

### 4.3 Loading the Program into the Programmable Controller

You can load a program from a connected programmer (online operation). When you load a program, it is transferred to the programmable controller's program memory. There are specific instructions in your programmer manual for doing this. You can also load your program from a memory submodule, but only valid blocks can be loaded. See section 7.5.2.



#### Warning

You can connect or disconnect memory submodules only in the "POWER OFF" mode.

#### 4.3.1 Loading the Program into the S5-90U

You can use various memory submodules with the S5-90U. Appendix D contains a list of the submodules you may use.

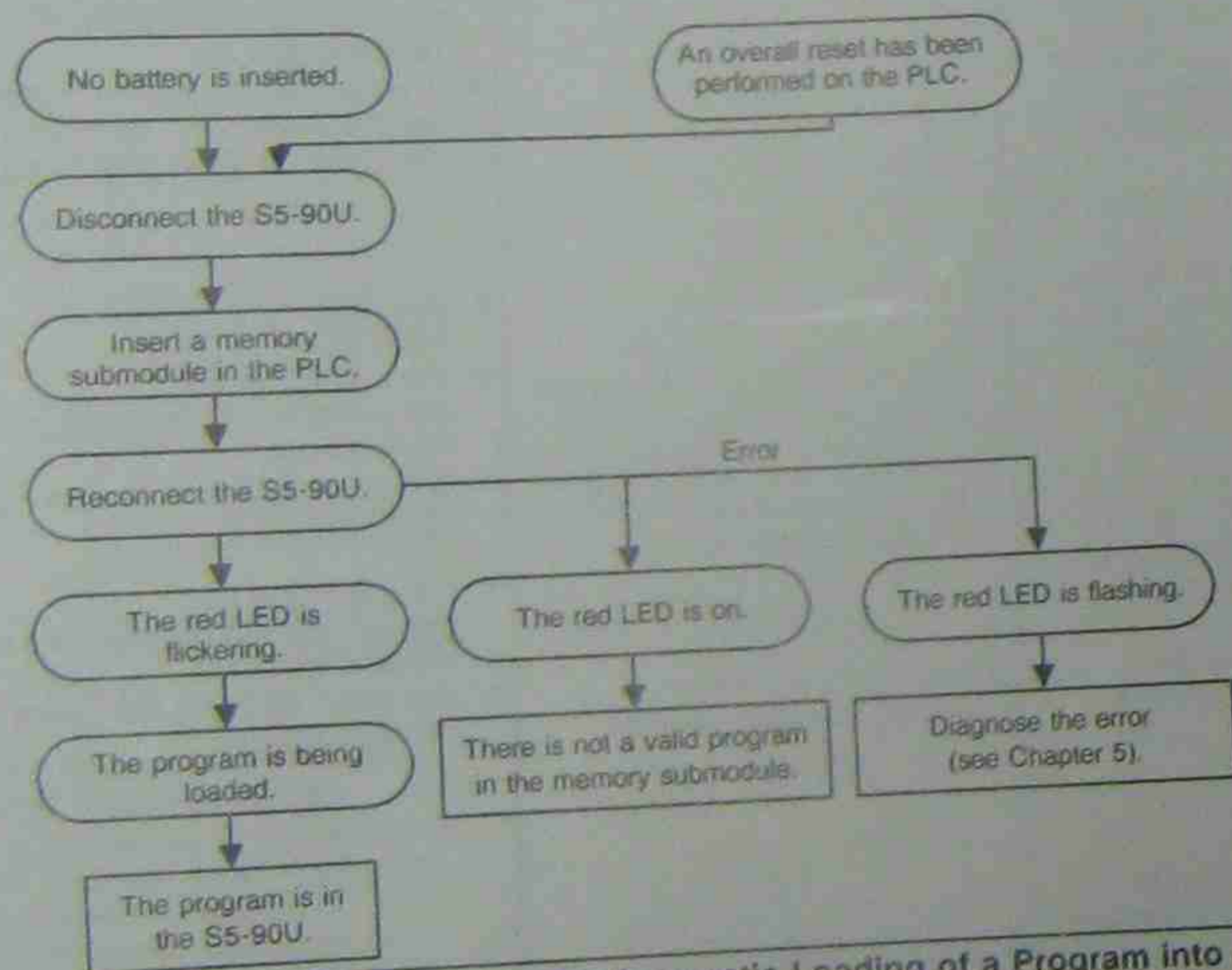


Figure 4-3. Procedure for Automatic Loading of a Program into the S5-90U

## 9 Integrated Blocks and Their Functions

### 9.1 Assigning Internal Functions to DB1

The programmable controller has functions that you can program. These functions are:

- Processing analog value (see chapter 12)
- Using interrupt inputs (see chapter 10)
- Using counter inputs (see chapter 11)
- Using the integral real-time clock (see chapter 13)
- Exchanging data via SINEC L1 (see chapter 14)
- Changing polling interval for time-controlled program processing (OB 13) (see chapter 7)
- Assigning system parameters (see chapter 9)
- Setting the address for the parameter error code (see chapter 9)

To assign parameters to these functions, you must configure data block 1 (DB1).

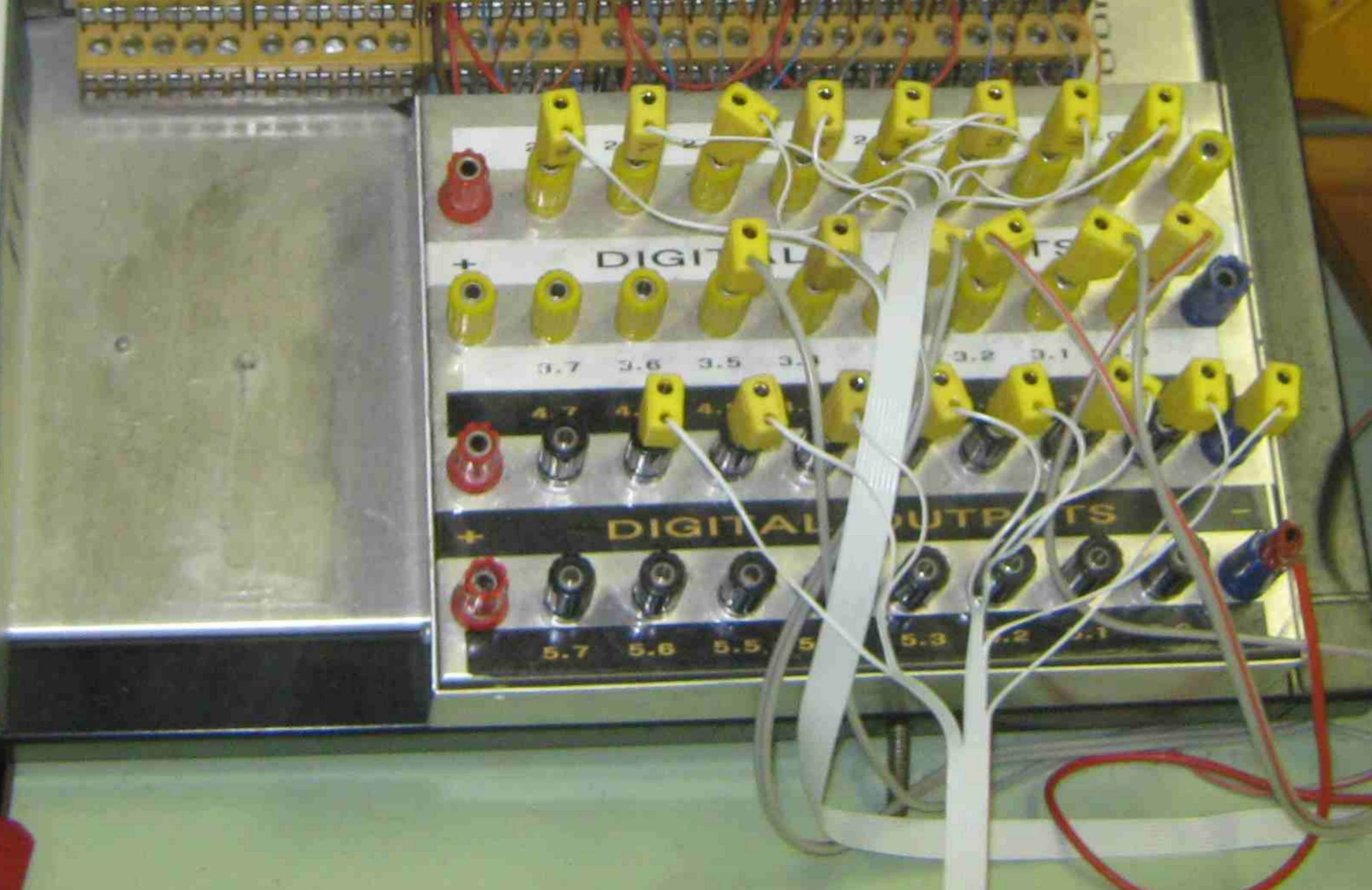
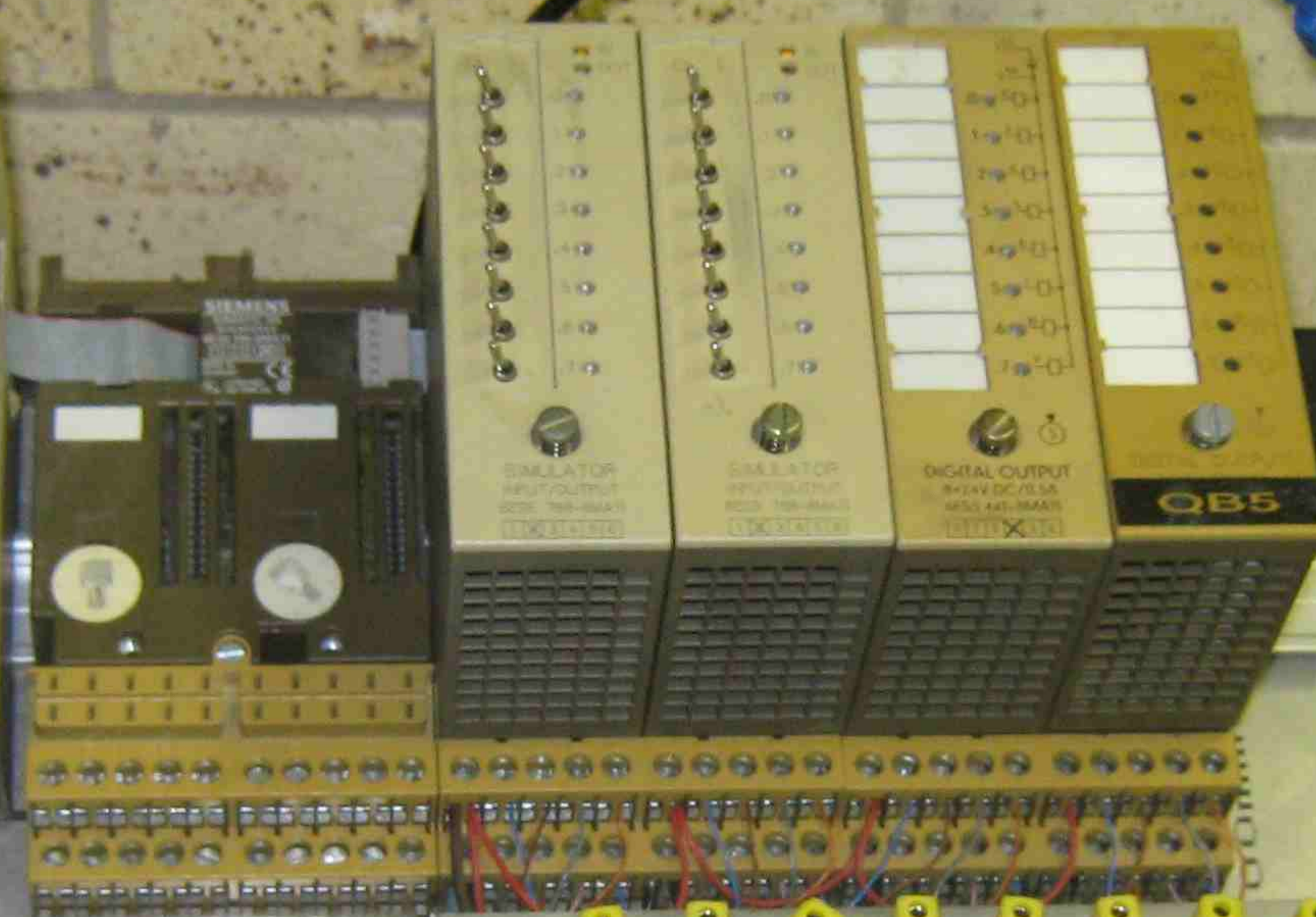
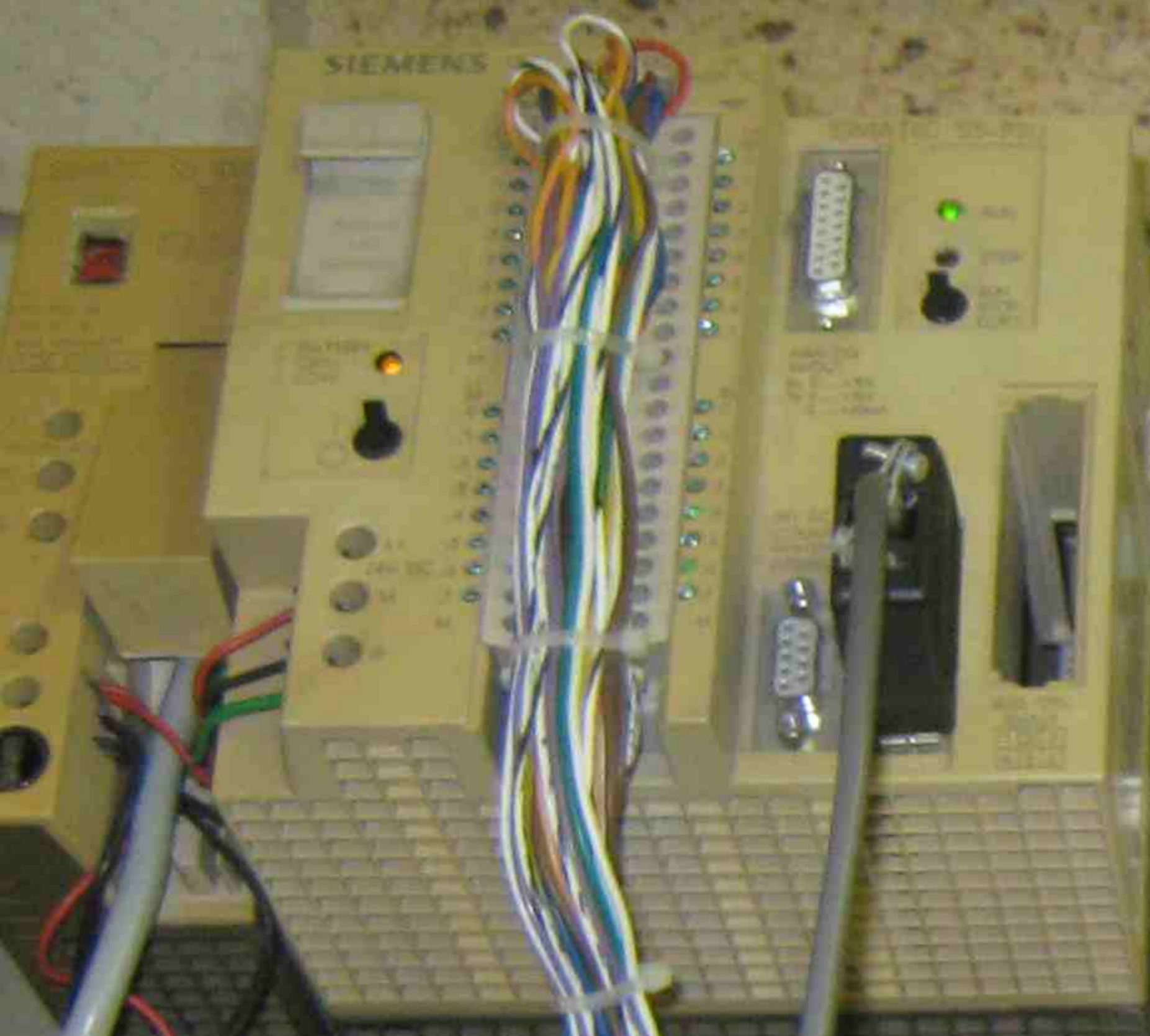
#### 9.1.1 Configuration and Default Settings for DB1

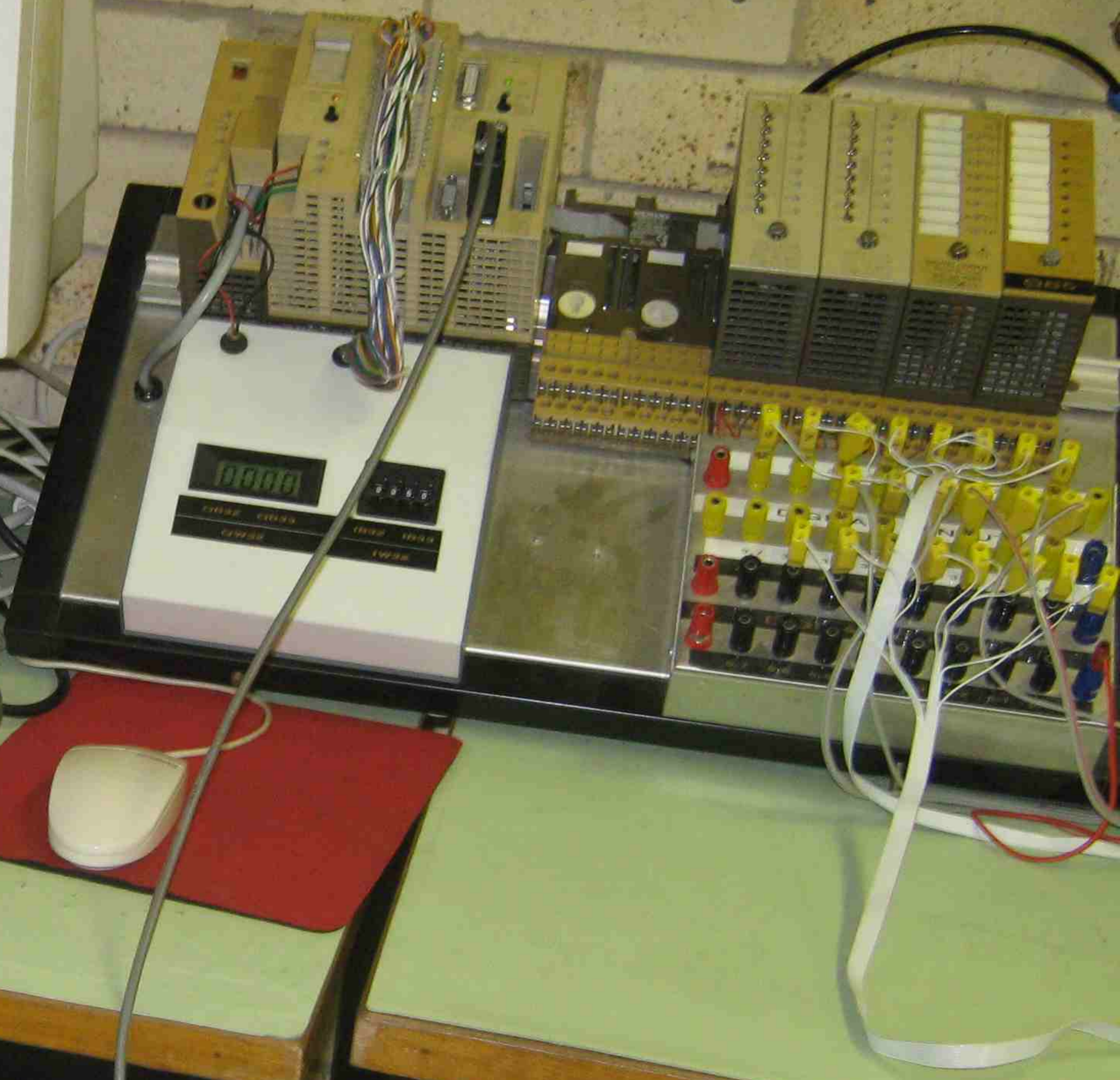
To make it easier for you to assign parameters, data block 1 is already integrated in the programmable controller with preset values (default parameters). After performing an overall reset, you can load the default DB1 from the programmable controller into your programmer and display it on the screen (see Figure 9-1). The character string "DB1" must remain before the parameter blocks and be followed by at least one filler (such as a blank space or a comma).

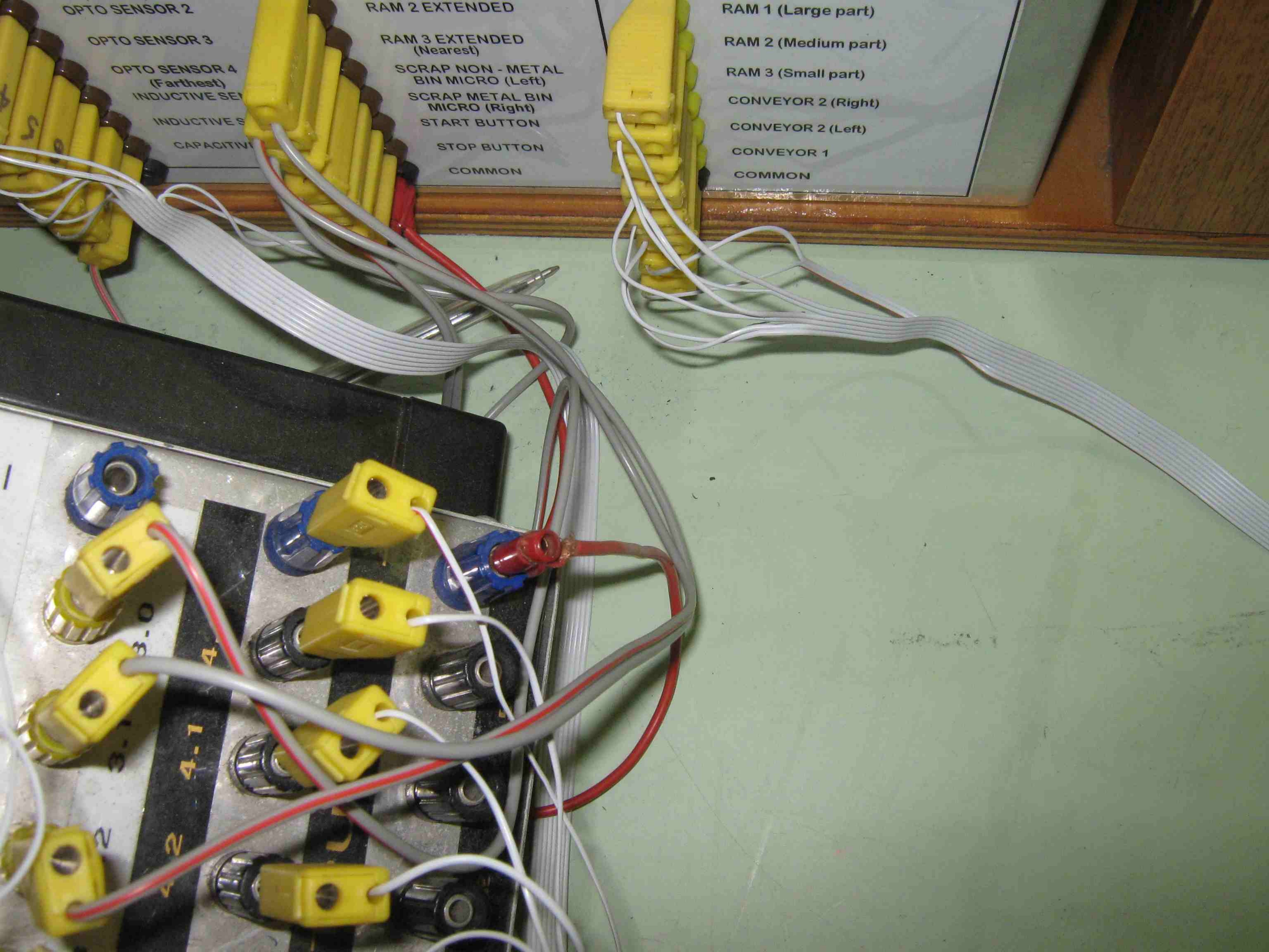
S5-95U		S5-90U	
0:	KS = 'DB1 OBA: AI 0 ; OBI: ' ;	0:	KS = 'DB1 OBI: ; OBC: ' ;
12:	KS = ' ; OBC: CAP N CBP ' ;	12:	KS = 'CAP N ; SLI: SLN 1 ' ;
24:	KS = 'N ;#SLI: SLN 1 SF ' ;	24:	KS = ' SF DB2 DWO EF DB3 ' ;
36:	KS = 'DB2 DWO EF DB3 DWO ' ;	36:	KS = 'DWO KBE MB100 ' ;
48:	KS = ' KBE MB100 KBS MB1 ' ;	48:	KS = 'KBS MB101 PGN 1 ' ;
60:	KS = '01 PGN 1 ;#SDP: N ' ;	60:	KS = ' END ' ;
72:	KS = 'T 128 PBUS N ; TFB: DB13 ' ;		
84:	KS = ' 100 ;#CLP: STW MW10 ' ;		
96:	KS = '2 CLK DB5 DWO ' ;		
108:	KS = ' SET 3 01.10.91 12:00: ' ;		
120:	KS = '00 OHS 000000:00:00 ' ;		
132:	KS = ' TIS 3 01.10. 12:00:00 ' ;		
144:	KS = ' STP Y SAV Y CF 00 ' ;		
156:	KS = ' ; #END ' ;		

Figure 9-1. DB1 With Default Parameters

This preset DB1 has one parameter block for each function. Each parameter block begins with a block ID (shown in Figure 9-1 in the shaded background). The block ID is followed by a colon. The individual parameters for each function are contained in these parameter blocks.







OPTO SENSOR 2

OPTO SENSOR 3

OPTO SENSOR 4  
(Farthest)

INDUCTIVE S

INDUCTIVE S

CAPACITIVE

RAM 2 EXTENDED

RAM 3 EXTENDED  
(Nearest)

SCRAP NON - METAL  
BIN MICRO (Left)

SCRAP METAL BIN  
MICRO (Right)

START BUTTON

STOP BUTTON

COMMON

RAM 1 (Large part)

RAM 2 (Medium part)

RAM 3 (Small part)

CONVEYOR 2 (Right)

CONVEYOR 2 (Left)

CONVEYOR 1

COMMON

3-0  
3-1  
4-1  
4-2



FORCLUM  
ELECTRICAL  
SERVICES P/L  
MOB: 02 9798 4058  
FAX: 02 9798 4058

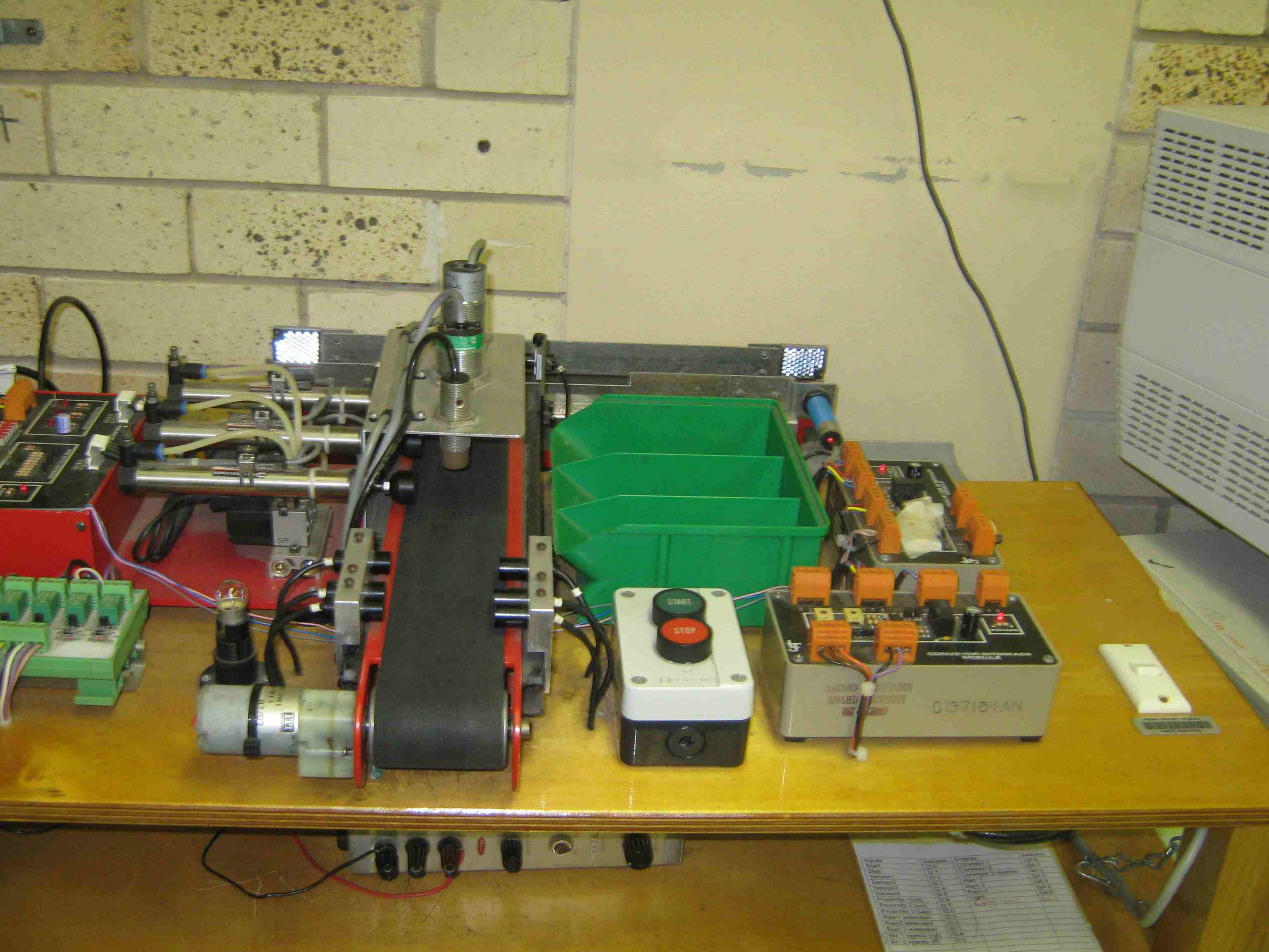
CENTRE CABLE HERE

TESTER: [blank] DATE: [blank]  
TEST STATUS: PASS  
TEST DATE: 22/04/2009  
NEXT TEST: 22/10/2009

