Use of **DANGER**, **WARNING**, **CAUTION**, and **NOTE**
This publication includes **DANGER**, **WARNING**, **CAUTION**, and **NOTE** information where appropriate to point out safety related or other important information.

**DANGER**  
Hazards which could result in severe personal injury or death

**WARNING**  
Hazards which could result in personal injury

**CAUTION**  
Hazards which could result in equipment or property damage

**NOTE**  
Alerts user to pertinent facts and conditions

Although **DANGER** and **WARNING** hazards are related to personal injury, and **CAUTION** hazards are associated with equipment or property damage, it should be understood that operation of damaged equipment could, under certain operational conditions, result in degraded process performance leading to personal injury or death. Therefore, comply fully with all **DANGER**, **WARNING**, and **CAUTION** notices.

**TRADEMARKS**
Registrations and trademarks used in this document include:

Microsoft, Windows, Windows XP, Windows 2000, Windows Vista, Windows 7 and Windows 8, are all registered trademark of Microsoft Corporation.

ABB, MasterView, SuperView and TESSELATOR are registered trademarks of ABB Asea Brown Boveri Ltd.

**NOTICE**
The information in this document is subject to change without notice and should not be construed, as a commitment by Newcon Data AB. Newcon Data AB assumes no responsibility for any errors that may appear in this document.

In no event shall Newcon Data AB be liable for direct, indirect, special, incidental or consequential damages of any nature or kind arising from the use of this document, nor shall Newcon Data AB be liable for incidental or consequential damages arising from use of any software or hardware described in this document.

This document and parts thereof must not be reproduced or copied without Newcon Data AB’s written permission, and the contents thereof must not be imparted to a third party nor be used for any unauthorized purpose.

The software described in this document is furnished under a license and may be used, copied, or disclosed only in accordance with the terms of such license.

Copyright © Newcon Data AB 2014
All rights reserved.

Newcon Data AB  
**Flottiljgatan 61**  
**S-721 31 Västerås, Sweden**

**Phone:**  
+46 21 800303

**Technical Support:**  
tessem@newcon.se

**Company web site:**  
http://www.newcon.se/

**Product web site:**  
http://www.tessem.nu/
1 Introduction

1.1 Purpose

The purpose of this document is to give an overview of the product DDR (Disk Drive Replacement) which is a replacement for the old 5.25” floppy disk drives DSMD 110/111/112/113 used in the ABB Master systems. The product uses a flash memory for storage (SD memory card). An installed DDR will be handled as a normal floppy disk drive by the ABB Master system.

This document shall also be an aid for users when use and install the DDR product.

1.2 References

1.2.1 Documents

<table>
<thead>
<tr>
<th>Document</th>
<th>Identity</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDBackup Release Notes</td>
<td>ND040013E</td>
<td>1.1</td>
</tr>
<tr>
<td>ABB MasterView 850/1 User’s Manual</td>
<td>7650 129-201</td>
<td></td>
</tr>
</tbody>
</table>

1.2.2 General

This document is valid for the DDR of type NDDD 001, NDDD 002, NDDD 003 and NDDD 004.
2 General Description

This document describes the product DDR (Disk Drive Replacement) which is a replacement for the old 5.25-inch floppy disk drives DSMD 110/111/112/113 used in the ABB Master systems. The product uses a flash memory for storage (SD memory card). An installed DDR will be handled as a normal floppy disk drive by the automation system.

The product DDR is fully compatible with ABB Master system using the DSMD 110/111/112/113 floppy disk drive, for example the MasterView product family 810/830/850 and also MasterPiece 200 and TESSELATOR 8400/9800. The unit can also be used in a standard PC.

![Figure 1 DDR unit of type NDDD 002 mounted in a MasterView 830 cabinet.](image)

Figure 1 DDR unit of type NDDD 002 mounted in a MasterView 830 cabinet.
2.1 Overview

The following *DDR* products are available:

- **NDDD 001**, a circuit board mounted unit for 19-inch rack. For use in MasterView 850 or 19-inch rack based MasterView 810/830.
- **NDDD 002**, a frame mounted unit for small cabinet based MasterView 810/830.
- **NDDD 003**, a circuit board mounted unit for 19-inch rack. For use in MasterPiece 200 and TESSELATOR 8400.
- **NDDD 004**, a unit mounted on a frame or a standalone unit. Can be equipped with an external 5V power supply. For use together with MasterPiece 200.
- **SDBackup**, a PC software product for backups of the SD card directly to a PC hard drive.
The **DDR** unit of type **NDDD 001** replaces the floppy disk drive DSMD 113, the entire circuit board, used in the standard MasterView 850 or 19-inch rack based MasterView 810/830. The **DDR** unit is mounted on a 19-inch circuit board.

