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CT1 Collating Table



Technical Manual

Revision 3

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1. Collating Table Features

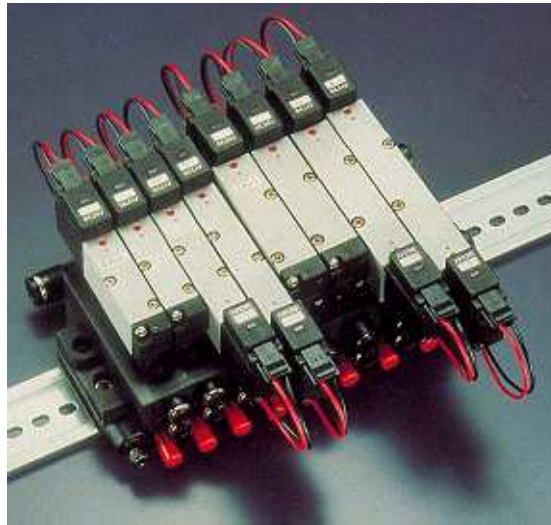
The CT1 series of Collating Tables have many advanced features:



1.1. *Microprocessor control system*

- **Reliable** - Hardened against very high levels of mains spikes and static discharges.
- **Flexible** - can quickly be re-programmed for special needs.
- **Future-proof** - Large number of spare inputs and outputs to allow future expansion provided at no extra cost.
- **Easy to Set** - Two line alpha-numeric display allows quick, accurate setting and display of test parameters.
- **Easy to Fault Find** - Diagnostics are provided from the front panel, allowing engineers to quickly verify every part of the system.
- **International** - Since all information is presented on the front panel display, it is easy to change the program to use another language (where the system is to be used in a non - English speaking country).

1.2. Modular pneumatic system



Allows quick customisation for special needs.

Allows easy expansion of system to include extra facilities even after installation.

1.3. Cost Effective

The circuit cards have been designed and programmed specifically for this application. Great care has been taken to ensure that the system is easily re-programmable, expandable and reliable. This means that the performance and cost limitations of using a bought-in Programmable Logic Controller are avoided.

1.4. Options

The design is highly flexible with respect to software, electronics, pneumatics and mechanics. This allows a wide range of options to be added at any time, even after installation.

1.4.1. Stagger Packing

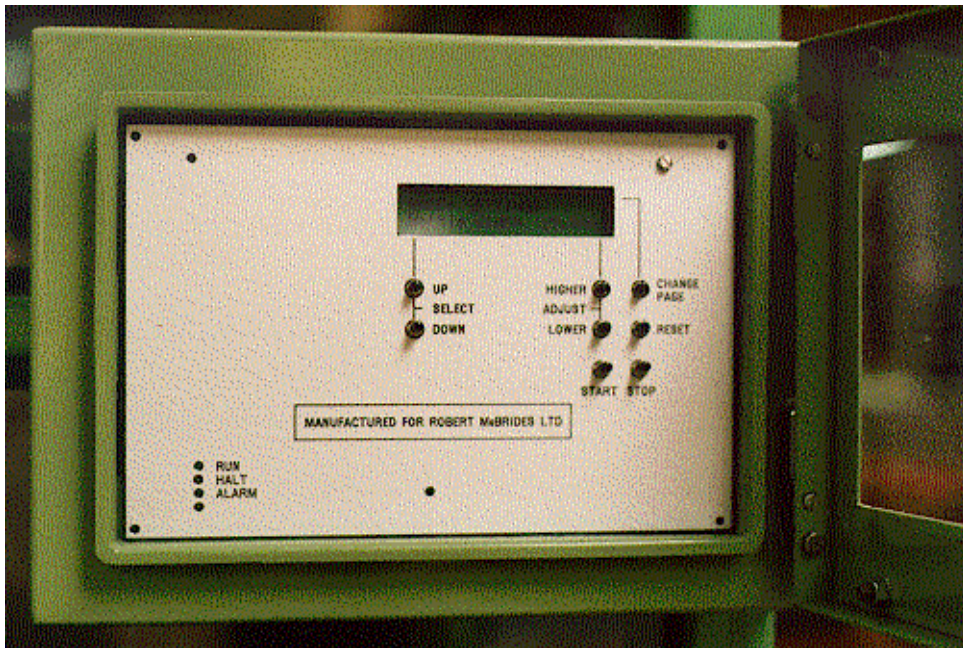
Allows round bottles to be packed in the highest possible density.