APPLIANCE ID: M-3-136

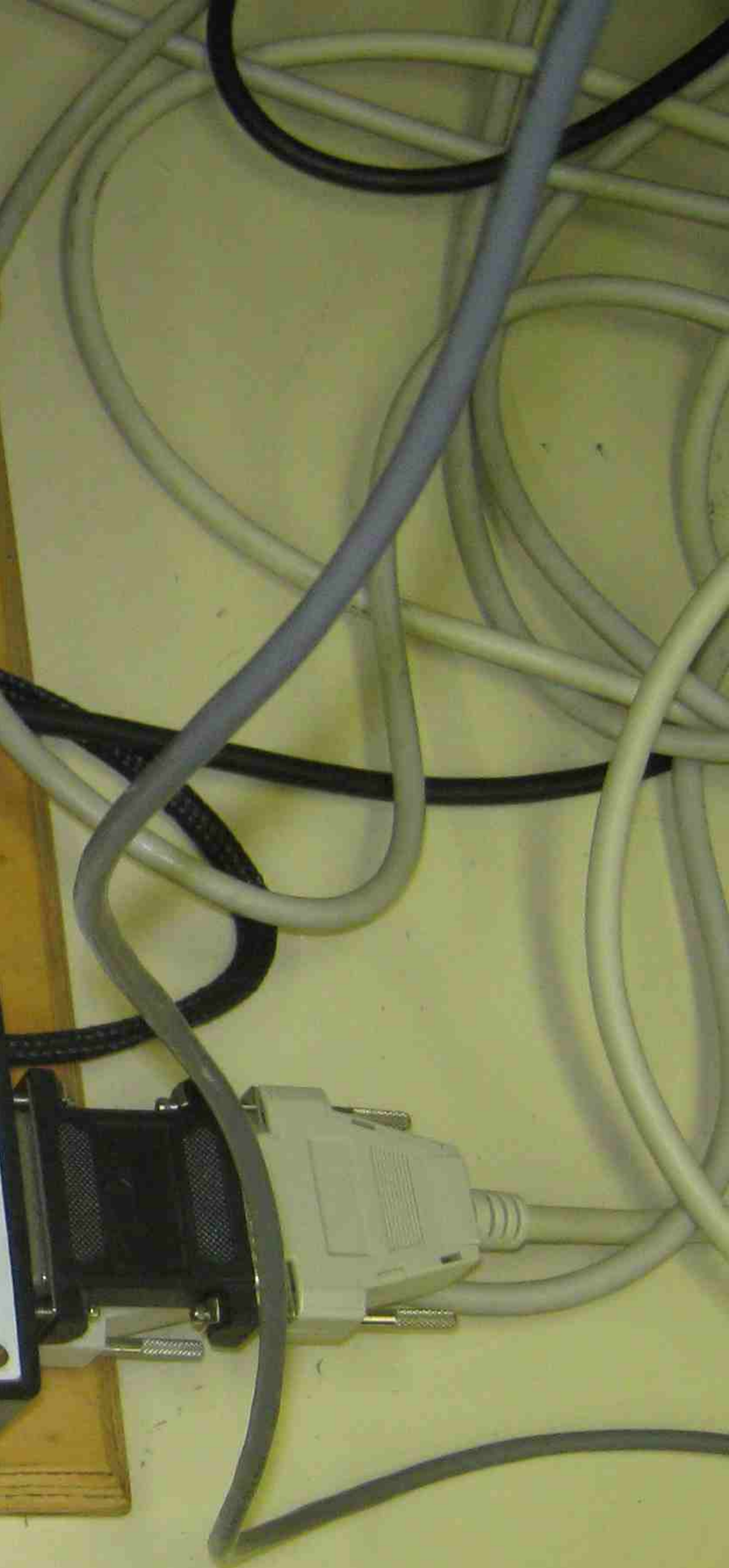
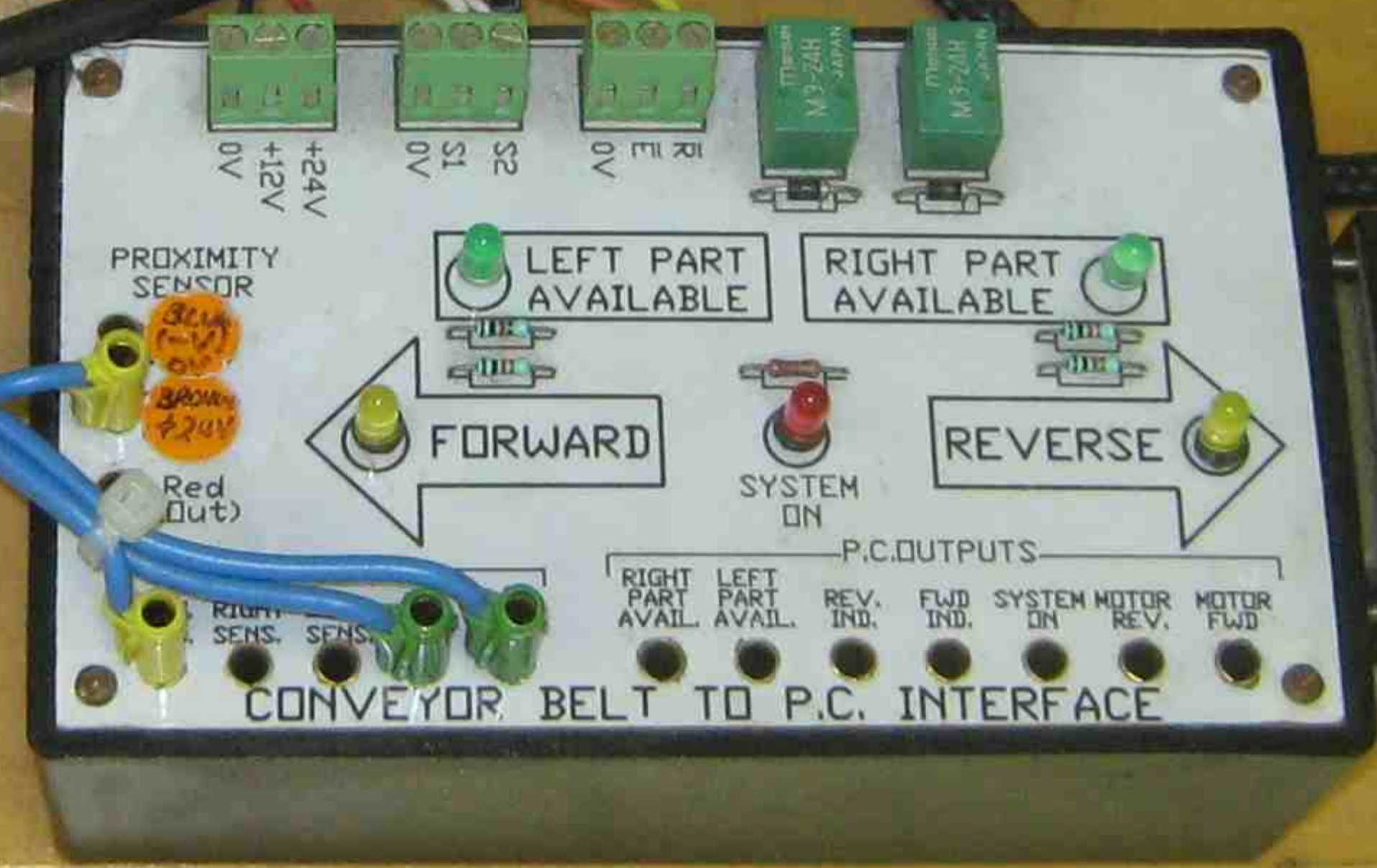
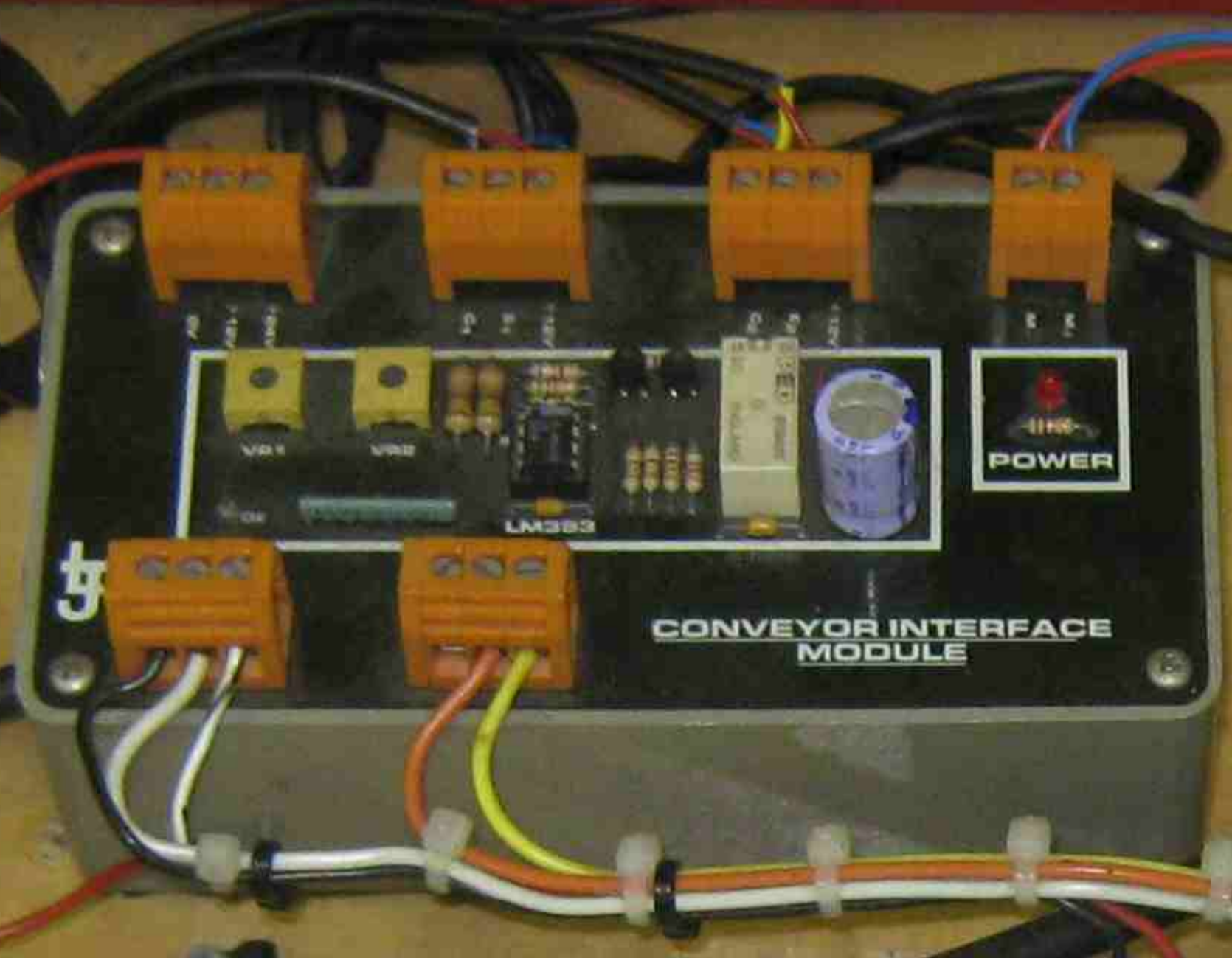
TO P.C. INPUTS		TO P.C. OUTPUTS	
OPTO SENSOR 1 (Nearest)	RAM 1 EXTENDED (Farthest)	INDICATION LAMP	RAM 1 (Large part)
OPTO SENSOR 2	RAM 2 EXTENDED	RAM 1 (Large part)	RAM 2 (Medium part)
OPTO SENSOR 3	RAM 3 EXTENDED (Nearest)	RAM 2 (Medium part)	RAM 3 (Small part)
OPTO SENSOR 4 (Farthest)	SCRAP NON-METAL BIN MICRO (Left)	RAM 3 (Small part)	CONVEYOR 2 (Right)
INDUCTIVE SENSOR	SCRAP METAL BIN MICRO (Right)	CONVEYOR 2 (Right)	CONVEYOR 2 (Left)
INDUCTIVE SENSOR	START BUTTO	CONVEYOR 2 (Left)	CONVEYOR 1
CAPACITIVE SENSOR	STOP BUTTO	CONVEYOR 1	COMMON
	COMMON	COMMON	

3-1  
3-2  
3-3  
3-4  
3-5



Inputs	Addresses	Outputs	Addresses
Start	12.0	Conveyor 1	Out 0
Stop	12.1	Conveyor 2	Out 1
Sensor 1	12.2	Conveyor 2 reverse	Out 2
Sensor 2	12.3	Ham 1	Out 3
Sensor 3	12.4	Ham 2	Out 4
Sensor 4	12.5	Ham 3	Out 5
Proximity 1 (ind)	12.6	Light	Out 6
Proximity 2 (ind)	12.7	...	...
Proximity 3 (cap)	12.8		
Ham 1 extension	12.9		
Ham 2 extension	12.10		
Ham 3 extension	12.11		
Ham 1 reverse (opt)	12.12		
Ham 2 reverse (opt)	12.13		
Ham 3 reverse (opt)	12.14		

Inputs	Outputs
Stop	I0.0
Start	I0.1
Sensor 1	I0.2
Sensor 2	I0.3
Jog/Rev	I0.7
	Fwd
	Rev
	System On
	FWD Ind.
	REV Ind.



Inputs		Outputs	
Stop	I0.0	Fwd	Q1.1
Start	I0.1	Rev	Q1.1
Sensor 1	I0.2	System On	Q1.1
Sensor 2	I0.3	FWD Light	Q1.1
Jog/lock	I0.7	Rev Light	Q1.1
		LPA	Q1.1
		RPA	Q1.1

1

STAHT  
 STOP  
 JOG

CONVEYOR INTERFACE MODULE  
 LM393  
 POWER

+24V  
 +12V  
 0V  
 S1  
 S2  
 0V  
 IR  
 LU  
 0V  
 4P24V  
 4P24V

PROXIMITY SENSOR  
 (Red out)

LEFT PART AVAILABLE  
 RIGHT PART AVAILABLE

FORWARD  
 REVERSE

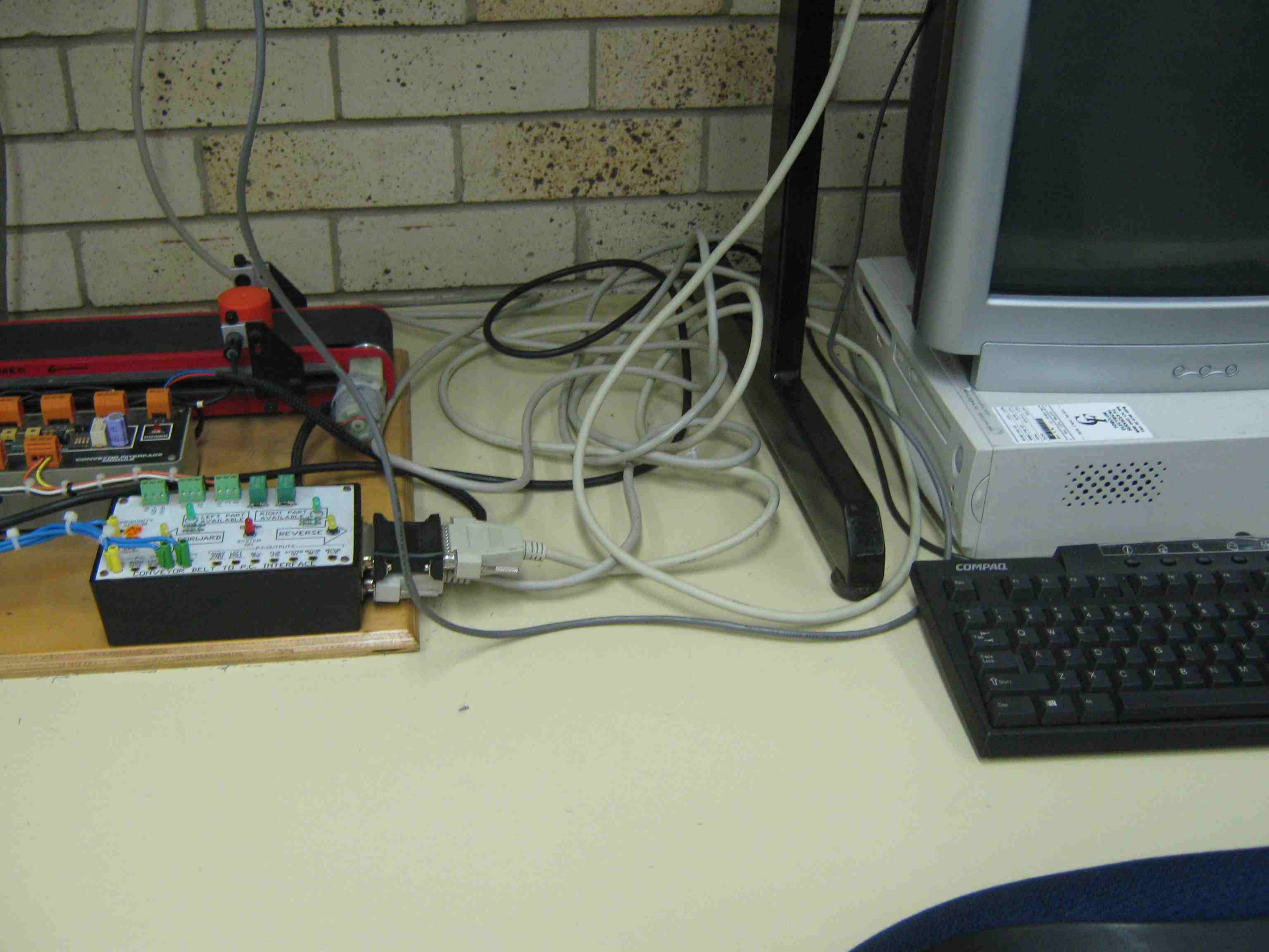
SYSTEM ON

P.C. OUTPUTS  
 RIGHT PART AVAIL.  
 LEFT PART AVAIL.  
 REV. IND.  
 FWD IND.  
 SYSTEM ON  
 MOTOR REV.  
 MOTOR FWD

CONVEYOR BELT TO P.C. INTERFACE

15-pin D-sub connector





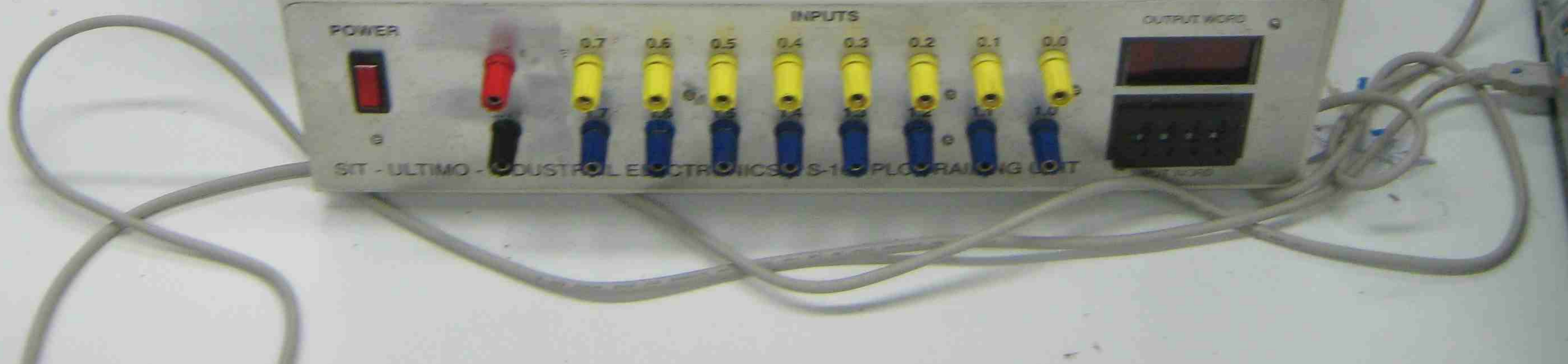
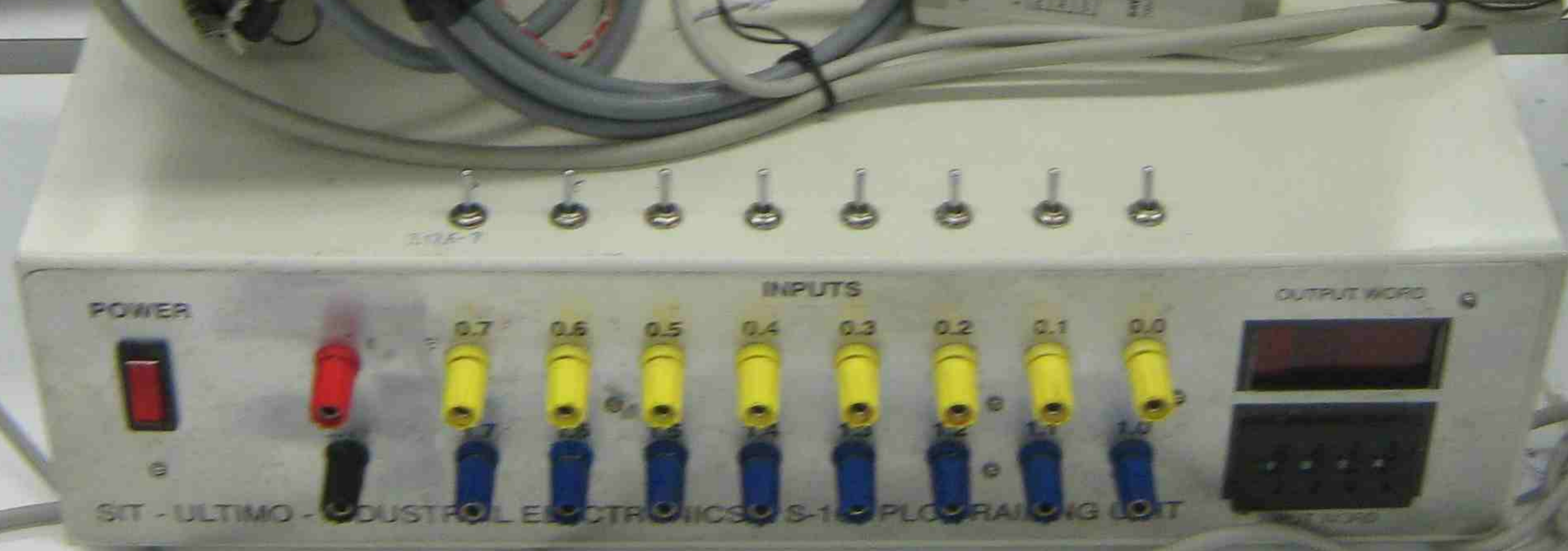
PERINI SCOTT  
REGULATED POWER SUPPLY  
TYPE 3T20 FUSE 1A  
2.11  
CURRENT  
MANUFACTURED BY PERINI & SCOTT (A ASIA) PTY LTD WAITARA NSW

A grey Perini & Scott regulated power supply unit. It features a digital display showing '2.11' in green, an analog meter on the right, and various control knobs and switches. The text 'REGULATED POWER SUPPLY' and 'PERINI SCOTT' are visible on the top panel. The manufacturer's name 'MANUFACTURED BY PERINI & SCOTT (A ASIA) PTY LTD WAITARA NSW' is printed at the bottom.

SIEMENS  
AUDIO PATCHING  
OUTPUTS

A Siemens audio patching unit. It has a control panel with several buttons and a small display. Below the control panel is a row of ports labeled 'AUDIO PATCHING' and 'OUTPUTS'. The unit is mounted on a wooden surface. A Siemens logo is visible at the top left of the unit.







**POWER** [Red Switch]

**INPUTS**

0.7 0.6 0.5 0.4 0.3 0.2 0 0.0

1.7 1.6 1.5 1.4 1.3 1.2 1 1.0

**OUTPUT WORD** 05111

SIT - ULTIMO - INDUSTRIAL ELECTRONICS S-102 PLC TRAINING UNIT

1W 124

**VOLTAGE**

COARSE FINE

0 10 20

**SERVO AMPLIFIER UNIT SA 150D**

MOTOR FIELD

RESET LINK F FIELD CHARACTERISTICS

TO MOTOR FROM POWER SUPPLY

**POWER SUPPLY UNIT PS 150E**

424 VOLTS D.C. LINE

AMPS D.C.

24V 5V 15V COM -15V

**RC CONT. U1**

247



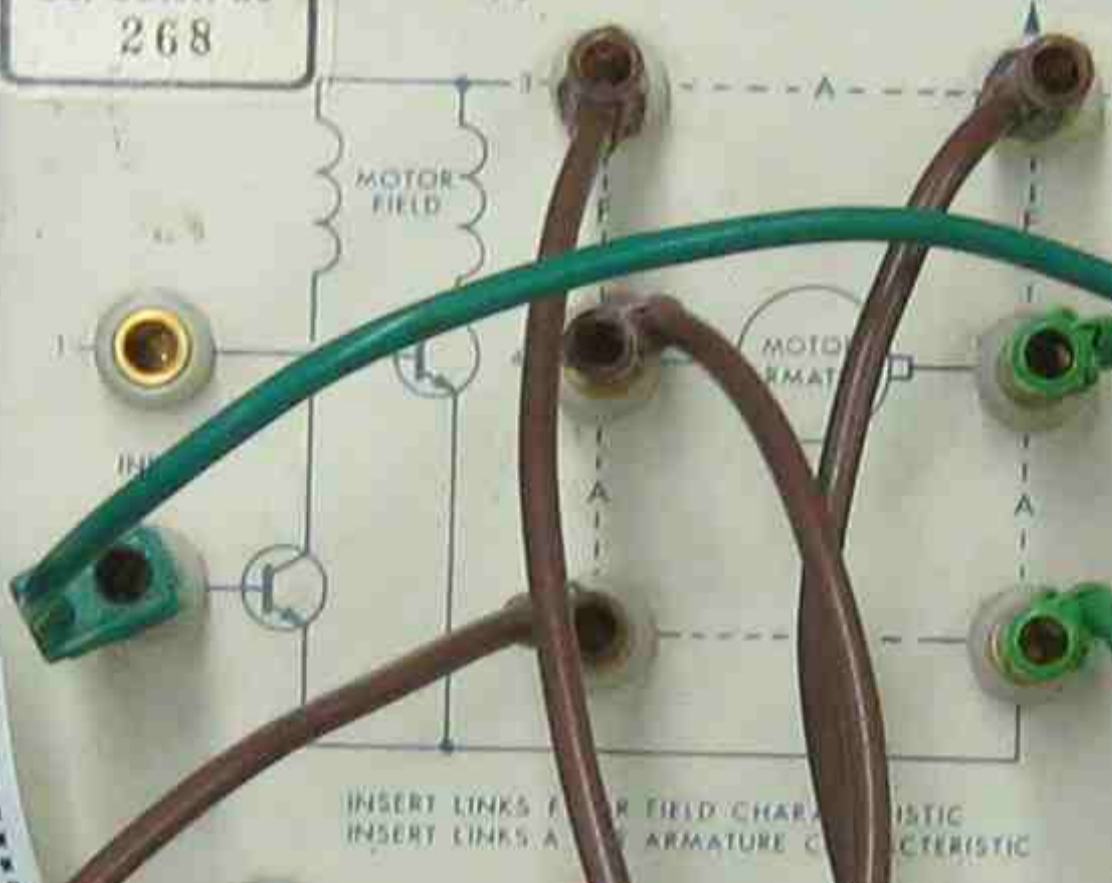
PHOTOGRAPHIC COPY  
SERIES ID: N 3 480  
DATE: 21/11/2009  
TIME: 11:55:00  
TEST: 24V 5V 15V  
TEST: 24V 5V 15V  
TEST: 24V 5V 15V  
TEST: 24V 5V 15V



SERVO AMPLIFIER UNIT SA150D  
EC. CONT. B3  
268

POWER SUPPLY UNIT PS 150E  
EC. CONT. B3  
308

1/4 HP 24V-DC MOTOR UNIT M150F  
EC. CONT. B3  
310



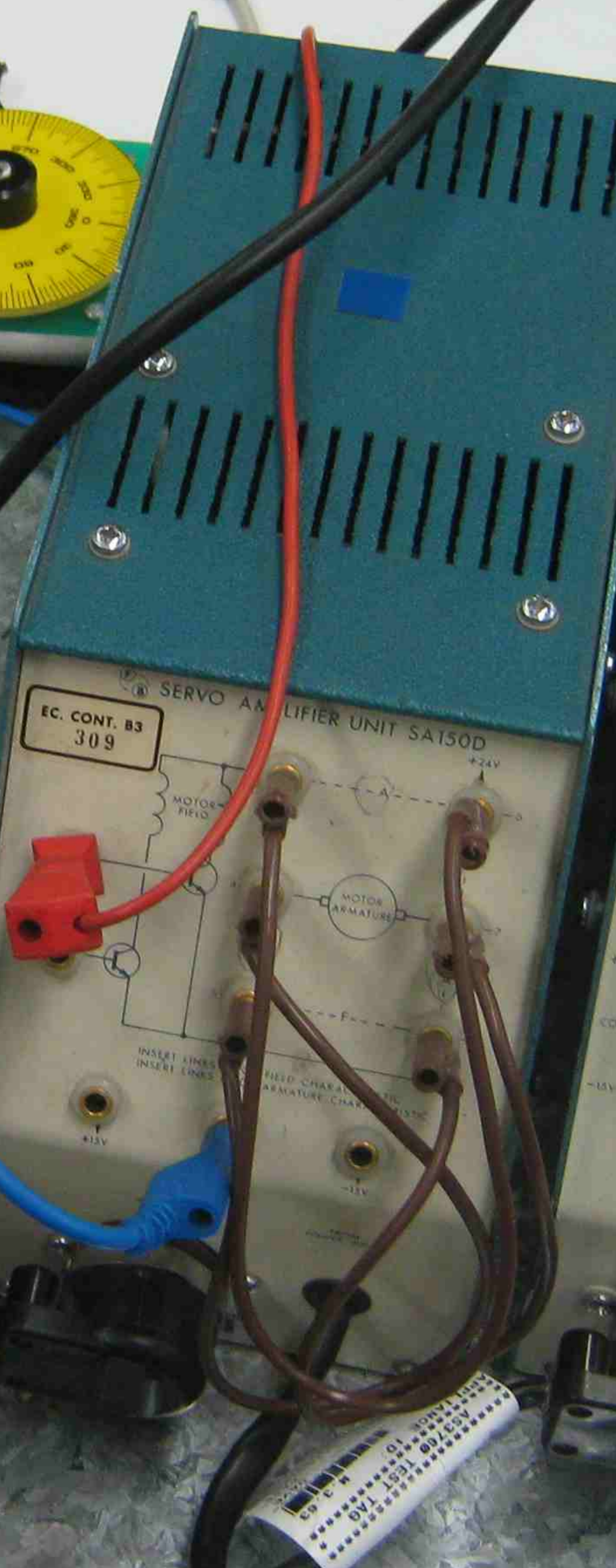
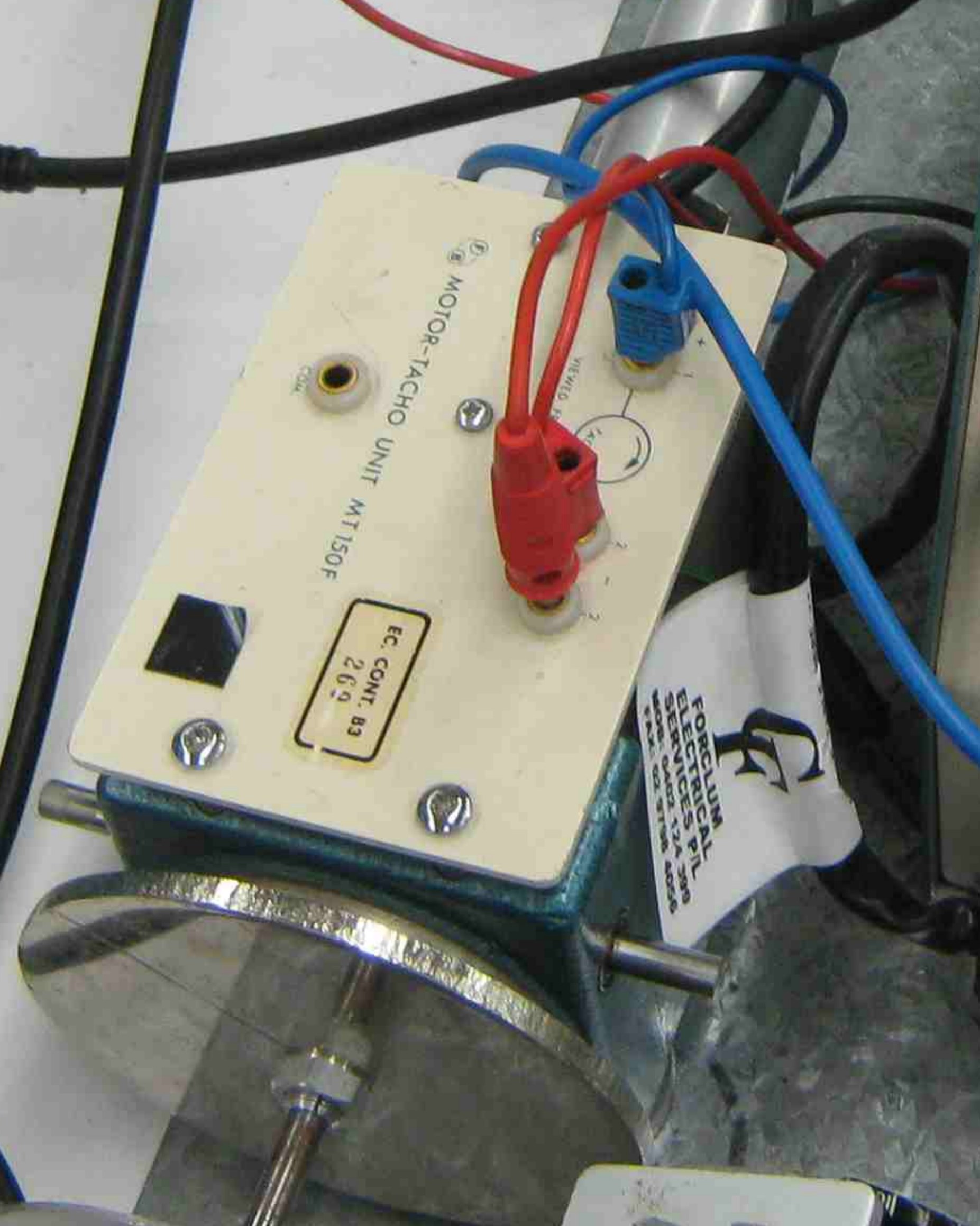
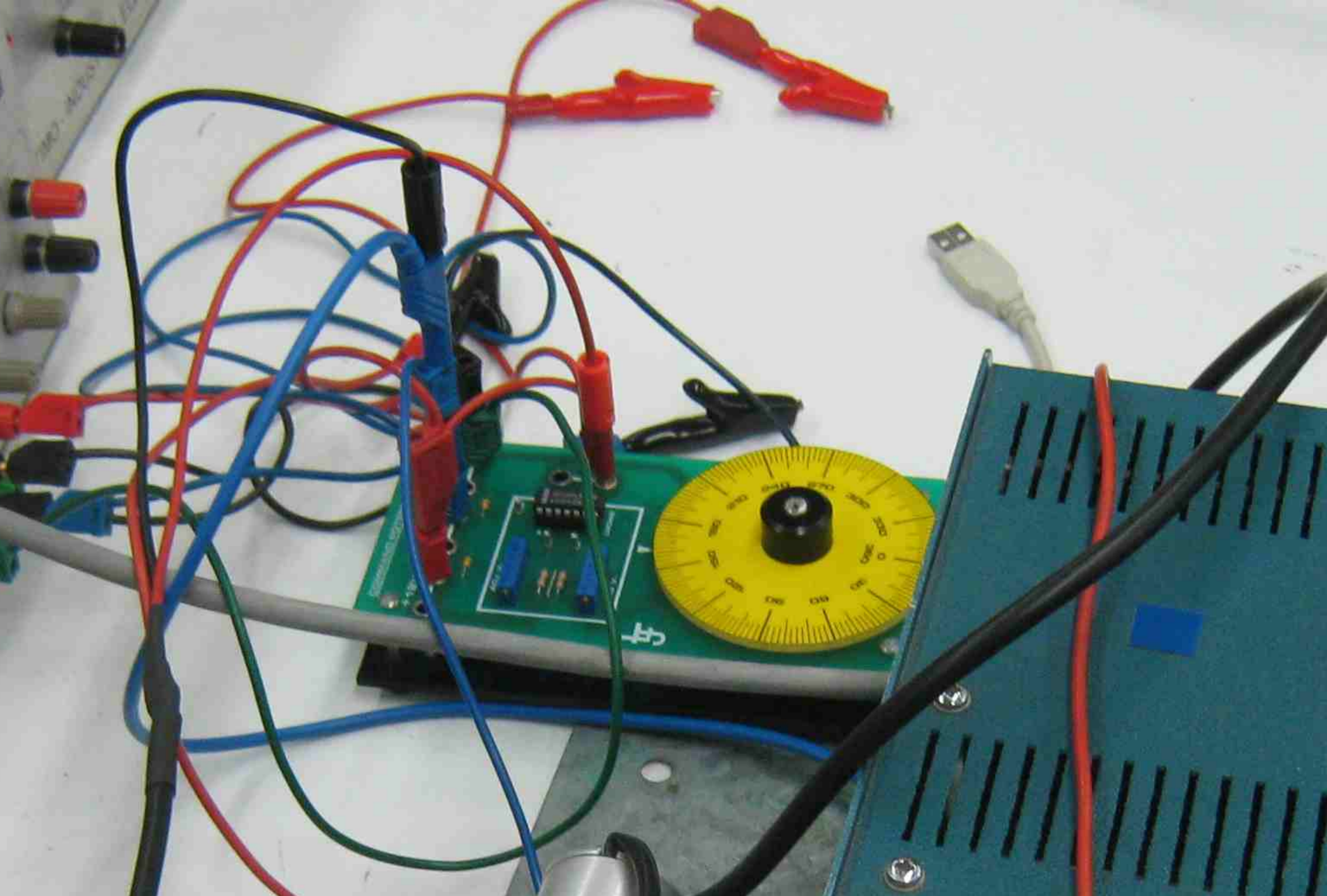
24V 0.75W  
+24 VOLTS D.C. LINE  
AMPS D.C.

