

D3142

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[Product Info](#) | [Non-Current Hard Disk Drives](#)**D3142**
44 MB, ST412, 3.5 Inch

44 MB, ST412, 3.5 Inch

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Formatted:

44.7 MB

Unformatted:

53.4 MB

Configuration Information**Switches:**[Top](#)

Drive Address Switch:

SW2-1 "on," all others "off" = addr 1

SW2-2 "on," all others "off" = addr 2

SW2-3 "on," all others "off" = addr 3

SW2-4 "on," all others "off" = addr 4

Terminating Resistor Switch:

Serial configuration-SW1-1 always "off";

if one drive, set SW1-2 thru 8 to "on."

If more than one drive, set SW1-2 thru 8

to "off."

Parallel configuration-SW1-1 may be "on"

or "off" depending on HDD controller.

Set SW1-2 thru 8 to "on."

Dimensions**Height:**[Top](#)

1.6 in/41 mm

Width:[Top](#)

4.0 in/101.6 mm

Depth:[Top](#)

5.8 in/146 mm

Weight:[Top](#)

2.0 lb/0.9 KG

Disk Configuration**Disk Size:**[Top](#)

3.5"

Disks:[Top](#)

4

Data Heads:[Top](#)

8

Data Surfaces:[Top](#)

8

Tracks/Surface:[Top](#)

642

Track Density:[Top](#)

850 tpi

Bit Density:[Top](#)

14,000 bpi

Sectors/Track:[Top](#)

17 (RLL = 26 sectors)

Bytes/Sector:[Top](#)

512

Record Method:[Top](#)

MFM

Environmental

Temperature: Operating = 5° to 50° C

[Top](#)

Thermal Grad: 10° C/Hr max

[Top](#)

Shock: Operating = 2 G (10 ms)
Non-operating = 40 G (10 ms)

[Top](#)

Vibration: Operating = 0.2 G
Non-operating = 0.5 G

[Top](#)

Performance Specifications

Rotational Rate: 3,600 RPM

[Top](#)

Start/Stop Time: 15 seconds typical

[Top](#)

Seek Times: Average = 28 ms
Track to track = 8 ms
Maximum = 54 ms

[Top](#)

Latency, Avg: 8.33 ms

[Top](#)

Interface: ST412

[Top](#)

Data Transfer: 625 KB/sec

[Top](#)

Power

Voltage Req'd: +5V/+12V

[Top](#)

Pwr Dissipation: Ready mode = 9.2 watts

[Top](#)

MTTR: 30 Minutes

[Top](#)

Reliability

MTBF: 30,000 POH

[Top](#)

Error Rate: Recoverable = <1 per 10-10th bits

[Top](#)

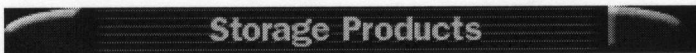
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THIS IS A DOCUMENT IN ASCII - FORMAT !!!

To see the document in correct way under Windows

1. You must have installed a font with full ASCII-Character-Set (like TERMINAL)
2. Use a DOS-Editor like EDIT from original DOS-Version.
EDIT filename.txt
3. Switch to DOS-Box and type in
TYPE filename.txt | MORE
4. Switch to DOS-Box and print the file
COPY filename.txt LPT1
TYPE filename.txt > LPT1

THIS IS A DOCUMENT IN ASCII - FORMAT !!!

```

*****
P C - D I S K      The Harddisk Information Database
DCI AG, Germany   www.pc-disk.de
*****

```

```

6 1 8 8 - R 1    BASF MAGNETICS
NO MORE PRODUCED

```

```

Native3 Translation
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Form            5.25"/HH          Cylinders      6163      3      3
Capacity form/unform  10/ 13 MB      Heads          23        3      3
Seek time i / track  88.0/18.0 ms  Sector/track   173       3      3
Controller         MFM / ST412      Precompensation 380
Cache/Buffer       KB          Landing Zone    615
Data transfer rate  0.625 MB/S int      Bytes/Sector    512
                   0.625 MB/S ext
Recording method    MFM          operating3 non-operating
                   AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Supply voltage      5/12 V      Temperature øC  10ø503    -40ø70
Power: sleep        W          Humidity        %      15ø803    5ø95
  standby           W          Altitude        km   -0.300ø 3.0003 -0.300ø14.000
  idle              W          Shock           g       53       50
  seek              W          Rotation        RPM    3600
  read/write        17.0 W      Acoustic        dBA
  spin-up           W          ECC            Bit
                   MTBF            h       15000
                   Warranty Month
Lift/Lock/Park     NO          Certificates

```

```

P C - D I S K      The Harddisk Information Database
DCI AG, Germany   www.pc-disk.de
*****