**NOTE:** Removing the old DSMD 113 unit and installing the new **DDR** unit can be done without switching the power off on the Master system.

*Figure 2 DDR unit of type NDDD 001.*
**NDDD 002**

The *DDR* unit of type **NDDD 002** replaces the floppy disk drive in a small cabinet based system like MasterView 810/830. The *DDR* unit is mounted on a frame and is delivered with a signal adaptor and a connection to external 5V power supply. It can also be used in a PC.

*Figure 3 DDR unit of type NDDD 002.*
**NDDD 003**

The *DDR* unit of type **NDDD 003** replaces the floppy disk drive DSMD 110, the entire circuit board, used in MasterPiece 200 and TESSELATOR 8400. The *DDR* unit is mounted on a 19-inch circuit board.

**NOTE:** Removing the old DSMD 110 unit and installing the new *DDR* unit can be done without switching the power off on the system.

*Figure 4* DDR unit of type NDDD 003.
NDDD 004

The DDR unit of type NDDD 004 replaces the floppy disk drive DSMD 110 and can be used together with MasterPiece 200.

The DDR unit is delivered with a signal adaptor. The unit can be mounted on a frame if necessary. The unit uses external 5V power supply. An external 5V power supply can be delivered with the unit.

Figure 5 DDR unit of type NDDD 004 mounted on a frame.
**SDBackup**

The PC software product *SDBackup* allows easy backups of the SD memory card directly to a PC hard drive. The backup can later be restored to a SD memory card.

The product *SDBackup* works with any PC compatible SD card device handling 1 Gbyte SD memory card on Microsoft Windows 8/7/Vista/XP/2000.

The program reads data from the SD card and stores disk files in the backup folders on the hard drive. The data can be later be restored to the SD card or copied to another SD card. The created files are on binary format, not possible to edit by the user.

![Figure 6 The SDBackup software product.](image-url)

*Figure 6 The SDBackup software product.*
3 The DDR Unit

3.1 Overview

The DDR unit uses a flash memory for storage (SD memory card), mounted in the front of the unit. The SD card used in the DDR is pre-formatted at delivery with the capacity of storing data corresponding to a maximum of 200 diskettes (1.44 MB format). An installed DDR unit will be handled as a normal disk drive by the ABB Master systems with the “Active Disk” indicated by the display on the front of the unit.

The built-in Step Up and Step Down buttons on the front of the DDR unit are used to change the “Active Disk”. At power on disk 001 will always be activated. By pressing the Step Up and Step Down buttons simultaneous, disk 200 is selected. Keeping one of the buttons pressed increases the speed of selection.

On the front of the unit are also two LED’s located, the Status LED and the Busy LED.

**Status LED** is indicating the operation status of the DDR unit. The following indications are present:

- **Green**: Indicates normal operation.
- **Red**: Indicates an error on the SD card or the DDR unit.
- **Off**: Indicates that the unit has no power.

![Figure 7 Front of the DDR unit.](image-url)
**Busy LED** is indicating the access status of the DDR unit. The following indications are present:

- **On (Yellow):** Indicates busy status. The DDR unit is busy at the moment for example by reading/writing information from/to the SD memory card. The unit is not ready to send/receive information from the ABB Master system!

- **Off:** Indicates ready status. The DDR unit is ready to send/receive information from the ABB Master system!

**IMPORTANT:**
Do not ever make any floppy disk operations in the ABB Master system, for example DUMP, LOAD etc, when the Busy LED is On!

Do not ever remove the SD memory card from the DDR unit when the Busy LED is On! Wait until it is Off before removing the SD memory card, otherwise the DDR unit can enter an error state which later causes read or write errors when accessing the SD memory card!

3.2 Memory Handling

The DDR unit uses the following two types of memories:

- **SD card memory:** Stores permanent data on maximum 200 disks. Each disk represents a floppy disk (1.44 MB format) in the ABB Master system.