RE CABLE HERE  
TEST TEST NEXT  
MOTOR UNIT M150F  
EC. CONT. B3  
310

MEMORY

U.S.W. DEPT. OF TAPE  
2218189AN

OPENS-P350/8.4/M4 AUST  
COMPAQ SERIAL NO. H923 CBN4 0391





**H-1.35**  
**TRIO 15MHz OSCILLOSCOPE CS-1560A II**

POWER SCALE ILLUM  
VARIABLE SWEEP TIME/DIV  
CAL /1V<sub>PP</sub>  
POSITION FULL AS MAG  
INTENSITY  
ASTIG  
FOCUS  
CH 1-2  
POSITION  
VOLTS/DIV  
VE/DIV  
INPUT

**13**  
**TOPWAVE ELECTRIC INSTRUMENTS CO., LTD.**  
**DUAL-TRACKING DC POWER SUPPLY**  
MODEL TPS-4002  
SIT - ULTIMO - IN

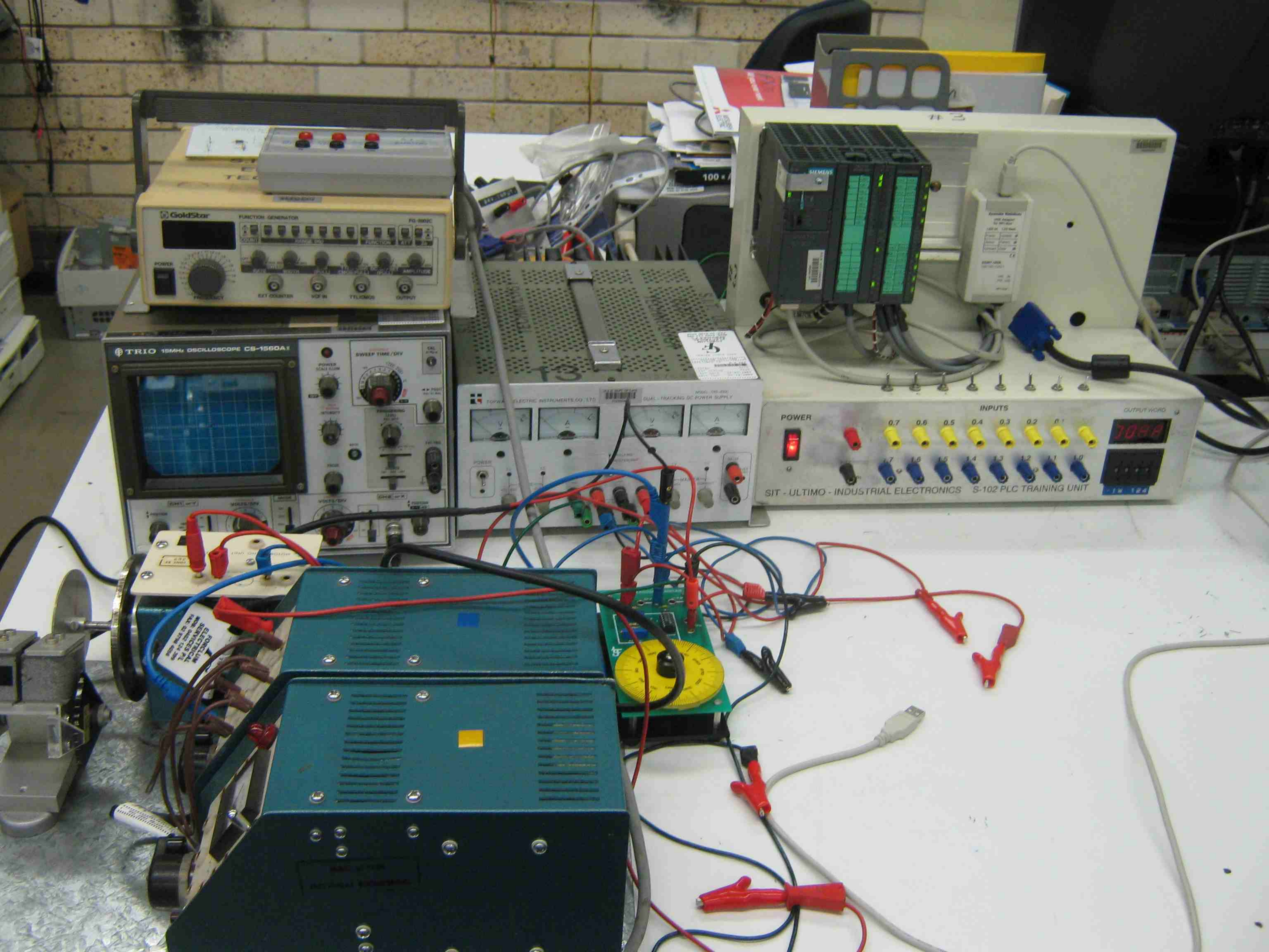
V  
A  
V  
A  
POWER  
VE CURRENT  
MASTER CURRENT  
POWER

**MOTOR-TACHO**

FORCLUM ELECTRICAL SERVICES PT LTD  
MORF: 02 5788

**FORCLUM**

0.1V  
0.5V  
1V  
2V  
5V  
10V  
20V  
50V  
100V  
200V  
500V  
1000V



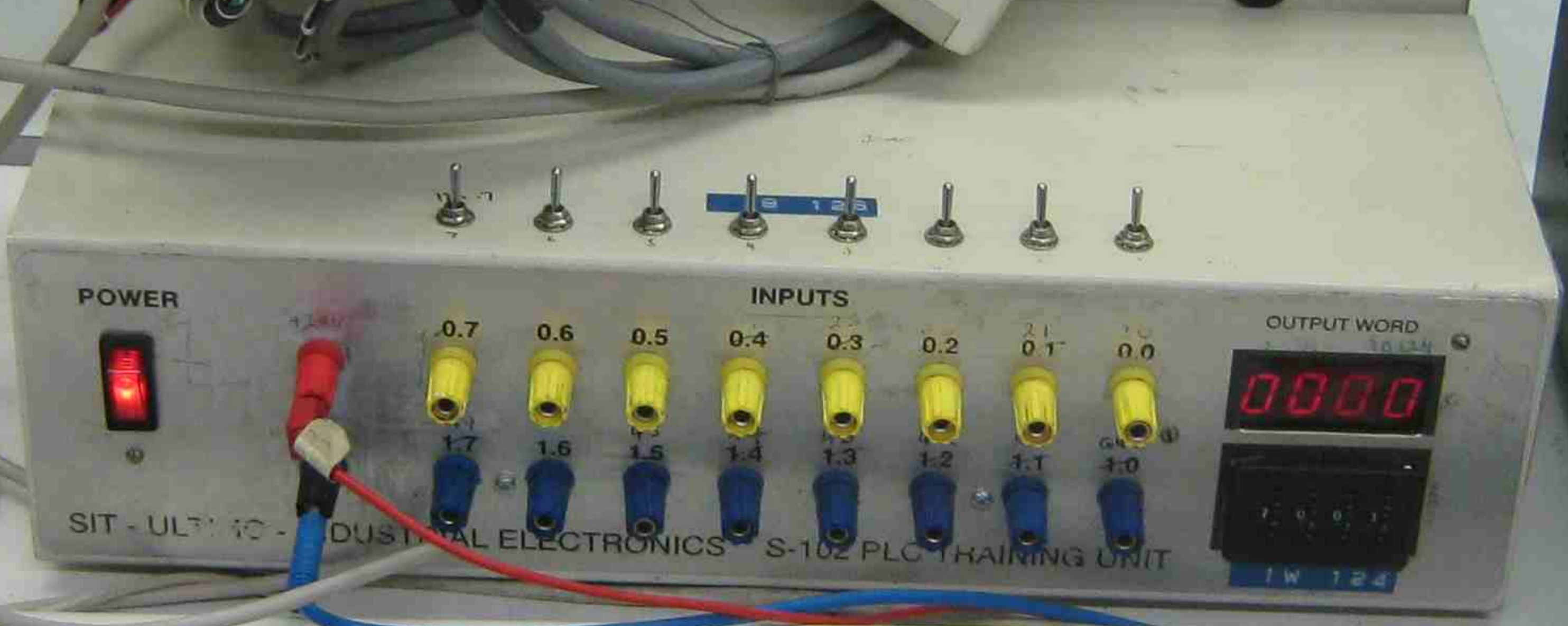
GoldStar  
FUNCTION GENERATOR  
FG-8802C  
POWER  
FREQ. RANGE  
WAVEFORM  
AMPLITUDE  
EXT. OSCILLATOR  
VOLTAGE  
TTL/CMOS  
OUTPUT

TRIO 15MHz OSCILLOSCOPE CG-1560A1  
SWEEP TIME/DIV  
POWER SCALE SWEEP  
RETROFIT  
TRANSFORMING TRAY  
VOLTS/DIV  
GND  
POWER

TOPPA ELECTRIC INSTRUMENTS CO. LTD  
MODEL: 180-001  
DUAL-TRACKING DC POWER SUPPLY  
V  
A  
V  
A  
POWER

SIEMENS  
S-102  
POWER  
INPUTS  
0.7 0.5 0.5 0.4 0.3 0.2 0.1  
OUTPUT WORD  
10.52  
SIT - ULTIMO - INDUSTRIAL ELECTRONICS S-102 PLC TRAINING UNIT

FORCING  
ELECTRICAL  
MOTOR  
MOTOR  
MOTOR





240V

240V AC

EC. CONT. B3  
268

SERVO AMPLIFIER UNIT SA150D

EC. CONT. B3  
308

POWER SUPPLY UNIT PS 150E

AMPS D.C.

500V LINE DISCONNECT

110

USE CABLE HERE

TEST 1-25

TEST 1-25

EMORY

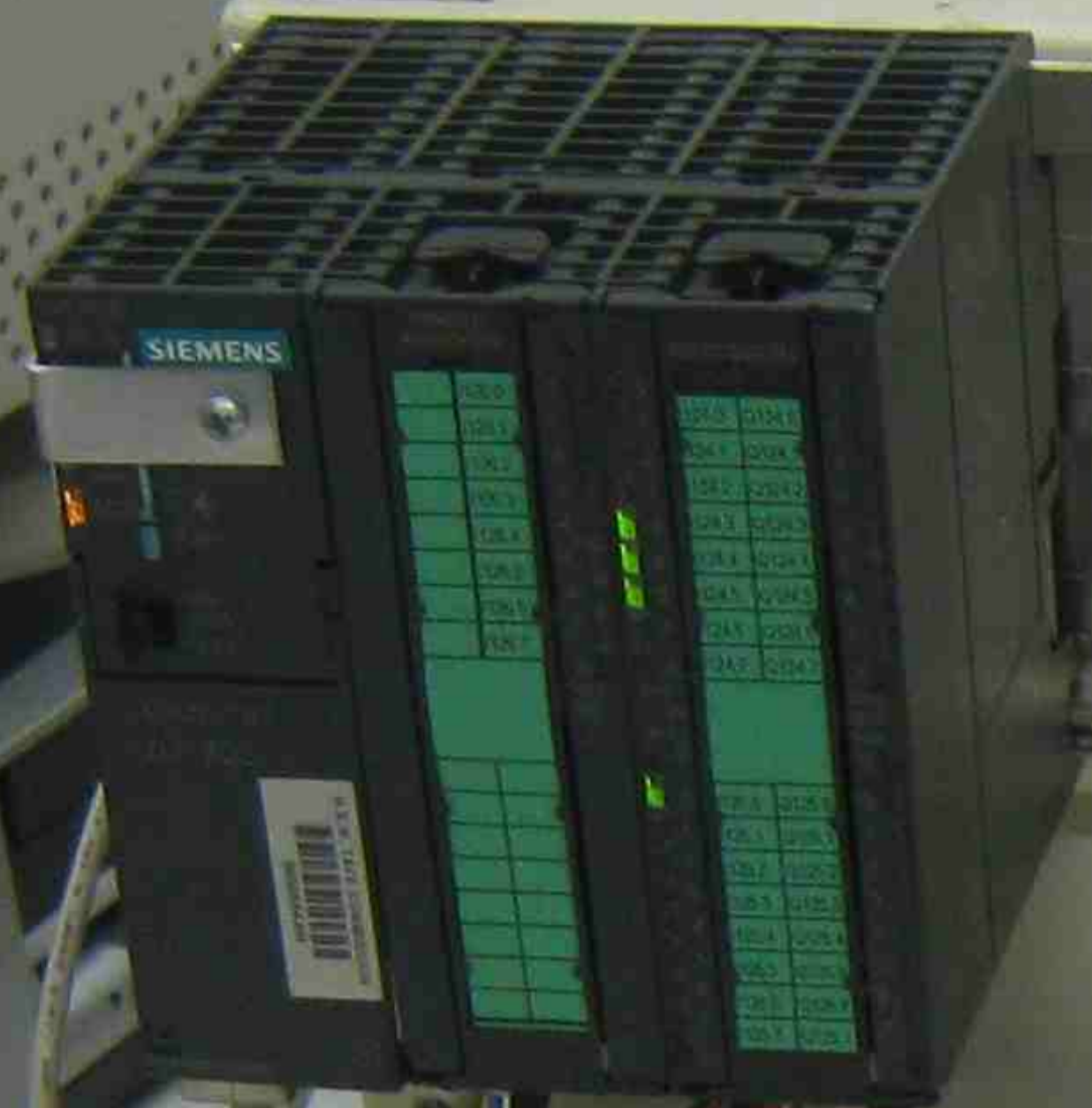
NEW DEPT. OF TAPE

DRENS-P3506 4/IN AUST  
COMPAQ SERIAL NO. H923 CBN4 0391

COMPAQ  
DESKPRO

WRIDGWAYS  
Business Solutions  
No P  
No FD  
etc





**POWER** [Red LED]

**INPUTS**

0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0
1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.0

**OUTPUT WORD** 30 bit

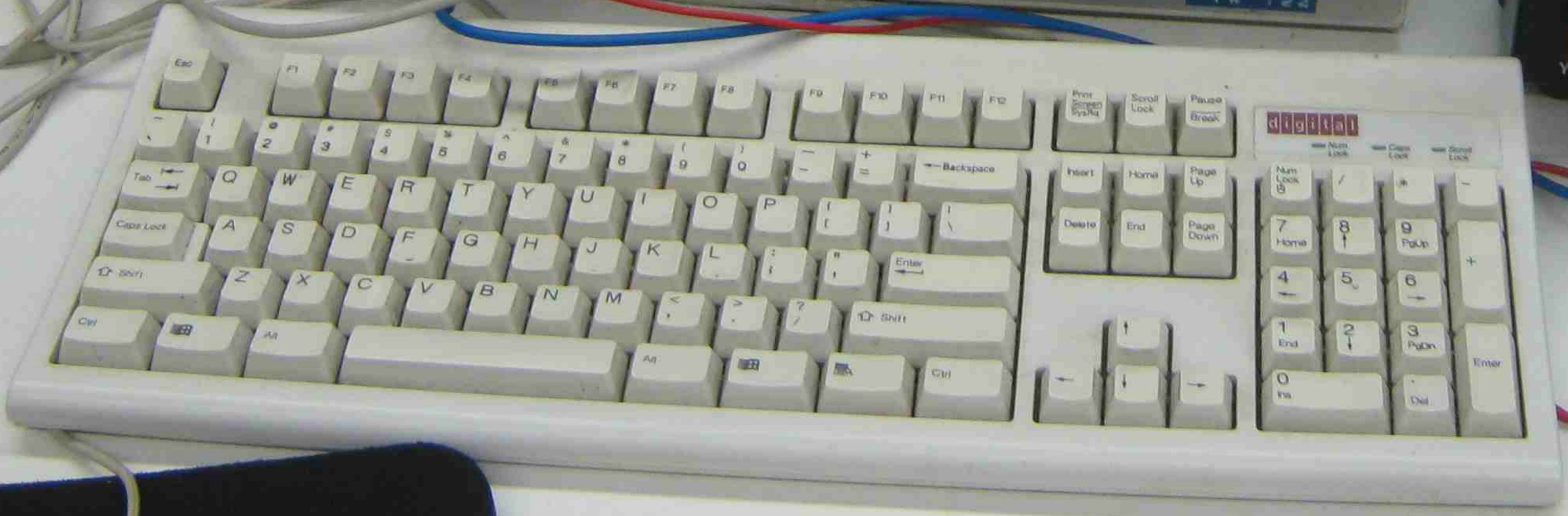
**0000**

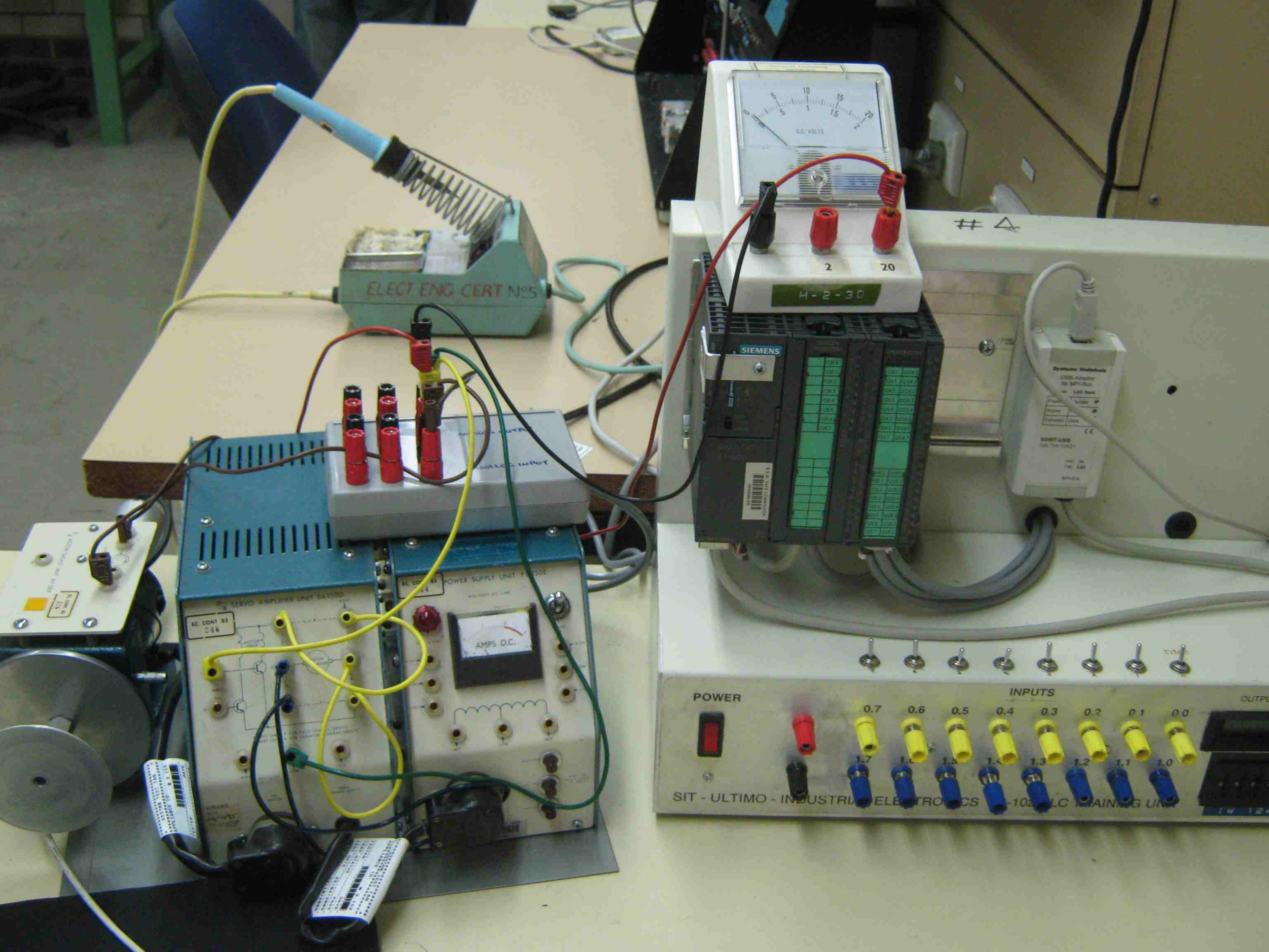
SIT - ULT 10 INDUSTRIAL ELECTRONICS S-102 PLC TRAINING UNIT

**VOLTAJE**

**CURRENT**

**Y 24V DC F.O.E. SUPPLY**





ELECT ENG CERT N°5

SIEMENS

220	240	250
260	270	280
290	300	310
320	330	340
350	360	370
380	390	400
410	420	430
440	450	460
470	480	490
500	510	520
530	540	550
560	570	580
590	600	610
620	630	640
650	660	670
680	690	700
710	720	730
740	750	760
770	780	790
800	810	820
830	840	850
860	870	880
890	900	910
920	930	940
950	960	970
980	990	1000

H-2-30

SERVO AMPLIFIER UNIT SA1500

POWER SUPPLY UNIT PS150E

AMPS D.C.

POWER

INPUTS

SIT - ULTIMO - INDUSTRIAL ELECTRONICS -100V AC TRAINING UNIT

MOTOR-TACHO UNIT MT 150F  
VIND FROM TACHO UNIT  
EC CONT. B3  
326

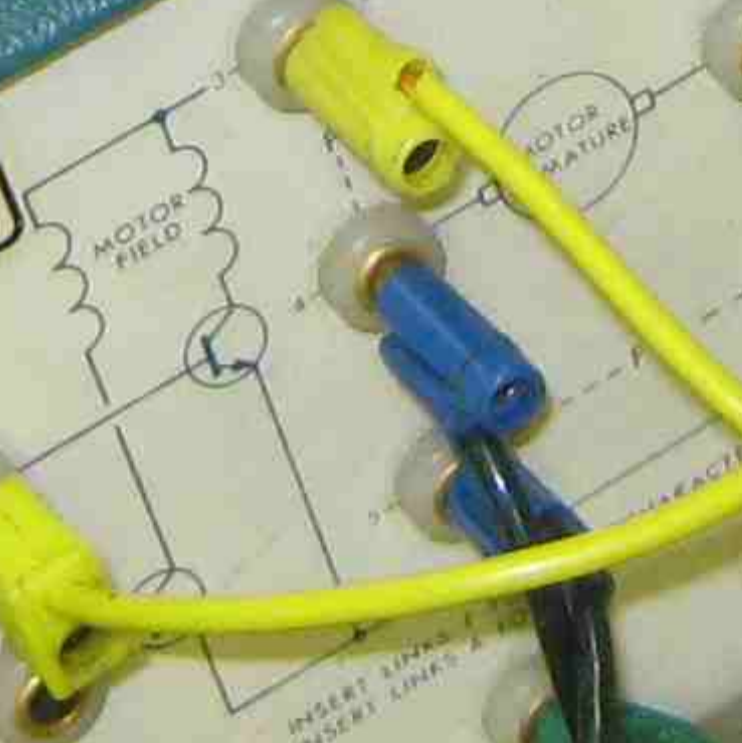
EC CONT B3  
246

AS3760 TEST TAG  
APPLIANCE ID: M 3 152  
DATE: 22/04/2009  
21/01/2009

AS3760 TEST TAG  
APPLIANCE ID: M 3 152  
DATE: 22/04/2009  
21/01/2009  
DAVE  
PASS

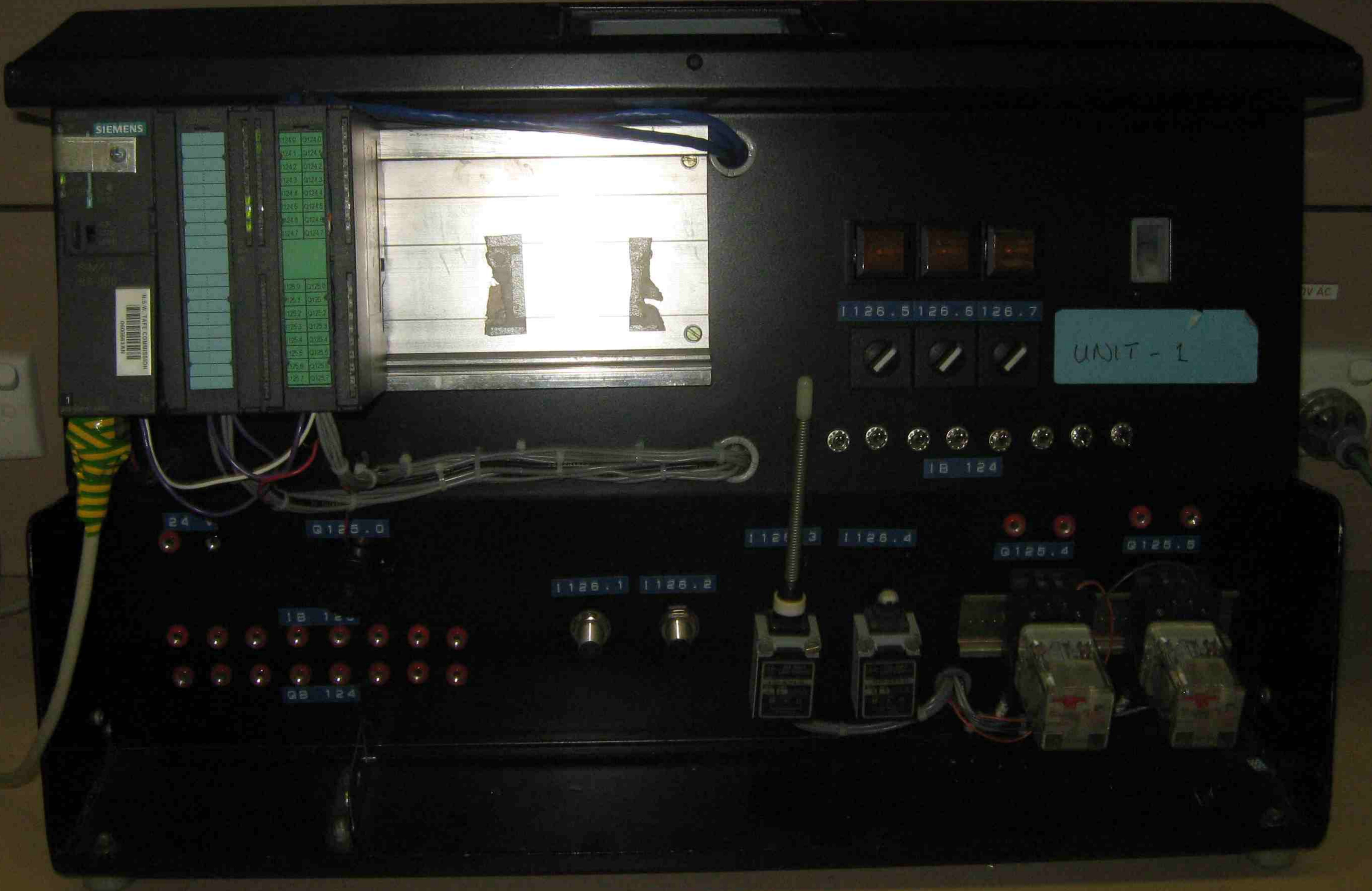
ANALOG OUT

AMPS D.C.