2. Specification

Electrical Power Supply	110/120 or 220/240 VAC single phase
Electrical Power consumption	300 VA maximum
Air Supply	4-10 bar
Air Consumption	1 litre / minute typical



3. Front Panel Controls (Alphanumeric Display)



The system is provided with an alphanumeric display to show all test parameters, diagnostics and results. Push button controls are provided to allow a technician to view pages and alter settings where required.

To change the page being displayed, press the PAGE button.

To view a particular item on a page, press SELECT UP or SELECT DOWN until the required item is displayed.

3.1. DISPLAYS Page

This is the main page displayed during normal running. The system will always show this page after power-on. This page displays the following information:

3.1.1. Counts

The system provides various counters of various items (see below). A count can be reset to zero as follows:

Press Select Up / Down until the required counter is displayed.

Press the Reset button.

3.1.1.1. Bottle Count

This is a count of the number of bottles that have been packed.

3.1.1.2. Tray Count

This is a count of the trays that have been packed.

3.2. SETTINGS Page

This is the page used to alter the leak tester settings. There are two types of setting; numerical and on/off. A numerical setting value is indicated by the number displayed. An on/off setting value (i.e. whether it is on or off) is indicated by "ON" or "OFF". To alter a setting, proceed as follows:

1. Press SELECT UP or SELECT DOWN until the required value is displayed.

2. Touch the Increase or decrease button as required. Alternatively, the setting can be returned to its factory set value by pressing the Reset button.

3.2.1. Bottles Per Row

This sets the number of bottles required per row of the packing pattern.

3.2.2. Rows Per Tray

This sets the number of rows required per tray in the packing pattern.

3.2.3. Bottle Width

This sets how far the pack is moved for each row of the packing pattern. This distance will need to be changed with different bottle widths.

3.3. I/O Page

See the Input / Output List section of the manual (Section 7) for details of the function of each input and output.

