elan digital systems ltd

programming development & production aids

E16 OPERATING INSTRUCTIONS WITH REMOTE CONTROL

elan

C,10,83

E16 OPERATING INSTRUCTIONS

S.Schwarz EB4-D2

	Prom 1		Prom 2
E16		E9B	gelöscht
00A1	E2	FF	
00A2	1D	35	

wse16rem.v1

E16 - 16 GANGED PROGRAMMING

The E16 is the joining together of two 8 gang programmers to give the POWER of 16 ganged programming.

It is probably wise to familiarise yourself with the operation of the E9 stand alone system to understand its many functions and controls.

The control unit will consider its own 8 copy sockets as the first 8 copies in the system and expand to control the slave if 9 or more sockets are selected.

Once the slave has started to action a command from the control unit it will complete the operation independantly and then wait for further commands from the control unit. A slave cannot be interrupted by the control unit whilst carrying out a command, but it can be reset by pressing the RST button on the slave unit.

E16 Commands

Master

ENTER	-	SOUNDS SLAVE BEEPER
BLK	-	BLANK CHECKS CONTROLLER AND SLAVE COPY SOCKETS
VER	-	VERIFIES MASTER WITH CONTROLLER AND SLAVE COPY SOCKETS
PROG	-	PROGRAMS MASTER INTO CONTROLLER AND SLAVE COPY SOCKETS
RAM VER	-	VERIFIES CONTROLLER RAM WITH CONTROLLER AND SLAVE COPY SOCKETS
RAM PROG	-	PROGRAMS CONTROLLER RAM INTO CONTROLLER AND SLAVE COPY SOCKETS

Connecting Lead

A special 26 way to 26 way ribbon cable lead is used to connect the units together. Pins 2,3,25,26 must be removed from the sockets before the lead is made.

Caution

Do NOT select device types dependant on using the 26 way plug used by the E16. (e.g. Adapters E4/E5/E6/E7/).

Do NOT select parallel output.

To Set up or Change E16 unit configuration

1. If codelock is operative

   i) Press and hold both step buttons and key 'E' at power on until the display of 8's is cleared — 88888888 0000

   ii) Key in codelock code — 0b0b

   iii) Press Enter — 2732 SYS

Without codelock

   i) Press and hold both step buttons at power until the display of 8's is cleared — 88888888 2732 SYS

2. Press Reset and hold for 3 Beeps. The Display indicates the E16 configuration code and flashes one digit — (nnn)

   i) 1st Digit represent unit number

      0 = Controller
      1 = Slave 1
      2 = Slave 2
      3 = Slave 3

   ii) 2nd Digit represents number of slaves in system

      0 = No slaves
      1 = 1 slave etc.

   iii) 3rd Digit spare

3. Press STEP > and hold to scroll forward through the selections. — (onn)
   or
   Press STEP < and hold to scroll backwards through the selections. — (mna)

4. If the configuration is correct Press Enter — 2732 SYS
   or
   If this digit is correct but the next digit needs changing Press RST. The system beeps and the display flashes the next digit. — (nnn)

5. Repeat steps 3 and 4 until the configuration is correct

6. Press Enter — 2732

7. Repeat steps 1 to 6 for each unit in the configuration.

8. Plug in Controller unit ribbon connector

9. Plug in Slave unit ribbon connector

10. Select device type, access time and total number of copy sockets in system on the Master unit.

11. The complete system should now run as an E16.

To Identify E16 Master/Slave unit number

1. If codelock is operative

   i) Press and hold Key E at power on until the display of 8's is cleared — 88888888 0000

   ii) Key in codelock code — 0b0b

   iii) Press Enter — 2732

2. Press reset and hold for 3 Beeps. The Display indicates the E16A configuration code. — nnn

   i) lst Digit represents unit number

      0 = Controller
      1 = Slave 1
      2 = Slave 2
      3 = Slave 3

   ii) 2nd Digit represents number of slaves in system

      0 = No slaves
      1 = l slave etc.

   iii) 3rd Digit spare

3. Press reset — 2732

TO SELECT REMOTE CONTROL

1. Switch system on

2. Select Device type (this can be reselected under Remote Control).

3. Select Serial Configuration

4. Press and hold ENTER button. The display will show the device type followed by the letter C in the last digit.

5. The system is now ready to respond to the following commands.

6. Press RESET to terminate Remote Control.

REMOTE CONTROL COMMANDS

Computer Command	Name	Description
Control Command		
RETURN		Execute last command
Z	Terminate	Programmer operates in stand alone mode.
Programmer Status Enquiry		
D	Odd Parity	Programmer confirms Parity compatible.
E	Even Parity	" " "
N	No Parity	" " "
J	1 Stop Bit	Programmer confirms Stop Bit compatible.
K	2 Stop Bit	" " "
X	Error Code	Programmer returns last Code
x	Error Code Enquiry	Programmer returns error codelist.
H	Handshake	Programmer returns
R	EPROM status	Programmer indicates status of EPROM selected. AAAA/B/C where AAAA = device word limit, B = byte size and C = VOL/VOH status (1 = VOL; 0 = VOH)
g	Programmer Software release	Programmer Generation number.

