



ABBERFIELD

INDUSTRIES

PTY LTD ABN 61 000 112 569

PC151

PHOTOCOPY CONTROLLER

PC151 is the preferred lower cost but sophisticated method of coin operating standard photocopier machines. Other models are available for multi-denominational coin usage

TECHNICAL & SERVICE DETAILS

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PC151 - INSTALLATION & OPERATION INSTRUCTIONS

DESCRIPTION

Simple cost efficient means of coin controlling photocopy machines. Connections are made to existing key count sockets on the photocopy machine, with little or no need for technician involvement. Instructions are attached inside the cover of each coin controller.

The PC151 incorporates an electronic interface and other features making it the most practical way to connect photocopiers for coin operation.

FEATURES

1. Operates directly off the photocopier's standard key counter or coin control interface.
2. Supplied with a key operated by-pass switch.
3. Coloured dark grey to match most photocopier accessories, with yellow printed instructions.
4. Secure cash housing.
5. High quality injection moulded components.
6. Installation and operation instructions attached inside the cover.
7. Operation service manual supplied with each unit.

SECURITY

To ensure maximum security, the cover of the PC151 is completely seam welded from heavy gauge steel. The cover surrounds the entire body of the PC151 with the edges flush to the cabinet making it virtually impossible to gain un-authorized entry. The lock is fitted on the side of the case, making it more tamper proof than if fitted on the front. The unit should be fastened securely and the recommended procedure is printed on a drilling template supplied with each unit.

MECHANICAL

The cover has a sloping top, incorporating the coin entry slot. This permits easier reading of the instruction label and prevents objects being placed on top of the case. A durable electrostatically sprayed finish is applied to the outer casing. The standard colour for PC151 units is a dark grey. Special colours are available on request.

DIMENSIONS

245mm high x 200mm wide x 90mm deep.
Weight is 2.5 kilos.

ELECTRICAL

Operates on internal batteries with a service life exceeding seven years.

OPERATION

The PC151 is designed to attach to photocopy machines with the least inconvenience, via a four wire lead supplied with the coin controller.

This attaches to the copy key count socket on the photocopier. When a coin is inserted the electronics of the coin controller closes the "loop", "enabling" the photocopying machine. As copies are taken the copy complete signal is sent to the coin controller to down count the coin inserted and open the "loop", disabling the photocopier. The photocopier is operated normally and up to 250 coins can be inserted for continuous copying.

A key operated coin by-pass switch is fitted to permit normal manual operation.

NOTE: The circuit checks that coins are not inserted on a string or in other ways manipulated. Operation of the coin switch by hand may not be successful and therefore testing should be done by inserting a coin as in normal use. Manipulation of the microswitch may also clear any prepaid credit.

A3 CHARGING OPTION

An option also exists to double the A4 price for an A3 copy. Some photocopy machines achieve this by giving two pulses for an A3 and one for an A4, but they still need the machine disabled until two coins have been inserted. Other copy machines only output one pulse regardless of the paper size.

Any machine can charge double price by inputting a maintained signal to the coin control board when A3 is selected. A three pin plug socket will accept a voltage between 2 to 30 Volts or an LED current input. Next to the 3 pin plug socket are three solder pads as an alternate connection. This is labelled COM (common), SER (series - ie LED sourcing current 30mA max) and PAR (parallel - ie 2 to 30 Volts AC or DC). **To program the coin system, engage the copy by-pass switch, select A3 on the copier and take an A3 copy. The unit will "learn" the inputs (ie. one or two pulses) and now provide A3 copies at twice the A4 copy price.**

INSTALLATION

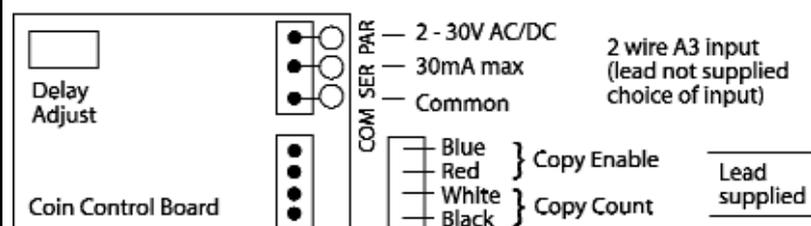
A wiring harness is provided to simplify installation. Secure the coin box firmly and allow 150mm between the lock side and any obstruction. Plug the lead into the copier key count socket.