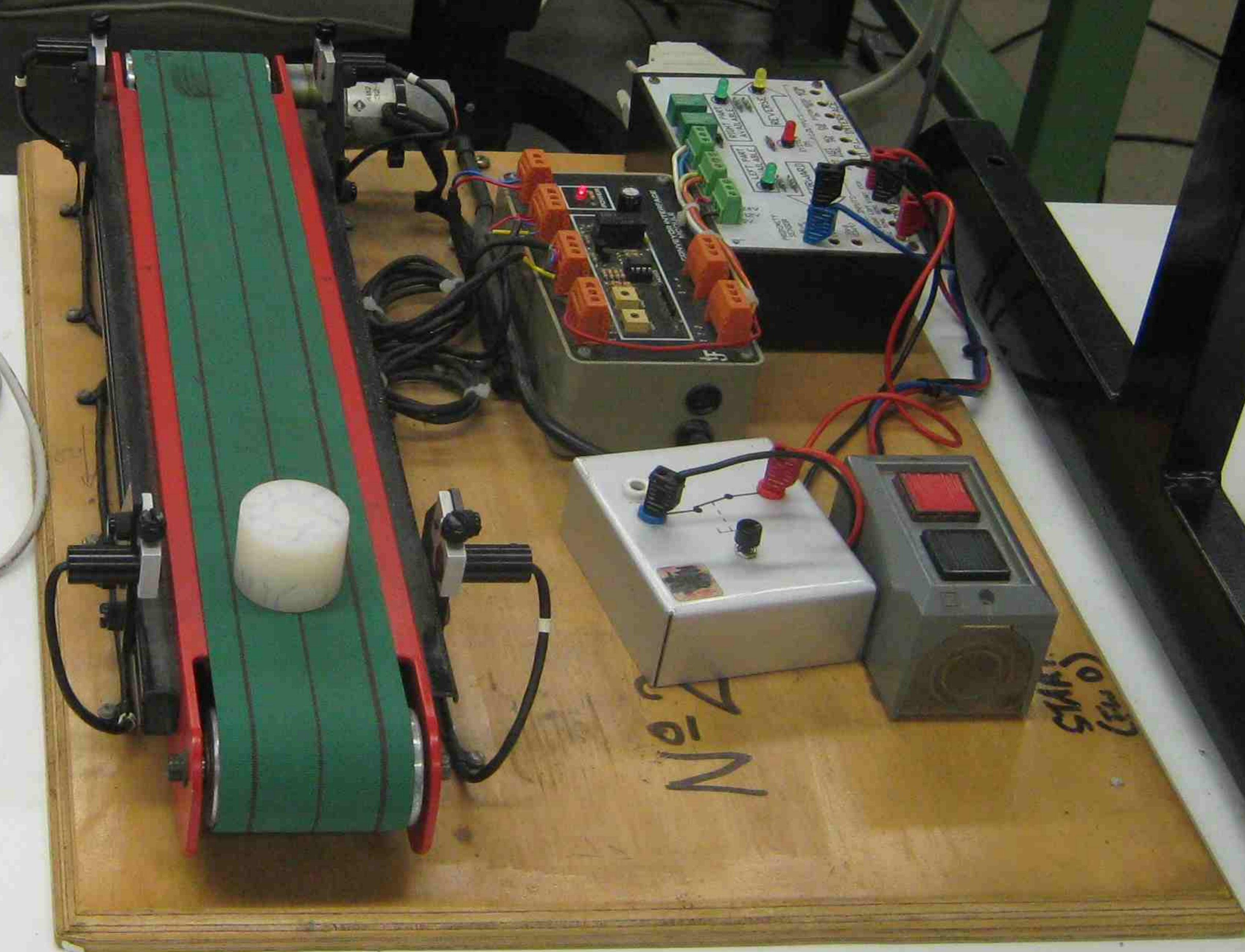
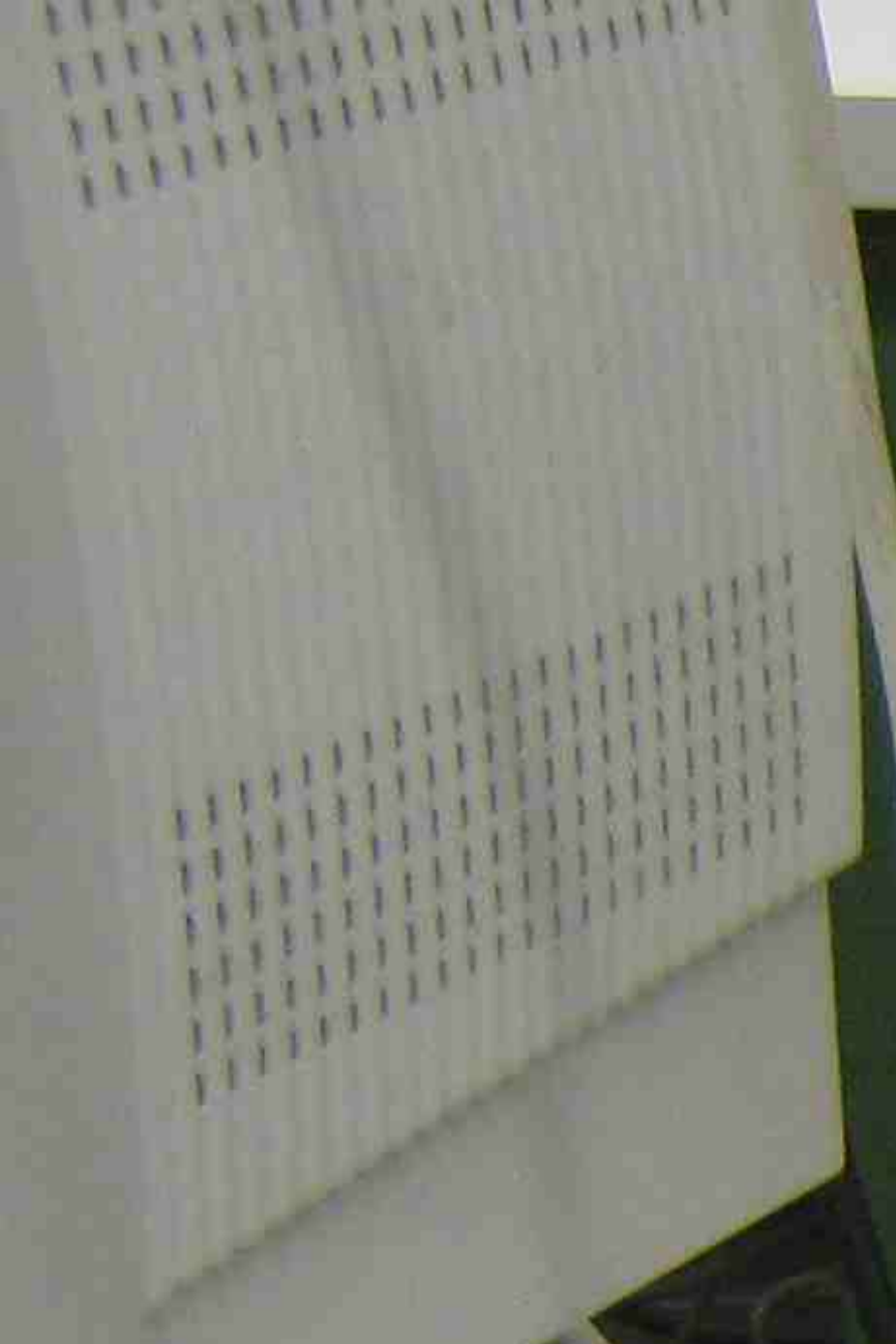


244



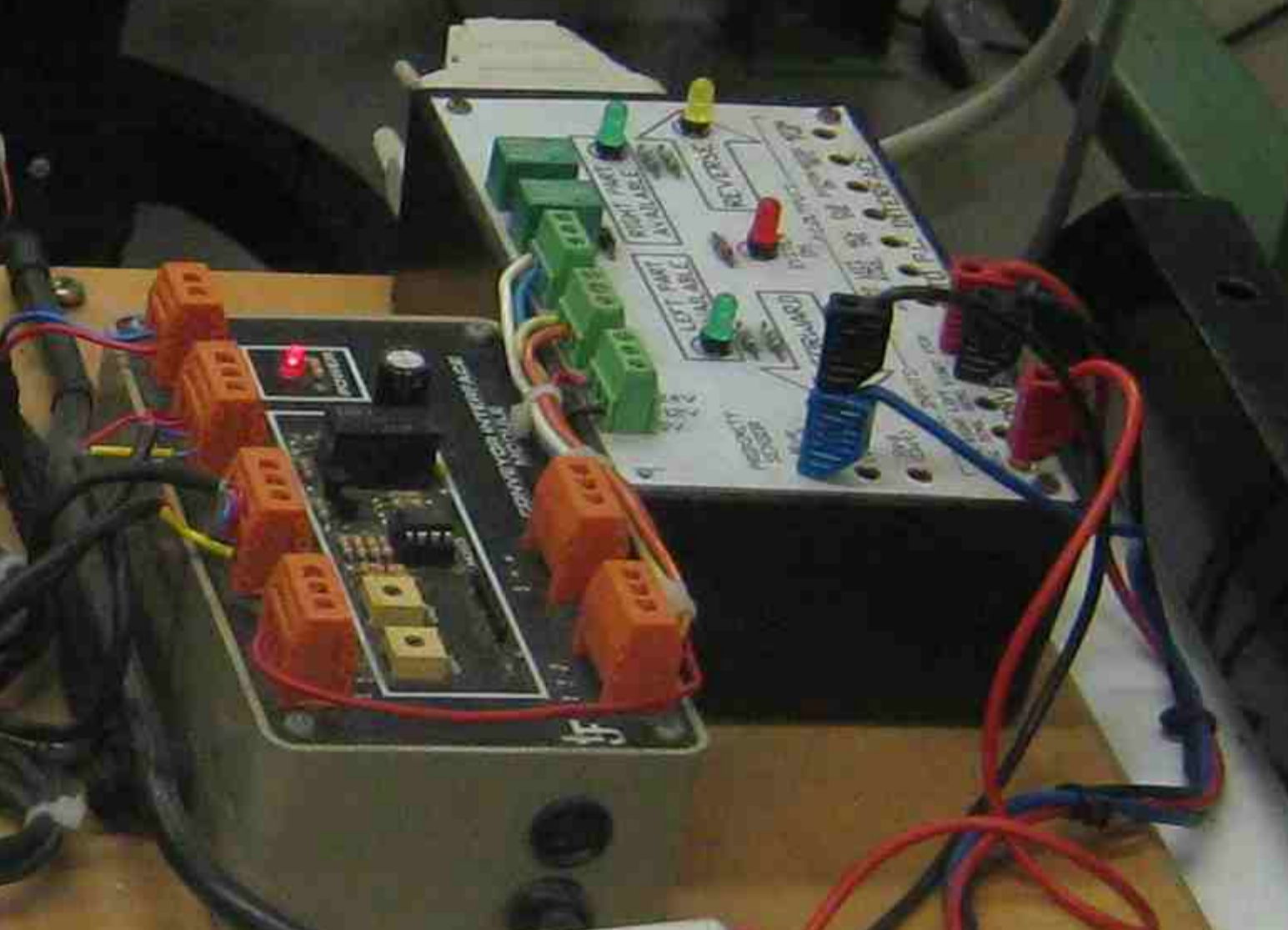


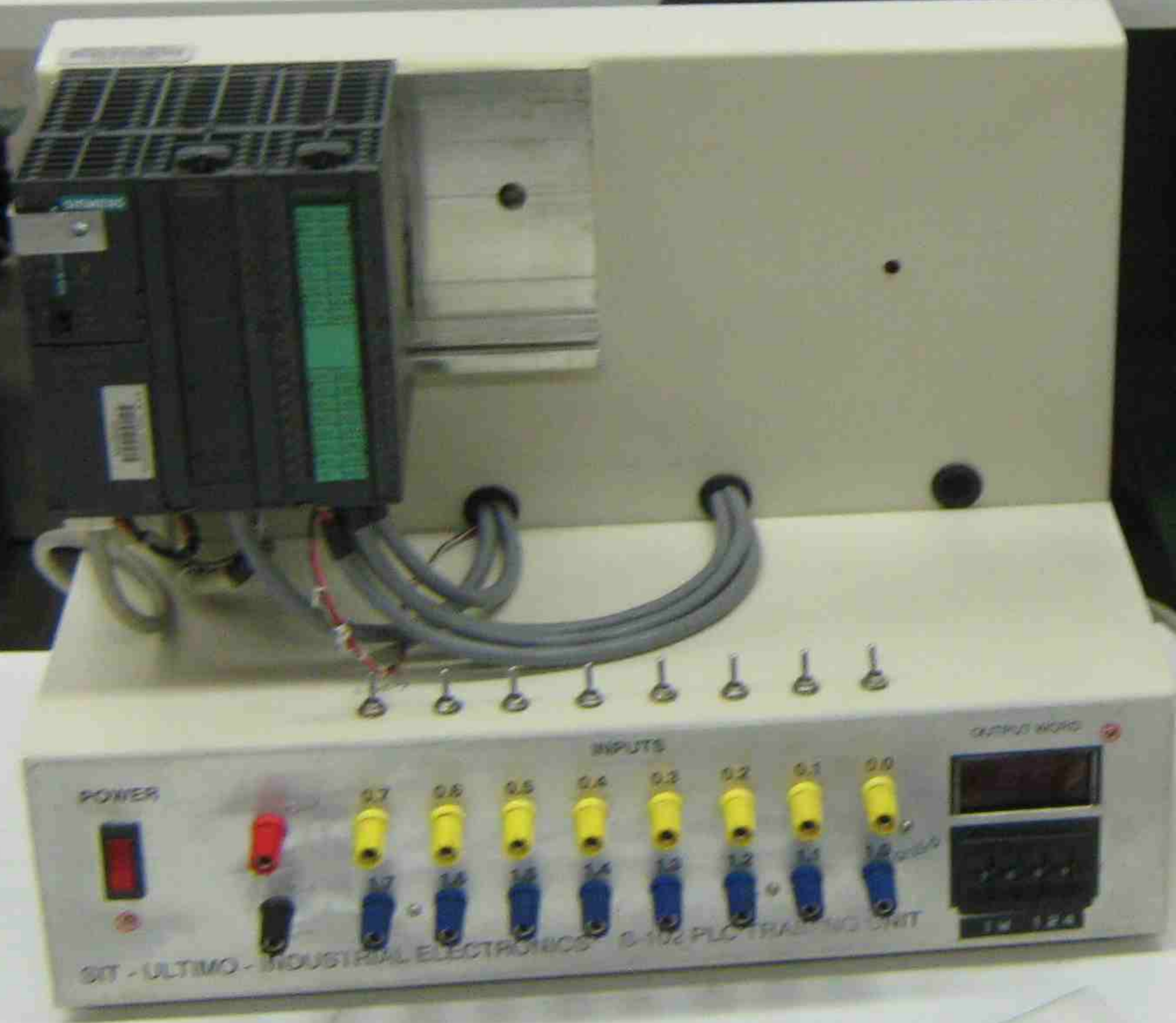




No 2

5440





**SIEMENS**

SIMATIC SS 300

SIMATIC SS 300

3072A00

ANALOG

4V DC

COUNTER

SWITCHES

INDICATORS

24V DC

M

24V DC

M

3072A00

ANALOG

4V DC

COUNTER

SWITCHES

INDICATORS

24V DC

M

24V DC

M

3072A00

ANALOG

4V DC

COUNTER

SWITCHES

INDICATORS

24V DC

M

24V DC

M

SIMULATOR

INPUT/OUTPUT

6ESS 780-8MA11

17DC314T61

SIMULATOR

INPUT/OUTPUT

6ESS 780-8MA11

17DC314T61

DIGITAL OUTPUT

8x24V DC/0.5A

6ESS 441-8MA11

17DC314T61

DIGITAL OUTPUT

8x24V DC/0.5A

6ESS 441-8MA11

17DC314T61

QB5

0 163

QB32 QB33 IB32 1W32

QW32

**V.O.M. University** MODEL CTN-500MP

AC 10VAC

20,000V/DC

10,000V/VAC

OFF

R x 1000

R x 100

R x 10

R x 1

10

50

250

500

DC 5000V

DC 500V

500 m

50 m

5 m

50  $\mu$

2.5

10

50

250 & UP

DC AMP

DC V

+ V - A

R ADJUST

2.7 2.6 2.5 2.4 2.3 2.2 2.1 2.0

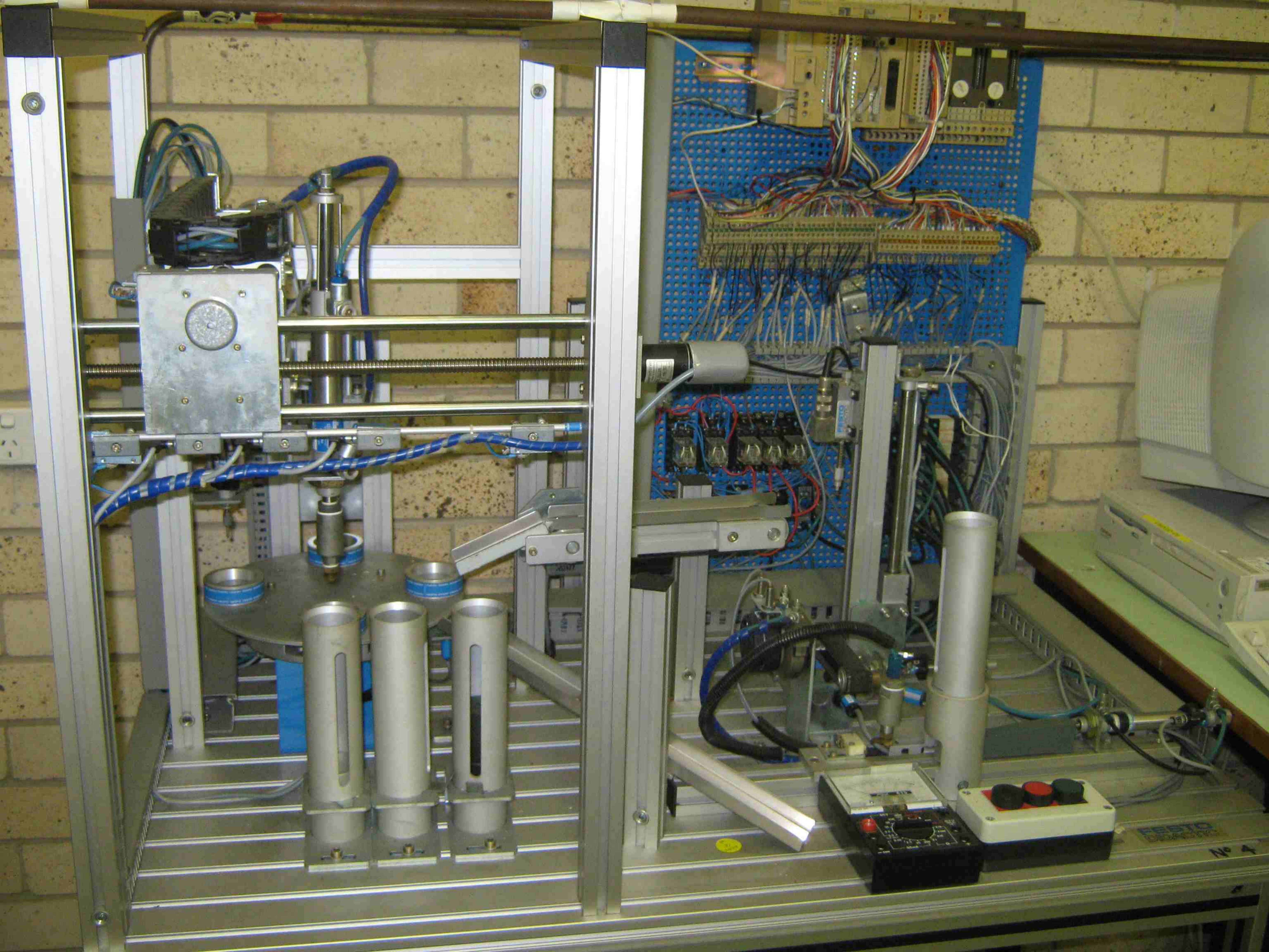
DIGITAL INPUTS

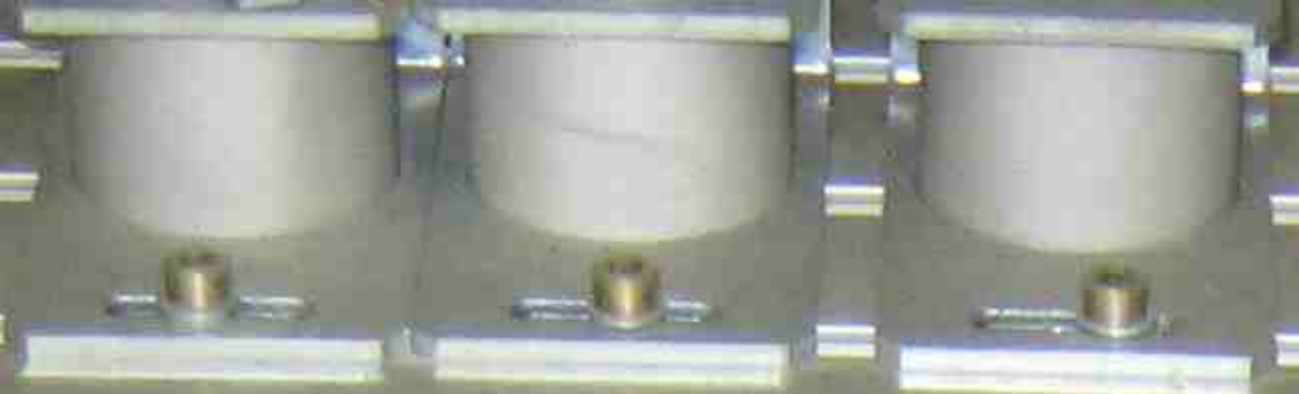
3.7 3.6 3.5 3.4 3.3 3.2 3.1 3.0

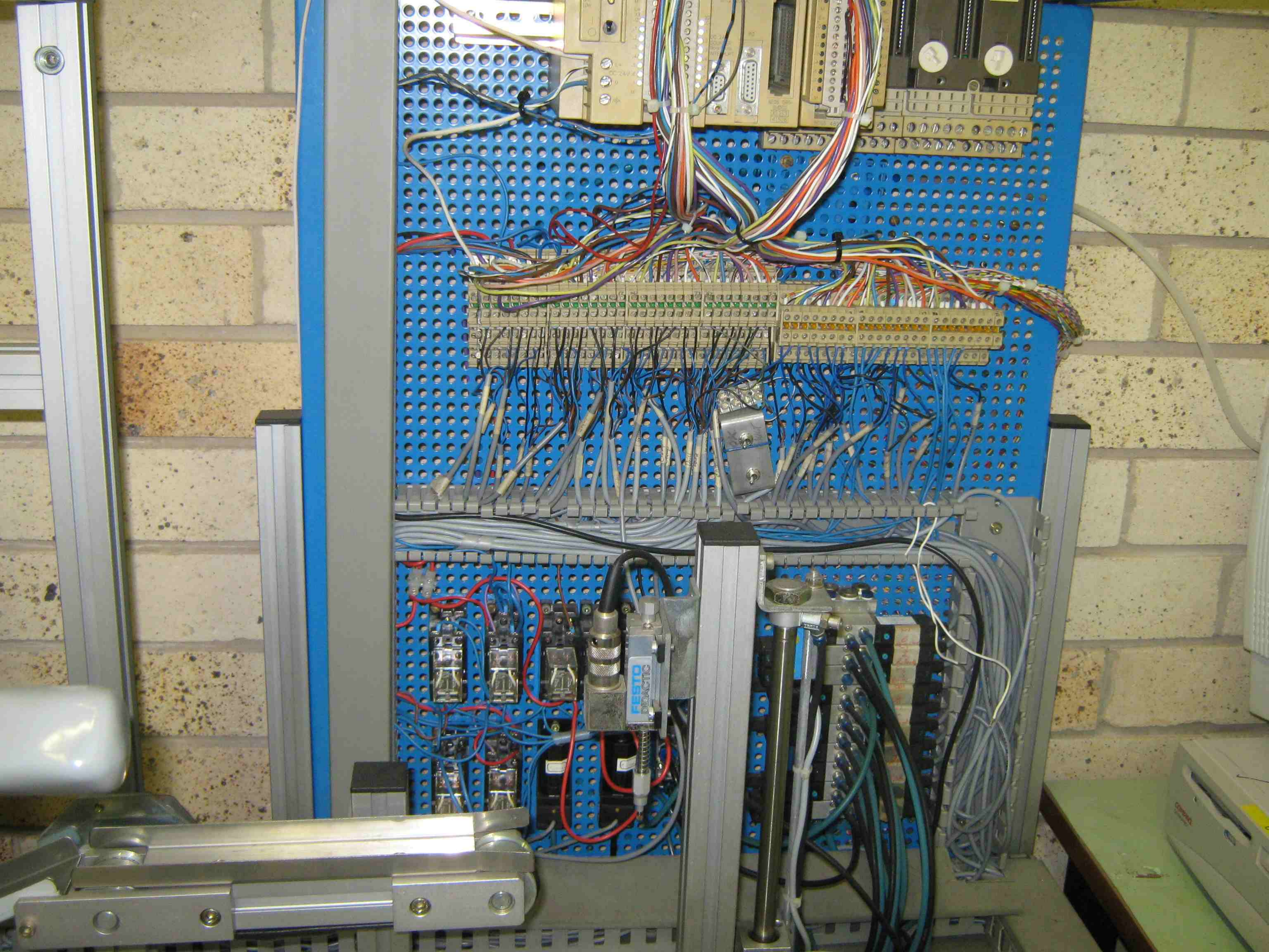
4.7 4.6 4.5 4.4 4.3 4.2 4.1 4.0

DIGITAL OUTPUTS

5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0

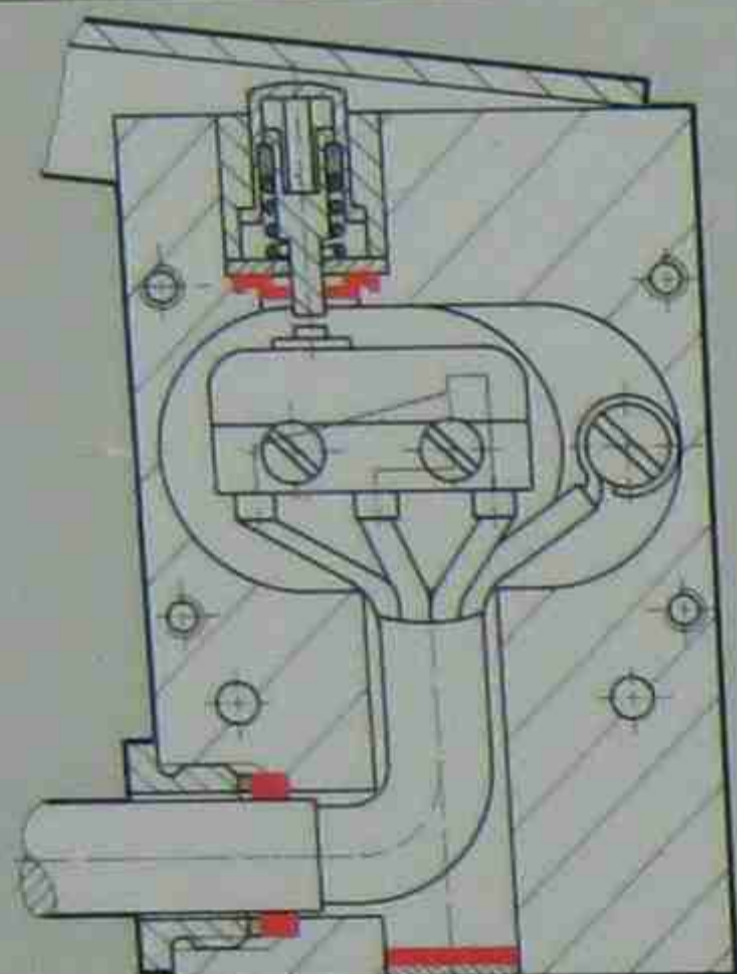
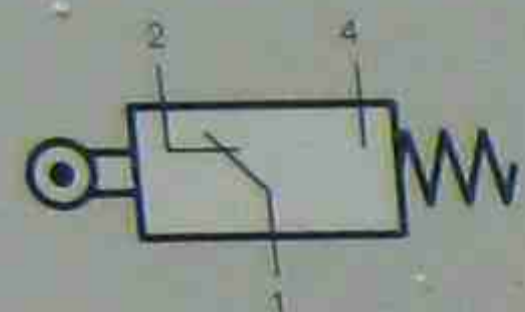




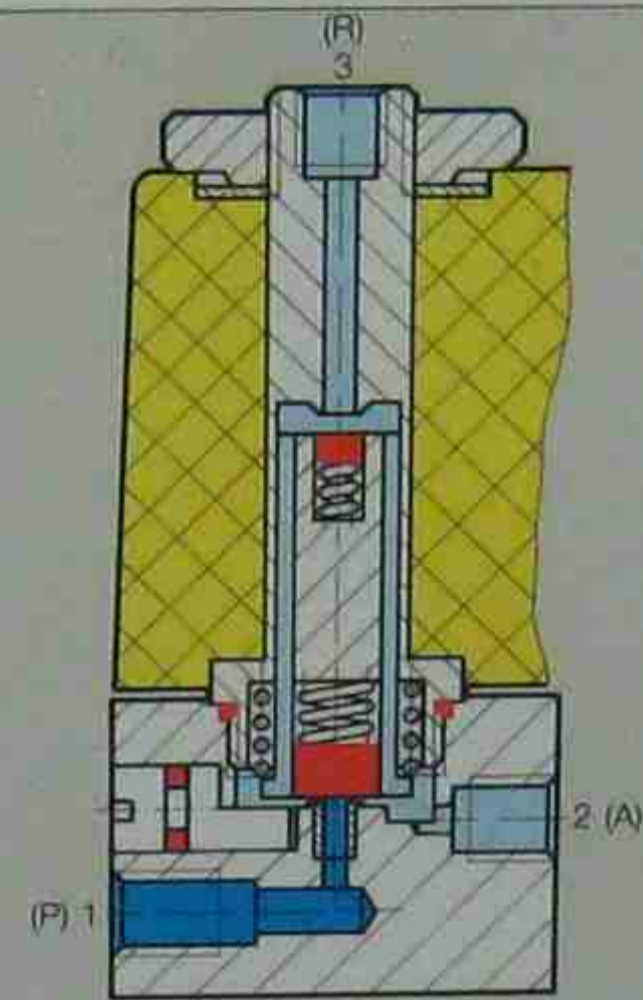
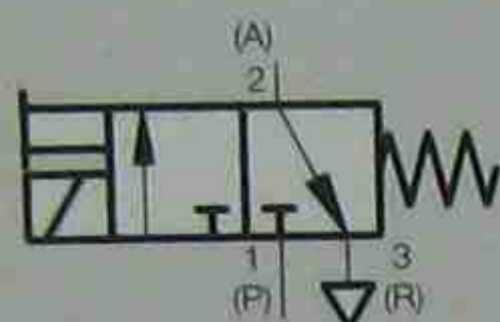


# Electrical and Electro-Pneumatic Components

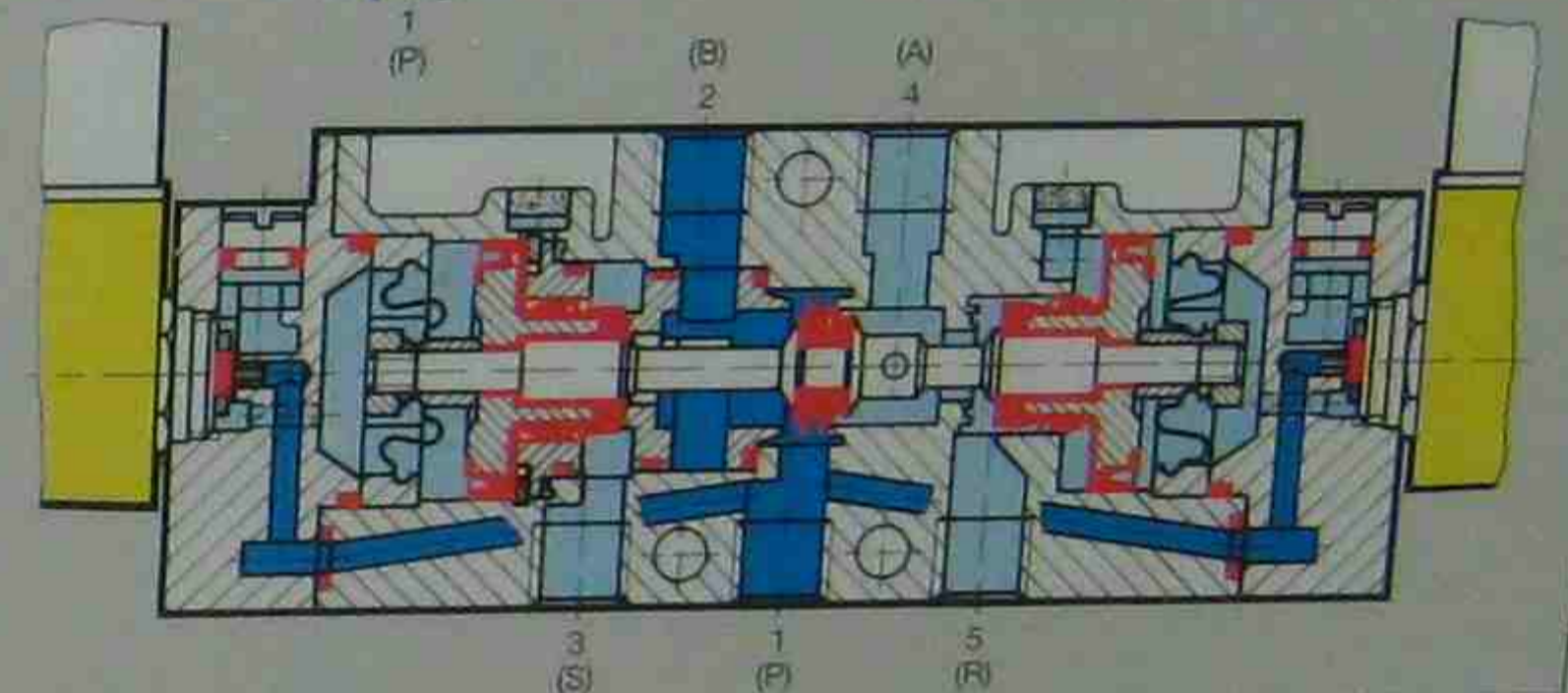
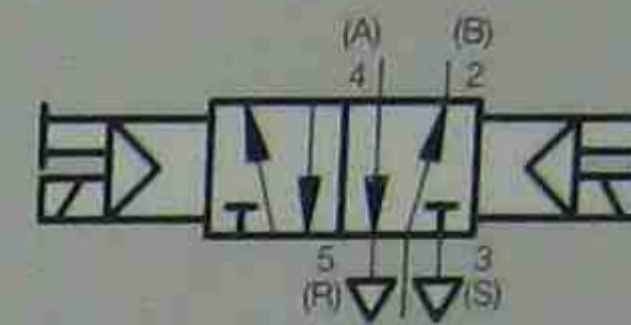
**Limit switch, electrical**



