1752A Programmer's Quick Reference Card

FLUKE®

This card summarizes programming information for the 1752A measurement and control modules.

1752A-010 Analog Measurement Processor Subroutines (AIOLIB)

BOARD FUNCTIONS

ADCAL(board%,calibration%)	Enable/disable automatic self-calibration. calibration = 0: disable calibration = non-zero: enable (default)
ADSYNC(board%,sync%)	Set sync mode. sync = 0: asynchronous (default) sync = 1: 50/60 Hz, external sync = 2: 400 Hz, external sync = 50: 50 Hz, internal sync = 60: 60 Hz, internal sync = 400: 400 Hz, internal
ADSTAT(board%,SY%,CA%)	Get calibration and sync mode status.

CHANNEL FUNCTIONS

AIMODE(channel%,mode%)	Set an input channel to single-ended or differential mode. mode = 1: single-ended (default) mode = 2: differential
AIENBL(channel%,enable%)	Set an input channel to be read or skipped. enable = 0: skip enable = non-zero: read (default)
AIRNGE(channel%,range%)	Select the range for an input channel. range = 1: 10 volts (default) range = 2: 1 volt range = 3: 65 mA range = 4: 4 to 20 mA, returned as 0 to 100%
AIFLTR(channel%,filter%)	Select the filter for an input channel $0 \leqslant$ filter $\leqslant 255$ (default = 1)
AISET(channel%,mode%,enable%, range%,filter%)	Set all parameters for an input channel. (see parameters above)
AISTAT(channel%,MO%,EN%, RA%,FI%)	Get the status of an input channel.

READ FUNCTIONS

AIREAD(channel%,RE)	Read an input channel in floating-point format.
AISCAN(first%,last%,set%,AR())	Take sets of readings in floating-point format.
AISCNI(first%,last%,set%,BR%())	Take sets of readings in integer format.

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1752A-012 Counter/Totalizer Subroutines (DIOLIB)

SETUP FUNCTIONS

CTFREQ(channel%,source%, gatetime%)

Set up a channel for frequency measurement. (default)

source = 1: TTL (default)
source = 2: Analog

gatetime = 1: 3.28 msec, 305.2 Hz (default)
gatetime = 2: 26.21 msec, 38.15 Hz
gatetime = 3: 209.7 msec, 4.769 Hz
gatetime = 4: 3.355 sec, 0.2999 Hz

CTTIME(channel%,source%,slope%)

Set up a channel for time measurement.

source = 1: TTL
source = 2: Analog
source = 3: Gate 1, Gate 2

If source is 1 or 2:

slope = 1: + edge to a + edge
slope = 2: - edge to a - edge
slope = 3: + edge to a - edge
slope = 4: - edge to a + edge

If source is 3:

slope = 1: +G2 to +G2
(enabled by a +G1 before each +G2)
slope = 2: +G1 to +G2, fast (1.2 μs to 6.7 sec)
slope = 3: +G1 to +G2, slow (819 μs to 3.82 hr)
slope = 4: -(G1&G2) to -(G1&G2)
slope = 5: +(G1&G2) to -(G1&G2) fast
slope = 6: +(G1&G2) to -(G1&G2) slow

CTTOTL(channel%,gate%,initial)

Set up a channel for totalizing or counting events.

gate = 1: No external gating
gate = 2: +G1 to +G2
gate = 3: +(G1&G2) to -(G1&G2)

$-8{,}388{,}608 \leqslant$ initial $\leqslant 8{,}388{,}607$

CTTRCF(channel%,type%)

Select the trigger type for a channel.

type = 1: No trigger (default)
type = 2: Rising edge of external trigger input
type = 3: Falling edge of external trigger input
type = 4: Software trigger

CTMODE(channel%,mode%)

Put a channel in continuous or single measurement mode.

mode = 0: single
mode = non-zero: continuous (default)

MEASUREMENT FUNCTIONS

CTRDY(channel%,RD%)

See if a reading is available at a channel.

RD = 0: unavailable
RD = 1: available

CTTRGR(channel%)

Trigger a measurement or enable totalizing.

CTREAD(channel%,RE)

Read a single channel.

CTSCAN(first%,last%,set%,AR())

Read a group of channels.