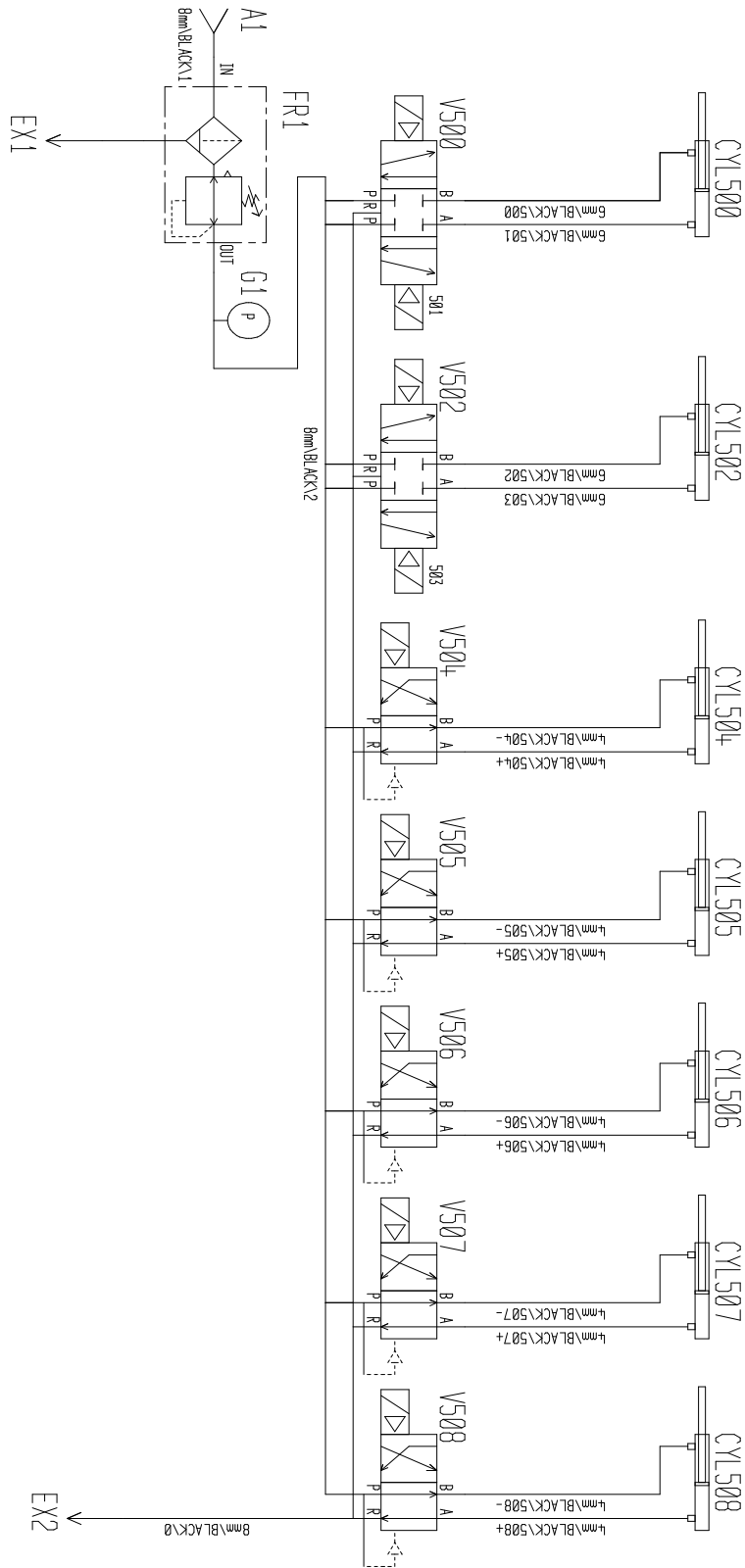
The state of each I/O is shown by “ON” or “OFF” displayed.

The state of an output or input can be over-ridden from this page as follows:

