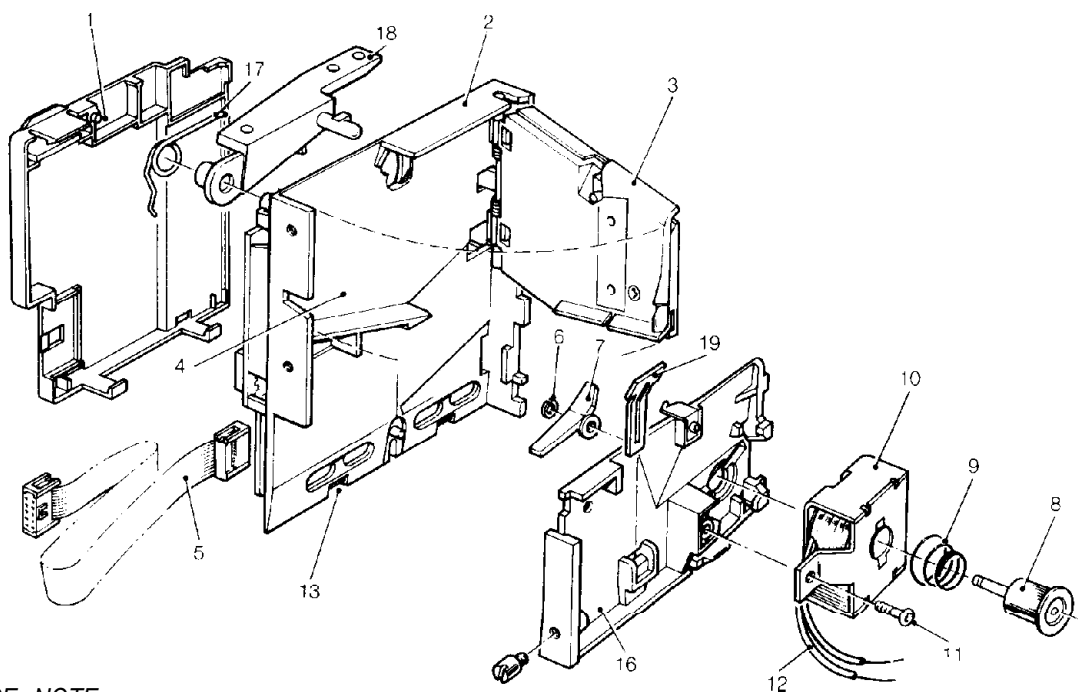
- 7. Accept gate
- 8. Pole piece
- 9. Accept gate spring
- 10. Solenoid
- 11. Solenoid retaining screw
- 12. Solenoid to PCB connection
- 13. Accept sensors

- Model Dependent
- 14. Frontplate
- 15. Reject cover (Frontplate validator)
- 16. Reject cover (Standard Body version)
- 17. Reject lever spring
- 18. Reject lever
- 19. Non-return catch

