PROBE INFORMATION

Synchronization Specification:

SYNC MODE <0-F> h

h = Hexadecimal Digit :
A = Address Sync
D = Data Sync
F = Free-Run

Probe Stimulus:

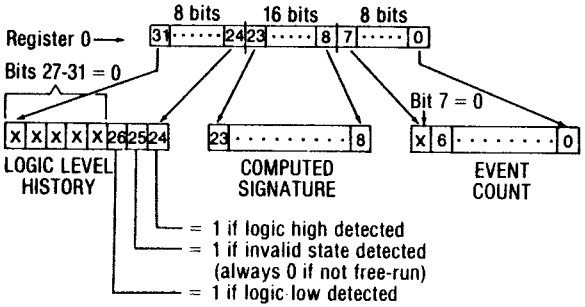
HIGH KEY	LOW KEY	TYPE OF STIMULUS GENERATED
In	Out	High pulses.
Out	In	Low pulses.
In	In	Toggle between high and low pulses.
Out	Out	No stimulus generated.

Display After Read Probe Operation:

PROBE-LVL abc COUNT ddd SIG nnnn

a = L if logic low detected
b = X if invalid state detected
(X can only appear in free-run)
c = H if logic high detected
ddd = Decimal number 000 to 127
nnnn = Hex number 0000 to FFFF

Register 0 After Read Probe Operation:



Probe Indicator Light Activity:

CONDITION	DESCRIPTION OF SIGNAL
Green on continuously, red off	Low level
Red on continuously, green off	High level
Both off	Invalid level
Both on continuously	Toggling between high and low, but invalid < 100 ns.
Green flashing, red off	Toggling between low and invalid
Red flashing, green off	Toggling between high and invalid
Both flashing	Toggling between all three levels

SETUP MESSAGES (Power-On Values Shown)

MESSAGE	DESCRIPTION
SET-TRAP BAD PWR SUPPLY? YES SET-TRAP ILLEGAL ADDRESS? YES SET-TRAP ACTIVE INTERRUPT? NO SET-TRAP ACTIVE FORCE LINE? YES SET-TRAP CTL ERROR? YES SET-TRAP ADDR ERROR? YES SET-TRAP DATA ERROR? YES	UUT system errors/ conditions that are reported if YES is selected, not reported if NO is selected.
SET-ENABLE xxxxxx? YES	xxxxxx = names of μP lines that may be enabled (may be more than one message).
SET-BUS TEST @ aaaa-CHANGE?	aaaa = address where data lines are tested.
SET-RUN UUT @ aaaa-CHANGE?	aaaa = default address
SET-TIMEOUT 200-CHANGE?	Number represents length of delay before timeout error reported. May be decimal number 0-60000.
SET-EXERCISE ERRORS? YES	Determines whether error messages and prompts for looping on errors are displayed.
SET-BEEP ON ERR TRANSITION? YES	Determines whether beep sounds when errors are detected or removed.

AUX I/F Related Setup Messages

SET-STALL 13-CHANGE? Any hex value 0-FF.

SET-UNSTALL 11-CHANGE? Any hex value 0-FF.

SET-NEWLINE 00000D0A-CHANGE?

- Timing delay between lines (2 hex digits)
- Terminator Sequence (6 hex digits = 3 ASCII characters)

SET-LINESIZE 79-CHANGE? Maximum line length for data transmission. Any decimal value 10-255.

NOTE:

The μP Enable lines, the Bus Test address, and the Run UUT default address are pod-dependent, and are supplied to the 9010A by the interface pod that is connected.

9010A Reference Card

FLUKE®

FUNCTION OF REGISTERS

TYPE OF REGISTER	REGISTER	FUNCTION
Dedicated	A	Bit Mask
	B	ROM Signature
	C	STS/CTL Information
	D	Bit Number
	E	Data
	F	Address
	0	Read Probe Data
Non-Dedicated	1-9	Use assigned by operator or programmer.

NOTES:

1. Registers 0 through 7 are local registers. When an executing program calls (executes) another program, the contents of the local registers are saved and then the registers are set to 0. When program control returns to the original program, the saved values are restored to the local registers.

2. Registers 8 through F are global registers and are unaffected by passing between called and calling programs. These registers can be used to pass information to and from subroutines.