- **RAM memory:** The built-in RAM in the DDR unit is loaded with data from the “Active Disk” on the SD memory card at the following situations:
  
  - When a disk is activated by using the step buttons.
  - When mounting the SD memory card in the unit.
  - At power on.

The RAM memory is the DDR unit’s working memory. No disk operations in the ABB Master system can be handled correctly before the RAM is loaded and Busy LED on the DDR unit is Off. When data in the ABB Master system is written to the DDR it will first pass through the RAM memory and then it will be written to the SD memory card.

**IMPORTANT:**
Remember not to force any operations on the DDR unit, always wait until the Busy LED is Off before performing next step!

**NOTE:**

- It can take up to 30 seconds to transfer the data from/to the SD memory card. During this operation the Busy LED on the DDR unit is On (Yellow).

- The position of the write-protect switch on the SD memory card is not detected by the DDR unit. The SD memory card is always writable.

- The SD memory card cannot be read directly by any PC, because there is no file system present on the card. A special program SDBackup has to be used to make backup images on the PC. See section 4.

- Never format the SD memory card in a PC before using it in the DDR unit, the SD memory card will then be unusable!
- Only use pre-formatted SD memory cards delivered from us in the DDR unit!
- Changing SD memory card in the DDR unit can be done with the power on!
- Never remove the SD memory card from the DDR unit when the Busy LED on is On (Yellow)!

3.3 Connections

3.3.1 NDDD 001 Connections

The signal interface on the DDR unit of type NDDD 001 is connected to the X2 connector (lower) on the circuit board. The power interface of the DDR unit is connected to the X1 connector (upper) on the circuit board.

The 19-inch circuit board with the DDR unit shall be inserted in the MasterView 810/830/850 rack at the same location as the old DSMD 113 floppy disk drive. The X1 connector of the circuit board shall be connected to the backplane and the X2 connector shall be connected to the signal interface of the DSMC 112 floppy disk controller.

3.3.2 NDDD 002 Connections

The signal interface adaptor shall be mounted on the DDR unit of type NDDD 002 according to the Figure 8.

NOTE: The position of the yellow dot on the signal interface adaptor and on the DDR unit!

*Figure 8 Connections for NDDD 002.*
3.3.3 NDDD 001 and NDDD 002 Strapping

The Figure 9 shows the strapping of the DDR unit of type NDDD 001 or NDDD 002 when used in an ABB MasterView 810/830/850 system, default at delivery.

NOTE: The JP6 strap, inside the DDR unit, shall be in position MST, default at delivery! The JP6 strap is present only on DDR units with part number 900057/02!

![Figure 9 Strapping for NDDD 002 for use in ABB MasterView systems.](image)

The Figure 10 shows the strapping of the DDR unit of type NDDD 002 when used in a PC.

NOTE: The JP6 strap inside the DDR unit shall be in position HD! The JP6 strap is present only on DDR units with part number 900057/02!

![Figure 10 Strapping for NDDD 002 for use in a PC.](image)

3.3.4 NDDD 003 Connections

The signal interface on the DDR unit of type NDDD 003 is connected to the X2 connector (lower) on the circuit board. The power interface of the DDR unit is connected to the X1 connector (upper) on the circuit board.
The 19-inch circuit board with the *DDR* unit shall be inserted in the MasterPiece 200 or TESSElATOR 8400 rack at the same location as the old DSMD 110 floppy disk drive. The X1 connector of the circuit board shall be connected to the backplane and the X2 connector shall be connected to the signal interface of the DSMC 110 floppy disk controller.

### 3.3.5 NDDD 004 Connections

The signal interface adaptor shall be mounted on the *DDR* unit of type *NDDD 004* according to the Figure 11.

**NOTE:** The position of the yellow dot on the interface adaptor and on the *DDR* unit!

![Figure 11 Connections for NDDD 004.](image)

### 3.3.6 NDDD 003 and NDDD 004 Strapping

The Figure 12 shows the strapping of the *DDR* units of type *NDDD 003* and *NDDD 004* when used in an ABB MasterPiece 200 or TESSElATOR 8400 system, default at delivery.

**NOTE:** The JP6 strap, inside the *DDR* unit, shall be in position *S2*, default at delivery!
Figure 12 Strapping for NDDD 004 for use in ABB MasterPiece 200.