Installation instructions are permanently attached inside the cover of each unit.

CASH COLLECTION

When opening the coin controller depress the lock side of the cover to release tension on the lock mechanism.

When inserting the anti-pilpher key, press inwards before turning, clockwise to open.



WIRING

The PC151 comes with a 1.5 metre, 4 core lead terminated with a plug. This plug fits most copier machines connecting directly to the copy key count socket.

The polarity of the leads is not important. Most machines give a 24 volt DC pulse but any voltage from 2 volts to 30 volts AC or DC is acceptable.

Care should be taken not to confuse the copy enable and copy count wires. However if reversed a sacrificial resistor in the coin controller should protect the photocopy machine from damage.

Should the plug be of a different type or no copy key count socket is provided, the extra lead and socket is used. This short lead has a socket to fit the normal plug and has the other end as bare wires. The photocopier technician then either connects these leads to a plug to suit their machine or connects the wires directly.

ADJUSTMENT

The copy down count signal from the copier occurs at different times in the copying process, between different copying machines. On rare occasions this can mean the photocopier is disabled too early or too late. If early the copy may be incomplete and if late more than one copy may be printed for each coin inserted.

Adjustment is provided within the coin controller to advance or delay the disabling of the "loop". A screw driver set rotary switch is positioned on the top edge of the circuit board. This is factory set but can be altered as necessary.

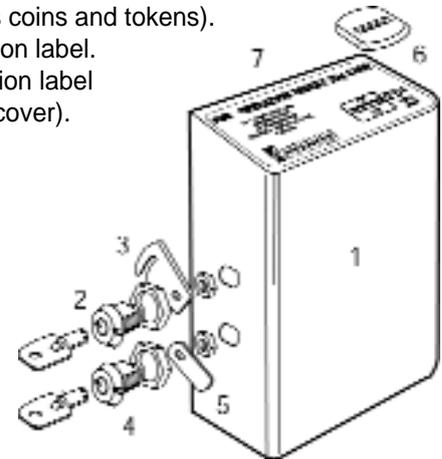
number. This key number is unlikely to have been supplied on earlier deliveries as many key numbers are in use. The lock manufacturers have designated these numbers for supply to Abberfield Technology only. Therefore the opening of these coin operated time switches by other keys is highly unlikely.

If a key is lost it is to be hoped that the customer has recorded the number, imprinted on the key, and the side of the lock barrelling (not the face of the lock) so that replacements can be supplied.

As the equipment is designed to exclude forceful entry the loss of a key can cause great difficulties.

PC151 SERIES COVER

1. Cover.
2. Lock assembly.
3. Lock cam.
4. Key bypass switch.
5. Plastic key bypass cam with magnet fitted.
6. Escutcheon and two M3 screws. (various coins and tokens).
7. Instruction label.
8. Installation label (inside cover).



PC151 - SERVICE HINTS

MICROSWITCH

The microswitch must be set so that it has "after travel" beyond both the switch on, and switch off positions. Also check that the switch arm will travel freely into the slot.