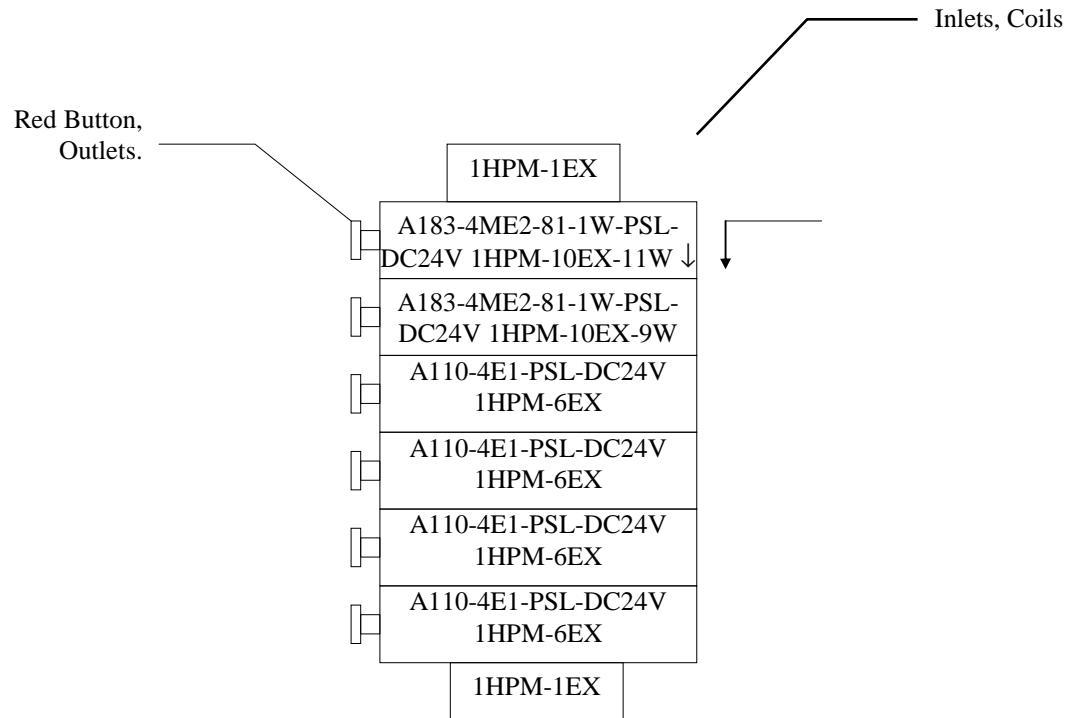
1. Press “SELECT UP” or “SELECT DOWN” to display the input or output which requires forcing.
2. To force on, press “INCREASE”. The indicator will change to “FORCED ON” to show it is forced on.
3. To force off, press “DECREASE”. The indicator will change to “FORCED OFF” to show it is forced off.
4. To reset to normal operation, press “RESET”.

Ensure that no I/O's are left forced to 0 or 1 when normal operation is to be resumed. If in doubt, power-off and on to reset the system.