The Figure 13 shows the strapping of the DDR unit of type NDDD 004 when used in a PC.

**NOTE:** The JP6 strap, inside the DDR unit, shall be in position HD!

Figure 13 Strapping for NDDD 004 for use in PC.
3.4 NDDD 001 - Installation and Operation

We recommend the procedure described in step 1 – step 5 below, to transfer the system information from floppy disks used in a 19-inch rack based ABB Master system, for example a MasterView 850, to a SD memory card using the DDR of type NDDD 001.

**NOTE:** The DDR unit can also, as an option, be delivered with a pre-programmed SD memory card containing a copy of the MasterView system software and data from your 5.25-inch floppy disks! Please contact us!

**CAUTION:** Be very carefully when performing operation inside the MasterView rack with the power on!

1. Switch the system power on.

2. Load the MasterView system information from the 5.25-inch floppy disks using the LOAD button on the DSPC 171 CPU board.

3. Carefully remove the old DSMD 113 floppy unit from the 19-inch rack with the system power on, see Figure 14. Do not touch any other circuit boards in the rack!

4. Gentle insert the new NDDD 001 circuit board with the DDR unit into the 19-inch rack with the system power on, see Figure 15. Do not touch any other circuit boards in the rack! The Status LED on the DDR unit shall be On (Green). Wait until the Busy LED on the DDR unit is Off (approx. 30 sec).

![Figure 14 Remove the old DSMD 113 unit from the MasterView rack.](image-url)
5. The DDR unit is now ready to use. Use the Step Up and Step Down buttons on the DDR unit to select the “Active Disk”. Use the DUMP and LOAD buttons on the DSPC 171 CPU board to perform the system dump or load operations!

IMPORTANT: Remember not to force any operation always wait until the Busy LED is Off before performing next step! So when storing information on the SD memory card it can take up to 30 seconds until the DDR is ready for the next step of the operation after that the STATUS display on the DSPC 171 CPU has indicated to take the step, see Figure 16.
Figure 16 The NDDD 001 unit is busy. Busy LED in On.
3.5 NDDD 002 - Installation and Operation

We recommend the procedure described in step 1 – step 12 below, to transfer the system information from floppy disks used in a small cabinet based automation system, for example a MasterView 810/830, a SD memory card using the DDR of type NDDD 002.

NOTE 1: The DDR unit can also be delivered with a pre-programmed SD memory card containing a copy of the MasterView system software and data from your 5.25-inch floppy disks! Please contact us!

NOTE 2: The information in a running MasterView 810/830 system can be stored on a SD memory card without switching the power off on the MasterView system, if the DDR unit is using an external power supply for example not located in the MV810/830 system! Useful if the old 5.25-inch floppy disk drive is broken! Step 1 & 3, described below, can then be made later when the information has been stored on the SD memory card!

CAUTION: Be very careful when performing operation inside the MasterView cabinet with the power on!

1. Mount the signal interface adaptor on the DDR unit, see section 3.3.2.
2. Switch the system power off.
3. Remove the covering side plates on the MasterView cabinet.
4. Connect the power cables of the new DDR unit to the screw terminals according to Figure 17.

![Figure 17 The 0V and +5V power screw terminals in the MasterView cabinet.](image-url)
5. Switch the system power on.

6. Load the MasterView system information from the floppy disks using the LOAD button on the DSPC 171 CPU board.

7. Remove the power cable and the signal cable from the old DSMD floppy unit in the MasterView 810/830 cabinet, see Figure 18.

![The connection cables to the old DSMD floppy unit.](image)

Figure 18 The connection cables to the old DSMD floppy unit.

8. Remove the old DSMD floppy unit from the cabinet.
9. Mount the **DDR** unit inside the MasterView cabinet.

10. First, connect *only* the power cable, see step 3, to the **DDR** unit according to Figure 20. The **Status LED** on the **DDR** unit shall then be **On** (Green). If not check the power cables, see step 3. Wait until the **Busy LED** on the **DDR** unit is **Off** (approx. 30 sec).

*Figure 19 Remove the old DSMD floppy unit for the MasterView cabinet.*

*Figure 20 Connect the power cable to the **DDR** unit.*
11. Second, connect the signal cable to the DDR unit according to Figure 21. If the Busy LED on the DDR unit is On (Yellow), the signal cable is incorrectly connected! Turn the contact to the other direction!

