

=====

Physical Layout	WDA-L80	WDA-L160
-----	-----	-----
Bytes per Sector	512	512
Total Data Sectors	167301	334602
Total Data Bytes	85,658,112	171,316,224
BIOS Capacity of Drive (MB {sectors x 512})	*	*
Sectors per Track	44	44
Sectors per Cylinder	87	174
Spare Sectors per Cylinder	1	2
Numbers of Data Heads	2	4
Numbers of Disks	1	2

Logical Layout

Logical Heads	10	10
Sectors/Track	17	34
Logical Cylinders	984	984

Operating Environment

=====

Humidity:

Operating Relative	8% to 90%	noncondensing
Nonoperating Relative	5% to 95%	noncondensing

Wet Bulb Temperature:

Maximum Wet Bulb:		
Operating	29.4 degrees	Centigrade non-condensing
Non-operating	35.0 degrees	Centigrade non-condensing

Elevation:

Operating Altitude	-150 to 3000m	
Ship/Storage Altitude	-150 to 12000m	

Temperature:

Operating	5 to 55 degrees	Centigrade
Storage	-40 to 65 degrees	Centigrade
Shipping	-40 to 65 degrees	Centigrade
Temperature Gradient	15 degrees	Centigrade per hour (maximum)
(Operating, Storage and Shipping)		

Air Cooling Requirement

 The host system must provide sufficient air flow across the drive to maintain the temperature at less than 60 degrees Centigrade (measured at the center of the drives' top cover).

Operating Vibration

 Due to the complexity of this subject, we recommend that users contact the Distributor to discuss how to perform the necessary measurements if they believe this to be an area which requires evaluation.

Nonoperating Vibration

 The Drive will withstand the following continuous vibration levels with

no degradation in performance: 2 - 200Hz @ 0.5G peak acceleration (for a resonance search). Resonance points: 1.5G peak acceleration (for 15 minutes).

Operating Shock

The Drive will withstand (with no permanent damage or loss of data) a 10G half-sine wave shock pulse of 11ms duration.

Nonoperating Shock

The Drive will withstand (with no permanent damage or loss of data) a 75G half-sine wave shock pulse of 11ms duration.

DC Power Requirements

=====

Nominal Supply Voltages	+5 Volts	+12 Volts
Maximum Ripple (0-10 MHz)	100mV p-p	200mV p-p
Voltage Supply Tolerance (Including Ripple)	+/-5%	+10%/-8%
Power Supply		
Current Amps	+5 Volts	+12 Volts
* Startpeak	0.5	0.93
* Idle Average	0.3	0.12 (WD-L80)
		0.13 (WD-L160)
* Random R/W	0.3	0.14 (WD-L80)
		0.15 (WD-L160)

Random R/W = 40% random seek +40% read/write (1 write in 10 reads) +20% idle

Signal Definition

=====

The pin assignments of interface signal are listed as follows:

PIN	Signal	I/O	PIN	Signal	I/O
01	-HRESET	I	02	GND	
03	HD07	I/O	04	HD08	I/O
05	HD06	I/O	06	HD09	I/O
07	HD05	I/O	08	HD10	I/O
09	HD04	I/O	10	HD11	I/O
11	HD03	I/O	12	HD12	I/O
13	HD02	I/O	14	HD13	I/O
15	HD01	I/O	16	HD14	I/O
17	HD00	I/O	18	HD15	I/O
19	GND		(20)	Key	
21	(Resv)		22	GND	
23	-HIOW	I	24	GND	
25	-HIOR	I	26	GND	
27	IORDY	O	28	(Resv)	
29	(Resv)		30	GND	
31	HIRQ	O	32	-HIOCS16	O
33	HA01	I	34	-PDIAG	I/O
35	HA00	I	36	HA02	I
37	-HCS0	I	38	-HCS1	I
39	-DASP	I/O	40	GND	

Note:

"O" designates an output from the Drive.
"I" designates an input to the Drive.

"I/O" designates an input/output common.
"PWR" designates a power supply to the Drive.
"(Resv)" designates reserved pins and all of these
have to be left unconnected.

Cabling

The maximum cable length from the Host system to the drive, plus the circuit pattern length inside the Host systems, must not exceed 18 inches (45.7cm).

Interface

This data sheet describes some aspects of the host interface to ATA drives. The interface conforms to the CAM draft proposal for an AT attachment with certain limitations described below.

Automatic Power-Down Sequence

A hard reset will disable the automatic power-down sequence.

Format Track Alternate Sectors

The Drive does not support alternate sector locations and will ignore any descriptors whose values are 20h (Unassign Alternate Sector) or 40h (Assign Alternate Sector), without returning an error.

Format Track Interleave Factor

The Drive only supports an interleave factor of 1:1, and may ignore any other specified interleave, without returning an error.

Format Track Sector Count

The drive will return an Abort error if the specified sector count is not the same as the number of sectors per track designated by the drive in the Initialize Drive Parameters command, or default setting as reported by Identify Drive command.

Format Track Sector Number

The drive will return an Abort error if any sector number in the format table is zero or greater than the actual number of sectors per track, or the same sector number is used more than once in the format table. The drive always operates with sectors numbered consecutively between one and the number of sectors per track.

Initialize Drive Parameters

The parameters specified in the Initialize Drive Parameters command are only in effect until the next power off, soft reset, or hard reset operation. Afterwards, the default parameters in the Identify Drive information will be in effect.

Seek Overlap

The drive will wait for the seek to complete before interrupting the host. Therefore, no seek overlap can occur. This will be transparent to the host except that performance may be degraded in certain environments where the host could perform other work while waiting for seek complete, such as multitasking operating systems.

Registers

```

-----
-----
Address          Input Register          Output Register
-----
1F0h             Data                    Data
1F1h             Error                   Features
1F2h             Sector Count            Sector Count
1F3h             Sector Number           Sector Number
1F4h             Cylinder Low            Cylinder Low
1F5h             Cylinder High           Cylinder High
1F6h             Drive/Head              Drive/Head
1F7h             Status                  Command
3F6h             Alternate Status        Device Control
3F7h             Drive Address           Not Used

```

The host uses the register interface to communicate to and from the drive. The registers are accessed through the host port addresses shown.

The host should not read or write any registers when the Status Register BSY bit=1.

Electromagnetic Compatibility:

```

-----
The Drive meets the following EMC requirements when installed in the user
system and exercised with a random accessing routine at maximum data rate:
- United States Federal Communication Commission (FCC) Rules and
  Regulations, Part 15, Subject J--Computer Devices, "Class B Limits."
- European Economic Community (EEC) directive #76/889 related to the
  control of radio frequency interference and the Verband Deutscher
  Elektrotechniker (VDE) requirements of Germany (GOP).

```

Command Description

```

=====

```

The following Commands are supported by the Drive:

```

Data In Commands          (HEX)
-----
Identify Drive            (EC)
Read Buffer                (E4)
Read Long (& retry)       (22)
Read Long (no retry)      (23)
Read Multiple              (C4)
Read Sectors (& retry)    (20)
Read Sectors (no retry)   (21)

Data Out Commands        (HEX)
-----
Format                    (50)
Write Buffer                (E8)
Write Long (& retry)       (32)
Write Long (no retry)     (33)
Write Multiple             (C5)
Write Sectors (& retry)    (30)
Write Sectors (no retry)  (31)
Write Verify               (3C)

```

Execution includes the transfer of one or more 512 byte sectors of data (>512 bytes for Read Long) from the Drive to the Host for Data In and from the Host to the Drive for Data Out commands.

Nondata Commands

```

-----

```