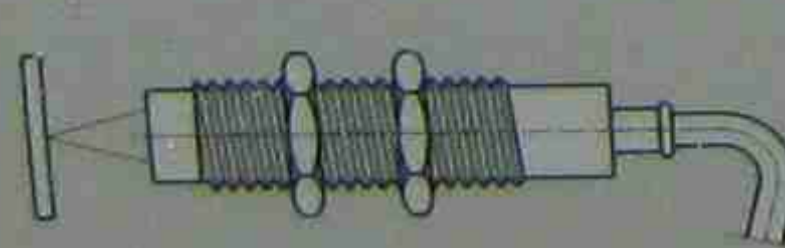
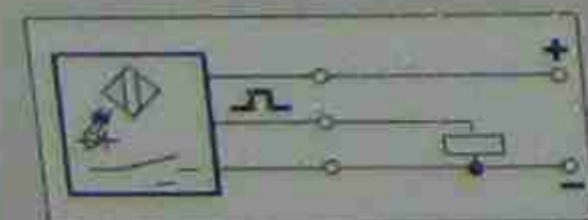
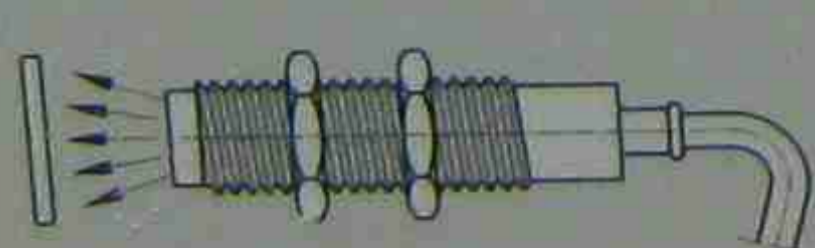
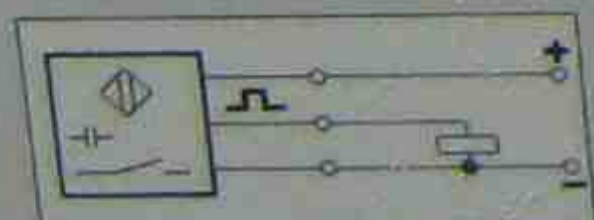
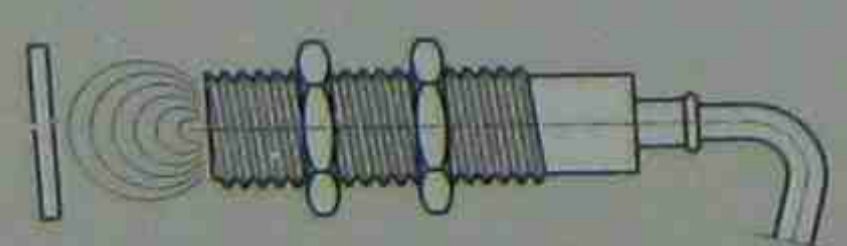
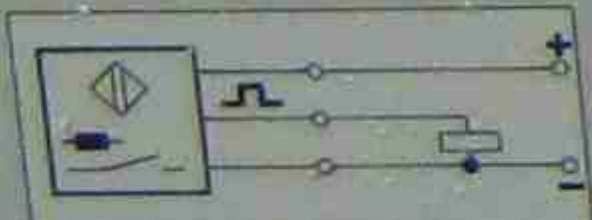
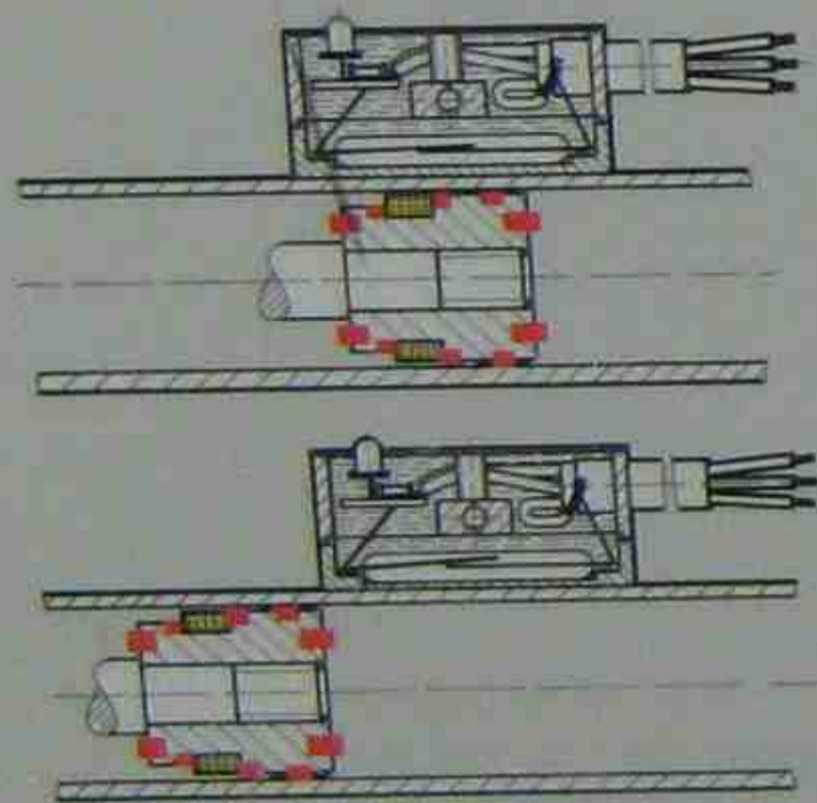
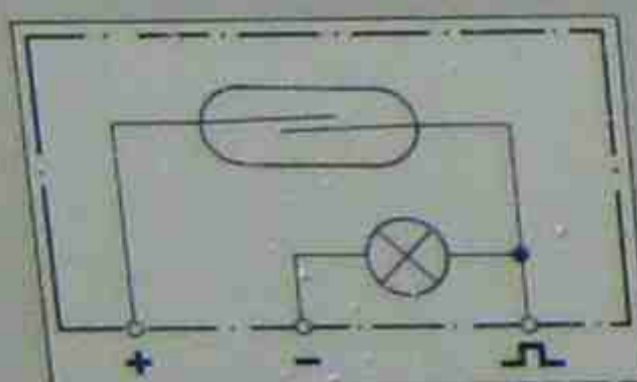
**3/2-Way solenoid valve**



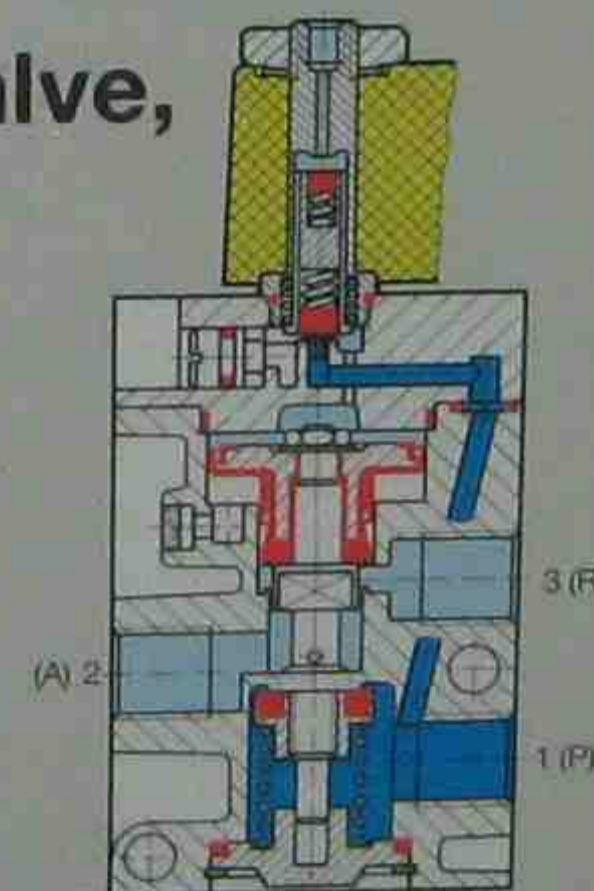
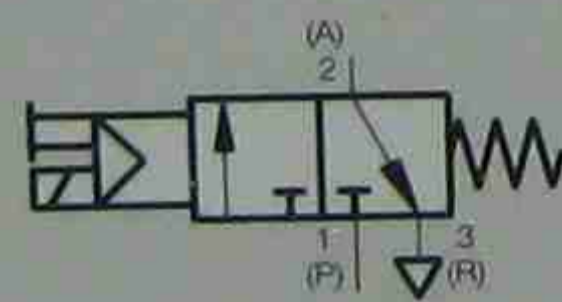
**5/2-Way double solenoid valve, pilot actuated**



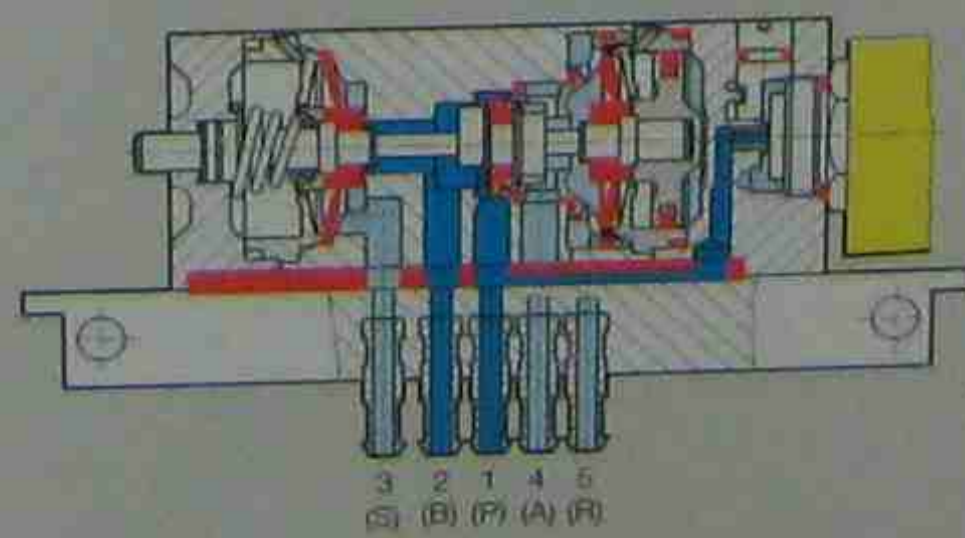
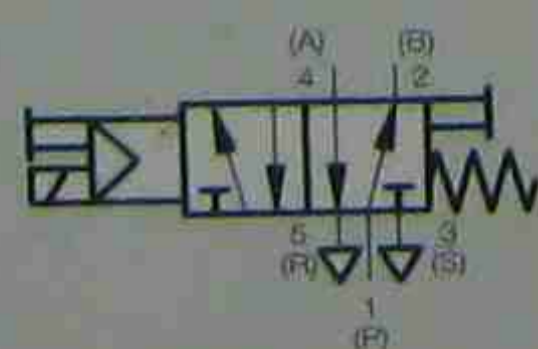
**Proximity switches, electrical (and electronic)**



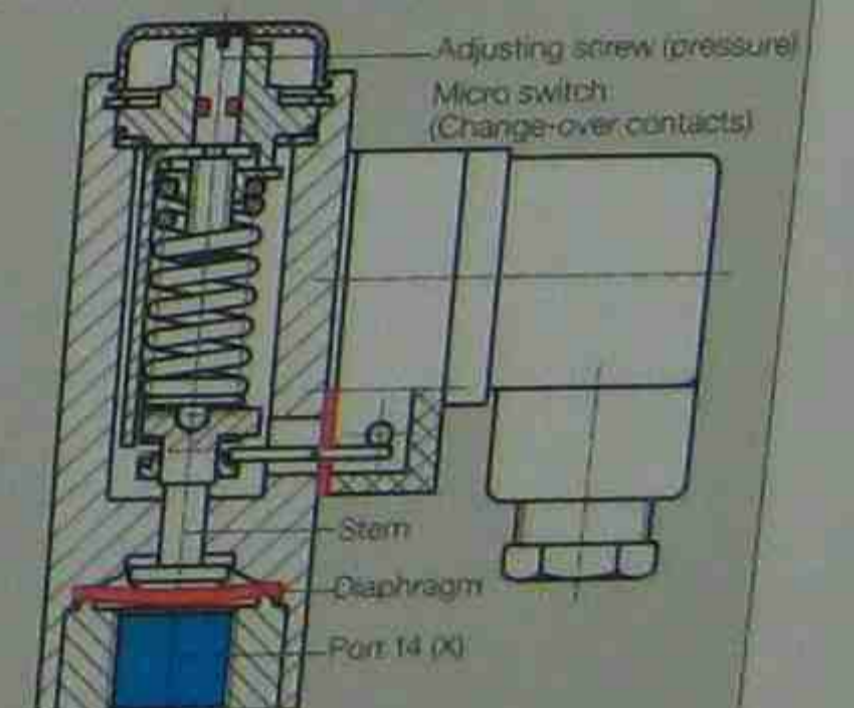
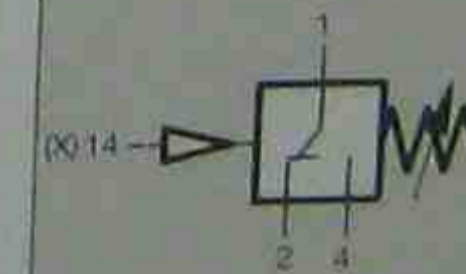
**3/2-Way solenoid valve, pilot actuated**



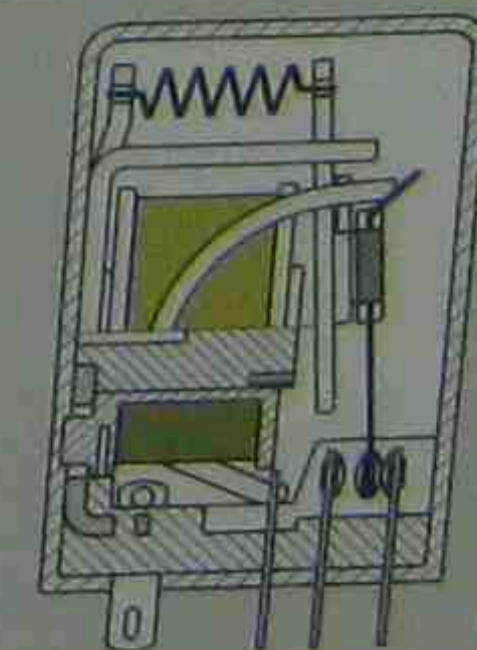
**5/2-Way single solenoid valve, pilot actuated**