![Image: Connect the signal cable to the DDR unit.](image)

**Figure 21** Connect the signal cable to the DDR unit.

12. The DDR unit is now ready to use. Use the Step Up and Step Down buttons on the DDR unit to select the “Active Disk”. Use the DUMP and LOAD buttons on the DSPC 171 CPU board to perform the system dump and load operations!

**IMPORTANT**: Remember not to force any operation always wait until the Busy LED is Off before performing next step! So when storing information on the SD memory card it can take up to 30 seconds until the DDR is ready for the next step of the operation after that the STATUS display on the DSPC 171 CPU has indicated to take the step, see Figure 22.
Figure 22 The NDDD 002 unit is busy.
4 Backup of SD Memory Card

The PC software product *SDBackup* is available as an option to the *DDR* unit, which allows easy backups of the SD memory card directly to a PC hard drive. The backup can later be restored to a SD memory card.

The software product *SDBackup* runs on a standard PC under the Microsoft Windows 8, Windows 7, Windows Vista, Windows XP or Windows 2000 operating systems. The program works with any PC compatible SD card device handling 2 Gbyte SD memory cards.

*SDBackup* reads data from SD cards and stores "diskettes" in the backup folders on the hard drive. The data can later be restored to the SD memory card or copied to another SD memory card. The created files are on binary format, not possible to edit.

For information about how to install the *SDBackup* program, see the document “*SDBackup* Release Notes”. The document can be downloaded from our product web site at, [http://www.tessem.nu](http://www.tessem.nu), see the Download section.

For more detailed information about how to use the *SDBackup* program, see the built-in Help Application.

*Figure 23 The *SDBackup* application.*
5 Troubleshooting

5.1 The DDR Unit

This section describes some possible error situations and guidelines how to solve the problem.

- The Status LED on the DDR unit of type NDDD 002 is **Off**?
  
  => Check the power cables, see section 3.5

- The Status LED on the DDR unit of type NDDD 001 is **Off**?
  
  => Check if the circuit board is correctly inserted in the 19-inch rack. Is correct slot used and check that the X2 contact of the circuit board is connected to the disk drive controller board, DSMC 112, see section 3.4.

- When connecting the signal cable to the DDR unit NDDD 002 the Busy LED is **On** (Yellow)?
  
  => The signal cable is incorrectly connected! Turn the contact to the other direction!

- When inserting the DDR unit NDDD 001 in the 19-inch rack the Busy LED is **On** (Yellow)?
  
  => Check that the X2 contact is connected to the disk drive controller board, DSMC 112, see section 3.4.

- The CPU circuit board in the automation system (DSPC 171) indicates an error code on the display rather than next floppy disk number at LOAD or DUMP operation?
  
  => Check that the DDR unit is ready to send/receive information from the automation system; the Busy LED is **Off** when the operation starts! Repeat the LOAD or DUMP operation.

  => Perhaps an SD card has earlier been removed from the DDR unit when the Busy LED was **On**? Then the DDR unit can enter an error state which later causes read or write errors when accessing the SD card during the LOAD or DUMP operation. Requires toggling of the power on the DDR unit, or the entire system. Repeat the LOAD or DUMP operation.

- The display on the front of the DDR unit is black, no digits are shown?
  
  => If the display lights up by removing the SD card and inserting it again the DDR unit has probably enter an error state. This scenario can occur if any signal, in the signal interface, is present before the DDR unit is powered on. Check that the DDR unit has +5V power before the signals are turned on. If it is difficult to get a continuous +5V supply to the DDR unit inside the Master system, an external 5V power supply can be a solution.
5.2 The **SDBackup** Software Product

This section describes some possible error situations and guidelines how to solve the problem.

- The program can't find a “backup_diskxxx.ddr” file during writing information to the SD card?
  
  => Check the file is present in the same folder as the backup information file, the “backup.BSD”, for the current backup.

  => If the name on the ".BSD" file has been changed by the user, the same changes must be made on all the ".ddr" files!

- SD card unit error when reading from or writing to SD card?
  
  => Check that the SD card is mounted in the card device.
6 How to Report Errors

6.1 The DDR Unit

If an error is detected should a written report be generated as soon as possible! Please be as specific as you can be about the problem you are experiencing; what kind of error, its nature and the circumstances when it was discovered. Model, serial number, system configuration, photo, and description of the command sequences related to the error should, if possible, be included in the report.

The following information is required when reporting errors:

- System Problem Report (SPR) describing the problem. An empty template (DDRSPR.doc) can be downloaded from our product web site at, http://www.tessem.nu, see the Download section.
- Photos of the faulty unit installed in the system etc.

Send a mail with all the necessary information to Technical Support at tessem@newcon.se

6.2 The SDBackup Software Product

If an error is detected should a written report be generated as soon as possible! Please be as specific as you can be about the problem you are experiencing; what kind of error, its nature and the circumstances when it was discovered. System messages, printouts, screen dumps related to the error should, if possible, be included in the report.

The following information is required when reporting errors:

- System Problem Report (SPR) describing the problem. An empty template (SDBackupSPR.doc) is included in the folder: “…\SDBackup”
- Hardcopy or screen dumps of the program window and any eventually presented dialog boxes.

Send a mail with all the necessary information to Technical Support at tessem@newcon.se
7 Technical Data

7.1 The DDR Unit of type NDDD 001 and NDDD 002

7.1.1 Technical Specification

<table>
<thead>
<tr>
<th>Part number</th>
<th>900057 or 900057/02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>34 pin floppy interfaces</td>
</tr>
<tr>
<td>Capacity</td>
<td>200 x 1.44Mbyte (HD format) diskettes</td>
</tr>
<tr>
<td>Environmental</td>
<td>Operating temperature 8 C to 50 C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>143 x 103 x 27 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>0.5 kg</td>
</tr>
<tr>
<td>Power Voltage</td>
<td>DC 4.6 to 5.3 V</td>
</tr>
<tr>
<td>Typical Current Consumption</td>
<td>300 mA</td>
</tr>
<tr>
<td>System Requirements</td>
<td>ABB MasterView 810/830/850. Replaces DSMD 11x floppy disc drives handling 1.2 Mbyte formatted discs.</td>
</tr>
<tr>
<td>Warranty</td>
<td>One-year limited</td>
</tr>
<tr>
<td>Supported SD Memory Cards</td>
<td>1 Gbyte SD memory card, part no. 900054 (delivered with 900057) or 2 Gbyte SD memory card, part no. 900061 (delivered with 900057/02). Each DDR unit is delivered with one SD memory card.</td>
</tr>
</tbody>
</table>

7.2 The DDR Unit of type NDDD 003 and NDDD 004

7.2.1 Technical Specification

<table>
<thead>
<tr>
<th>Part number</th>
<th>900057/02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>34 pin floppy interfaces</td>
</tr>
<tr>
<td>Capacity</td>
<td>200 x 1.44Mbyte (HD format) diskettes</td>
</tr>
<tr>
<td>Environmental</td>
<td>Operating temperature 8 C to 50 C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>143 x 103 x 27 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>0.5 kg</td>
</tr>
<tr>
<td>Power Voltage</td>
<td>DC 4.6 to 5.3 V</td>
</tr>
<tr>
<td>Typical Current Consumption</td>
<td>300 mA</td>
</tr>
<tr>
<td>System Requirements</td>
<td>ABB MasterPiece 200, TESSELATOR 8400 Replaces DSMD 110 floppy disc drive handling 320 Kbyte formatted discs.</td>
</tr>
<tr>
<td>Warranty</td>
<td>One-year limited</td>
</tr>
<tr>
<td>Supported SD Memory Cards</td>
<td>2 Gbyte SD memory card, part no. 900061. Each DDR unit is delivered with one SD memory card.</td>
</tr>
</tbody>
</table>
7.3 The *SDBackup* Software Product

7.3.1 General Software and Hardware Requirements

The *SDBackup* runs on any PC capable of supporting the Microsoft Windows 8, Windows 7, Windows Vista, Windows XP or Windows 2000 operating system. The *SDBackup* product requires the following:

- **Operating system:**
  - Windows 8
  - Windows 7
  - Windows Vista, Service Pack 1.
  - Windows 2000, Version 5.00.2105, Service Pack 2, 3 or 4.

- **PC equipment requirements:** Standard requirements for Windows 8, Windows 7, Windows Vista, Windows XP or Windows 2000. The *SDBackup* product itself requires around 8 MB RAM.

- **SD card device:** Capable to handle 2 Gbyte SD memory cards.