```

L A Y O U T

BASF 6188-R SPECIFICATION 80307-087, REV. 02, 3/1986

```

ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA¿;
3 3 2 2
3 3 2 2 J2
3 3 2 2
3 3
3 3
3 3 2 2
3 3 2 2
3 3 2 2
3 3 2 2

```

```

3             3 2 2 J1
3             3 2 2
3             3 2 2
3             3 2 2
3             3
3             3
3             3 00 J3
3             3 00 Power
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

```

□

```

PC - DISK       The Harddisk Information Database
DCI AG, Germany www.pc-disk.de
*****
                J U M P E R S
*****
BASF      6188-R SPECIFICATION 80307-087, REV. 02, 3/1986

```

Jumper Setting

=====

User selectable options

```

000000;
1 0000 3 Drive Select 1
2 0000 3 Drive Select 2
3 0000 3 Drive Select 3
4 0000 3 Drive Select 4
5 0000 3 PERM SELTD
6 0000 3 MTR ON by power on
7 0000 3 ¿
8 0000 3 Å Special Switches DON'T USE!
000000 0

```

The BASF 6188-R has 8 switches for user selection of different options:

Drive Address Selection

Switches 1 to 4 are use to set the drive address for drive selection. Only one of the four switches may be set to the ON position. This switch determines which one of the four interface drive select lines selects this particular drive. If for instance, in a given drive, switch 1 is ON (switches 2 to 4 of the drive must be OFF) that drive is selected whenever the signal DR SEL 1 is low active.

The drive address assignment us indepentend of the drive's position on the daisy-chained "A"-cable.

Switch 5 allows to select a drive permanently and independent of the state of the DR SEL (Drive Select) signals.

Spindle Motor Start Control

Switch 6 controls the condition for the spindle motor start.

If switch 6 is ON the spindle motor is started as soon as power is provided to the drive.

If switch 6 is OFF the spindle motor does NOT start with power on. It starts, however, with the first low active going edge of the drive select signal corresponding to that drive. This feature allows

sequencing of the motor start in multiple drive configurations in order to reduce the total load to the power supply caused by the high current during the spindle motor start.

Switch 7: this switch is only used during production for specific tests.

Switch 8: Reserved for future use!

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DCI AG, Germany www.pc-disk.de

I N S T A L L

BASF 6188-R SPECIFICATION 80307-087, REV. 02, 3/1986

Notes on Installation
=====

Drive mounting

x horizontally	x		vertically			
ÚÄxAAAAAAAAAAAAxA¿		ÚÄÄ¿	ÚÄÄ¿	ÚÄÄ¿	ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ¿	
3 x x 3		3 ÄÄÄÄÄ¿	3 ÚÄÄÄÄ¿	3 3	3 3 x	3 x
3 x x 3		3 3 3 3	3 3 3 3	3 3	x ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ¿	x
ÚÄÄÄÄÄÄÄÄÄÄÄxAÄÄÄÄÄÄÄ¿		3 3 3 3	3 3 3 3	3 3 3 3	x	x 3 3
ÄÄÄÄÄÄÄÄÄÄÄxAÄÄÄÄÄÄÄÜ		3 3 3 3	3 3 3 3	3 3 3 3	x	x 3 3
x x		3 3 3 3	3 3 3 3	3 3 3 3	x x	3 3
ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ¿		3 ÄÄÄÄÄÄÜ	3 ÄÄÄÄÄÄ¿	3 3 3 3	xx	3 3
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÜ		ÄÄÄÜ	ÄÄÄÜ	3 3	x x	3 3
3 3				3 3	x	x 3 3
3 3				3 3	x	x 3 3
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÜ				3 x		x 3
					x ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÜ	x

UNACCEPTABLE!

The BASF 6188-R may be operated only when the Face Place is in a vertical plane. The maximum deviation is an angle of 13 degrees. From the remaining four possible orientations only three are allowed for operation. These are with the Read-Write-Control PCB either on the left or right side or on top of the drive. Operation with the Read-Write-Control PCB on the top of the drive is not allowed.

Housing

The sealed module consists of an aluminium molded chassis and cover. A closed loop air filtering system inside constantly cleans the air particles which may be generated by head to disk interference. An absolute breather filter for pressure equalization with the ambient air pressure protects against environmental contamination.

Physical Interface

The physical interface between the BASF 6188-R and the controller is done via three or four connectors. One provides the control and status lines through the "A"-cable which may be daisy chained.

The second one provides the read/write signals to the star connected "B"-cable. The other connectors are used to supply DC power and for optional frame grounding.