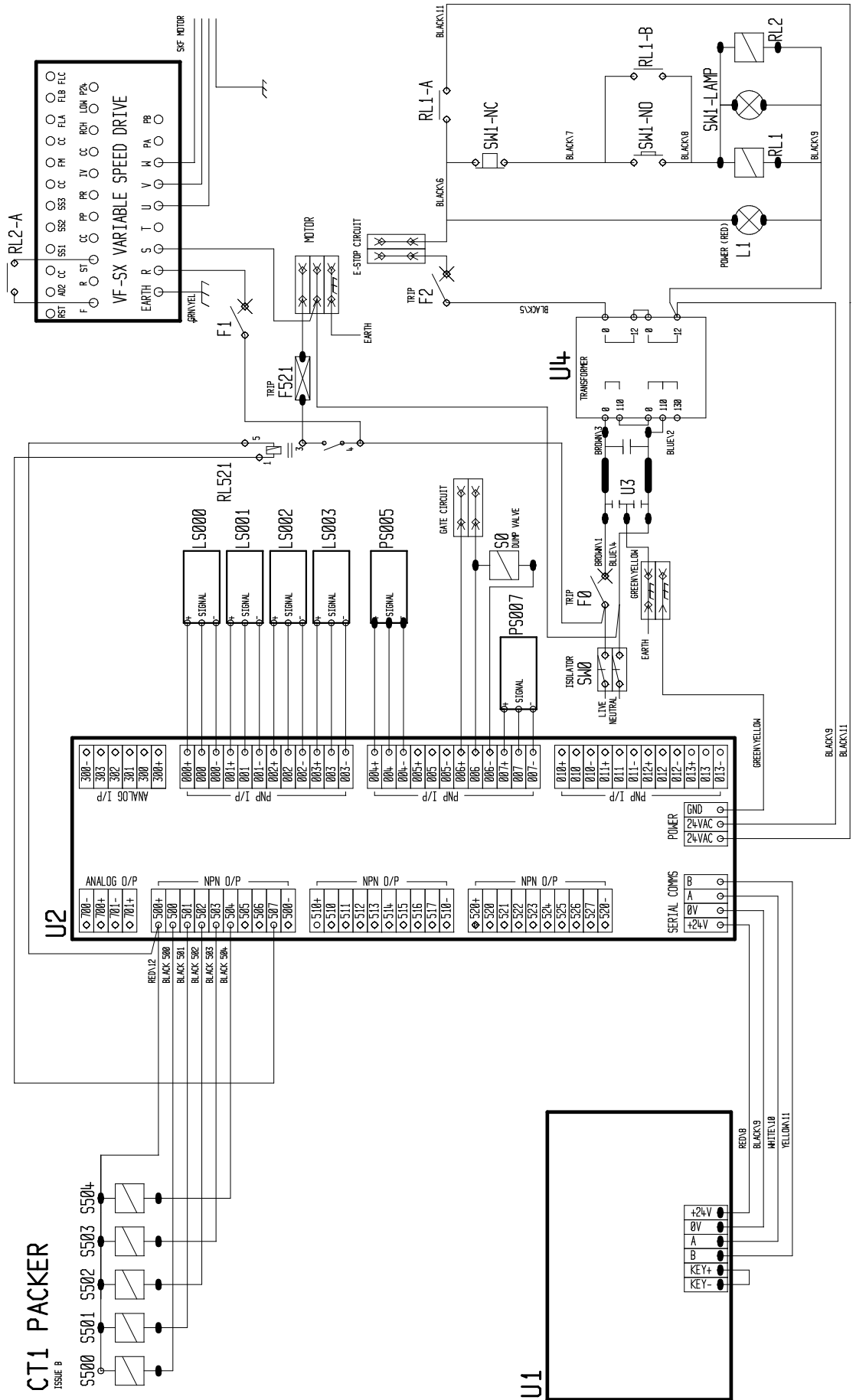
4. Pneumatics Diagram



5. Pneumatic Manifold Layout



6. Electrical Diagram



7. Input and Output List

7.1.1. Numbering System

A consistent standard is used for identifying devices throughout the leak tester system. The number part of a device name will be the same for all devices relating to a particular function. For example, the bottle pressurisation for channel 1 is controlled by electronic output 500, flow controller PR500, valve V500, transducer TX500 etc. An exception is made for devices controlling the system as a whole, for example the main air in filter-regulator is FR1.

REF	FUNCTION	TYPE	DEVICE	DESCRIPTION
X000	Forward	Input	Limit Switch	Tunnel is Forward (Towards infeed conveyor)
X001	Back	Input	Limit Switch	Tunnel is Back
X002	Up	Input	Limit Switch	Tunnel is Up
X003	Down	Input	Limit Switch	Tunnel is Down
X004	Count	Input	Photoswitch	Counts bottles coming in
X005	Full	Input	Photoswitch	Detects Table Full
X006	Safety OK	Input		Gates closed
X007	Tacho	Input	Proximity Switch	Detects table motor rotation
Y500	Forward	Output	Valve	Moves tunnel forward
Y501	Back	Output	Valve	Moves tunnel Back
Y502	Down	Output	Valve	Moves tunnel Down
Y503	Up	Output	Valve	Moves tunnel Up
Y504	Count	Output	Valve	Stop bottles when row count is reached
Y505		Output		
Y506		Output		
Y507	Belt	Output	Motor	Moves Table

8. Spares List

Drawing Identification	Description	Part Number
V500,502	Carriage Valves	A183-4ME2-81-1W-PSL-DC24V
V504-	Function Valves	A110-4E1-PSL-DC24V
	Leads for valves	L300
	Manifold base for V500	1HPM-10EX-11W
	Manifold base for V502	1HPM-10EX-9W
	Manifold base for other valves	1HPM-6EX
	Manifold end pieces	1HPM-1EX
G1	System pressure gauge	4K8-10
U1	Front panel circuit card	P4-1-0
U2	I/O circuit card	436-1-021
FLT1	Mains Filter	453-730
TX1	Power Transformer	
F1,2	Trips (2A)	272-929
U10	relay	224-686 (relay) 224-730 (base)