COVER

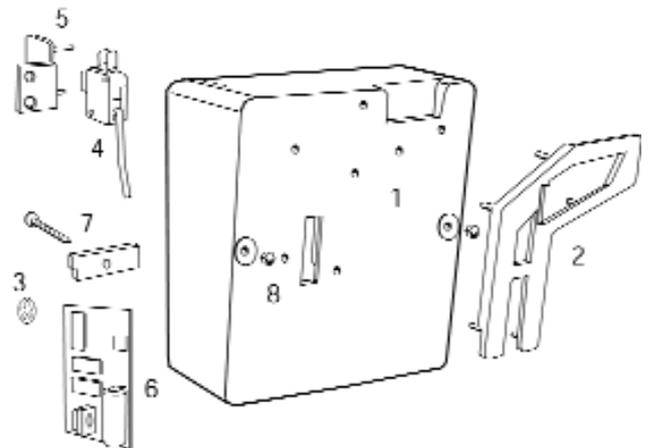
The cover is designed to have some "spring" in the hinge. This means that when closing the cover, slight resistance is felt just at the end of its travel. This is intended to stop the cover being loose and "rattling". Such a cover may suggest inferior security and is an invitation to vandalism. Also this tension "loads" the lock assembly, making it more difficult for would be lock pickers.

LOCKS

Anti-pilpher radial pin locks are suitable for normal applications.

KEYS

To maximise internal security, no records are kept of the key numbers used by Abberfield Technology customers. When deliveries are made, all units in each order should have the same key



PC151 SERIES INTERIOR

1. Interior moulding.
2. Coin track. (various coins and tokens).
3. Small push on nut (7 per set).
4. Microswitch.
5. Switch bracket.
6. Control board.
7. Cable clamp and thread cutting screw.
8. 3/16" Whitworth nut (2 per set).

FASTENERS

The coin tracks are held on by push on nuts for economic reasons, and the need to double insulate, by using plastic mounting pins. If necessary these nuts are easily removed by first prising up one edge of the nut, and then cutting through the outer edge with small side cutters.

CAUTION

The control electronics incorporates a Lithium battery. The life of this battery should exceed 7 years. If eventually this needs replacing care should be taken

in disposing of the old battery. Lithium batteries are quite explosive if thrown into a fire or hit sharply by being dropped etc.

RESETTING OF MEMORY

During testing the coin controller may build up a number of credits which may need clearing without the need to run off the pre-paid copies. The coin micro switch can be depressed and held down for approximately 5 seconds to clear the memory. Alternatively, wait 5 minutes and the memory will self clear.

PC151 - FAULT FINDING

FAULT

Photocopier runs without coins or use of by-pass switch.

Machine initiates by coin insertion but will not down count.

Photocopy prints only part copy for a coin inserted.

Photocopier completes one and a part copy for a single coin.

By-pass key switch operates but machine will not initiate on coins inserted.

Photocopier enables and immediately disables itself.

POSSIBLE REMEDY

- Enabling loop on the photocopier has not been disconnected.
- A preceding credit has not been used.

Clear by:

- A) Taking extra copies.
- B) Waiting 5 minutes for the circuit to time out.
- C) Depress the coin micro switch for 5 seconds to clear the memory.

