

Sales Info

Sales Information · Vertriebsinformation: 1211/1

WEST
Control Solutions

TB 40-1 Temperature Limiter / Monitor

Summary

As a result of updates to EN 14597(2009-1) the current TB 40-1 device can no longer be used as temperature limiter but only as temperature monitor from January 2012 onwards!

Enhanced versions of the TB 40-1 are now available which can be used either as limiters (TB) or monitors (TW), see table 2. background and details see below.

Modified definition according to EN 14597 (formerly DIN 3440)

„Temperature control devices and temperature limiters for heat generating systems“

After introduction of this new standard (2005-12) the definitions described therein were changed again. According to the latest release (EN14597, 2009-1) a **temperature limiter** is no longer considered as operating equipment (as temperature monitor) but as **protective equipment (!)** which needs to meet higher requirements

As this requirement did not exist at the time on issuing the last certificate for the device, TB 40-1 was formally allowed to be used as temperature limiter for the duration of the certificate

At the end of its 5-year validity period, the expiry of the certificate at the end of December 2011 required us to revise the device and recheck the security of relevant product features of TB 40-1, in order to meet the current regulations of EN14597 (2009-1).

The functionality of the TB 40-1 was enhanced, so that depending on model used (see part code) and its implementation including, mode of operation, configuration and terminal connection, EN 14597 can be met.

The most important requirement for a limiter has now been added: Any device or component must be failsafe and the supply to the plant switched off!



TB 40-1 as replacement for existing plants

Users can still order the current device type, e.g. as a replacement or retrofit, keeping the proven configuration, parameter settings and electrical connections (TB40-1x0-xxxxx or TB40-1x1-xxxxx; see version table). The appropriate connection diagram can be found in Fig. 1.

But: According to the new definition this device now must be considered as a **temperature monitor (!)**. So the configuration texts **3** and **4** have been renamed accordingly from **limiter** to **monitor** (*BlueControl: <configuration>< limit values>< function limit value LC >*; see following table).

Configuration text	Acknowledgement	Order-No.	Connection
3. Temperature monitoring high. (latch)	x	TB40-1x <u>0</u> -xxxxx / TB40-1x <u>1</u> -xxxxx	Fig. 1
4. Temperature monitoring low. (latch)	x		
5. Temperature monitoring high.		TB40-1x <u>0</u> -xxxxx / TB40-1x <u>1</u> -xxxxx →	Fig. 1
6. Temperature monitoring low.		TB40-1x <u>2</u> -xxxxx / TB40-1x <u>3</u> -xxxxx →	Fig. 3
7. Temperature limiter high. (latch)	x	TB40-1x <u>2</u> -xxxxx / TB40-1x <u>3</u> -xxxxx	Fig. 2
8. Temperature limiter low (latch)	x		

Table 1: configuration and dedicated device version

Important: *Please check the safety requirements of your machine / plant!*

Is the usage of a temperature monitor still sufficient to comply to the required Performance Levels in respect to the SIL-class and the EC conformity mark, or is there a product standard (C-norm) requiring the use of a temperature limiter TB?

Application of the TB 40-1 as temperature limiter (TB)

The version table is enhanced with two **temperature limiter** types to meet EN14597 (Table 2). To protect against any component failure, the following must be observed carefully by the user (connection diagram see Fig.2):

- Configure limit value to
7: Temperature limiter high. (latch)
8: Temperature limiter low. (latch), →Table 1!
- Use dual thermocouples, to recognize thermocouple short circuit!
- Connect resistance thermometer according to Fig.2!
- Current/ Voltage input: Connect signal ranges 4...20mA or 2...10V and configure accordingly!
- The switch off function for the safety chain must be connected between terminals **5 – 9!** Limit contact LC and contact output OUT2 are connected in series.
- A jumper is factory fitted between terminals 6 – 7, for use as **limiter** it **must not** be removed!

- Both relays (LC, OUT2) are switched simultaneously. In this operating mode relay contact OUT2 is not available as additional limit contact and cannot be configured as such!

TB 40-1		- 000	
Flat pin connectors	0	↑	↑
Screw terminal connectors	1	↑	↑
90..250V AC, 3 relays,	TW ¹⁾	0	
24VAC / 18..30VDC, 3 relays,	TW ¹⁾	1	
90..250V AC, 2 relays,	TB ²⁾	2	
24VAC / 18..30VDC, 2 relays,	TB ²⁾	3	
Standard configuration		0	
Configuration to specification		9	
No manual		0	
Manual German		D	
Manual English		E	
Manual French		F	
Standard CE-certified)		0	
cULus certified (with screw terminals only!)	³⁾	U	
EN14597 certified (replaces DIN 3440)		D	
Standard version		00	
Customer specification		..	