1752A-011 Analog Output Subroutines (AIOLIB)

AOCRNT(channel%,amps)	Output current on a channel (in amps) 0.0 ⩽ amps ⩽ 0.020475 (default = 0)
AOVLTG(channel%,volts)	Output voltage on a channel (in volts) -10.2375 ⩽ volts ⩽ 10.2375 (default = 0)

17XXA-002 Parallel Interface Subroutines (PIBLIB)

BIT FUNCTIONS

CHKBIT(port%,bit%,bool%)	Return the boolean value of a bit.
CLRBIT(port%,bit%)	Clear a bit on a port.
SETBIT(port%,bit%)	Set a bit on a port.

READ/WRITE FUNCTIONS

RDWORD(port%,bool%)	Read a word at a port.
WTWORD(port%,word%)	Write a word to a port.
RDBLK(port%,block%,count%)	Read to a port from an array.
WTBLK(port%,block%,count%)	Write to a port from an array.
FRDBLK(port%,block%,count%)	Same as RDBLK, but faster.
FWTBLK(port%,block%,count%)	Same as WTBLK, but faster.

PORT FUNCTIONS

POPEN(port%,mode%,mask%, timeout%)	Open a port with direction of data flow set by mask. mode = 0: No Handshake mode = 1: Hndshkin mode = 2: Hndshkout mode = 3: Strobeout -32768 ⩽ mask ⩽ +32767 0 ⩽ timeout ⩽ 32767
PCLOSE(port%)	Close a port.

17XXA-002 PARALLEL INTERFACE ERRORS

1200 PIB software drivers not linked with FDOS
1201 Port not available
1202 Illegal function call
1203 Port already open
1204 Port not opened
1205 Attempted write to a read-only bit
1206 Attempted read from a write-only bit
1207 Port timed out
1220 Illegal port number
1221 Illegal mode
1222 Illegal bit value

1752A-010 ANALOG MEASUREMENT PROCESSOR ERRORS

1500 AIOLIB software drivers have not been linked with FDOS.
1503 The Analog Measurement Processor is not installed.
1504 Illegal Analog Measurement Processor board address.
1505 The analog input channel is not installed.
1506 Illegal analog input channel number.
1507 (Warning) The analog input channel has been changed to differential mode.
1508 Illegal parameter for the ADSYNC function.
1509 Illegal parameter for setting the input mode of an analog input.
1510 Illegal parameter for setting the range of an analog input channel.
1511 Illegal parameter for setting the filter of an analog input channel.
1512 Illegal parameter for the number of sets of readings to be taken.
1513 (Warning) The specified analog input channel has been disabled.
1514 (Warning) The input to an analog input channel is out of range.
1515 (Warning) The filter value has been truncated to power of two.
1516 The external sync input is not present.
1519 The first channel parameter is greater than the last channel parameter.
1520 Analog Measurement Processor has had an overspeed failure.
1521 Analog Measurement Processor configuration has been corrupted.
1522 Analog Measurement Processor has had a calibration error.
1523 Analog Measurement Processor has had a system error.
1524 (Warning) The analog input channel has been changed to the 10V range.
1525 Analog Measurement Processor does not respond.

1752A-011 ANALOG OUTPUT ERRORS

1500 AIOLIB software drivers have not been linked with FDOS.
1501 The analog output channel is not installed.
1502 Illegal analog output channel number.
1517 Illegal parameter for the AOVLTG function.
1518 Illegal parameter for the AOCRNT function.

1752A-012 COUNTER/TOTALIZER ERRORS

1600 DIOLIB software drivers have not been linked with FDOS.
1601 The Counter/Totalizer channel is not installed.
1602 Illegal Counter/Totalizer channel number.
1603 The first channel parameter is greater than the last channel parameter.
1604 Illegal parameter for designating the source.
1605 Illegal parameter for setting the slope combination for CTTIME.
1606 Illegal parameter for setting the gate time for the CTFREQ function.
1607 Illegal parameter for selecting the external gating for totalizing.
1608 The initial value parameter for totalizing was out of range.
1609 Illegal parameter for selecting the trigger type.
1610 (Warning) The function specified has no effect on totalizing.
1611 (Warning) The reading for the specified channel is out of range.