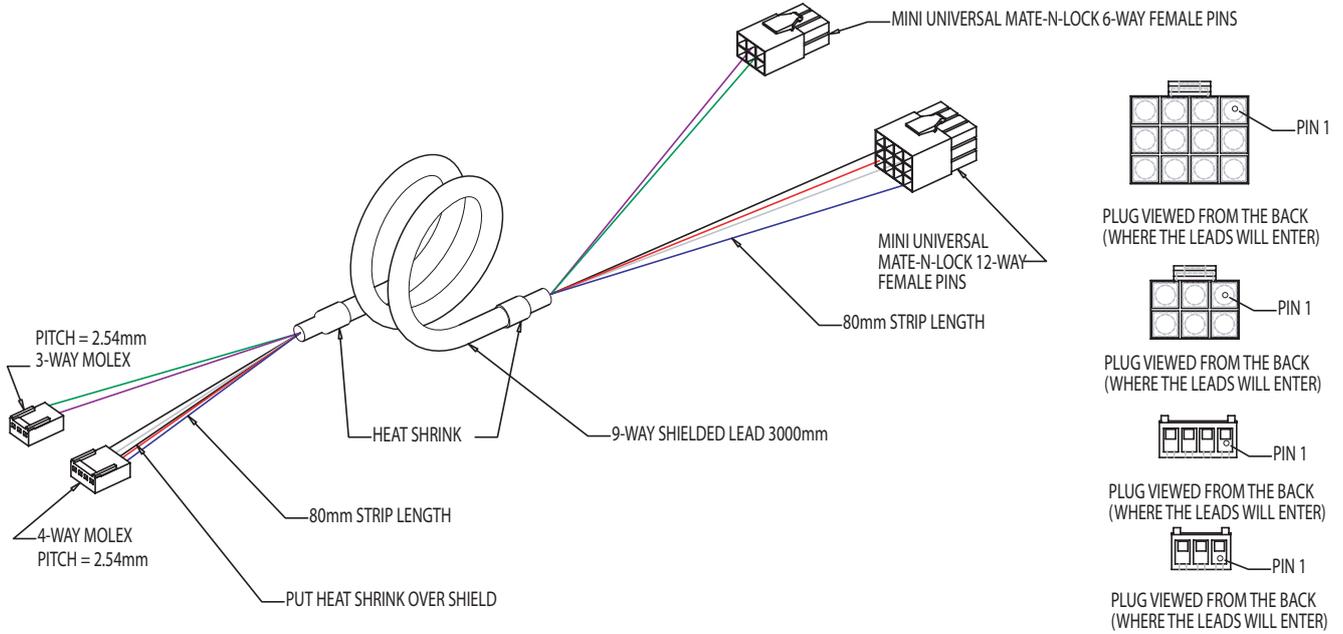
- Separate by-pass switch on the photocopier may be left "on".
- Lithium battery flat (not likely until after 7 years use).
- Signal not received from photocopier (a voltage of 2 to 30 Volts pulsed once for each copy).
- Bypass switch left "on".
- Remote bypass switch on photocopier left "on".
- PC151 disconnects photocopier too early. Adjust by rotating the time of one delay switch clockwise.
- PC151 disconnects photocopier too late. Turn the time delay switch anticlockwise.
NOTE: If having adjusted to zero more than 1 copy occurs, it is probable that the photocopying machine count signal is being received after the second copy has been initiated. Although the printing process may be able to be stopped the feeding of the paper will still occur. In this case the copy down count signal from the photocopying machine will need to be changed. The problem as outlined would suggest the signal comes from a paper feeding out clutch and the cure may be to select the signal from a paper feeding in clutch, or similar device.
- Lithium battery flat (Unlikely before at least 7 years of use).
- Make sure a coin was used to operate the machine. Operation by a finger is not recommended as the switching time is critical (to match the rate of coin fall).



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PHOTOCOPY LEADS - PC151 STANDARD

| Molex | | Molex | | Mini Universal Mate-n-lock | | Mini Universal mate-n-lock | |
|-------|--------|-------|------------|----------------------------|--------|----------------------------|--------|
| 3-way | colour | 4-way | colour | 6-way | colour | 12-way | colour |
| 1 | green | 1 | black | 1 | green | 1 | white |
| 2 | | 2 | white | 2 | violet | 2 | |
| 3 | violet | 3 | red/shield | 3 | | 3 | black |
| | | 4 | blue | 4 | | 4 | |
| | | | | 5 | | 5 | |
| | | | | 6 | | 6 | |
| | | | | | | 7 | |
| | | | | | | 8 | |
| | | | | | | 9 | blue |
| | | | | | | 10 | |
| | | | | | | 11 | |
| | | | | | | 12 | red |



PHOTOCOPY LEADS - PC151, PC171 & PC301 TAIL LEAD

| Mini Universal Mate-n-lock female | | Mini Universal mate-n-lock female | |
|-----------------------------------|--------|-----------------------------------|--------|
| 6-way | colour | 12-way | colour |
| 1 | green | 1 | white |
| 2 | violet | 2 | |
| 3 | yellow | 3 | black |
| 4 | | 4 | |
| 5 | | 5 | |
| 6 | | 6 | |
| | | 7 | |
| | | 8 | |
| | | 9 | blue |
| | | 10 | |
| | | 11 | |
| | | 12 | red |