Device Commands

B	Blank Check	Check EPROM is erased
b	Erase EEPROM	
T	Illegal Bit check	Check data can be programmed into device.
L	Load Master	Reads Copy Socket 1 into RAM.
V	Verify	Verify RAM with Copy Socket.
P	Program	Program Copy socket from RAM.

RAM Commands

I	Input	Input data from computer to RAM. A 10 ms delay is required between the I command and data records.
O	Output	Output data from RAM to computer (up to the word limit of selected EPROM)
S	Checksum	Programmer calculates the two byte checksum of RAM data up to the word limit of the selected EPROM.
C	Compare	Compare imput data from computer with RAM.
nn Y	Fill RAM	Fill ram within RAM start and end addresses with data nn
c	Complement	Convert all RAM to its ONE's complement.
m	Merge RAM	
s	Split RAM	

Configuration Commands

nn A	*	Select Format	Select I/O record format.
nn f	*	Select Format	Select I/O record format.
nnnn W	+	Virtual Address Disp.	Sets RAM address to required system base address.
nnnn :	+	Device Start Address	
nnnn <	+	RAM Start Address	
nnnn ;	+	RAM End Address	Specifies highest RAM address nnnn-1. Defaults to device size.
nnnn(hash symbol)	+	O/P DATA START ADDRESS	
n a	*	ACCESS TIME	
n n		NUMBER OF SOCKETS	where n = no of sockets
r		RAM SIZE ENQUIRY	
nn t	*	SELECT DEVICE TYPE	
d		DEVICE TYPE ENQUIRY	
nnnn @	*	SELECT DEVICE TYPE	
(		DEVICE TYPE ENQUIRY	

NOTE: The spaces shown in the multiple commands such as nn t are for clarity and must be omitted in practice.

* See following tables for values of n.

\+ These addresses are reset to device defaults on selection of a device.

Programmer Responses			Description
RETURN	LINE FEED	(i)	To Indicate command received
> RETURN	LINE FEED	(ii)	On successful completion of command
F RETURN	LINE FEED	(ii)	On Unsuccessful completion of command
? RETURN	LINE FEED	(ii)	Command not understood

(i) A software option switch can be set to inhibit this response.

(ii) A software switch can be set to inhibit the Return/Line Feed after the response >, F and ?.

(i)&(ii) A software option switch can be set to inhibit all line feeds.

REMOTE DEVICE CODES

Type	t code	@ code
2508	00	1922
2716	01	1923
2532	02	3125
2732	03	1924
2732A	04	2724
2564	05	3130
2764	06	3533
2764 1	07	7933
2764 2	08	
2764 3	09	4533
2764A	0A	9333
2764H	0B	
68764	0C	2529
27128	0D	3551
27128 1	0E	7951
27128 2	0F	
27128 3	10	4551
27128A	11	9351
27256 1	12	9352
27256 2	13	
27256 3	14	
2815	15	8523
2816	16	3723

REMOTE FORMAT CODES

Format	f code	A code
1. Ascii Hex	01	50
2. Intel	02	83
3. Binary	03	-
4. Tek Hex	04	86
5. Mos Tech	05	81
6. S1S9	06	82
7. Dec Binary	07	-
8. Binary	08	10
9. Block Dump	09	-
A RCA Cosmac	0A	-
B PPX	0B	-
C TEXAS TAGS	0C	

REMOTE ERROR CODES

Code	Description
01	E Series Configuration out of range
mm20	Blank check fail
mm21	Illegal Bit fail
mm22	Program fail
mm23	Verify fail
29	Read fail
31	Data line fail
37	None EE device
38	Device fail
81	Serial stream error
82	Serial I/O Error

Where mm is a mask indicating the socket numbers which fail the test. Note: This will only be sent on a x enquiry, not a X enquiry.

e.g. mm	skt no.
80	1
40	2
20	3
10	4
08	5
04	6
02	7
01	8
FF	all
C0	1 & 2
81	1 & 8
etc.	

NOTE: i) When using the E16 the mm mask will be 4 digits representing the 16 sockets.

ii) The E16 remote can only action commands on whole devices.

elan digital systems ltd.

16-20 kelvin way, crawley, west sussex, RH10 2TS, england. telephone: crawley (0293) 510448