

IBM OEM STORAGE PRODUCTS
WDS L80 & L160

FEATURES

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- 85/171 MB formatted capacity (512 bytes/sector)
- Industry standard interface: ANSI/SCSI-2
- Integrated controller
- Logical block addressing (LBA)
- Implied seeks
- SCSI Disconnect and reconnect capability
- Interface Odd parity supported
- 1:1 interleave
- 1,7 Run-Length Limited (RLL) encoding
- Constant Density "Bit Recording"
- SCSI data transfer rate: up to 5 MB/S (synchronous)
- 32 KB Segmented Look Ahead Buffer
- Command Queuing
- Auto Reassign Block
- Self-diagnostics on power up
- Automatic retry and data corrections on read errors
- No preventative maintenance required
- Media data transfer rate: 13.3 Mbits/Sec
- Closed loop actuator servo (embedded sector servo)
- Rotary voice coil actuator
- Automatic actuator lock
- Dedicated head landing zone
- Average seek time = 16mS/18.5mS
- All axis (6 directions) mounting permitted
- MTBF 150,000 hours

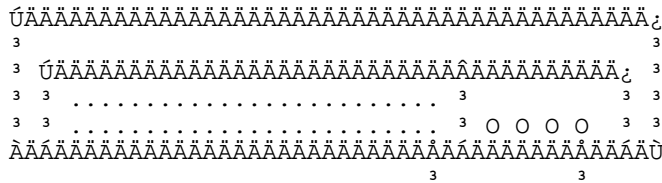
PERFORMANCE

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	WDA-L80	WDS-L160
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Media Read/Write data transfer--rate in Mbits/Sec	13.3	13.3
Seek times (in mS, averaged & inc settle)		
	Read	Write
Track to Track	4.0	5.0
Average length	16.0	18.5
Full length	30.0	32.5
Spindle Speed	3600RPM	
Average Latency	8.33mS	
Power ON to Drive Ready	8.7 Sec (ave), 10.7 Sec (max)	
Power OFF to Spindle Stop	6 Sec (ave), 12 Sec (max)	

ELECTRICAL CONNECTOR LOCATIONS

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3  O 3O3 O O O O O 3 = 2      3  O 3O33O3 O O O O 3 = 6
3  AAU      3                      3  AAUAAU      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAU      AAAAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAAZ      UAAAAAAAAAAAAAAAAAAAAAAAAAAZ
3  UAUAUA      3                      3  UAUAUAUA      3
3  3O33O3 O O O O 3              3  3O33O33O3 O O O O 3
3  3O33O3 O O O O O 3 = 3        3  3O33O33O3 O O O O 3 = 7
3  AAUAAU      3                      3  AAUAAUAAU      3
AAAAAAAAAAAAAAAAAAAAAAAAAAU      AAAAAAAAAAAAAAAAAAAAAAAAAAAU

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Pins 8, 11, and 12 are reserved

SHIPPING DEFAULT SETTINGS
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The DEVICE ID is set at 6 (ie, jumpers on pins 3-4 and 5-6).

AUTO SPIN-UP is enabled (ie, jumpers on pins 9-10).

NOTE: LED connections, pin 13 can source up to 18mA. Pin 14 can sink up to 100mA.

AUTO SPIN-UP, pin 9. If a jumper is fitted, the drive will spin-up automatically after power on reset completes.

If a jumper is not fitted, the drive will not spin-up unless the host system issues a "start command" to the drive.

OPERATING ENVIRONMENT
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Humidity:

Operating Relative 8% to 90% noncondensing

Nonoperating Relative 5% to 95% noncondensing

Wet Bulb Temperature:

Maximum Wet Bulb:
Operating 29.4 degrees C noncondensing
Nonoperating 35 degrees C noncondensing

Elevation:

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

Temperature:

Operating 5 to 55 degrees C
Storage -40 to 65 degrees C

Shipping Temperature Gradient -40 to 65 degrees C 15 degrees C per hour (maximum) (Operating, Storage, & Shipping)

Air Cooling Requirement

The host system must provide sufficient air flow across the drive to maintain the temperature at less than 60 degrees C (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 zero to peak acceleration (for 15 mins).

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.

SIGNAL DEFINITION

The pin assignments of interface signals are listed as follows

Table with 4 columns: PIN, Signal, PIN, Signal. Lists pin assignments for pins 01 through 46, including signals like GND, DB0-DB7, PARITY, TERMPWR, -ATN, -BSY, -ACK, -RST, -MSG, -SEL, and -C/D.

47	GND	48	-REQ
49	GND	50	-I/O

DC POWER REQUIREMENTS

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

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

NOTE: There is no requirement to limit the +5V current as the drive incorporates its own protection, the system must limit the +12V current supply to the drive to less than 20A.

DATA ORGANIZATION

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Physical Layout

	WDS-L80	WDS-L160
Bytes per Sector	512	512
Total Data Sectors	85,658,112	171,316,224
Sectors per Track	44	44
Sectors per Cylinder	87	174
Spare Sectors per Cylinder	1	2
Number of data Heads	2	4
Number of Disks	1	2
Logical Layout	85 MB	170 MB
Max Relative Block Addresses	167,301	334,601
Total Data Bytes	85,658,112	171,315,712

ELECTROMAGNETIC COMPATIBILITY

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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 German (GOP).

MECHANICAL DATA

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Dimensions

Height	19.9 +/- 0.4mm
Width	101.6 +/- 0.4mm
Depth	146.0 +/- 0.6mm

Weight 410g maximum
Mounting Orientation
The Drive can be mounted in any axis
(6 directions).



NOTE: Maximum screw lengths must not be exceeded.

MODE SELECT OPTIONS
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The following Mode Sense Pages are supported:

- Page 1--Read/Write Error Recovery Parameters
 - TB (Transfer Block)
 - PER (Post Error)
 - DTE (Disable Transfer on Error)
 - DCR (Disable Correction Bit)
 - Read Retry Count
 - Correction Span
 - Write Retry Count

Page 2--Disconnect/Reconnect Parameters

Read Buffer Full Ratio
Write Empty Buffer Ratio

Page 3--Format Device Parameters

Page 4--Rigid Disk Drive Geometry Parameters

Page 8--Caching Parameters

RCD (Read Cache Disable)

Page A--Control Mode Page

Queue Algorithm Modifier
QErr (Queue Error Management)
DQue (Disable Queuing)

PACKAGING: The drive must be protected against Electro-Static Discharge especially when being handled. The safest way to avoid damage is to put the drive in an anti-static bag before ESD wrist straps, etc, are removed.

Drives should only be shipped in approved containers, sever damage can be caused to the drive if the packaging does not adequately protect against the shock levels induced when a box is dropped. Consult the dealer if you do not have an approved shipping container.

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