1) Temperature monitor

2) Temperature limiter TB (EN14597, 2009-1), not available with cULus

3) Not available as Temperature limiter TB (EN14597, 2009-1)

Table 2: Extended version table

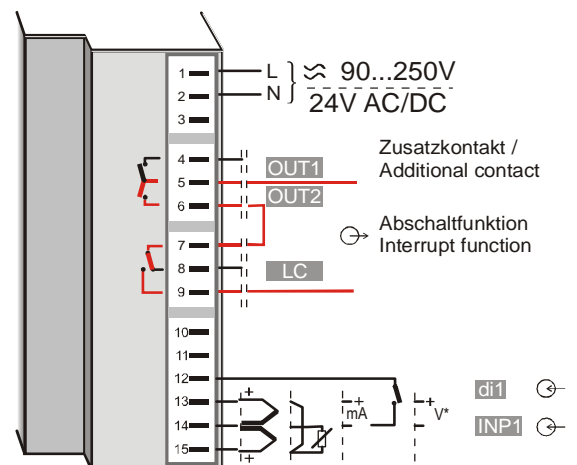
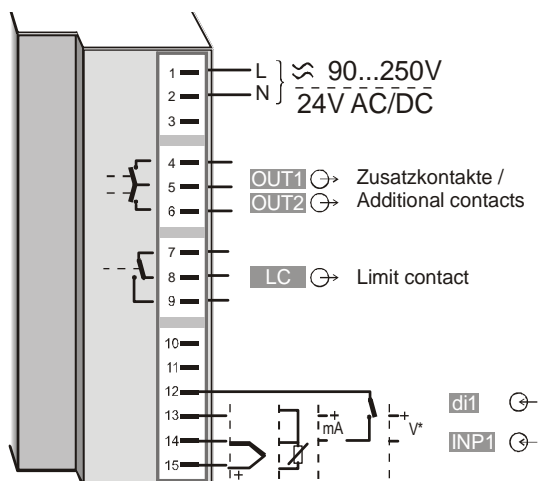


Fig. 1: Former connection diagram TB 40-1
 TB40-1x0-xxxxx / TB40-1x1-xxxxx
 configuration 3 or 4 (→Table 1)

Fig. 2: connection diagram TB 40-1, EN 14597 (2009-1)
 TB40-1x2-xxxxx / TB40-1x3-xxxxx
 configuration 7 or 8 (→Table 1)

Application of the TB 40-1 as temperature monitor (TW)

The device type **temperature limiter** (see version table) can also be configured as **temperature monitor**. The connection of the 2nd thermocouple is omitted (terminals 12 –13).

Relay contacts OUT1 and OUT2 can be configured as additional limit outputs and connected according to Fig.3. Limit contact LC also is also connected according to Fig.3.

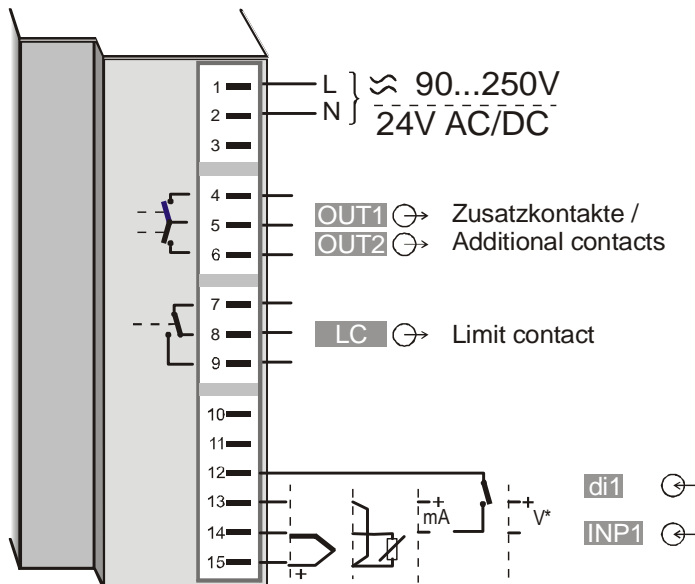


Fig. 3: TB 40-1as temperature monitor TW
 TB40-1x2-xxxxx / TB40-1x3-xxxxx
 configuration 5 or 6 (→Tab.1)

Commercial Data

TB 40-1 application in the present version as **temperature monitor** from Jan-2012
(TB40-1x0-... / TB40-1x1-...):

TB 40-1 application in the new version as **temperature limiter / monitor** from Feb-2012
(Product enhancement TB40-1x2-... / TB40-1x3-...):

BlueControl Version 3.3 SR2 from Feb-2012
(supports the new version as temperature limiter / monitor)

Documentation	Device version	
	Temperature monitor TB40-1x <u>0</u> -xxxxx TB40-1x <u>1</u> -xxxxx	<u>Temperature limiter / monitor (EN14597, 2009-1)</u> TB40-1x <u>2</u> -xxxxx TB40-1x <u>3</u> -xxxxx
▪ Data sheet	German: 9499-737-40433 English: 9499-737-40413	
▪ Operating manual BA	German: 9499-040-63418 English: 9499-040-63411 <i>present version (modified!)</i>	German: 9499-040-93418 English: 9499-040-93411 <i>New version !</i>
▪ Short operating instruction	Multi-lingual 9499-040-65198	Multi-lingual 9499-040-93398
▪ Additional operating note BH Printed on yellow paper!	German / English: 9499-047-15641 <i>Includes the issues described above</i> <i>Refers to the versions applicable as limiter / monitor</i>	