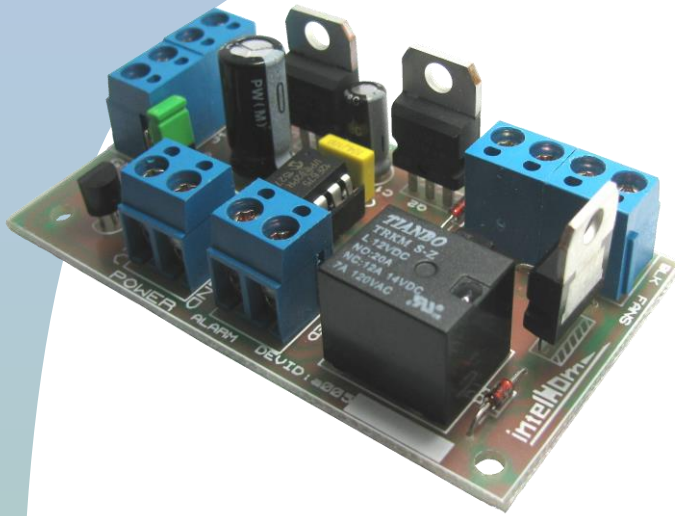


BBTPS1F2v1p1



Device ID	A005 ----
Protocols	ihdw1
ihdw Buffer Size	4 bytes
Microcontroller	PIC12F675
Free EEPROM	116 bytes
Operating Voltage	11-13 VDC
Maximum Current	70 mA @ 12 V
Board Dimensions	73 x 40 mm ²
Height	24 mm

This module is a thermal protection for the boards' box; it is measuring the box temperature continuously and starts the fans if it became more than 55°C. If the temperature raises over 80°C, it turns the system off and fires the alarm. The system will be turned on again after cooling. There is a jumper on the board, that changes the threshold temperatures; If the jumper is in "LO" position the values are the ones that said above. If the jumper is in "HI" position the fans will be started at 65°C and the system will be turned off at 90°C.

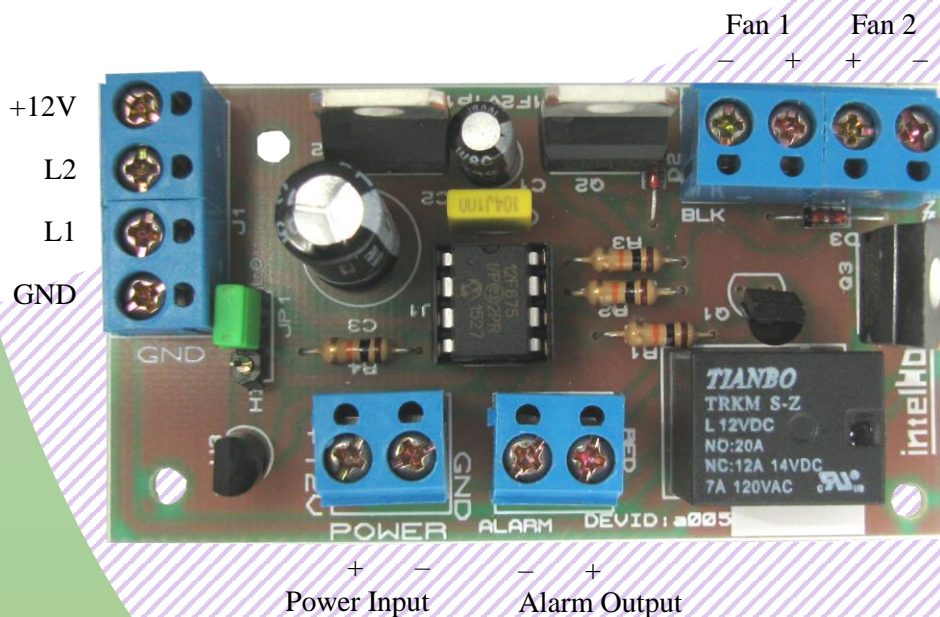


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Introduction

This module is a thermal protection for the boards' box; it is measuring the box temperature continuously and starts the fans if it became more than 55°C. If the temperature raises over 80°C, it turns the system off and fires the alarm. The system will be turned on again after cooling. There is a jumper on the board, that changes the threshold temperatures; If the jumper is in "LO" position the values are the ones that said above. If the jumper is in "HI" position the fans will be started at 65°C and the system will be turned off at 90°C.