**Pressure switch (P-E converter, adjustable)**



**Relay (4 change-over contacts)**

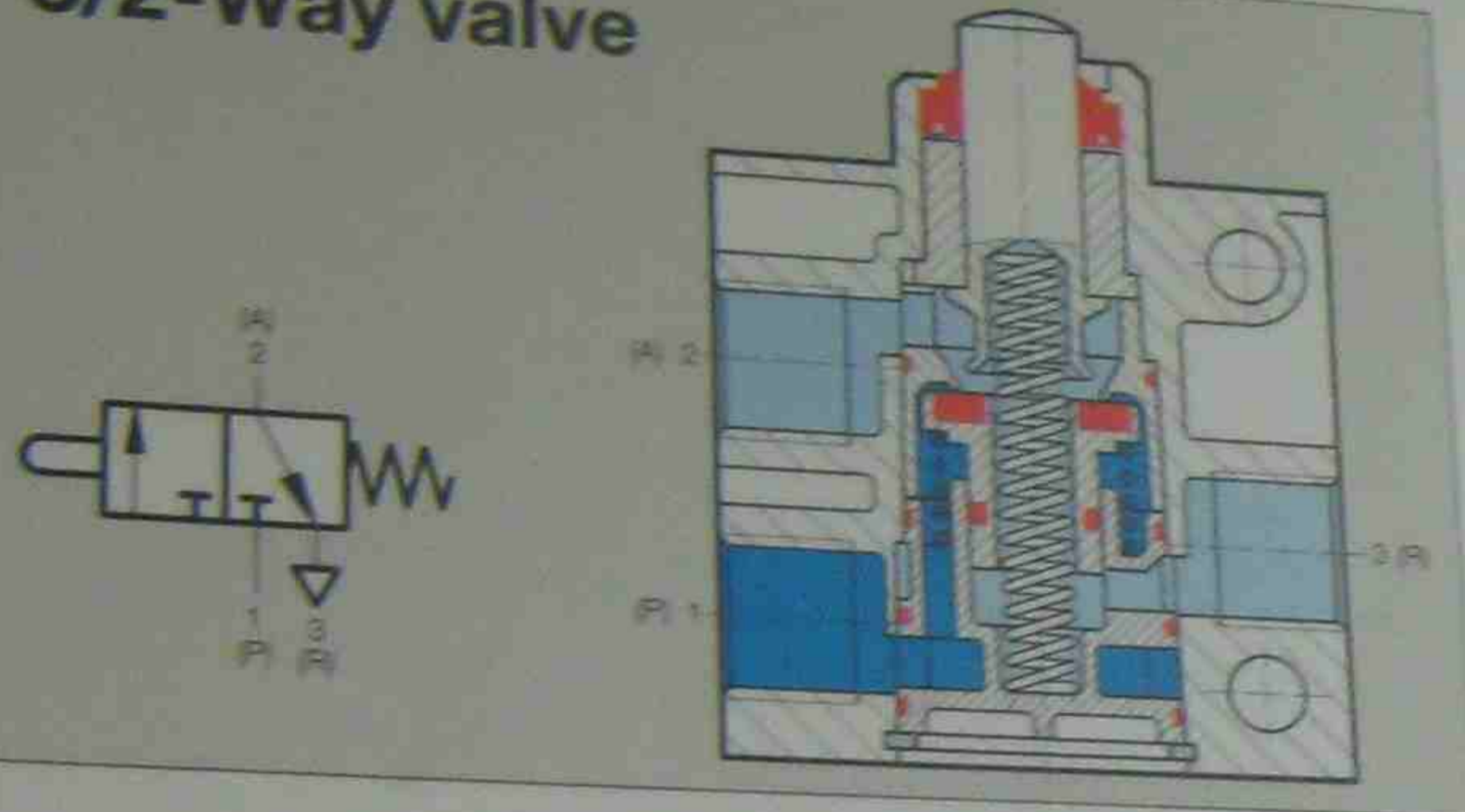


# Pneumatic directional, flow control and pressure control valves

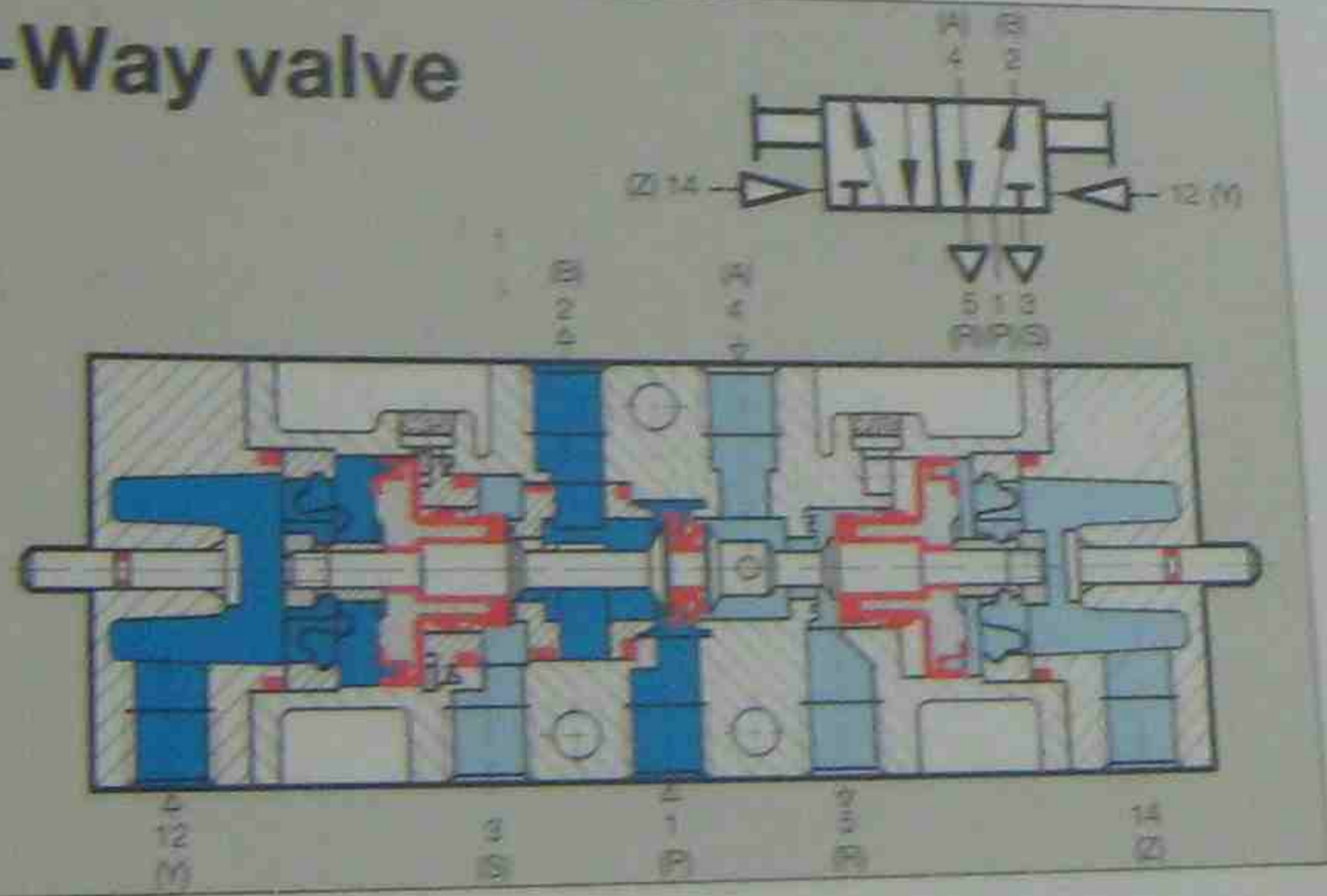
FESTO  
DIDACTIC

## Directional control valves

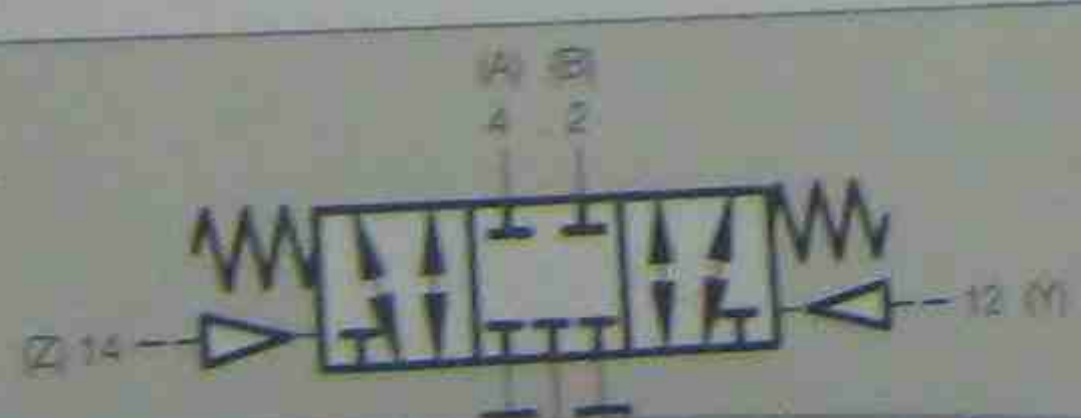
3/2-Way valve



5/2-Way valve

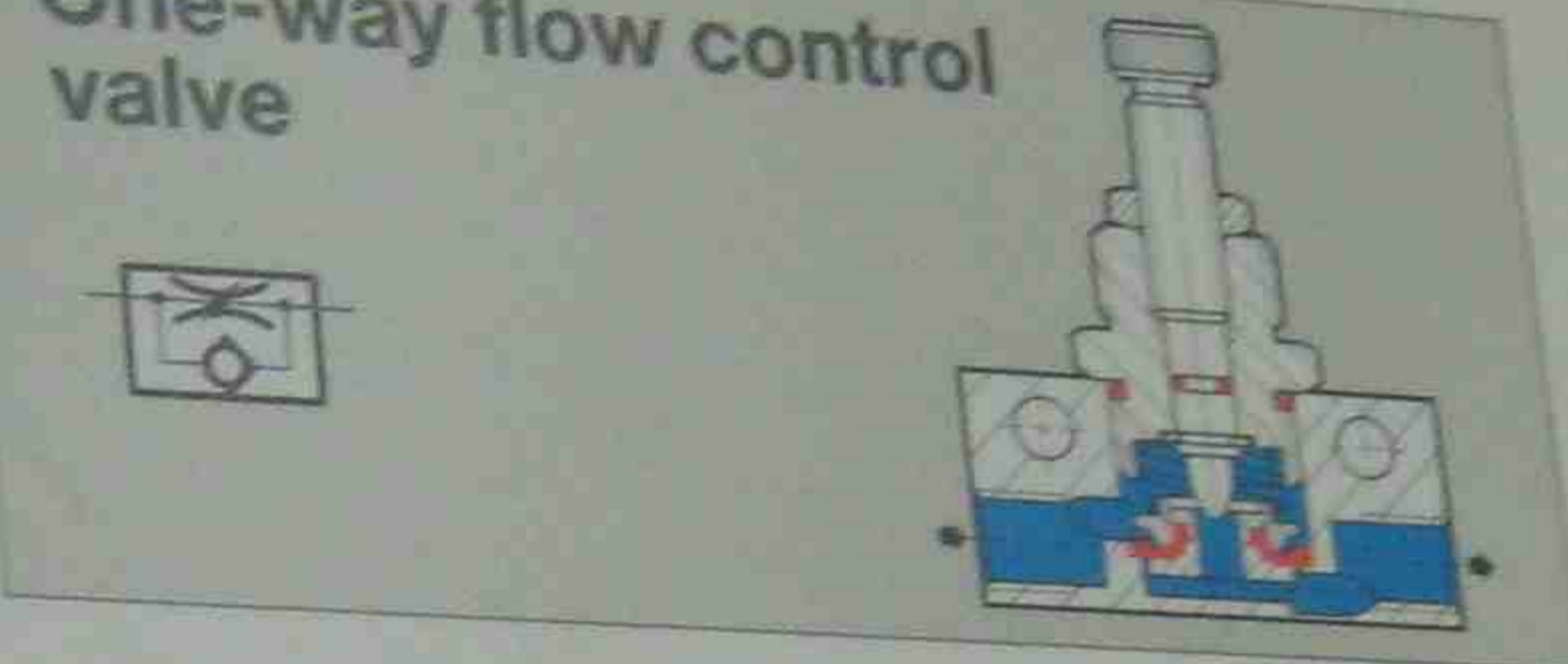


5/3-Way valve

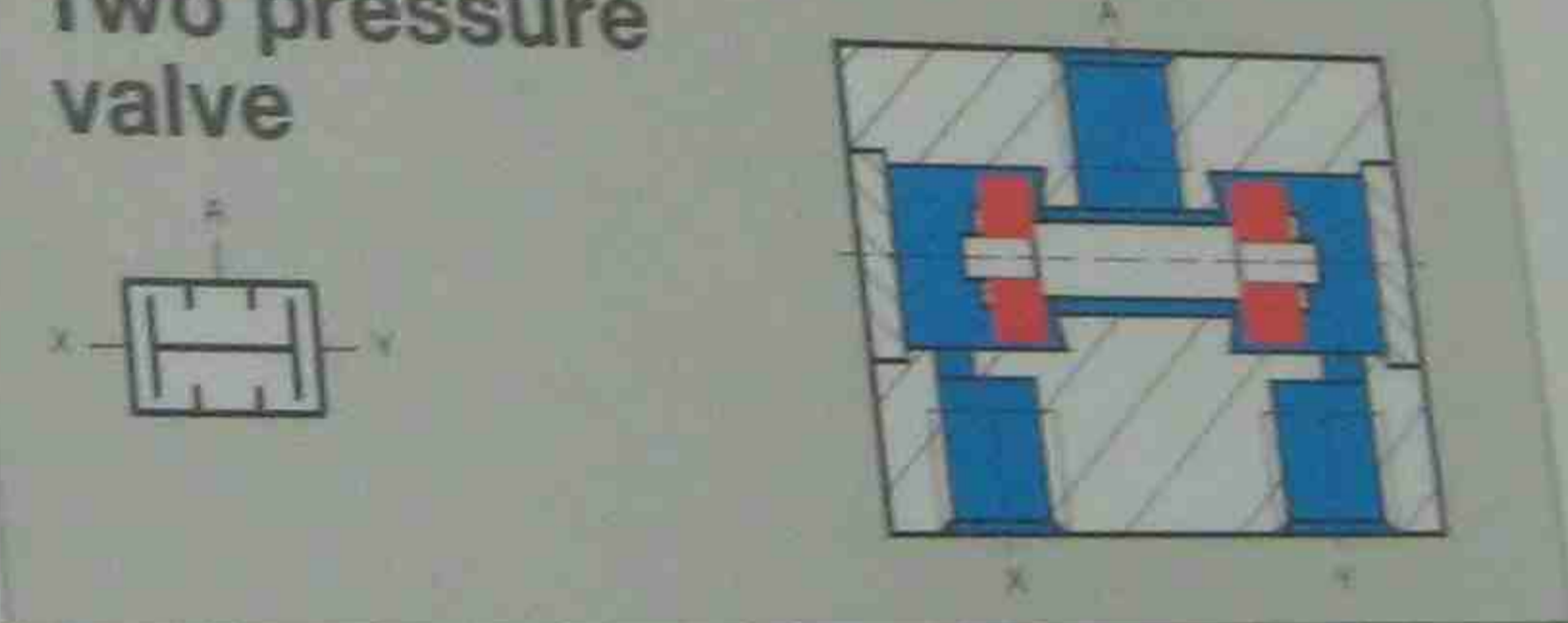


## Flow control valves

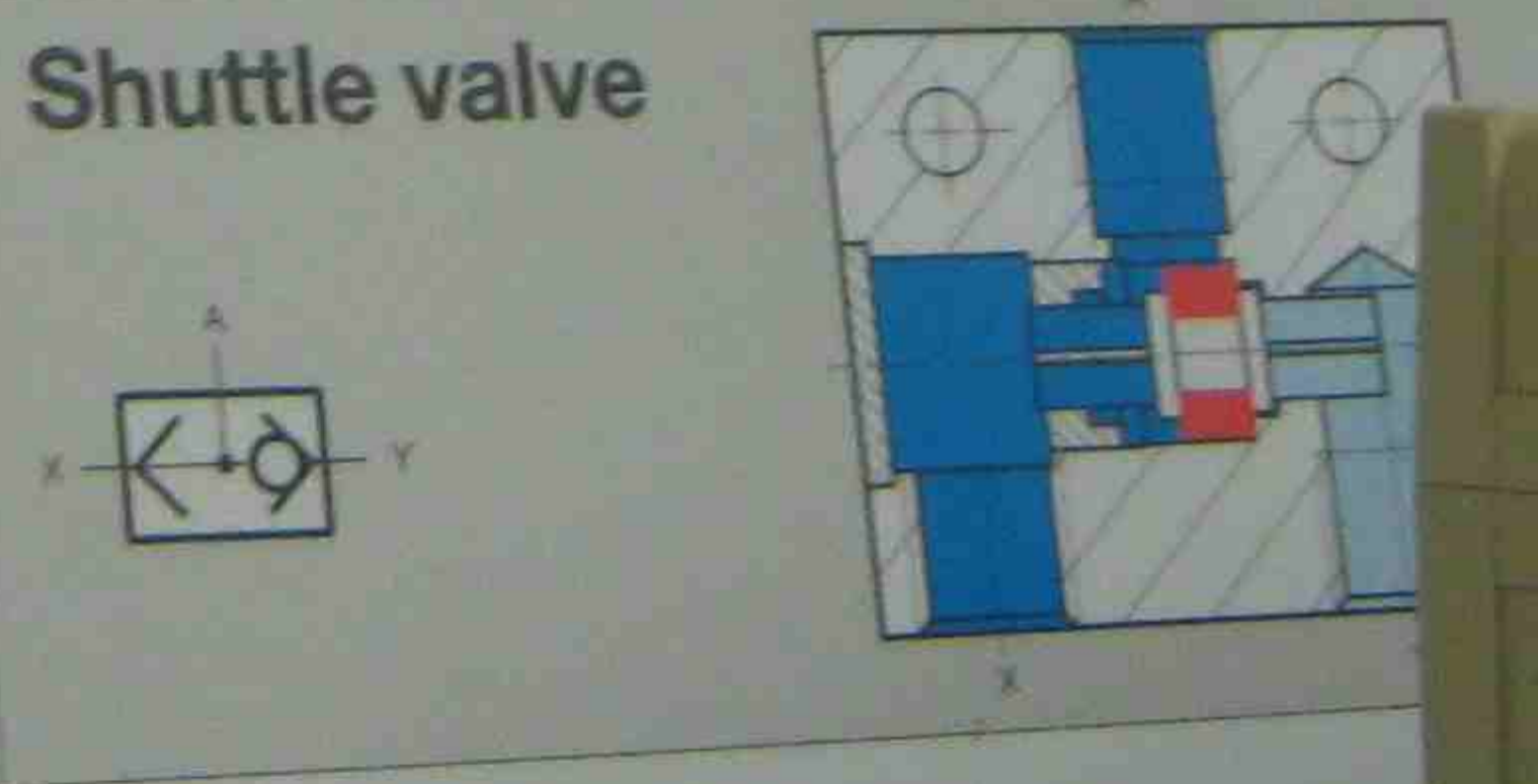
One-way flow control valve



Two pressure valve

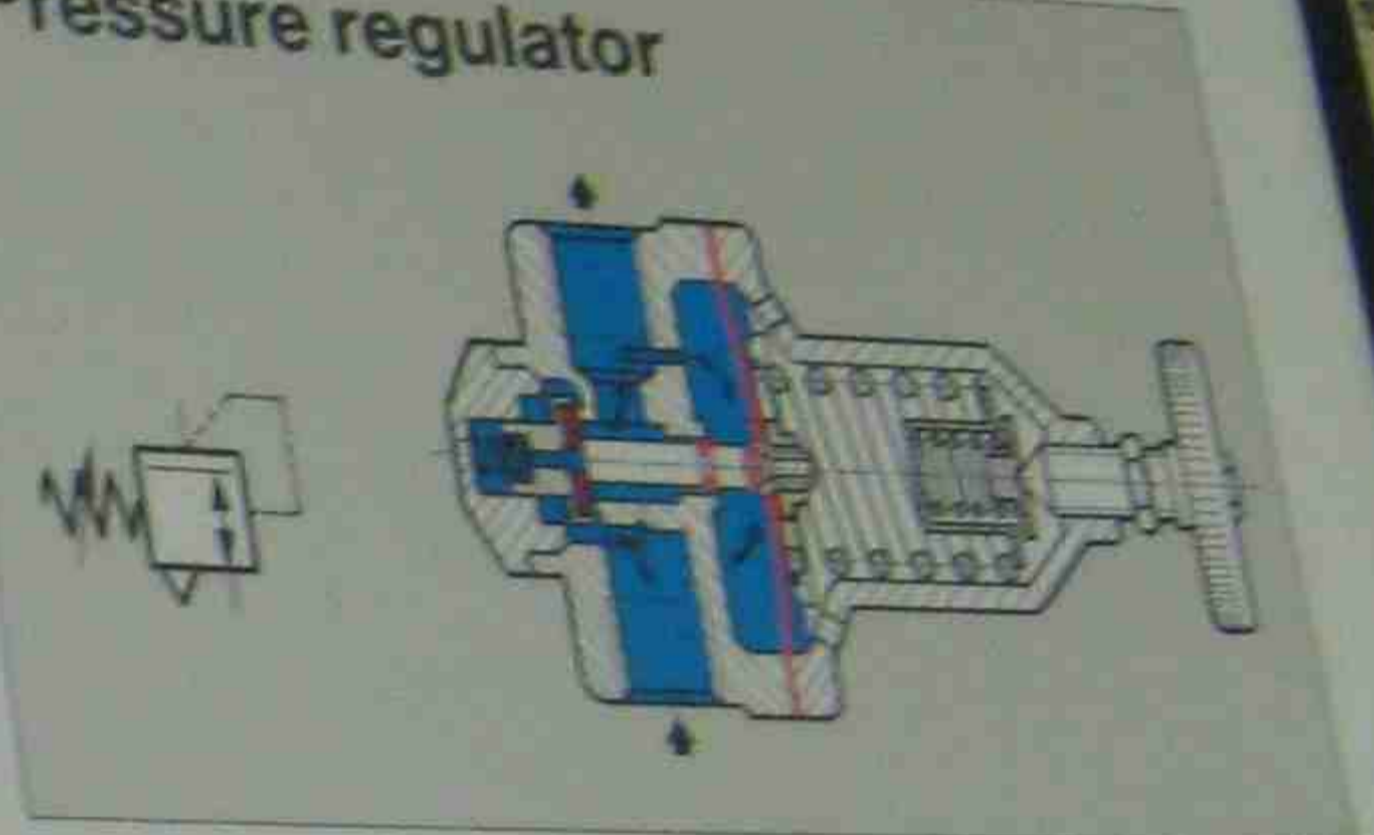


Shuttle valve



## Pressure control valves

Pressure regulator



Pressure relief valve



Quick exhaust valve

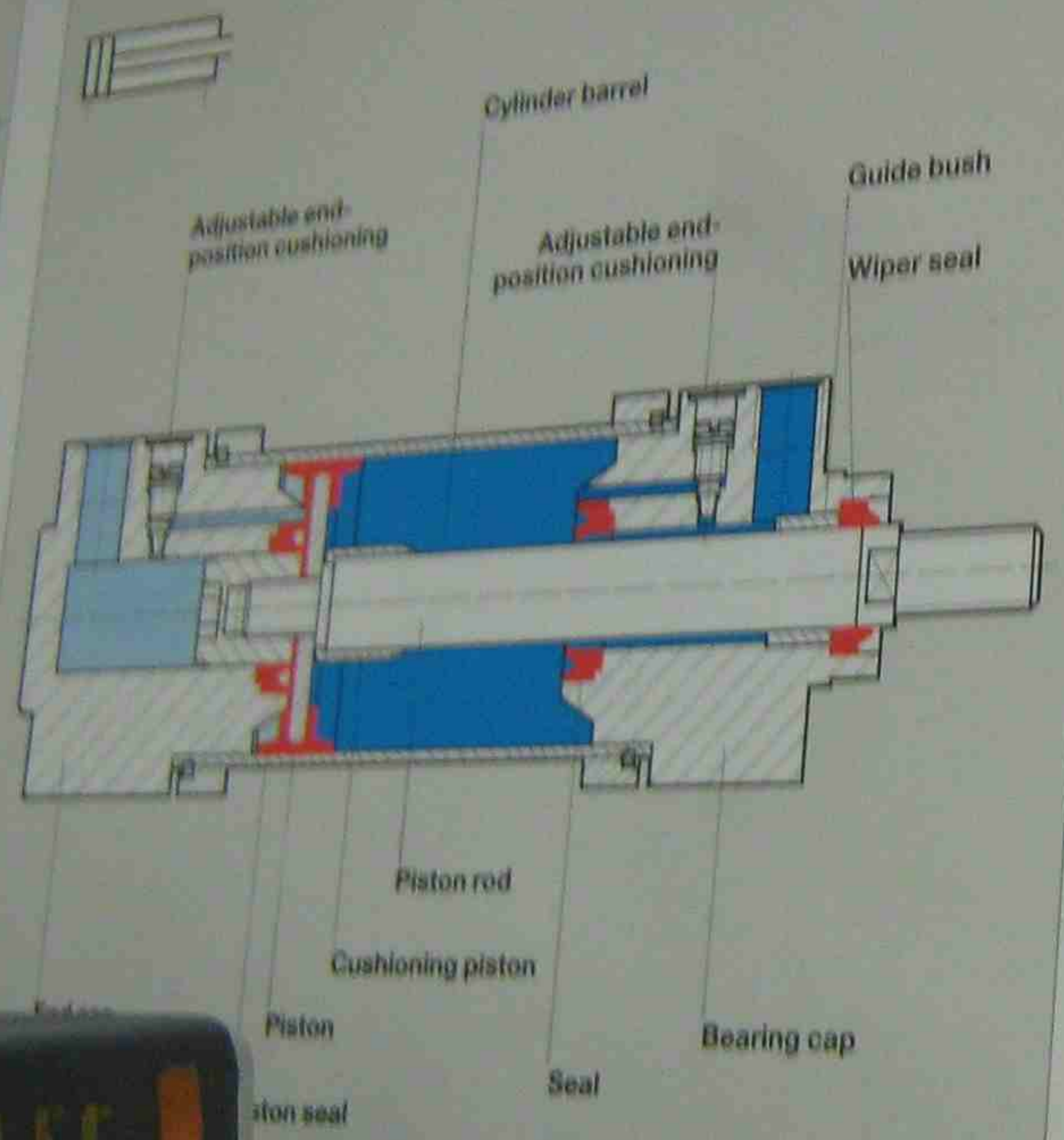


# Pneumatic actuators

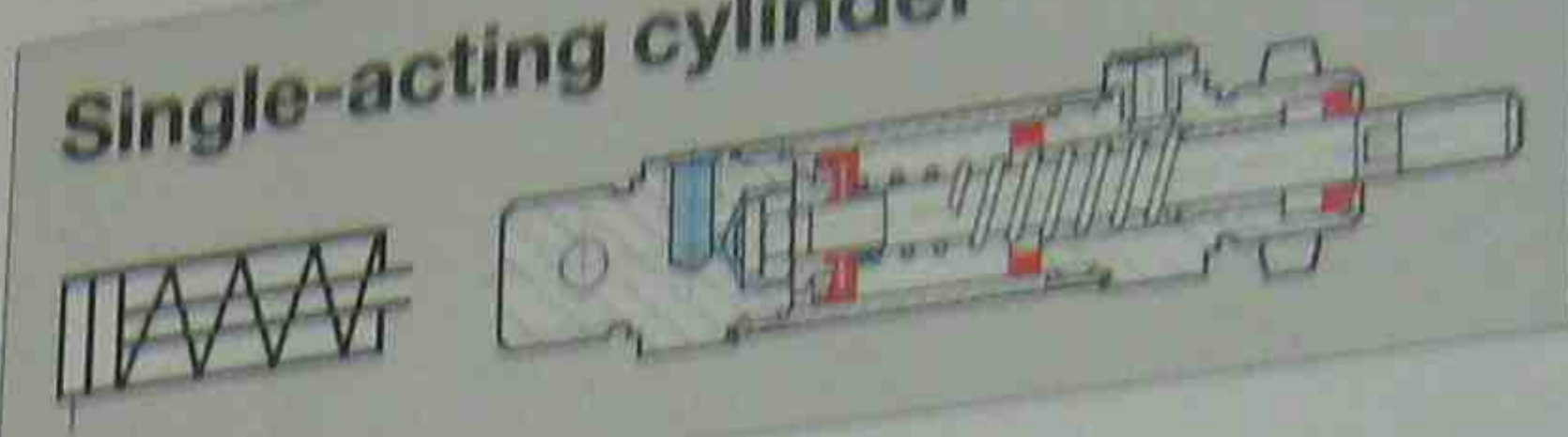
## Mounting attachments



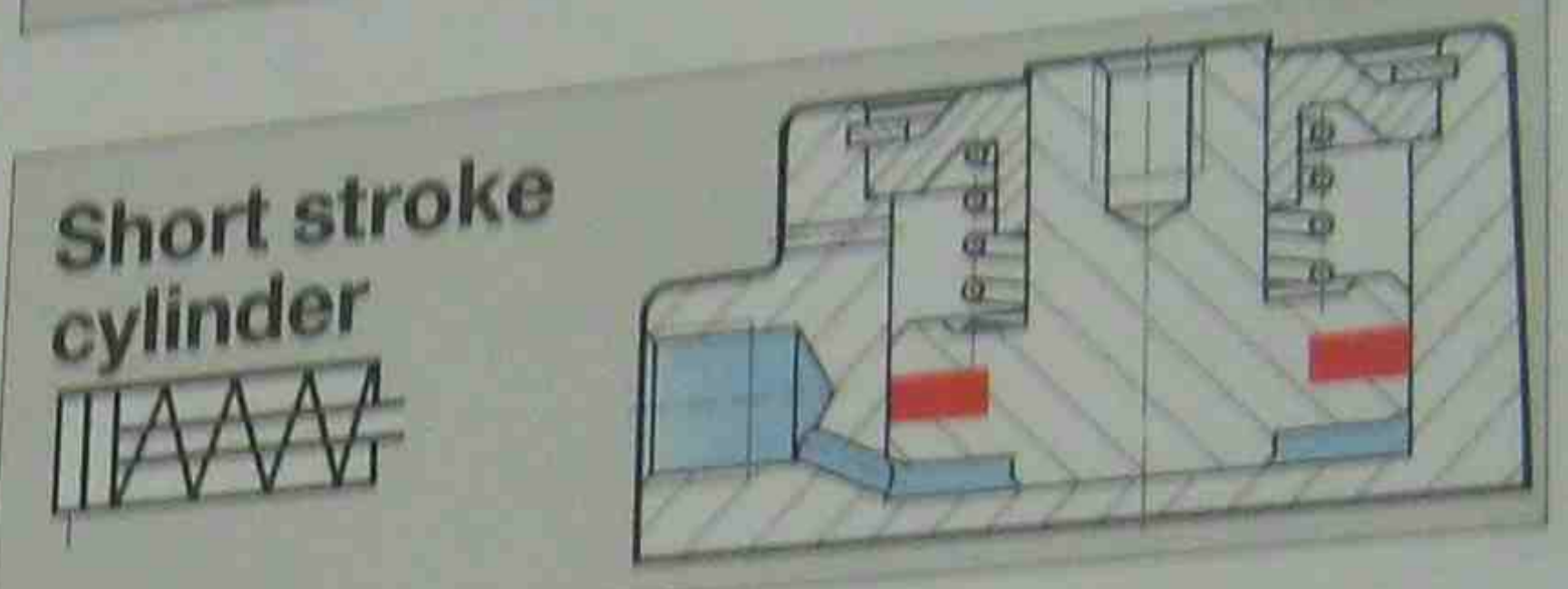
## Double-acting cylinder



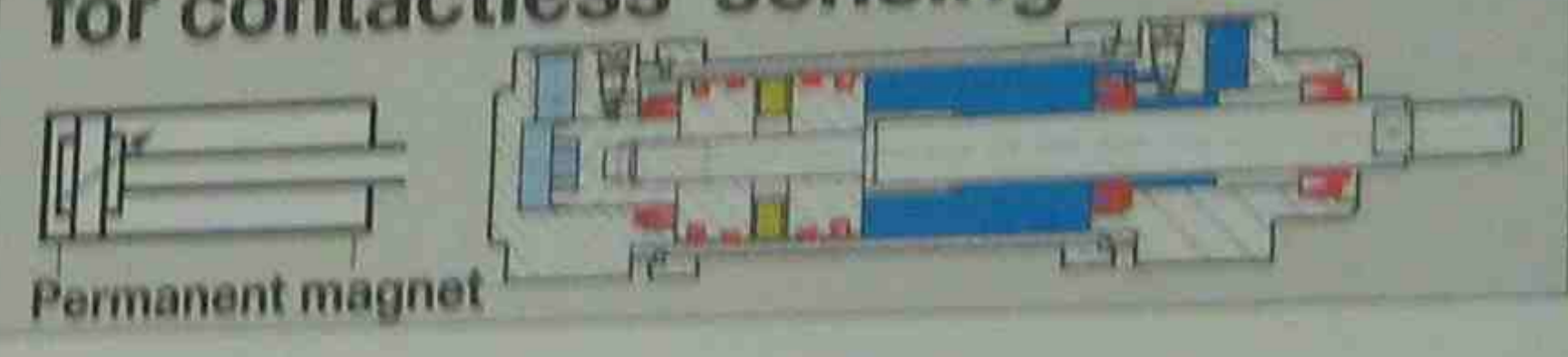
## Single-acting cylinder



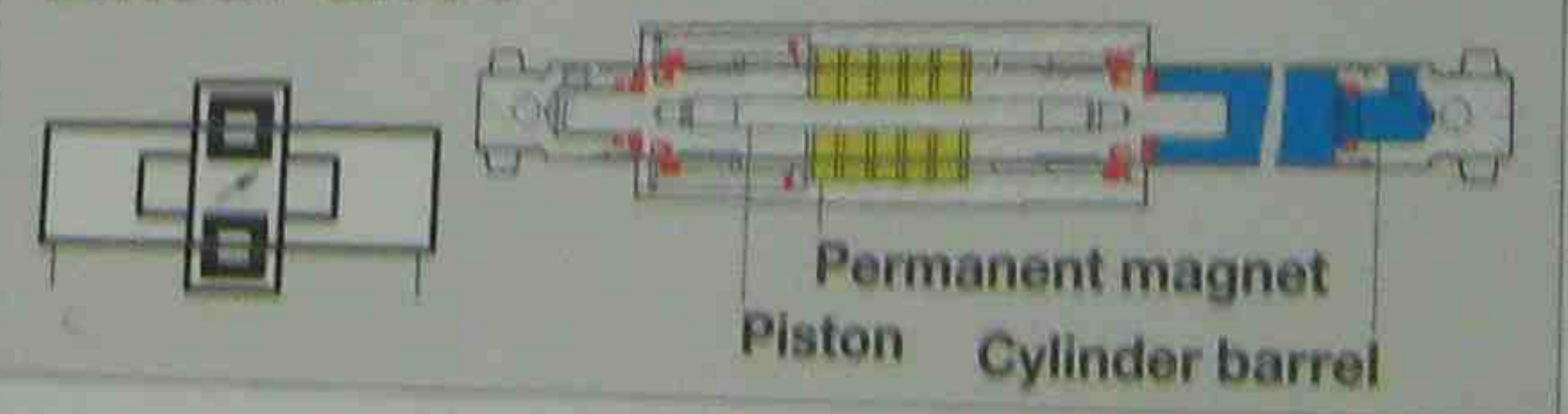
## Short stroke cylinder



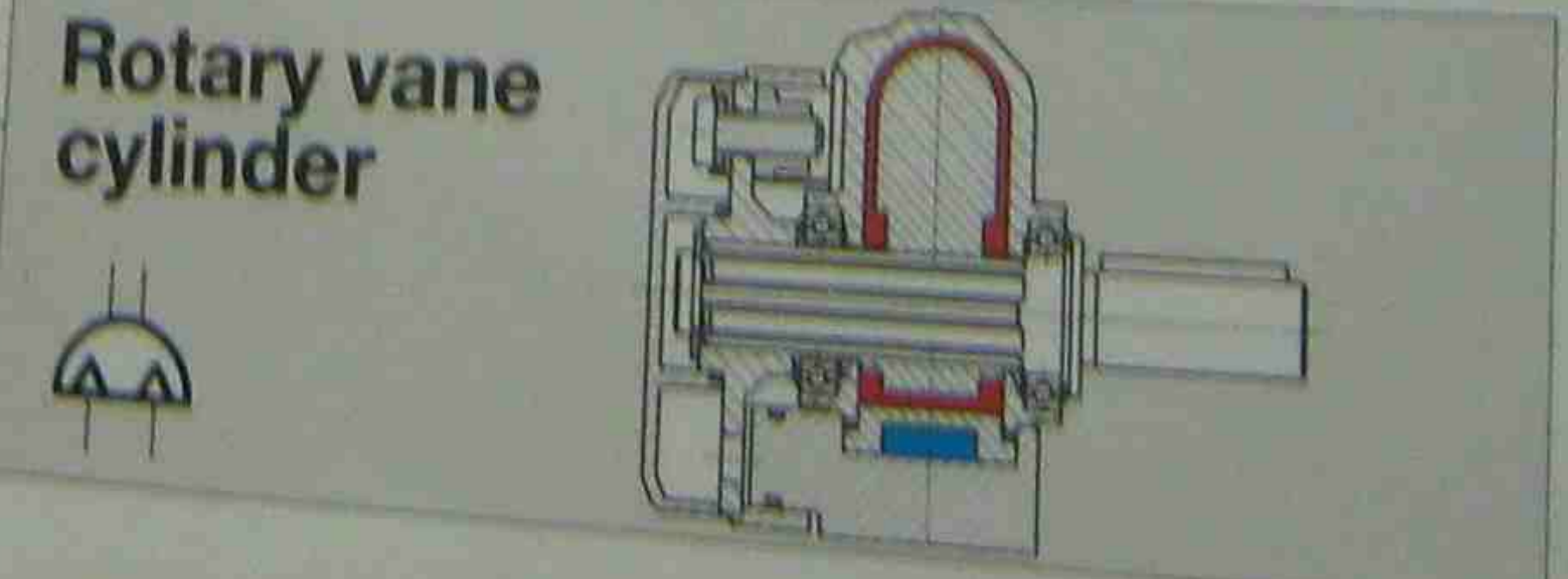
## Double-acting cylinder for contactless sensing



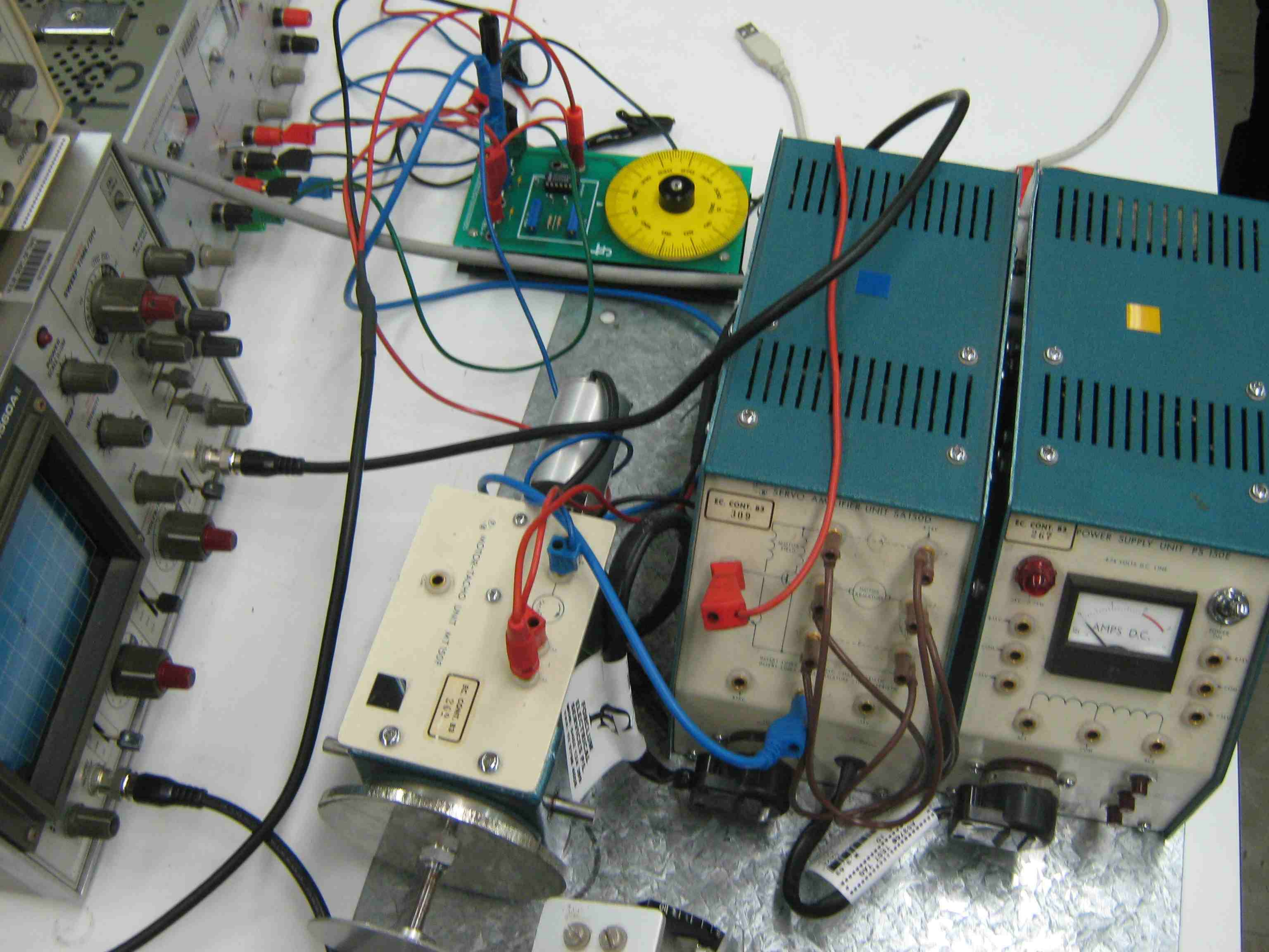
## Linear drive



## Rotary vane cylinder



APPLIED FLIT  
R46959



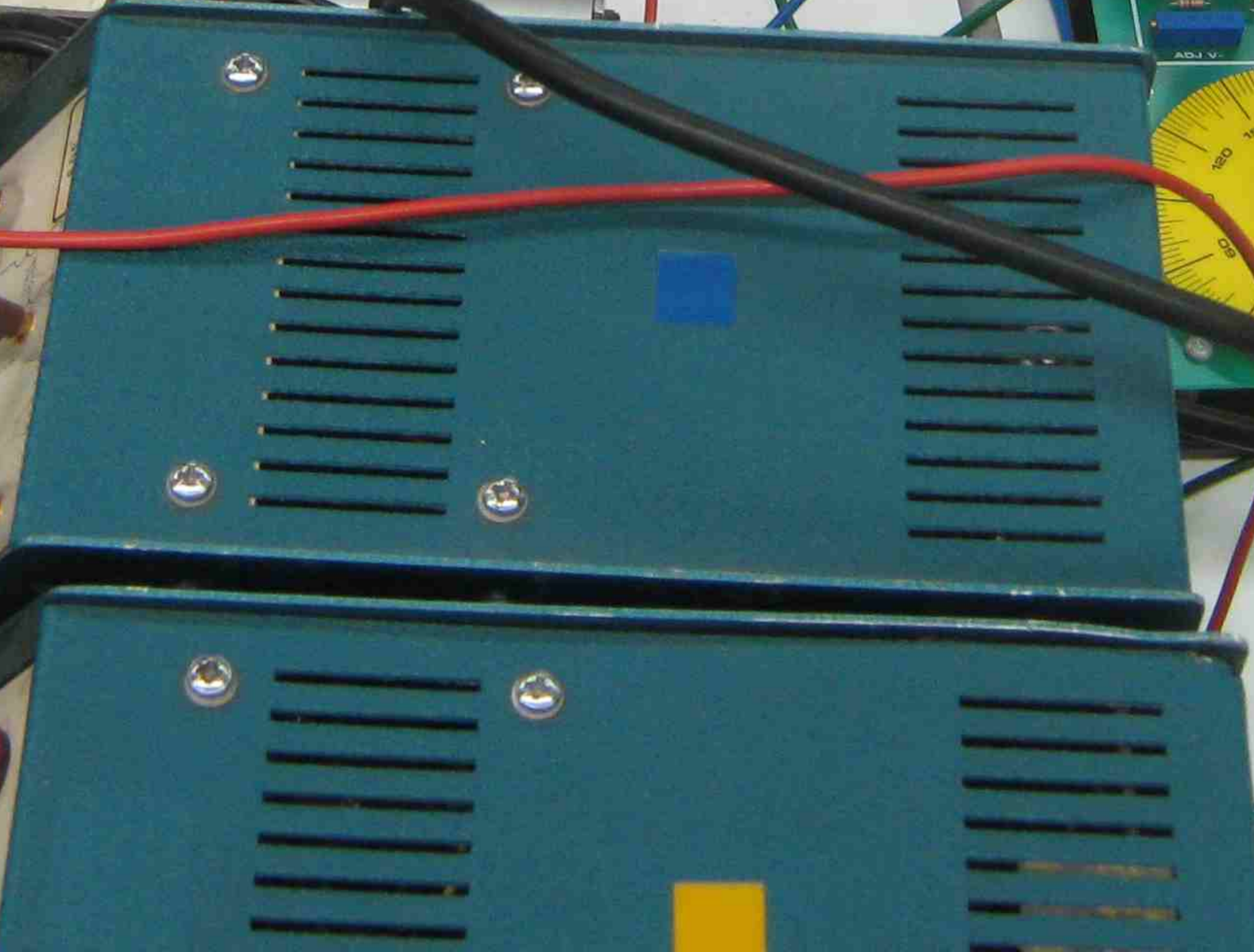
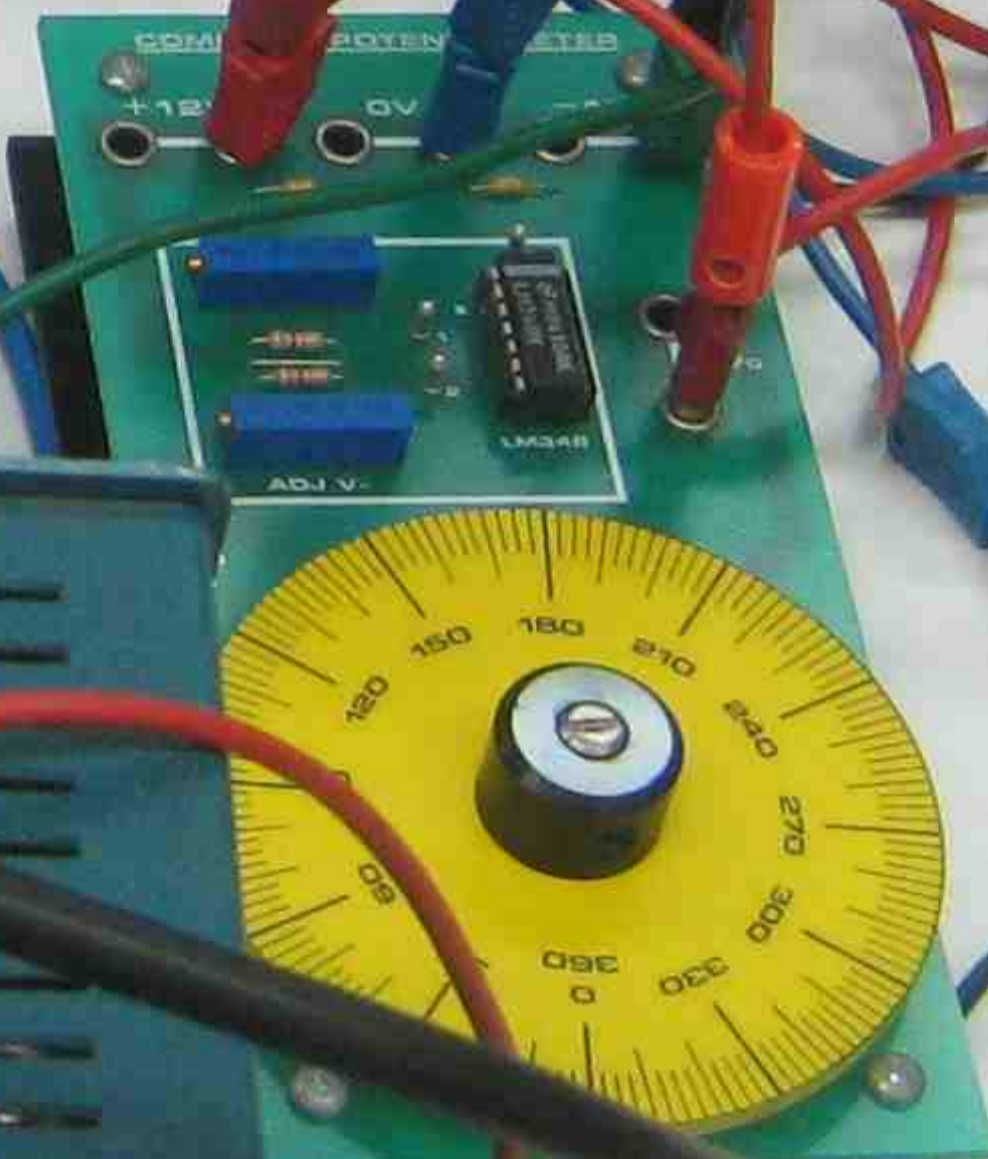
POWER SUPPLY UNIT PS 150E  
4A 30V DC LINE

AMPS D.C.