Interface Connector J1, "A"-cable

The "A"-cable is connected to the PC-board via a 34 pin card edge connector. Recommended mating connector is AMP P/N 88 373-3, or equivalent.

The "A"-cable may be daisy-chained if more than one drive is connected to the controller. The cable may be flat ribbon or twisted pair with a maximum total length of 6m (20 ft).

Interface Connector J2, "B"-cable

The "B"-cable is connected to the PC-board via a 20 pin card edge connector. Recommended mating connector is AMP P/N 88 373-6, or equivalent.

The "B"-cable must be radially connected if more than one drive is connected to the controller. The cable may be flat ribbon or twisted pair with a maximum total length of 6m (20 ft). The cable impedance should be around 105 Ohms.

Power Connector J3

The DC-power connector is a four pin connector. Recommended mating connector is AMP P/N 1-480424-0 with pins 350078-4, or equivalent.

Pin 1 +12 VDC
 Pin 2 GND 12V
 Pin 3 GND 5V
 Pin 4 + 5 VDC

Drive Mechanism

A "disk pack" consisting of a hub with 2 disks is mounted on a spindle which is directly rotated at 3600 rpm by a brushless 12 VDC motor. The motor current is commutated by Hall Sensors and related control electronics. This circuit also generates the Index pulse.

Positioning

The carriage on which the read/write heads are mounted is driven by a stepper motor via a capstan and a metal band. The carriage itself is precision mounted and guided by ball bearings.

Disks

The disks are "Winchester" type and have an outside diameter of 130mm and an inner hole diameter of 40mm. They are coated with a thin layer of magnetic oxide on an aluminium substrate and are additionally lubricated for head wear protection during incontact start and stop operation.

Brake

 For further protection of heads and disks in applications where the system is switched on and off often a mechanical brake is installed to reduce the stop time to 10 sec.

Read/Write Heads

Heads are "Winchester" type with minor modifications for track width and flying height adjustment with respect to a different relative head to disk velocity.

Single Ended Signals

All control input signals and status output signals are single ended and low active (except OP CBL DET). They must meet the following electrical specifications:

Active:	0.0 to 0.4 VDC	I = 40 mA max.
Inactive:	2.5 to 5.25 VDC	I = 0 mA (open)

Differential Signals

The data lines between drive and controller are differential. The logic state for the two pairs of lines MFM WRT DATA and MFM RD data is defined as follows:

The signal is in an active state if the high active line is more positive than the low active line; and the signal is in an inactive state if the low active line is more positive than the high active line.

Termination must be provided on the receiver in the controller; MFM WRT DATA is terminated in each drive.

Power Sequencing

Power Up and Power Down may be done with any sequence of the supply voltages. Microprocessor control logic prevents any erroneous writing during Power Up or Power Down. The interface signal WRT GATE (Write Gate) must be kept high inactive during any power sequence.

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PC - DISK The Harddisk Information Database
 DCI AG, Germany www.pc-disk.de

 F E A T U R E S

 BASF 6188-R SPECIFICATION 80307-087, REV. 02, 3/1986

General Description

The BASF 6188-R stores the information on up to 2 non-removable disks and up to 616 cylinders.

The BASF 6188-R uses the industry standard interface ST412 and dimensions to ease system integration. Up to four BASF 6188-R may be connected to one controller. For systems requiring removable media it is recommended to use the BASF 6188-R in combination with BASF Mini Floppy Disk Drives which offer a capacity of up to 1,6 MByte.

The use of proven and highly reliable Winchester-Technology disks and heads together with a closed-loop air filtering system guarantees a maintenance-free operation throughout the drive's lifetime and results in a MTBF of 15,000 working hours.

Reliability and low costs are the result of mechanical simplicity and drive ruggedness, containing such features as a highly increased lifetime of the steel band actuator, and a built in shock absorber system.

Disk Media Defects

Disk drives are allowed to have the following number of media defects when leaving the factory:

BASF 6188-R not more than 10 per surface

Cylinder zero is delivered error free.

Fault-Codes

The Select-LED is used to flash error-messages in case certain fault conditions should arise. For FAULT code displacement the red colored front panel LED will be lighted. The information is presented in a sequence by switching the select LED off. This means that the dark Phases of the LED are counted to get the error code according to the following table.

ERROR-CODES

- 1 DC ERROR
- 2 Motor Speed outside - 10% and Motor stop
- 3 STEP received while WRITE GATE is active
- 4 Motor Speed outside ñ 1%
- 5 REZERO fails after POWER ON
- 6 Motor does not rotate inspite of MOTOR ON active
- 7 WRITE FAULT

Note

In case the unit was not selected by the Controller when an error occurs (Select LED off) the LED will first be switched on and then the above explained sequence takes place.

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