EEPROM Data Structure

There is a *PIC12F675* microcontroller on this module that has 128 bytes of EEPROM. The EEPROM divided into several parts as described below.

- Bytes 0-5 store device ID.
- The device address stored in bytes 6-8,
- Bytes 9-124 are not used and have no specific data.
- Bytes 125-127 are reserved for special purposes.

All bytes can be read using *ihdw ReadEEPROM* command. Bytes 0-8 are read-only; other bytes can be modified by *ihdw WriteEEPROM* command. The only way to change module address is sending *ihdw SetAddress* packet.

Table 1- BBTPS1F2v1p1 EEPROM data structure

Address	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	A0	05	??	??	??	??	??	??	??	FF	FF	FF	FF	FF	FF	FF
10	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
20	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
30	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
40	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
50	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
60	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
70	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	??	??	??

Device ID	Device Address	Free	Reserved
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Commands

You can send some *ihdw* commands to this module. The below table contains all commands that are supported by *BBTPS1F2v1p1*. For more information about sending *ihdw* commands refer to *ihd Protocol* datasheet available at *intelHom* website (www.intelhom.com).

Table 2- BBTPS1F2v1p1 commands

Name	ReadBoxTemperature	Value	22 = 0x16
Description	Returns the temperature of boards box.		
Input (0 bytes)	no parameters	Output (1 byte)	Boards box temperature in °C
Name	GetTemperatureLevelJumperPosition	Value	32 = 0x20
Description	Returns the position of temperature level jumper.		
Input (0 bytes)	no parameters	Output (1 byte)	0 if LO mode is selected by jumper and 1 if HI mode is selected.

Name	ReadEEPROM	Value	0 = 0x00
Description	Reads data from the device EEPROM.		
Input (2 bytes)	First byte: Address to start reading Second byte: Number of bytes to read (always 1)	Output (3 bytes)	First byte: Address of reading start Second byte: Number of read bytes (1) Third byte: Read data

Name	WriteEEPROM	Value	1 = 0x01
Description	Writes data to the device EEPROM.		
Input (3 bytes)	First byte: Address to start writing Second byte: Number of bytes to write (always 1) Third byte: Data to write	Output (0 bytes)	no results

Name	SoftResetDevice	Value	4 = 0x04
Description	Restarts the device.		
Input (0 bytes)	no parameters	Output (0 bytes)	no results

Broadcast Messages

This module will broadcast *ihdw* messages to all other devices to inform emergency states as described below.

Table 3- BBTPS1F2v1p1 broadcast message

Name	BoxTemperatureAlert	Value	10 = 0x0A
Description	This message is broadcasted when boards box temperature state changes.		
Parameters (1 byte)	Boards box temperature state 1 = Temperature got normal and the fans will be stopped. 8 = Temperature got high and the fans will be started. 64 = Temperature got very high and the system will be turned off after a few seconds.		

Troubleshooting

If the module stopped working, first of all, check the module power supply and data connection lines. If the device still not working refer to this section to find the problem. If the problem does not solve, it is recommended to replace the module with a new one and contact *intelHom* service office in your country.

Fans do not work:

Check the wires polarity.

The alarm does not work:

Check the wires polarity.

Fans do not stop:

Check the box temperature and check the temperature level jumper.

The system is always off and the alarm is always on:

Check the box temperature and check the temperature level jumper.

If none of the above solutions solved the problem, just replace the module with a new one.

Worldwide Sales and Service

For more information about worldwide sales and service offices, visit www.intelhom.com website.