FRONT PLATE VERSION



STANDARD BODY VERSION

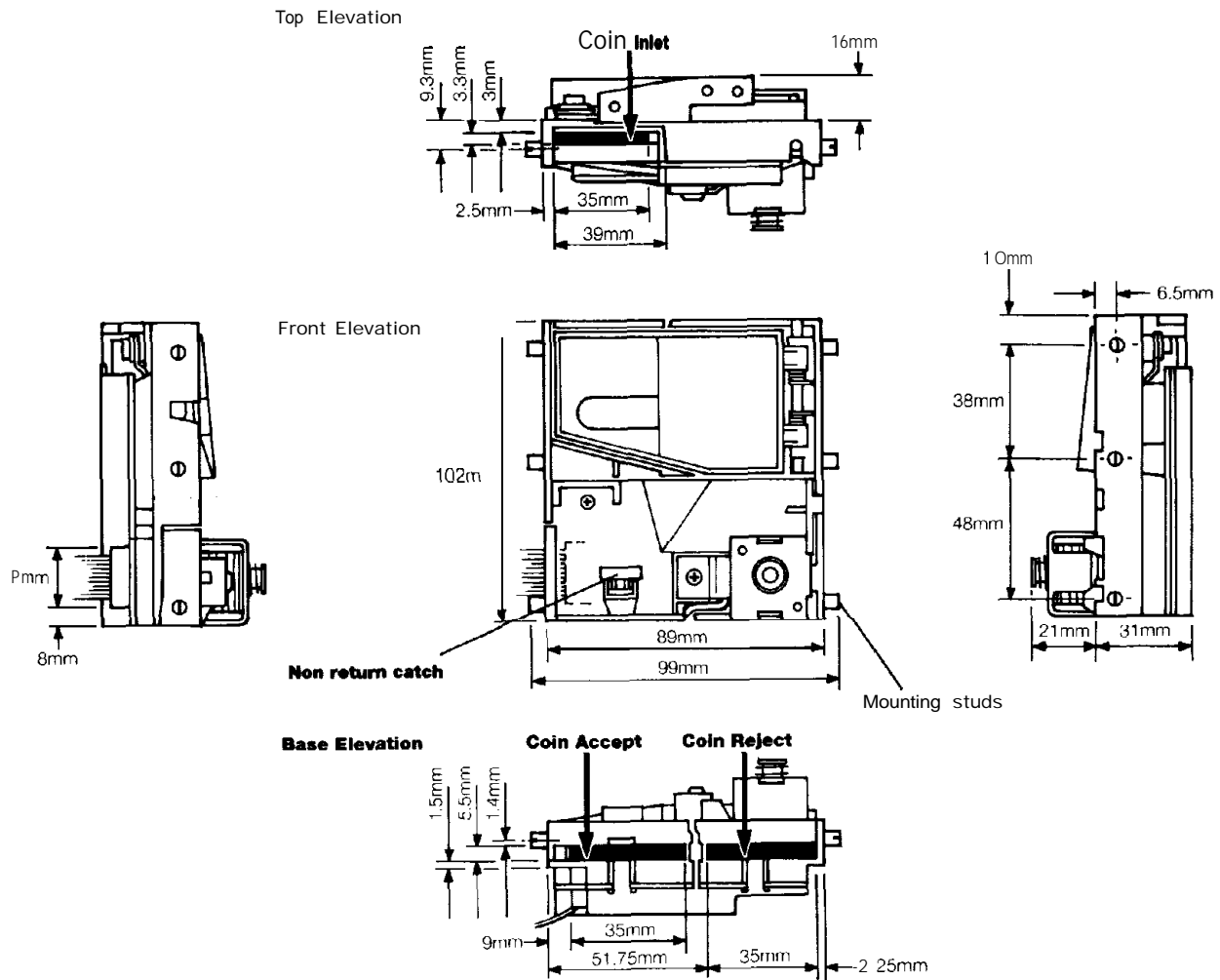


PLEASE NOTE:

The reject action on the standard body version is different to that of the front p/ate version, therefore the reject cover and solenoid of the two versions are different.

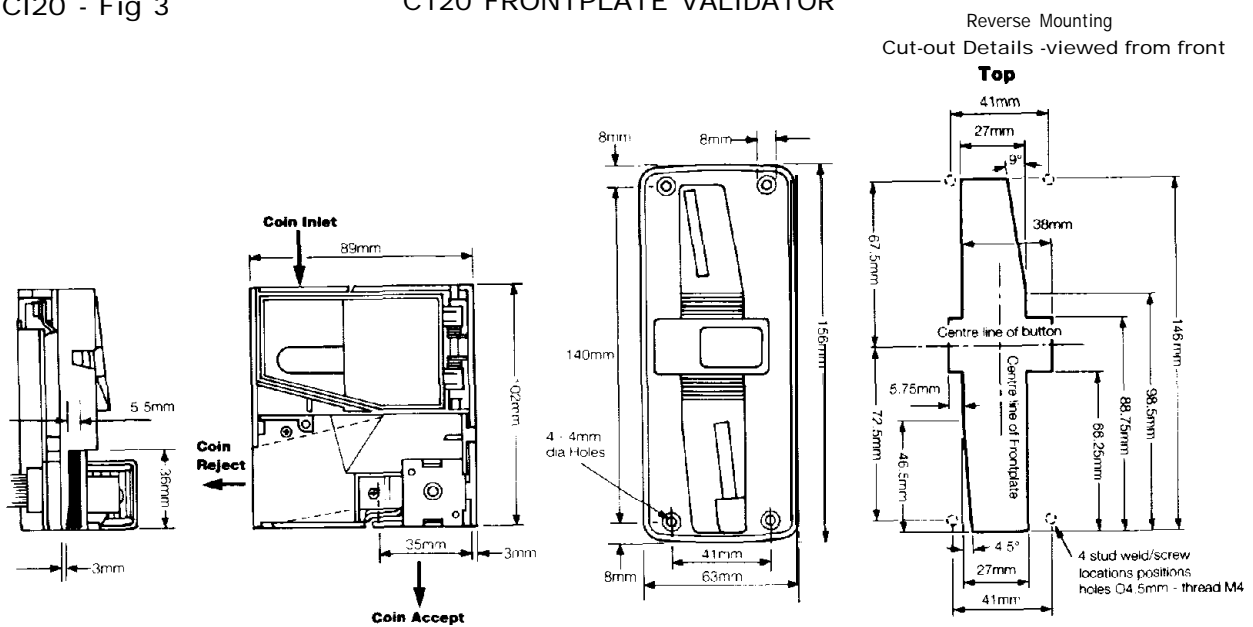
C120 - Fig 2

C120 STANDARD BODY



C120 - Fig 3

C120 FRONTPLATE VALIDATOR



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