

RTC/NVRAM Battery for Thales Computers SBC and Computing Nodes - User's Guide

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Your comments on this manual will be welcome.
A sheet is appended for you to submit your remarks.

Table Of Contents

Chapter 1 - Overview	1
1.1 Related Documents	2
Chapter 2 - Installing the SNAPHAT	3
Chapter 3 - Applying the Resin	5

Table Of Contents

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Chapter 1 – Overview

This document applies to the Thales Computers SBC and Computing Nodes which are equipped with a MT48T59 RTC/NVRAM:

□ Single Board Computers

- PowerEngine7,
- VMPC6 Series.

□ Computing Nodes

- PowerNode3

By default, as the storage temperature of the ruggedized boards is higher than the storage temperature of the TIMEKEEPER SNAPHAT, the ruggedized boards are delivered without the TIMEKEEPER SNAPHAT Housing containing the battery and crystal.

In this case, the information contained in the RTC/NVRAM is lost after a power-off but the NVRAM contents may be saved into the first system Flash EPROM. For that, use the **ENV** debugging command and set the System Flash Eprom link (see section “System Flash EPROM Link” in the “User’s Guide” associated to your board). The reverse operation (restoring the NVRAM) is also possible. For further information about saving and restoring the NVRAM contents, refer to section “**ENV** Command” in the “User’s Guide” and the “Firmware User’s Manual” associated to your board.



Storage Temperature of the TIMEKEEPER SNAPHAT is -40°C to $+85^{\circ}\text{C}$.

The optional NVRAM battery kit contains the TIMEKEEPER SNAPHAT Housing (M4T32-BR12SH6) which must be mounted on top of the MT48T59 RTC/NVRAM.

Electrical connection to the MT48T59 RTC/NVRAM is made through four pins that connect to the four press fitted sockets at each end of the MT48T59. Critical contact points between the pins and sockets are gold-plated to resist oxidation. The SNAPHAT top also incorporates four molded-in retaining clips which hold onto the ends of the MT48T59 insuring mechanical and electrical connection even under severe mechanical shock and vibration.

Parameter	Value
Operating Temperature	-40°C to $+85^{\circ}\text{C}$
Storage Temperature	-40°C to $+85^{\circ}\text{C}$
Nominal Crystal Frequency	32.768 KHz
Load Capacitance	12.5 pF
Nominal Battery Voltage	2.8 V
Nominal Battery Capacity	130 mAh
Battery Chemistry	Li(CF)x
Expected Data Retention Time at 25°C	10 Years

1.1 Related Documents

PowerEngine7

- PowerEngine7 Boards– User’s Guide, publication number [CA.DT.147](#).
- VMPC7Bug User’s Manual, publication number [SD.DT.A64](#).

VMPC6 Series

- VMPC6d Boards– User’s Guide, publication number [CA.DT.146](#).
- Supplement for VMPC6d/RA Boards – User’s Guide, publication number [CA.DT.370](#).
- Supplement for VMPC6d/RC Boards – User’s Guide, publication number [CA.DT.371](#).
- VMPC6c Boards – User’s Guide, publication number [CA.DT.134](#).
- Supplement for VMPC6c/RA Boards – User’s Guide, publication number [CA.DT.135](#).
- Supplement for VMPC6c/RC Boards – User’s Guide, publication number [CA.DT.136](#).
- VMPC6a Boards – User’s Guide, publication number [CA.DT.129](#).
- Supplement for VMPC6a/RA Boards – User’s Guide, publication number [CA.DT.132](#).
- Supplement for VMPC6d/RC Boards – User’s Guide, publication number [CA.DT.128](#).
- VMPCBug User’s Manual, publication number [SD.DT.A35](#).

PowerNode3

- PowerNode3 Boards– User’s Guide, publication number [CA.DT.190](#).
- PowerFirmware User’s Manual, publication number [SD.DT.A66](#).

Chapter 2 – Installing the SNAPHAT

The SNAPHAT housing kit is delivered in a bag which contains:

- a bag with a metallic tie (labelled “A” on the drawings) and two metallic flat head M2x2 mm screws (labelled “B” on the drawings),
- a bag with the TIMEKEEPER SNAPHAT Housing (M4T32–BR12SH6) (labelled “C” on the drawings).