SERVO AMPLIFIER UNIT SA150D  
RC CONT. #3 309

MOTOR CONTROL UNIT MC150E  
RC CONT. #3 269

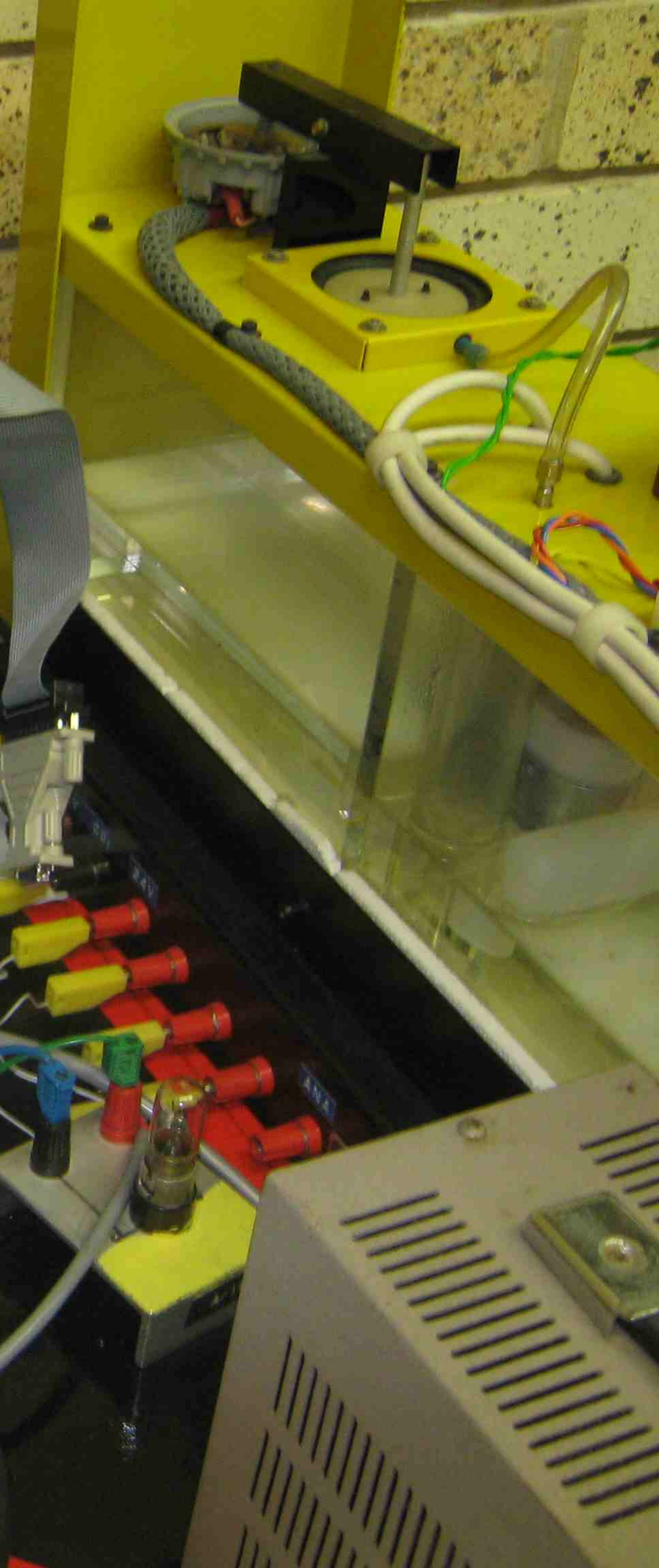
RECEIVED AT THE UNIVERSITY OF TORONTO LIBRARY  
SERIALS ACQUISITION  
130 St. George Street  
Toronto, Ontario M5S 1A5  
CANADA





FORGLUM  
ELECTRICAL  
SERVICES P/L  
MOD: 0402 124 396  
FAX: 02 9798 4056

FORGLUM  
ELECTRICAL  
SERVICES P/L  
MOD: 0402 124 396  
FAX: 02 9798 4056



SIEMENS

ANALOG MONITOR PANEL

DIGITAL MONITOR PANEL

±18 Volts

MONITOR

OUTPUTS

INPUTS

LOCK/EXTEND

MONITOR

OUTPUTS

INPUTS

2.7 2.6 2.5 2.4 2.3 2.2 2.1 2.0

3.7 3.6 3.5 3.4 3.3 3.2 3.1 3.0

4.7 4.6 4.5 4.4 4.3 4.2 4.1 4.0

5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0

1B2 1B3 Q08

1W32

QW32

1 2 3 4 5 6 7 8 9 10 11 12

1 2 3 4 5 6 7 8 9 10 11 12

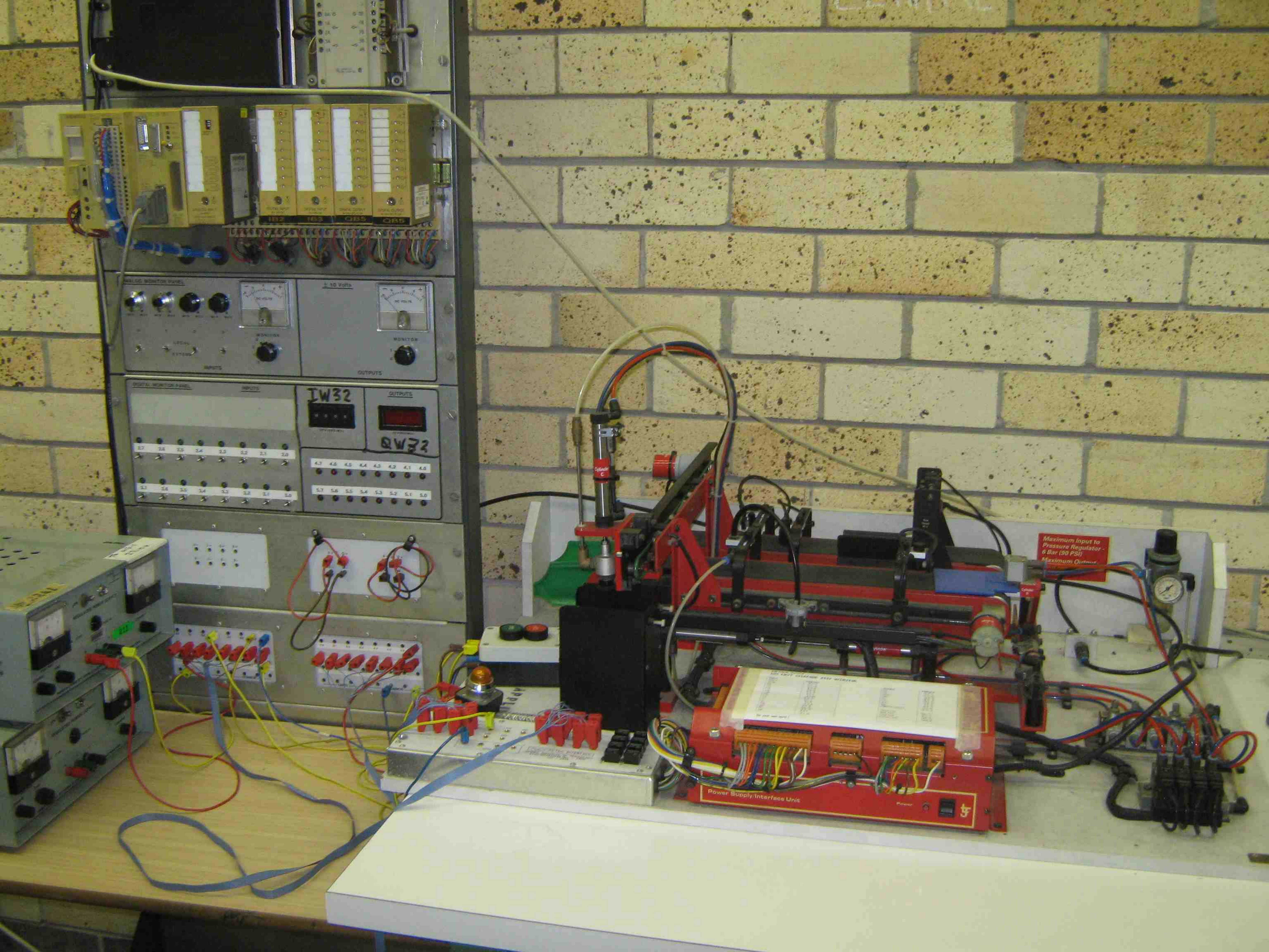
Maximum Input Pressure Regulator  
6 Bar (87 PSI)  
(30 PSI)

Cylinder C

Cylinder B

Power Supply Interface Unit

Power Supply Interface Unit



Terminal block with four channels labeled 1B2, 1B3, 0B5, and 0B6. Each channel has a terminal strip with multiple pins and a corresponding label.

ANALOG MONITOR PANEL with two gauges. The left gauge is labeled 'DC VOLT' and the right gauge is labeled 'DC PRESS'. Both gauges have a scale from 0 to 10. The panel includes several control knobs and switches.

DIGITAL MONITOR PANEL with two digital displays. The left display is labeled 'IW32' and the right display is labeled 'QW32'. Below the displays are two rows of terminal strips with colored wires connected to them.

Stacked electronic modules on the left side of the setup, including a power supply and a control unit with various knobs and switches.

Terminal blocks with multiple colored wires (red, yellow, blue, green) connected to them. The wires are organized into several rows of terminals.

White control panel with a red emergency stop button and several red terminal blocks. The panel is connected to the hydraulic cylinder assembly.

Red Power Supply Interface Unit with a white label on top and several terminal blocks on the front. The unit is connected to the hydraulic cylinder assembly.

Maximum Input to Pressure Regulator - 6 Bar (90 PSI) Maximum Overload

**ANALOG MONITOR PANEL**

± 10 Volts

DC VOLTS

MONITOR

LOCAL EXTEND

INPUTS

MONITOR

**DIGITAL MONITOR PANEL**

INPUTS

OUTPUTS

HEXIDECIMAL

HEXIDECIMAL

2.7 2.6 2.5 2.4 2.3 2.2 2.1 2.0

3.7 3.6 3.5 3.4 3.3 3.2 3.1 3.0

4.7 4.6 4.5 4.4 4.3 4.2 4.1 4.0

5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0

2.0 0.0

0.0 0.0

2.0 0.0

0.0 0.0

2.0 0.0

0.0 0.0

AMPLIFIED REGULATED POWER SUPPLY

REGULATED POWER SUPPLY

REGULATED POWER SUPPLY

76 MSY 27 1/2 VDC

2.1

2.1

2.1

PLC - PETRA INTERFACE

STANLEY INSTITUTE OF TECHNOLOGY

ELECTRICAL DEPARTMENT

1998

1998

1998

1998

Cylinder C

PLC - PETRA INTERFACE

STANLEY INSTITUTE OF TECHNOLOGY

ELECTRICAL DEPARTMENT

1998

1998

1998

1998

76 MS-1  
27/12/06

REGULATED POWER SUPPLY

MANUFACTURED BY PERINI & SONS

REGULATED POWER SUPPLY

MANUFACTURED BY PERINI & SONS

21.1

Terminal block with 8 terminals labeled 2.0 to 2.7. Terminals 2.0-2.6 have red connectors, and terminal 2.7 has a blue connector. A yellow ribbon cable is connected to terminal 2.0.

Terminal block with 8 terminals labeled 4.0 to 4.7. Terminals 4.0-4.6 have red connectors, and terminal 4.7 has a yellow connector. A blue ribbon cable is connected to terminal 4.0.

Terminal block with 4 terminals labeled 5+ and 0+. Two red connectors are attached to the 5+ terminals.

Control panel with two buttons: a green button labeled "START" and a red button labeled "STOP".

Emergency stop button with a yellow lens and a metal housing.

Terminal block with 10 terminals labeled SDR, H5, H4, H3, H2, H1, and GND. A yellow ribbon cable is connected to the SDR terminal, and a blue ribbon cable is connected to the H5 terminal.

PLC - PETRA 1  
SYDNEY INSTITUTE OF TECHNOLOGY  
ELECTROTECHNOLOGY  
VII - 19



HEXIDECIMAL **QW32** HEXIDECIMAL

2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0
4.7	4.6	4.5	4.4	4.3	4.2	4.1	4.0
5.7	5.6	5.5	5.4	5.3	5.2	5.1	5.0

S-0 S-1

0.2	1.4	2.2	3.2
0	1	2	3

0.1	0.2	0.3	0.4	0.5	0.6
-----	-----	-----	-----	-----	-----

TS MS-1 27/04/04

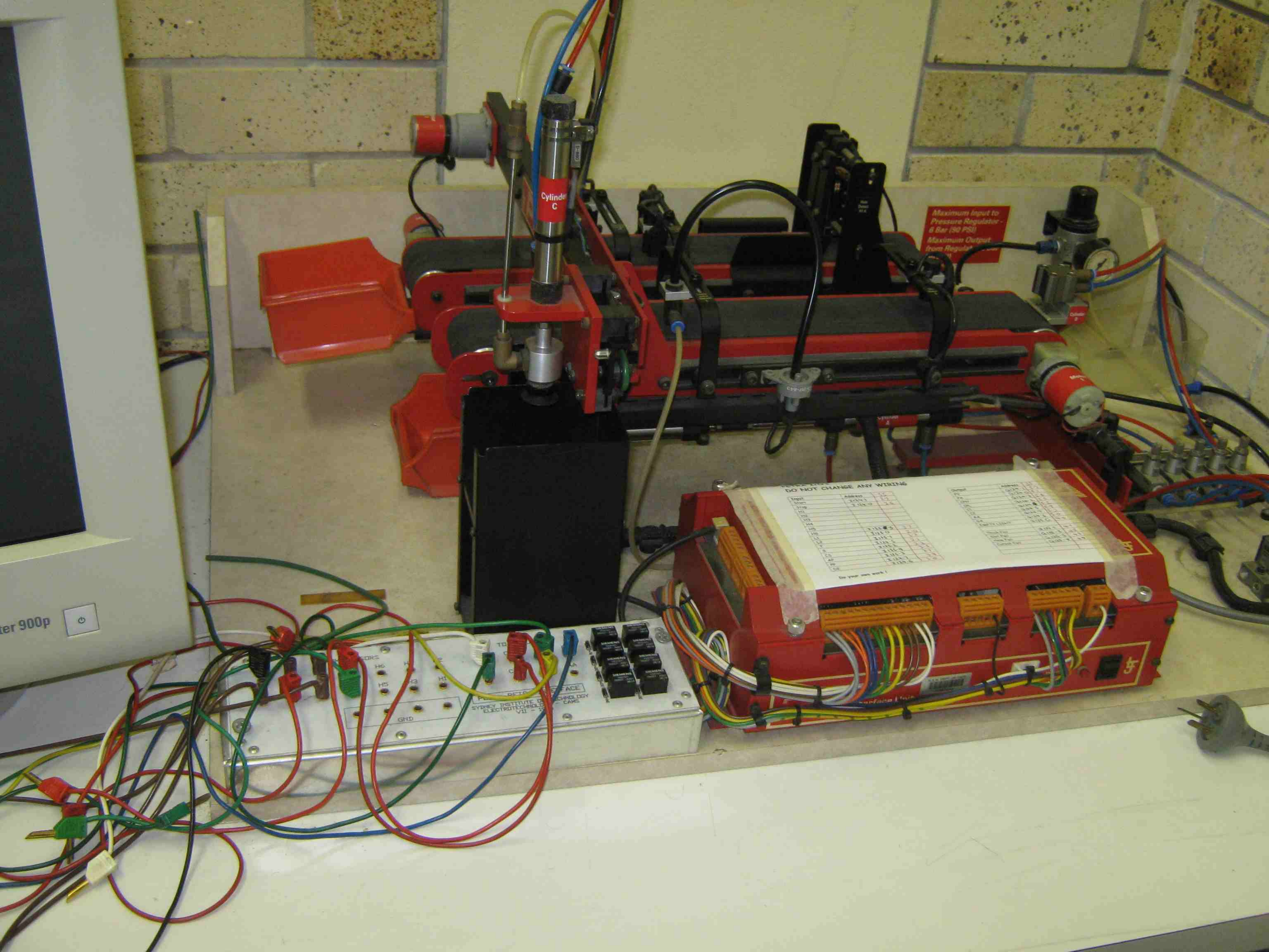
PLC - PETRA INTERFACE

SVSRY INSTITUTE OF TECHNOLOGY  
ELECTROTECHNOLOGY - CAMP  
VII - 1996

Cyfiner C

PLC - PETRA INTERFACE

SVSRY INSTITUTE OF TECHNOLOGY  
ELECTROTECHNOLOGY - CAMP  
VII - 1996



Cylinder C

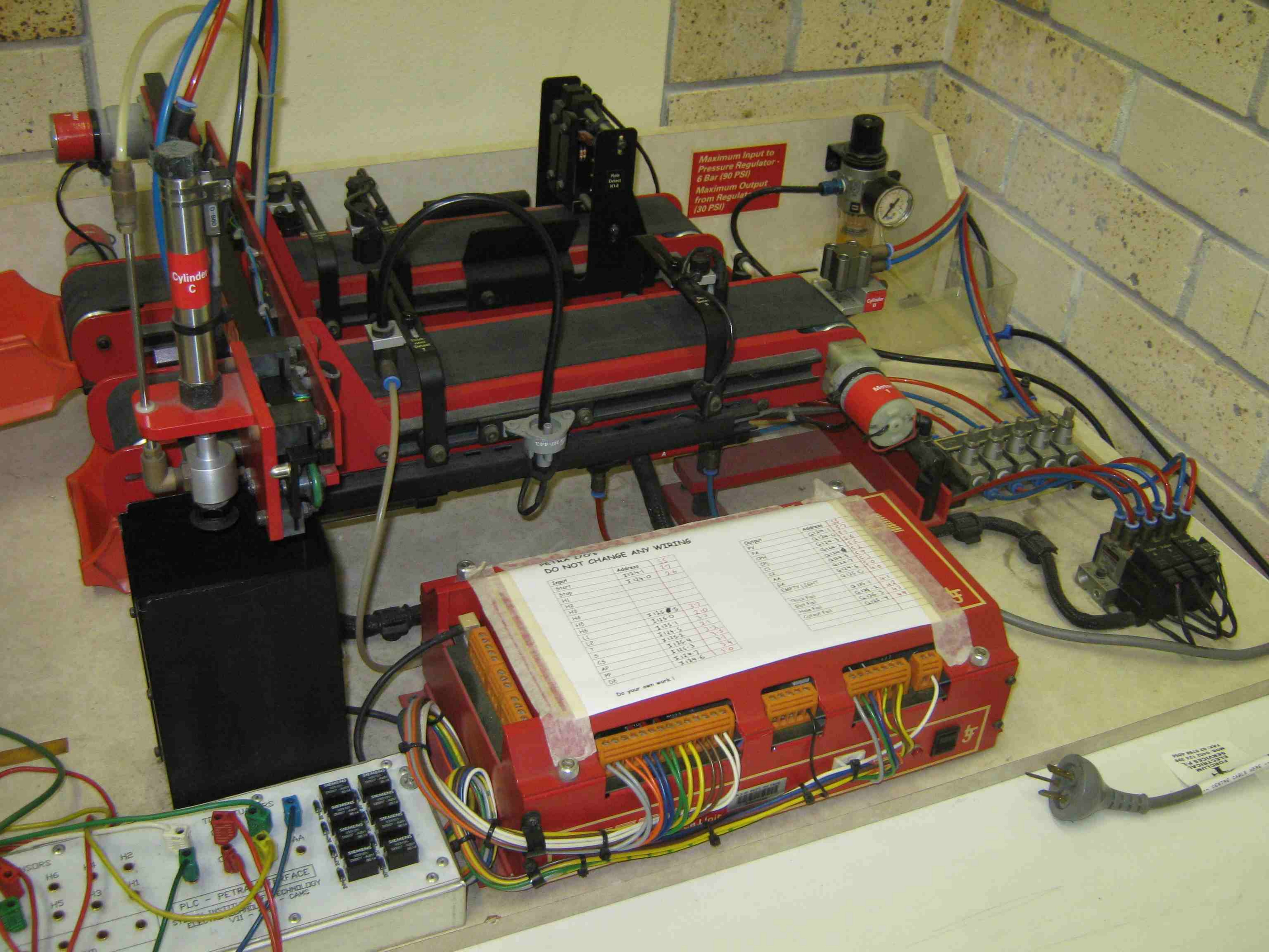
Maximum Input to Pressure Regulator - 8 Bar (80 PSI)  
Maximum Output from Regulator

DO NOT CHANGE ANY WIRING

Input	Address	IC
STOP	20H	1
START	21H	2
STOP	22H	3
START	23H	4
STOP	24H	5
START	25H	6
STOP	26H	7
START	27H	8
STOP	28H	9
START	29H	10
STOP	2AH	11
START	2BH	12
STOP	2CH	13
START	2DH	14
STOP	2EH	15
START	2FH	16
STOP	30H	17
START	31H	18
STOP	32H	19
START	33H	20
STOP	34H	21
START	35H	22
STOP	36H	23
START	37H	24
STOP	38H	25
START	39H	26
STOP	3AH	27
START	3BH	28
STOP	3CH	29
START	3DH	30
STOP	3EH	31
START	3FH	32
STOP	40H	33
START	41H	34
STOP	42H	35
START	43H	36
STOP	44H	37
START	45H	38
STOP	46H	39
START	47H	40
STOP	48H	41
START	49H	42
STOP	4AH	43
START	4BH	44
STOP	4CH	45
START	4DH	46
STOP	4EH	47
START	4FH	48
STOP	50H	49
START	51H	50
STOP	52H	51
START	53H	52
STOP	54H	53
START	55H	54
STOP	56H	55
START	57H	56
STOP	58H	57
START	59H	58
STOP	5AH	59
START	5BH	60
STOP	5CH	61
START	5DH	62
STOP	5EH	63
START	5FH	64
STOP	60H	65
START	61H	66
STOP	62H	67
START	63H	68
STOP	64H	69
START	65H	70
STOP	66H	71
START	67H	72
STOP	68H	73
START	69H	74
STOP	6AH	75
START	6BH	76
STOP	6CH	77
START	6DH	78
STOP	6EH	79
START	6FH	80
STOP	70H	81
START	71H	82
STOP	72H	83
START	73H	84
STOP	74H	85
START	75H	86
STOP	76H	87
START	77H	88
STOP	78H	89
START	79H	90
STOP	7AH	91
START	7BH	92
STOP	7CH	93
START	7DH	94
STOP	7EH	95
START	7FH	96
STOP	80H	97
START	81H	98
STOP	82H	99
START	83H	100

ter 900p

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ELECTROTECHNOLOGY  
VII - 1988



Maximum Input to Pressure Regulator - 6 Bar (90 PSI)  
 Maximum Output from Regulator (30 PSI)

Cylinder C

Cylinder D

Motor 1

PETRA 300S  
 DO NOT CHANGE ANY WIRING

Input	Address	IC
Start	I 124.1	1.7
Stop	I 124.0	2.5
H1		
H2		
H3	I 125.0	1.7
H4	I 126.0	2.0
H5	I 127.0	2.3
H6	I 128.1	2.1
H7	I 129.5	2.2
H8	I 130.2	2.6
L1	I 131.4	2.4
L2	I 132.4	2.7
T	I 133.3	2.0
S	I 134.7	2.4
CS	I 134.6	2.0
AP		
DE		

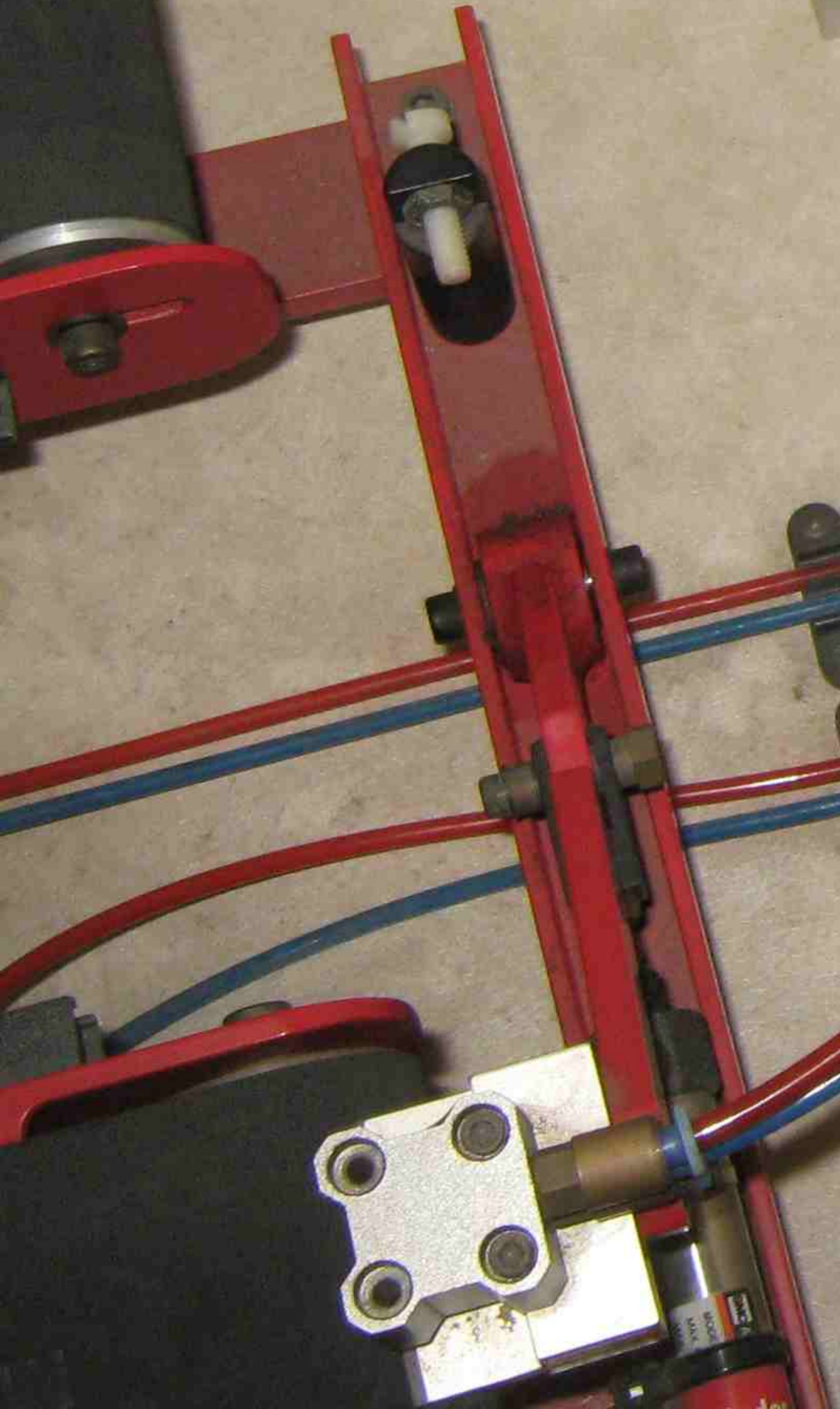
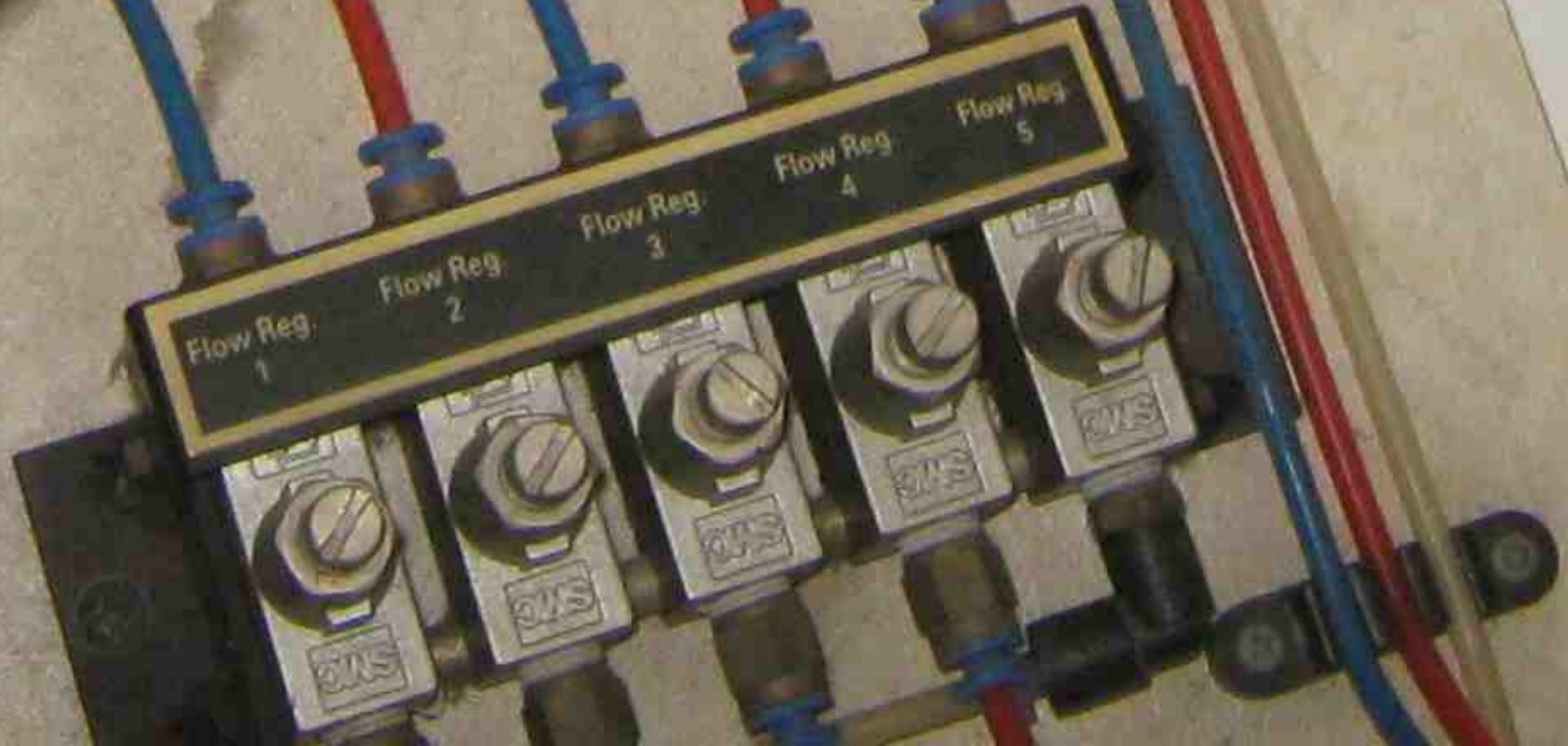
Output	Address	IC
Q1	Q 124.1	1.7
Q2	Q 124.0	2.5
Q3	Q 125.0	1.7
Q4	Q 126.0	2.0
Q5	Q 127.0	2.3
Q6	Q 128.1	2.1
Q7	Q 129.5	2.2
Q8	Q 130.2	2.6
Q9	Q 131.4	2.4
Q10	Q 132.4	2.7
Q11	Q 133.3	2.0
Q12	Q 134.7	2.4
EMPTY LIGHT	Q 135.4	4.2
Thick Fail	Q 136.1	2.3
Alert Fail	Q 136.3	2.3
Wide Fail	Q 136.5	2.3
Colour Fail	Q 136.7	2.4

Do your own work!