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IMMEDIATE MODE OPERATION SPECIFICATIONS

OPERATION	SPECIFICATION	
Learn	LEARN (@ aaaa(-aaaa))	
I/O View	IO @ aaaa(-aaaa) BTS hhhh	Press ENTER to
RAM View	RAM @ aaaa(-aaaa)	initiate entry
ROM View	ROM @ aaaa(-aaaa) SIG nnnn	of descriptors
*Bus Test	BUS TEST	
*ROM Test	ROM TEST (@ aaaa(-aaaa) SIG nnnn)	
*I/O Test	IO TEST (@ aaaa(-aaaa) BTS hhhh)	
*RAM Short	RAM SHORT (@ aaaa(-aaaa))	
*Ram Long	RAM LONG (@ aaaa(-aaaa))	
*Auto Test	AUTO TEST	
*Read	READ @ aaaa	
*Read Status	READ @ STS	
*Write	WRITE @ aaaa = hhhh	
*Write Control	WRITE @ CTL = bbbbbbbb	
*Ramp	RAMP @ aaaa	
*Walk	WALK @ aaaa = hhhh	
*Address Toggle	ATOG @ aaaa BIT dd	
*Data Toggle	DTOG @ aaaa = hhhh BIT dd	
*Data Toggle Control	DTOG @ CTL = bbbbbbbb BIT d	
Run UUT	RUN UUT (@ aaaa)	
Program	PROGRAM nn	
*Execute Program	EXECUTE PROGRAM nn	
AUX I/F	AUX I/F LEARN	Sends all addr. descriptors
	AUX I/F PROGM	Sends all programs
	AUX I/F =	Sends all program numbers
	AUX I/F nn	Sends program number nn
	AUX I/F SETUP	Sends all Setup parameters
	AUX I/F WRITE	Binary send
	AUX I/F READ YES	Binary receive
Increment	INC REGh	
Decrement	DEC REGh	
Complement	CPL REGh	
Shift Left	SHL REGh	
Shift Right	SHR REGh	
Register	REGh = expr	
Read Tape	READ TAPE	
Write Tape	WRITE TAPE	

NOTES:

( ) = Optional Information
aaaa = Hexadecimal Value
bbbbbbbb = Binary Value in the Range 0-11111111
d = Decimal Value in the Range 0-7
dd = Decimal Value in the Range 0-31
expr = Sequence of keystrokes consisting of numeric values and/or registers, and possibly involving Arithmetic operations
h = Hexadecimal Value
nn = Decimal Value in the Range 0-99
nnnn = Hexadecimal Value in the Range 0 to FFFF
*Repeat and Loop apply

PROGRAMMING STEP SPECIFICATIONS

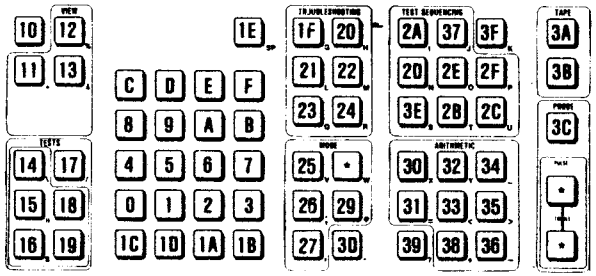
STEP	SPECIFICATION
Stop	STOP
Label	LABEL h
Goto	GOTO h
If	IF expr operator expr GOTO h
Display	DPY-text
AUX I/F	AUX-text

NOTES:

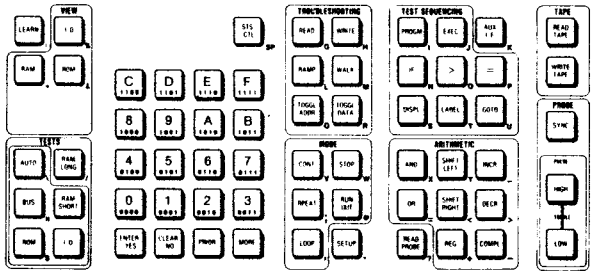
All program steps not listed above are Immediate Mode operations. Refer to the Immediate Mode Operation Specifications.

expr = Sequence of keystrokes consisting of numeric values and/or registers, and possibly involving Arithmetic operations
h = Hexadecimal Digit
operator = Any of the following: >, =, or >=
text = Sequence of 0 to 27 characters or symbols

ASYNCHRONOUS INPUT VALUES



* Not available.



FUNCTION OF SPECIAL SYMBOLS IN DISPLAY AND AUX I/F STEPS

SYMBOL	DISPLAY STEP	AUX I/F STEP
⚠*	9010A beeps	Sends control G (bell)
$r	Displays contents of register in hex	Sends contents of register in hex to RS-232
@r	Displays contents of register in decimal	Sends contents of register in decimal to RS-232
/r	Allows operator to place hex input in register	Places next byte from RS-232 in register
\r	Allows operator to place decimal input in register	Places RS-232 status † in lower five bits of register
?r	Allows operator to place Boolean input in register with YES (1) or NO (0) keys	Not Used
%r	Enables or disables async input from operator to register	Sends low-order byte from register to RS-232
+	Display not cleared (first character in step)	Terminator not sent (last character in step)
All other characters	Displayed as keyed in	Sent as ASCII characters.

NOTES

To actually display a special symbol, key it in twice if it is followed by a register number, once it it is not.

r = Register Number 0-F

* The ⚠ symbol is sent as a # symbol when programs are listed by an RS-232 device.

† Format of RS-232 status: