



User's guide



Memory Module using FAT16 Adash 3600-MEM V3.10

Application:

- ✎ Memory module for measured data storage of the Adash 3600 on-line monitoring system
- ✎ Measured static and dynamic data are stored on Compact Flash Card
- ✎ Measured data archive module for off-line systems
- ✎ Backup medium of on-line systems in the case of an on-line data transferring interrupt

Characteristics:

- ✎ Archived data are stored in daily data files year-month-day.mem (20050131.mem)
- ✎ Export of stored data to a database using the Adash DDS 2000 expert system
- ✎ Compact flash card (128MB – 1GB) requires only standard FAT16 formatting



Ref: 10072002 KM

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Terminal Board of the Adash 3600-MEM Module

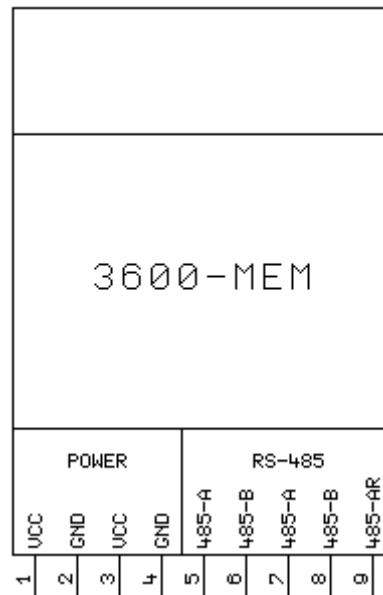


Fig. Terminal board of the Adash 3600-MEM module

The display of the terminal board corresponds to the front view of the module.

Description of Terminal Connectors

POWER supply voltage (terminal connectors with the same marking are interconnected inside):
 VCC +5 V / 250 mA,
 GND 0 V.

RS-485 communication connection for the Adash 3600 system (terminal connectors with the same marking are interconnected inside):
 485-A signal A of RS-485,
 485-B signal B of RS-485,
 485-AR termination resistance 120R, for the termination of the interface to connect to terminal connector 485-B, should be connected at the first and the last module of the RS485 chain.

Description of Adash 3600-MEM

The Adash 3600-MEM module is used for measured data storage. Data storage can be enabled/disabled and a stored data parameters can set using A3600 Setup software. **The module is able to archive data using a Compact Flash Card with capacity from 128 MB up to 1GB, formatted in FAT16.** The flash card can be removed from the module any time after the button is pressed and 'Stp' appeared. Stored data can be imported to the database of the **DDS 2000** user software, using common Compact Flash Card reader.

After card is inserted into the module, A3600 folder is made. If data storage is allowed (in A3600Setup software), measured data are stored into the folder in daily data files year-month-day.mem. Date is set by date of RTC (real time clock), eg. 2004 January 31 – 20040131.mem. Data files are normally made until card used space is less than 99%. Since the used space is 99%, card works in emergency mode, which means that data are stored into the latest data file, new file cannot be made.

When card used space reaches 100%, the latest file is rewritten. Flashing 100 on the display indicates that the latest file is being rewritten. When the latest file is being rewritten, old data of this file are lost. **Therefore is recommended, to do not exceed 99% of used space and always to use empty Compact Flash Card .**

Any data can be stored on Compact Flash Card except for two restrictions. First , Root directory cannot contain an entry with name A3600. Second, A3600 folder cannot contain an entry with name 20XXXXXX.mem, where X is any character.

In spite of fact that beside of A3600 files, any data can be stored on the Compact Flash Card is recommended to copy data and delete card before use.

For communication with A3600 System use A3600Setup software version 3.44 or newer !

Date & Time setting

Memory module uses its own RTC (Real Time Clock circuit), which can be set from PC using A3600Setup software. Each file name is set by RTC date. For that reason, **always check RTC date & time before card is inserted into the module and always check if the date & time is set correctly, using A3600 Setup software (Read Configuration from A3600 system). Wrong RTC date & time will cause that file dates will not correspond to correct date &time.**

Until flash card is not inserted into the module, date & time can be changed without limits. Once card is inserted, date can be changed only forwards. When RTC date is older than a A3600 file date of a file on the card flashing 'rtc' is displayed. In the case remove the card , copy data, delete or format card, set, write and check correct date & time into the A3600 system. Then you can put flash card back into the module.

When flashing 'rtc' is displayed (RTC date is older than a file date) and A3600 system is reset or turned off/on, RTC date will be set by the newest A3600 file date contained on the flash card. This date may not correspond to correct date.

When data are not stored and all dots are displayed, RTC date is not correct ' -.-.- ' (RTC failed, module has not been initialized or RTC date was set by the newest A3600 file date). Remove the card, copy data, delete/format card, using A3600 setup software, set, write and check correct RTC date&time. After RTC date is written into A3600 system, the displayed dots should disappeared ' - - - ' .

Archived data

Two types of data can be stored on the flash card simultaneously:

- 1) Just measured data that the main 3600-MAIN system unit sends for archiving.
- 2) Previous on-line data that have not been submitted by the 3600-NET or 3600-COMD module for further processing yet but that would be overwritten with the new measurement data from the 3600-MAIN unit.

After import, both the types of data can be mutually distinguished in the DDS database.

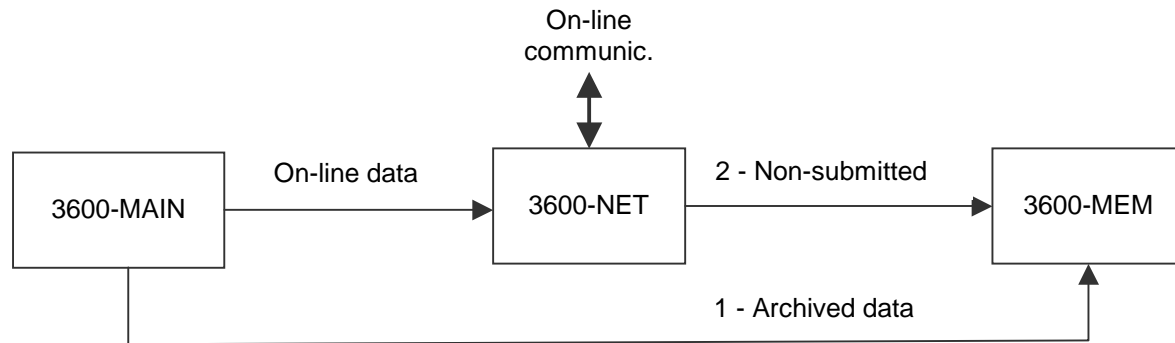


Fig. Two types of stored data

The evaluation whether the just measured data are archived at the flash card of the 3600-MEM module is performed by the main Adash 3600-MAIN system unit. **Description of requirement selection and method of data archiving - see Adash 3600 Setup, User's manual.**

The non-submitted on-line data are archived whenever the main 3600-MAIN unit, upon its start, found the 3600-MEM memory module and the module of on-line communication 3600-NET or 3600-COMD.

Display of Module State

The 3600-MEM module is equipped with three-digit seven-segment display, which presents from time to time the module state.

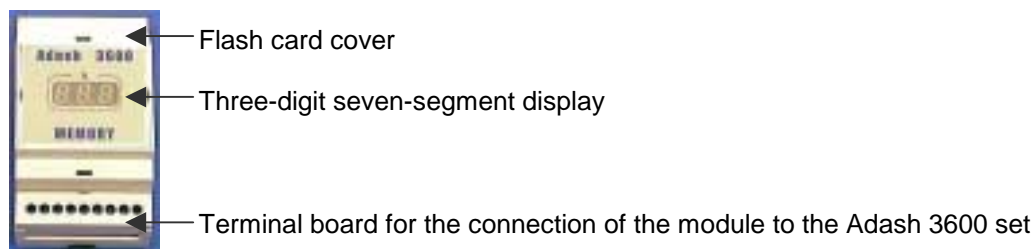


Fig. Module 3600-MEM

- If all three dots **are displayed**, then **date and time is not correct**. The user should correct it as soon as possible. **Flashing** dots indicates **data recording** on the flash card.

Displayed	Module state
---	---. Flash card is not inserted, data are not archived.
3.10	3.1.0. software version,
F A t	F.A.t. initialization,
F i l E	F.il.E. initialization,
S t P	S.t.P. After the button is pressed, the flash card can be taken out.
rtc	r.t.c. flashing – RTC(real time clock) date & time is older than an A3600 file date. Take out the card, copy data, delete card, using A3600 setup software set, write and check correct date&time into A3600 system.
FUL	F.U.L. flashing – not minimum required space (<1% of the card size) or full root

9 9	.9.9.	directory (max. 512 entries), take out the card, copy data, delete/format card, module is working correctly, displays used space, 0% to 100%. from 99% - emergency mode, take out the card, copy data, delete/format card,
1 0 0	1.0.0.	flashing – indicates that the newest file is being rewritten, emergency mode, take out the card, copy data, delete/format card,
E r 0	E.r.0.	card has not been formatted in FAT16 system or card identification failed
E r 1	E.r.1.	FAT error,
E r 2	E.r.2.	Root directory contains an entry name A3600 but it is not a folder, or A3600 read error
E r 3	E.r.3.	EEPROM failed, HW error,
E r 4	E.r.4.	Read/Write error
E r 7	E.r.7.	An attempt on writing to a protected system sector,

When an error appears, take out the card, copy data, format the card, reset A3600 system and try again. If not successful, contact your vendor.

Manipulation with the Flash Card

Compact Flash card must be formatted in standard FAT16 system before use !

After data are imported into the DDS database, the flash card should be deleted or formatted in standard FAT16 system.

More information about data import - see **DDS 2000, User's manual, section Adash 3600 Monitoring System.**

Flash Card Exchange

The flash card is inserted in the 3600-MEM module in the connector and covered. When exchanging the flash card the Adash 3600 system **does not have to be** disconnected from supply. Proceed as follows:

- 1) Release and remove the flash card cover using a suitable tool. Press the button and hold on until the StP message appears on the display. Then release the button.
- 2) By simple pulling, take out the card ; the display will display - - - or -.-.-.
- 3) Insert an empty flash card, formatted in FAT16. The display will show the following messages:

3.10 (SW version), FAt, FILE (initialization) and 0 ([%] used space, 0 -> card is empty)

- 4) Put on and close the module cover.

If all the three dots are displayed, do not forget to set the correct date and time into the 3600-MEM module using **Adash 3600 Setup** software.



Fig. Removal of the flash card cover



Fig. View of the inserted flash card



Fig. Removal of the flash card



Fig. Card completely released

Function of the Button on the Front Panel of the Module

- **A longer press** deactivates the inserted card, the StP (STOP) message appears on the display and you have 10 seconds **to remove it** from the module. If the card is not removed from the module during this period, it is reactivated and the module continues with data

storage. During the waiting, restart is possible any time by new pressing the button and the module starts to count down another 10 seconds.

- When the card is not inserted and button is pressed, software version 3.10 is displayed.

Prior to **removing** the flash card from the module, **hold the button pressed until the StP message appears on the display**, which signals the card de-activation. **Then release the button and remove the card from the module within 10 seconds**. By repeated pressing, the period of waiting may be extended since after each new pressing another 10 seconds of waiting for the card to be removed are counted down.
Before inserting the card in the module, do not press the button.

Extending the A3600 system with the Adash 3600-MEM Module

The connection of the Adash 3600-MEM module to the Adash 3600 set is done according to the following schematic:

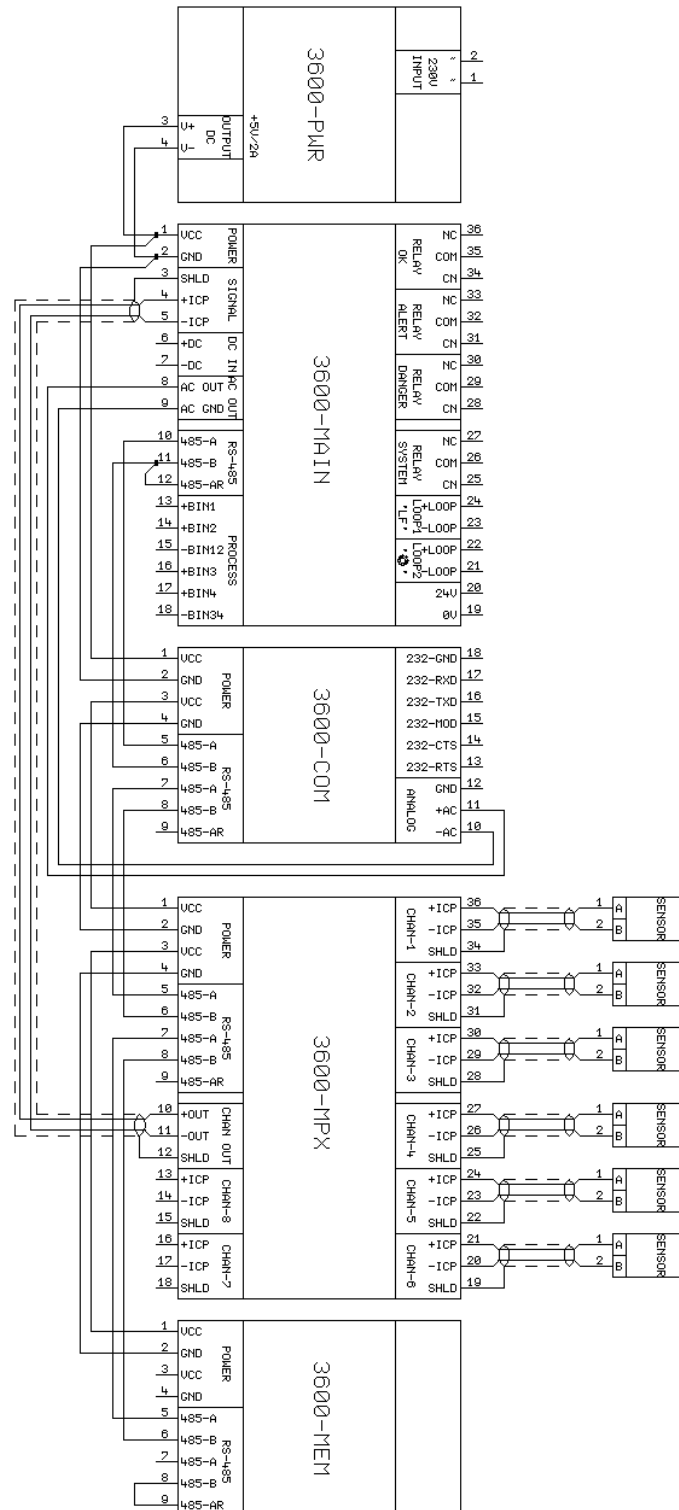


Fig. Schematic of connection of the 3600-MPX and 3600-MEM modules to the Adash 3600 system

Recommended Procedure of Module Connection

1. Remove terminal connector covers.



2.

Fig. Removal of the terminal connector covers

2. Disconnect power supply and RS485 wires.



remove
interconnection

Fig. Interconnection at the end module 3600-MPX

At the set end module (in this case 3600-MPX) there is a resistance termination of RS-485 via an interconnection of terminal connectors 485-B and 485-AR. This interconnection must be removed and installed at the end module of the extended set (in this case 3600-MEM).

3. Interconnection of supply terminal connectors (VCC and GND).

The supply conductors are identified by the following colours in the supplied set:

- red conductor, positive pole of the supply (+5 V, VCC)
- blue conductor, negative pole of the supply (GND).

Pay attention to the correct polarity of the supply voltage! The positive voltage is always at the first terminal connector on the left.



Fig. Interconnection of supply conductors

4. Connection of communication terminal connectors (485-A, 485-B) and interconnection (485-B, 485-AR) of the 3600-MEM module.



Fig. Interconnection of communication conductors

The communication conductors are identified by the following colours in the supplied set:

- white wire, signal A of RS-485
- black wire, signal B of RS-485.

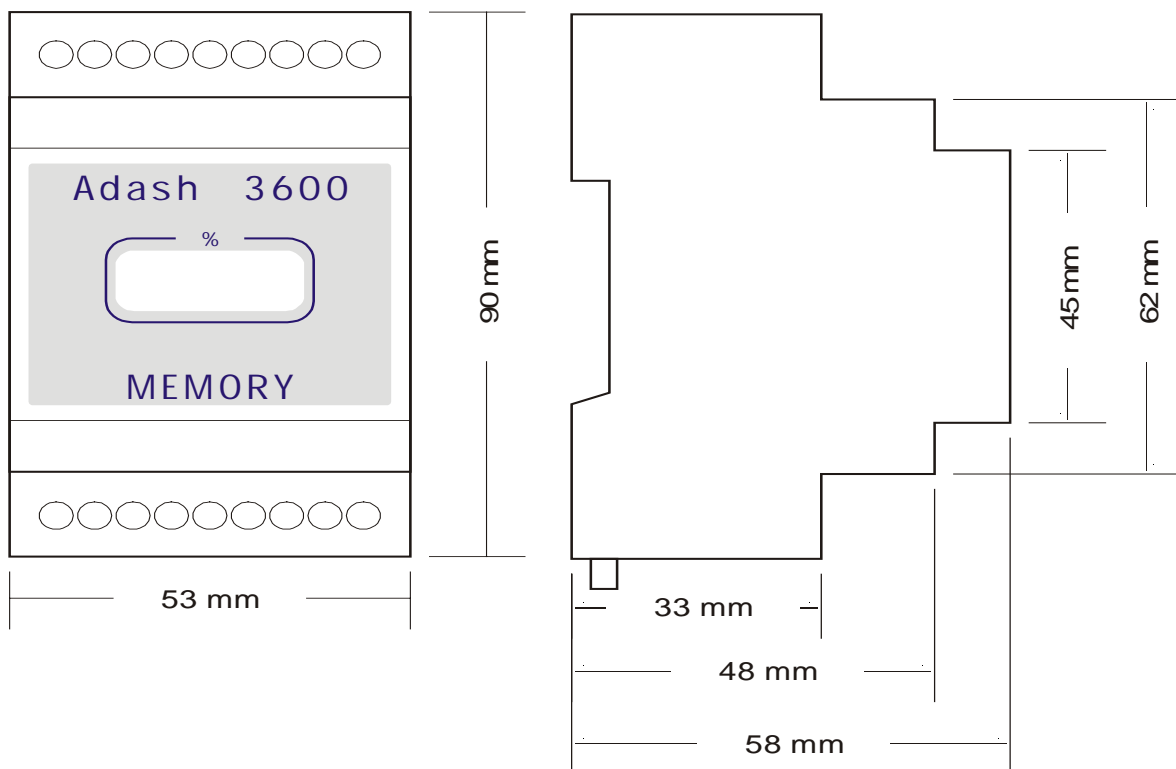
5. Replace the terminal connector covers.

The extension of the Adash 3600 set with the 3600-MEM module is completed and the system is ready for measurement.

Technical Specification of Adash 3600-MEM

Memory medium:	- flash card with a capacity of 128 MB to 1 GB
Display:	- three-digit seven-segment display
Interface:	- RS-485 for the communication between the Adash 3600 modules
Control:	- by the main Adash 3600-MAIN unit
Unit setting:	- using the 3600 Setup program using communication unit Adash 3600-COM, Adash 3600-COMD or Adash 3600-NET
Protection:	- IP20
Temperature range:	- -10 °C to +50 °C
Supply:	- +5 V / 250 mA
Dimensions:	- 53 x 90 x 58 mm
Weight:	- 150 g
Installation:	- DIN rail

Dimensioned Sketch of Adash 3600-MEM



The differences between versions

Version 210,	after card is inserted, module displays CON,CX and flash card used space.
Version 310,	after card is inserted, module displays 3.10, FAt, FiLE and flash card used space.

Known problems

There is a software bug in date and time setting. When the card is inserted, the date cannot be changed backward, which is OK. The problem is that the date cannot be changed forward at the end of a month (for example from January 31st to February 1st). Simplifiedly , you cannot put a smaller number (year, month, day) than set, when card is inserted.

In the case you have to take the card out and set the desired date. For communication with A3600 System use A3600 Setup software version 3.44 or newer!!!