To avoid leakage discharge, never place the SNAPHAT battery/crystal package in conductive foam (such as dedicated anti-static foam pad used for ESD sensitive devices).

Installing the SNAPHAT

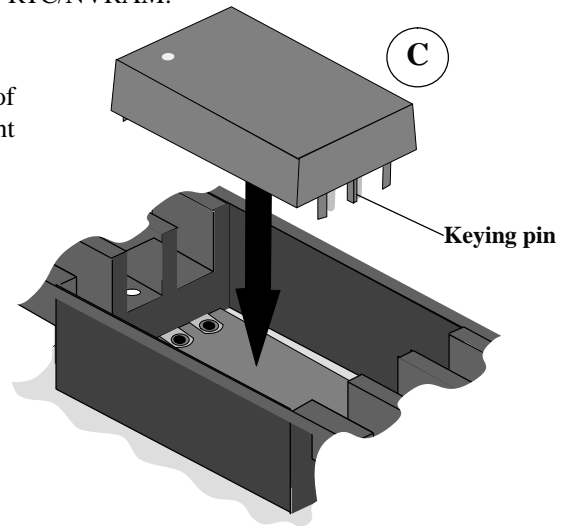


Note

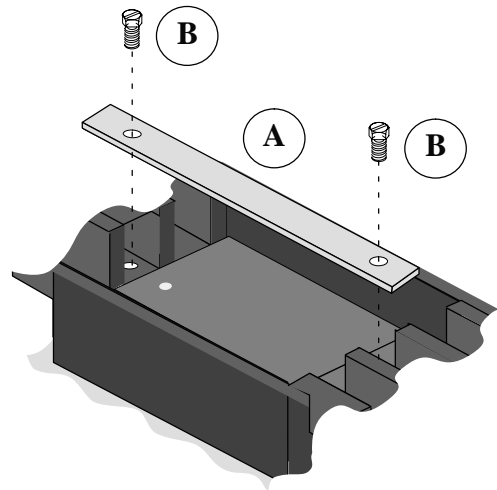
Following pictures applies to VPMC6 Series, and are given as examples.

Execute the following steps to install the SNAPHAT Housing on the RTC/NVRAM:

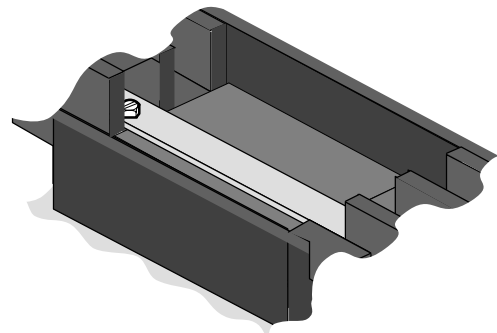
1. Take the TIMEKEEPER SNAPHAT “C” and mount it on top of the MT48T59 device. The battery housing is keyed to prevent reverse insertion. Press down on the SNAPHAT with your fingers and firmly seat the four molded-in retaining clips.



2. Place the metallic tie “A” over the SNAPHAT housing and the ruggedizer. Attach tie “A” to the ruggedizer using the two metallic flat head M2x2 mm screws “B”:



3. Both screws “B” must be locked in place with DEXTER-HYSOL 0151 resin on both screw heads (refer to the Chapter 3 for more information about resin application).



Chapter 3 – Applying the Resin

Preparing the screw heads:

Clean both screw heads with alcohol.

Preparing the resin:

A neutral mixing surface must first be cleaned with alcohol.

Ensure that this mixing surface will not be used afterwards.

Take both DEXTER–HYSOL 0151 tubes. The tubes' diameters are not the same. Using each tube, make equal lines of liquid. Both these lines must be close enough to allow mixing.

As the life time of this product is 30 minutes in the open air, it is advisable to keep the length of the lines to about a 3/4 of an inch (2 centimeters).

Mix both lines with a wooden spatula to obtain a homogeneous paste.

Note the time. Do not use the paste after 30 minutes.

Applying the paste to the screw heads:

The screw heads must be completely covered.

Drying time:

At ambient temperature, the paste dries in about 3 days.

This time can be speeded up under a temperature of 60°C for 2 hours. Boards must go into and come out of a climatic enclosure at 25°C.

Applying the Resin

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