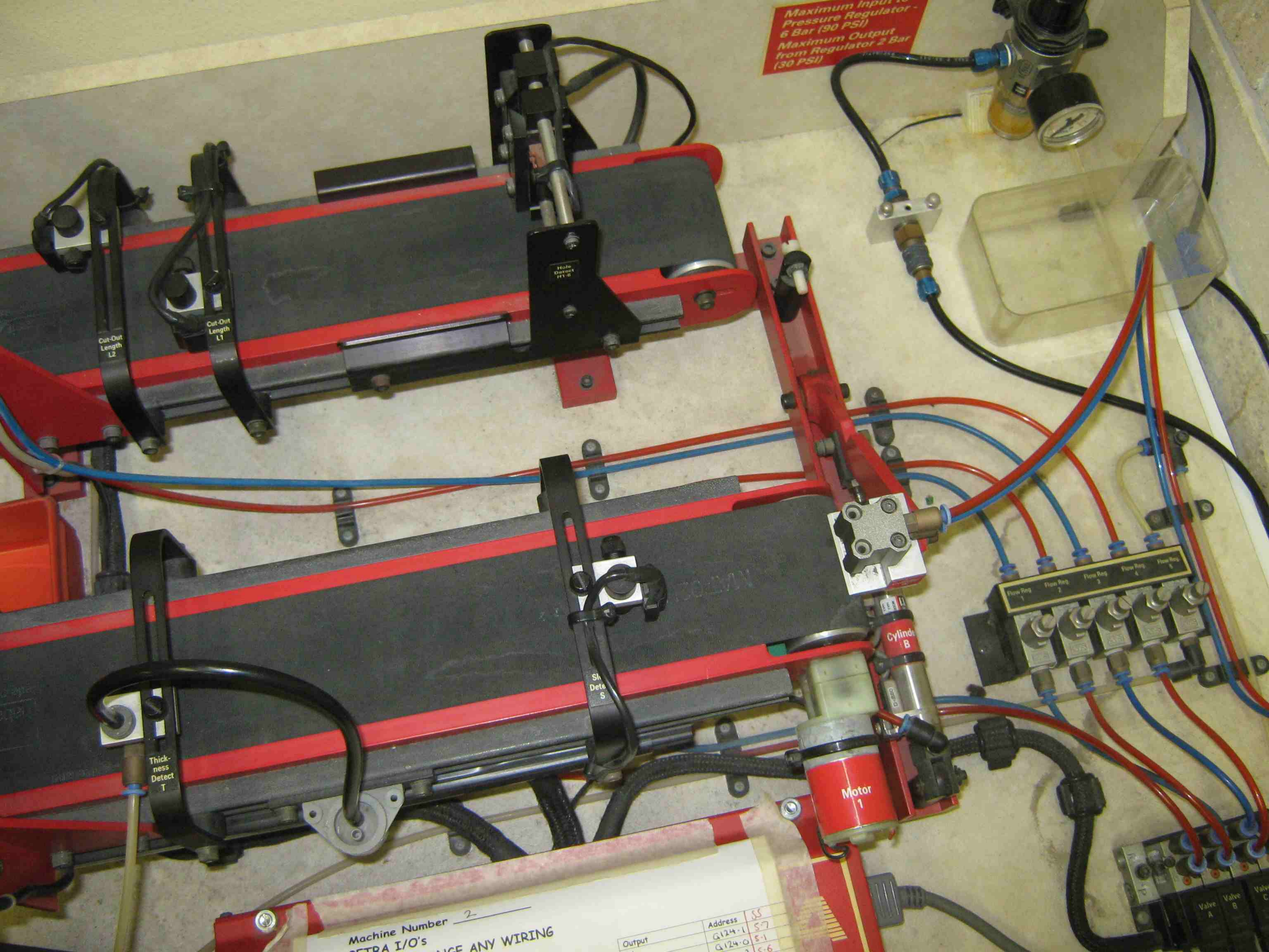
PLC - PETRA 300S  
 TECHNOLOGY - DAMS

NOV 2014 03:24  
 MAC 801 2014 - 800M  
 L4 87014880  
 TELECOM  
 WILLOW

Maximum Input to  
Pressure Regulator -  
6 Bar (90 PSI)  
Maximum Output  
from Regulator 2 Bar  
(30 PSI)



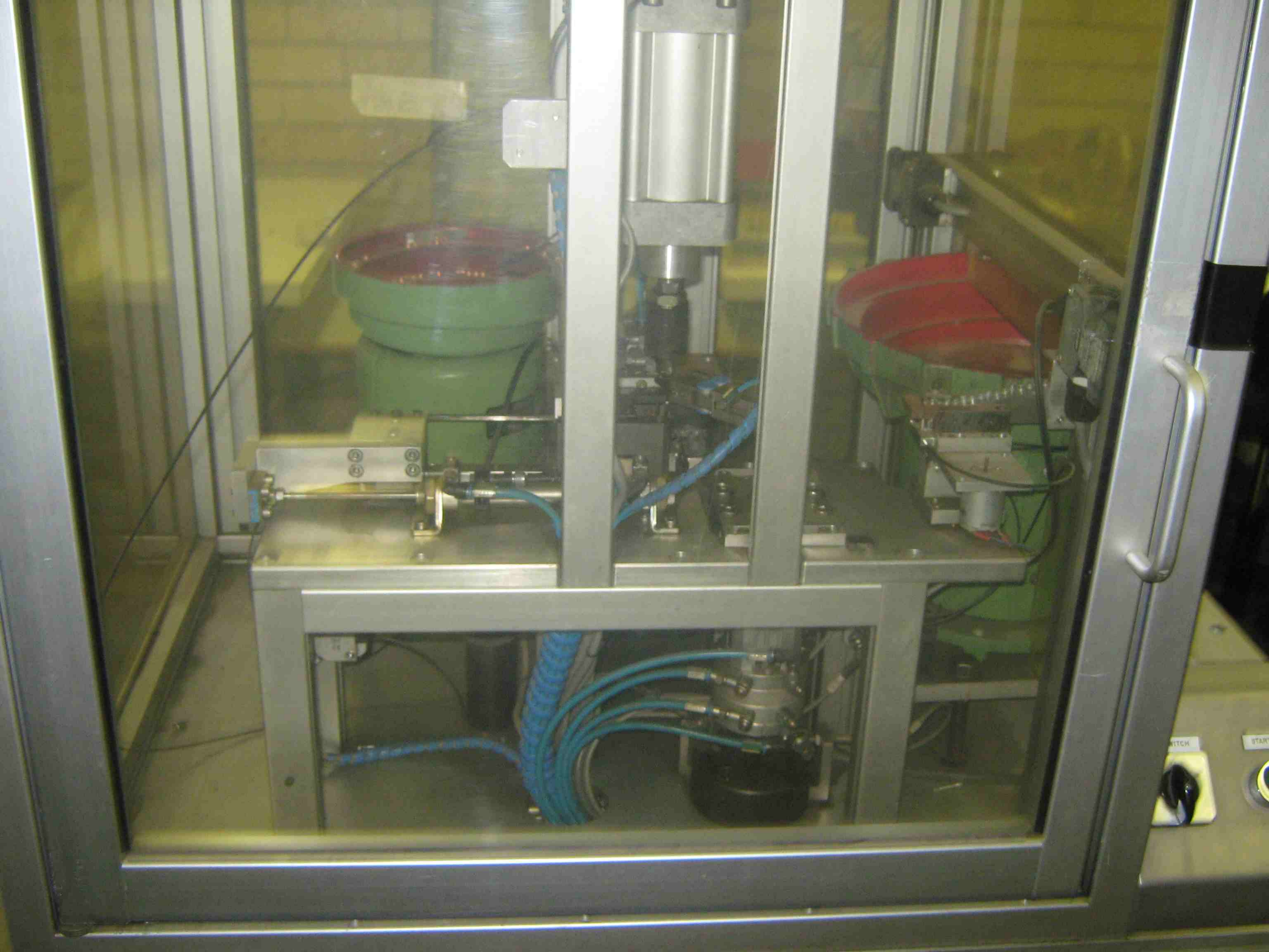
Maximum Input to Pressure Regulator - 6 Bar (90 PSI)  
Maximum Output from Regulator 2 Bar (30 PSI)



Machine Number 2  
SETUP I/O's DO NOT CHANGE ANY WIRING

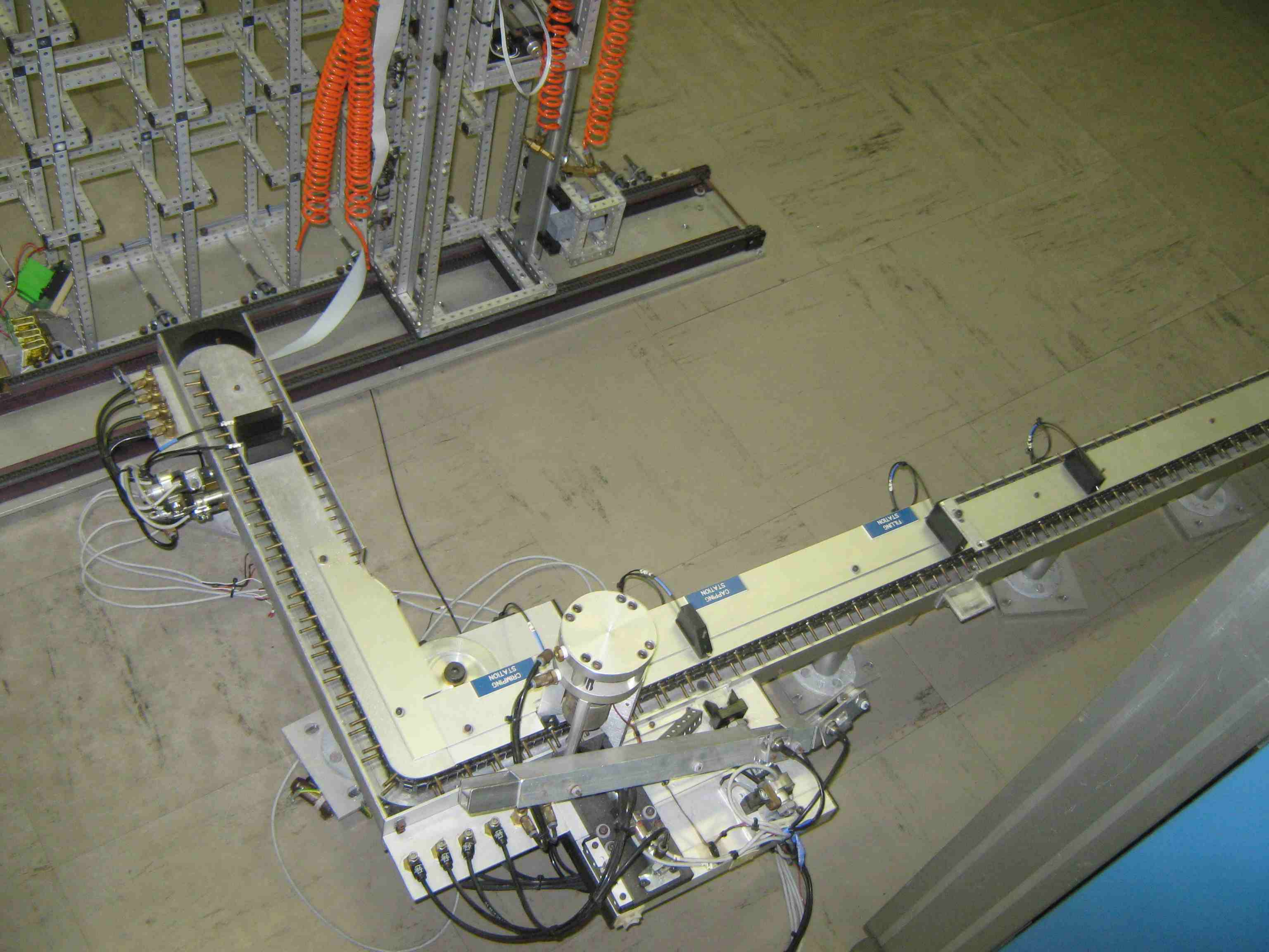
Output	Address	SS
	G124-1	S-7
	G124-0	S-1
		C-6

Valve A  
Valve B  
Valve C

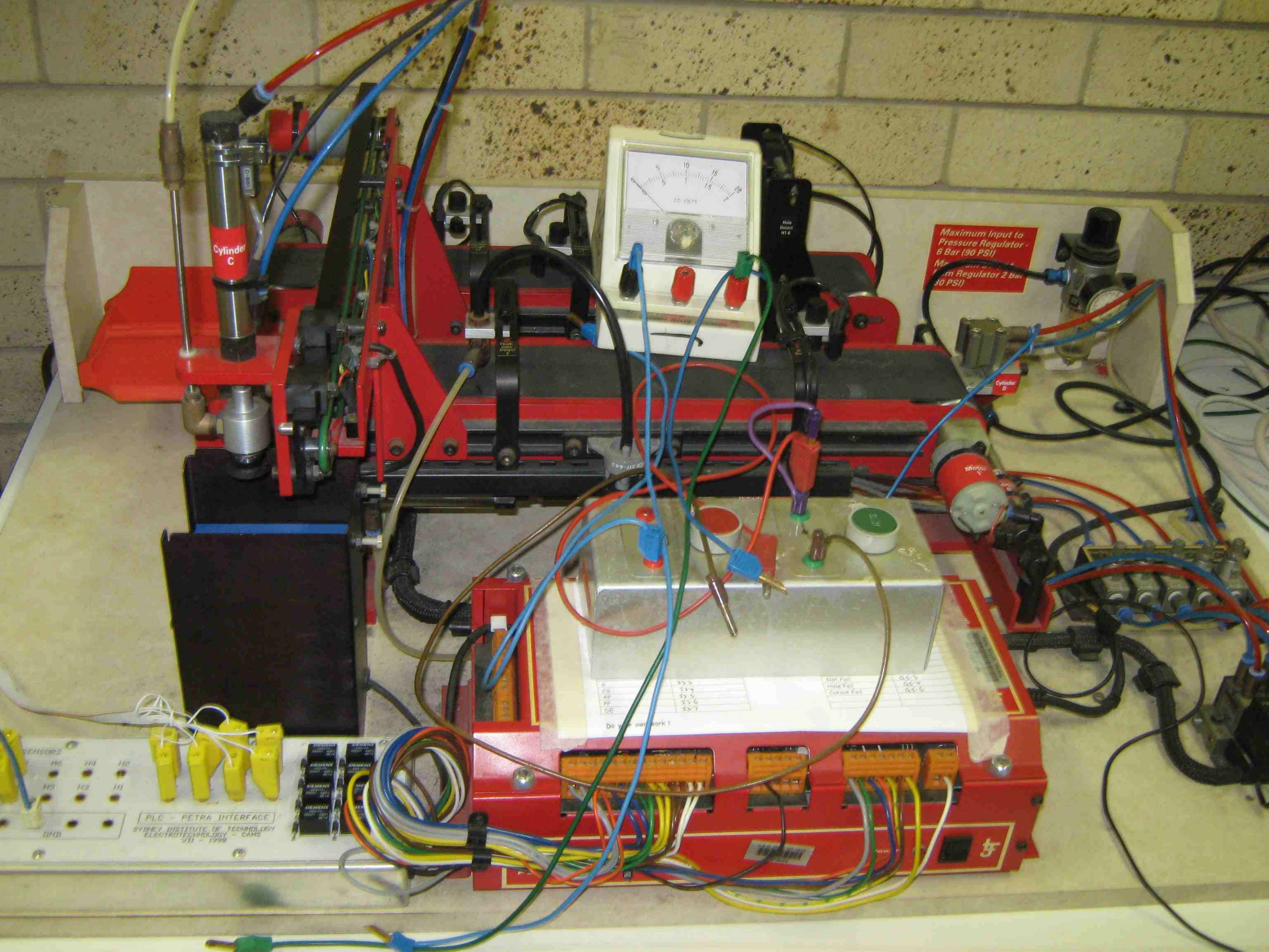




RR FISHER







Cylinder C

Maximum Input to Pressure Regulator - 6 Bar (90 PSI)  
Maximum Input to Pressure Regulator 2 Bar (30 PSI)

Cylinder D



S	35-3	Slot Fail	05-3
CS	35-4	Hole Fail	06-4
AP	35-5	Cutout Fail	05-5
PP	35-6		
DE	35-7		

Do your own work!

PLC - PETRA INTERFACE  
SYDNEY INSTITUTE OF TECHNOLOGY  
ELECTROTECHNOLOGY - CAMS  
VII - 1998

IB0 ANALOG INPUT  
IB2 ANALOG OUTPUT  
QB4 DIGITAL OUTPUT

ANALOG INPUT  
ANALOG OUTPUT  
DIGITAL INPUT  
DIGITAL OUTPUT

ANALOG MONITOR PANEL

± 10 Volts

DC VOLTS

DC VOLTS

MIN MAX MIN MAX MIN MAX MIN MAX

0 1 2 3

LOCAL EXTEND

MONITOR

MONITOR

INPUTS OUTPUTS

DIGITAL MONITOR PANEL

INPUTS

OUTPUTS

JW32

1 0 0 0

HEXIDECIMAL

HEXIDECIMAL

QW32

2.7 2.6 2.5 2.4 2.3 2.2 2.1 2.0

3.7 3.6 3.5 3.4 3.3 3.2 3.1 3.0

4.7 4.6 4.5 4.4 4.3 4.2 4.1 4.0

5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0

0+ 1+ 2+ 3+  
0- 1- 2- 3-

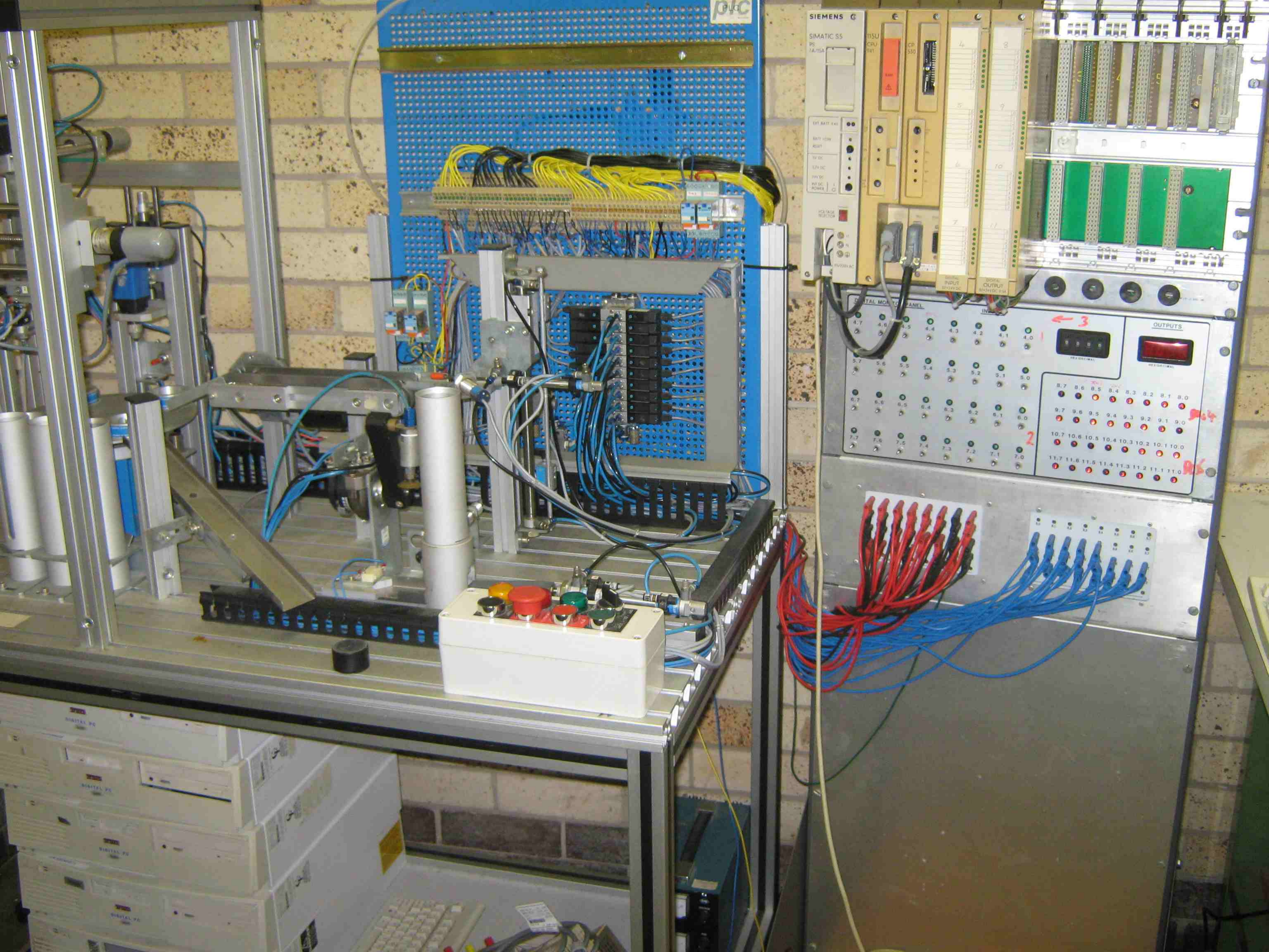
± 10 V

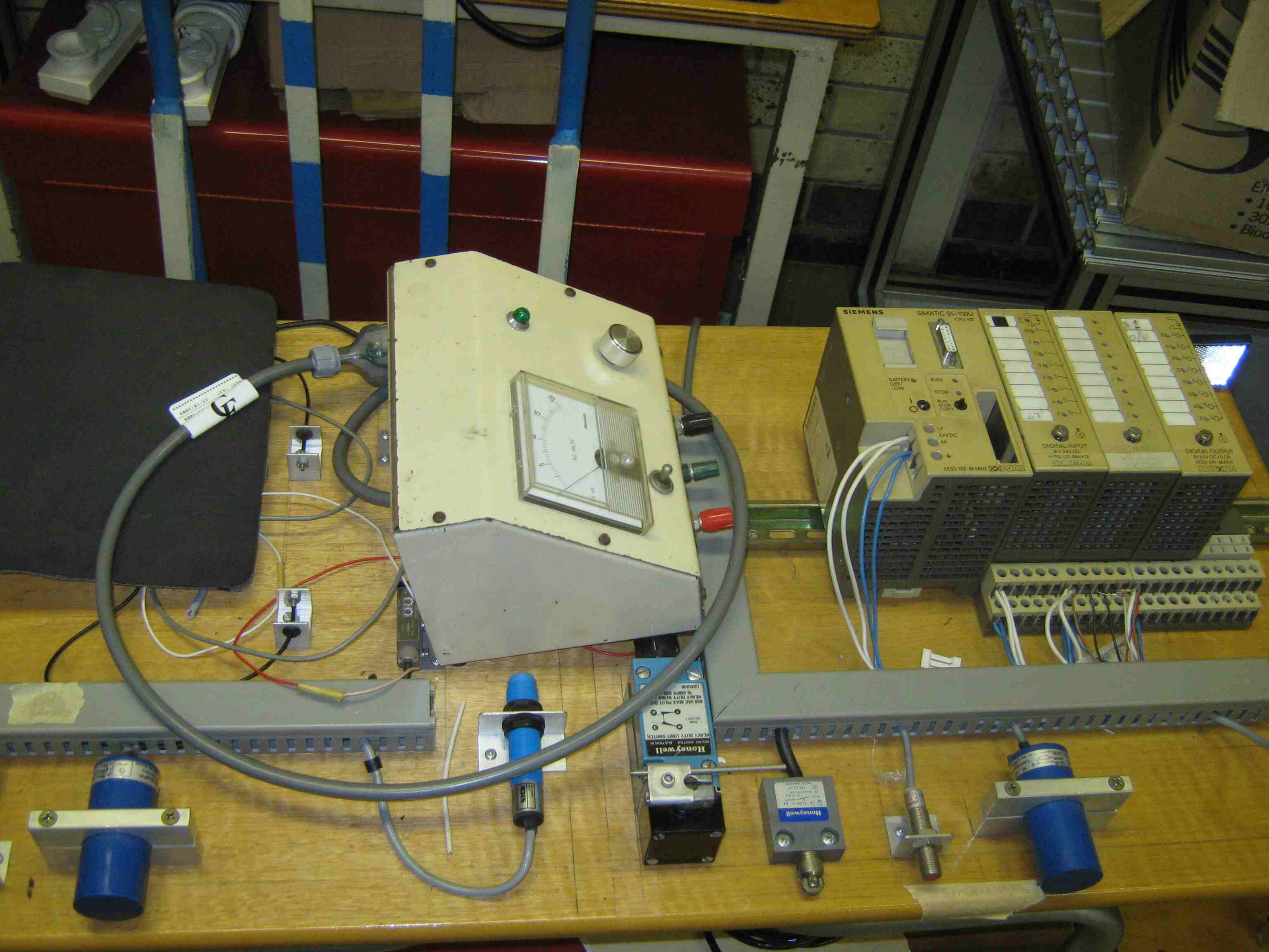
± 10 V

20 21 22 23 24 25 26 27

ULTIMO  
TECHNOLOGY  
ELECTRICAL  
S.I.T. UL







**SIEMENS SIMATIC 55-100U CPU 312**

BATTERY OFF LOW RUN STOP

STOP RUN STOP CONF

24VDC M

DIGITAL INPUT 8x24VDC 16x12-16mA

DIGITAL OUTPUT 8x24VDC/0.5A 16x12-16mA

6ES5 101-3BA02-0AA0

Terminal block with 24 pins, 12 on each side.

Custom control panel with a meter and buttons.

Meter scale: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100.

Buttons: RUN, STOP, STOP CONF.

Green indicator light.

Knob.

Blue sensors and actuators on metal brackets.

Honeywell sensors: 600VDC MAX PILOT (10 AMP), 60VDC MAX PILOT (10 AMP), 60VDC MAX PILOT (10 AMP).

Honeywell actuators: 60VDC MAX PILOT (10 AMP), 60VDC MAX PILOT (10 AMP).

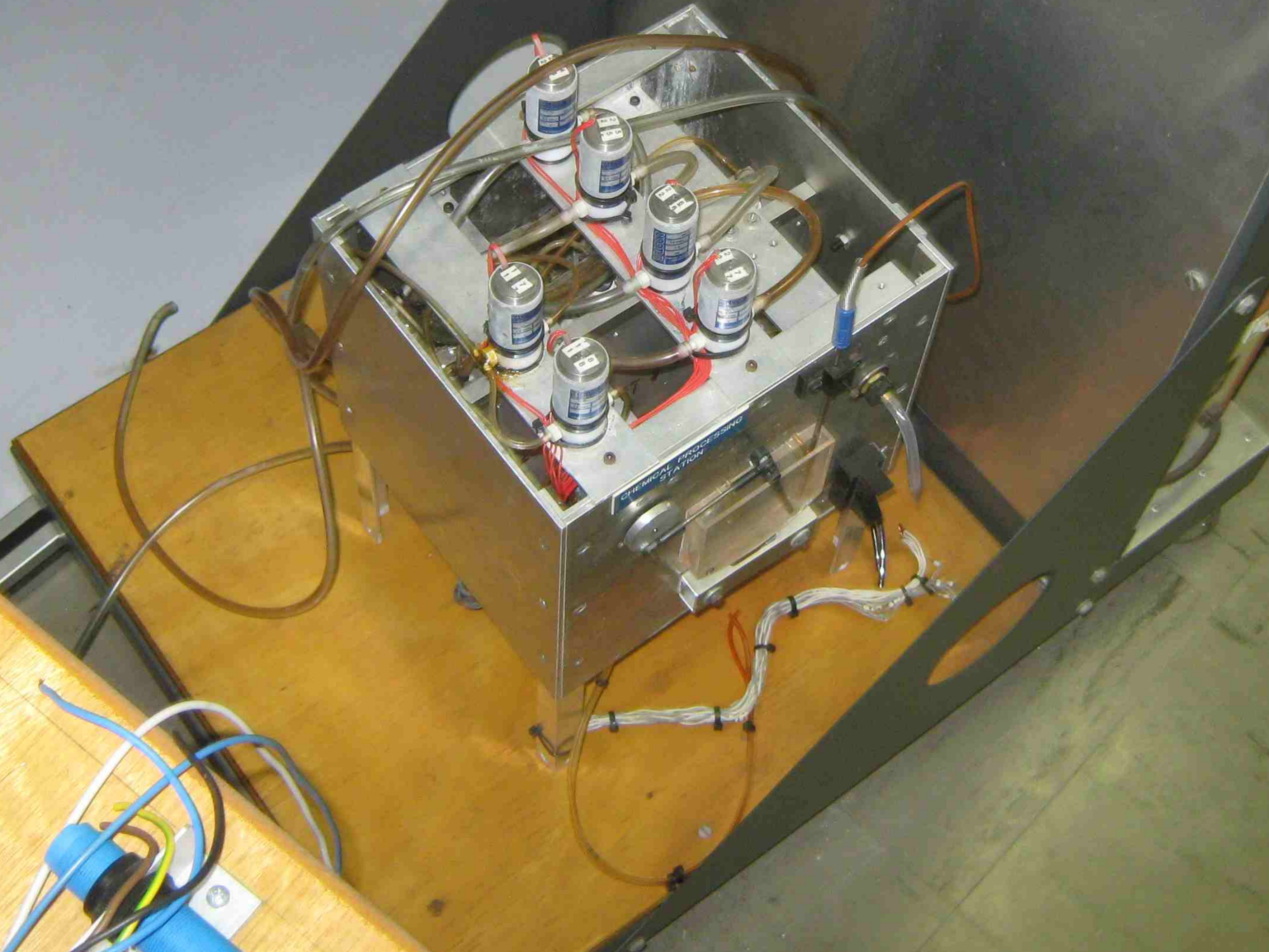
Terminal block with 24 pins, 12 on each side.

EN  
• 10  
• 30  
• Bio

ndly packaging  
ardboard  
bble wrap  
lo-Pack



COMMON 11.7



Steps for Starting Up the S5-90U with IM 90 and External I/Os

Table 4-2. Starting Up the S5-90U with External I/Os

Prerequisites Procedures	Comments	Displays
<p><b>System and PLC are off-load.</b></p> <ul style="list-style-type: none"> <li>Check the mechanical configuration and the wiring. (S5-90U + IM 90 + bus units)</li> </ul>	<p>Adhere to the installation guidelines contained in VDE 0100 and VDE 0160. For non-floating modules, the "M" terminal of the load power supply and the "ground" terminal of the PLC must be connected to the central grounding point (standard mounting rail).</p>	
<p><b>Put the operating mode switch in the "STOP" position.</b></p> <ul style="list-style-type: none"> <li>Connect the power supply for the programmable controller and the IM 90.</li> </ul>		<ul style="list-style-type: none"> <li>Both LEDs of the IM 90 light up (if there is an overload, i.e., too many I/O modules are connected, the LEDs do not light up).</li> <li>The red fault LEDs of the I/O modules light up.</li> </ul>
<ul style="list-style-type: none"> <li>Connect the programmer to the programmable controller.</li> <li>Perform an overall reset on the PLC (see section 4.1.3)</li> <li>Put the operating mode switch in the "RUN" position.</li> <li>Activate all sensors in sequence.</li> </ul>	<p>You can observe the input signals in the PII if you use the "STATUS VAR" programmer function.</p>	<ul style="list-style-type: none"> <li>The green LED on the PLC lights up.</li> <li>The green LEDs on the input modules light up.</li> </ul>
<ul style="list-style-type: none"> <li>Turn on the power supply for the output modules and the actuators.</li> <li>Force outputs using the "FORCE VAR" programmer function.</li> </ul>	<p>The circuit states of the respective actuators change.</p>	<ul style="list-style-type: none"> <li>The red fault LED on the output modules goes out.</li> <li>The green LEDs on the output modules light up.</li> </ul>
<p><b>When the program is on a memory submodule:</b></p> <ul style="list-style-type: none"> <li>No battery is connected.</li> <li>Remove the PLC from the power supply.</li> <li>Plug in the memory submodule.</li> <li>Connect the programmable controller to the power supply.</li> <li>Test the program and correct it if necessary.</li> <li>Put the operating mode switch in the "STOP" position.</li> <li>Turn on the load circuit.</li> <li>Put the operating mode switch in the "RUN" position.</li> </ul>	<p>The program is being loaded.</p>	<ul style="list-style-type: none"> <li>The red or green LED on the PLC lights up.</li> </ul>
<ul style="list-style-type: none"> <li>Save the program.</li> </ul>	<p>The system is operative.</p>	<ul style="list-style-type: none"> <li>The green LED on the programmable controller lights up.</li> </ul>

Steps for Starting Up the S5-95U with and without External I/Os

Table 4-3. Starting Up the S5-95U with and without External I/Os

Prerequisites Procedures	Comments	Displays
<p><b>System and PLC are off-load.</b></p> <ul style="list-style-type: none"> <li>Check the mechanical configuration and the wiring. (See sections 3.2 and 3.3.)</li> </ul>	<p>Adhere to the installation guidelines contained in VDE 0100 and VDE 0160. The "M" terminal of the load power supply and the "ground" terminal of the PLC must be connected to the central grounding point (standard mounting rail). For non-floating modules, connect the "M" in the module to the "M" in the PLC.</p>	
<p><b>The ON/OFF switch is set to "0", put the operating mode switch in the "STOP" position.</b></p> <ul style="list-style-type: none"> <li>Turn on the power supply and the load power supply for the programmable controller.</li> <li>Set the ON/OFF switch to "1".</li> <li>Connect the programmer to the programmable controller.</li> </ul>		<ul style="list-style-type: none"> <li>For external I/Os: the red fault LEDs on the I/O modules light up.</li> <li>The red LED on the PLC lights up; the yellow LED lights up if the battery is dead or missing.</li> </ul>
<ul style="list-style-type: none"> <li>Perform an overall reset on the PLC (see section 4.1.3).</li> <li>Put the operating mode switch in the "RUN" position.</li> <li>Turn on the power supply for the sensors.</li> </ul>	<p>You can observe the input signals in the PII if you use the "STATUS VAR" programmer function.</p>	<ul style="list-style-type: none"> <li>The green LED on the PLC lights up.</li> <li>For external I/Os: the red fault LED on the input modules goes off.</li> <li>The green LEDs on the input modules light up.</li> </ul>
<ul style="list-style-type: none"> <li>Activate all sensors in sequence.</li> <li>Turn on the power supply for the output modules and the actuators.</li> <li>Force outputs using the "FORCE VAR" programmer function.</li> </ul>	<p>The circuit states of the respective actuators change.</p>	<ul style="list-style-type: none"> <li>For external I/Os: the red fault LED on the output modules goes out.</li> <li>The green LEDs on the output modules light up.</li> </ul>
<p><b>When the program is on a memory submodule:</b></p> <ul style="list-style-type: none"> <li>Set the ON/OFF switch to "0".</li> <li>Plug in the memory submodule.</li> <li>Set the ON/OFF switch to "1" and press the COPY key at the same time (manual load).</li> <li>Test the program and correct it if necessary.</li> <li>Put the operating mode switch in the "STOP" position.</li> <li>Turn on the load circuit.</li> <li>Put the operating mode switch in the "RUN" position.</li> </ul>	<p>The program is being loaded.</p>	<ul style="list-style-type: none"> <li>The red LED on the programmable controller lights up.</li> </ul>
<ul style="list-style-type: none"> <li>Save the program.</li> </ul>	<p>The system is operative.</p>	<ul style="list-style-type: none"> <li>The green LED on the programmable controller lights up.</li> </ul>