



Safety instructions

TI-36 Ex Solar



Contents	Page
1. Introduction	11
2. Safety Information	11
3. Faults and Damage	12
4. Safety Regulations	12
5. Ex-Data	13
6. Technical Data	13
7. Repairs	13
8. Cleaning and Maintenance	13
9. Guarantee and Liability	14
10. Conformity Declaration	15
11. Certificate of Conformity	16-17
12. Approval Report	18

1. Introduction

Solar-cell powered, the TI-36 Ex Solar pocket sized scientific calculator is certified for use in Ex-hazardous areas classified as Zones 1 & 2 according to IEC/CENELEC (PTB-authorisation) or for Zones 0, 1 & 2 according to NEC (FM-authorisation).

With auto switch on and 160 operations available - displayed to a maximum of 10 significant figures (plus a two - figure exponent) - calculations and computations can be carried out as soon as there is sufficient light on the solar panel.

The internal display register contains three data memories, thereby allowing simple operations such as percentage calculations to be carried out, as well as calculations involving metric conversion systems and physical constants.

The calculator comes complete with a case, which helps provide excellent protection against the rigours of the workplace environment.

As there are no batteries to be replaced or disposed of, the TI-36 Ex Solar from ECOM represents a real and active contribution towards environmental protection. Whilst for the user, the instrument is always ready for use.

2. Safety Information

Safe operation of the equipment is maintained providing that all instructions and warnings contained in this manual are fully observed.

In case of doubt (due to translation and/or printing errors) reference should be made to the original German instruction manual.

3. Faults and Damage

If there is any reason to suspect that the safety of the unit has been affected then it must be immediately withdrawn from use and precautionary measures taken in order to prevent any further use of in the hazardous area.

The safety and integrity of the unit may be compromised by, for example:

- External damage to the housing.
- Exposure to excessive loads.
- Incorrect storage of the unit.
- Damage sustained in transit
- Correct certification is illegible.
- Functioning errors occur
- The permitted limitations are exceeded

4. Safety Regulations

The use of the TI-36 Ex Solar meets the requirements of the regulations providing that the user observes and applies the requirements as laid down in the regulations and that improper and incorrect use of the unit is avoided.

The following safety regulation must be adhered to:

- **Should the protective coat of paint against electrostatic charges be damaged, then the equipment has to be taken out of service.**

5. Ex-Data



Certificate of Conformity: PTB 01 ATEX 2133

Ex-Marking:  II 2 G EEx ia IIC T4

Permitted for Zone 1, Equipment group II, Gas group C hazardous gases, vapour or mist, Temperature Class T4



Report Job Identification No.: 3009965


FM-Marking:

Class 1 Zone 0 AEx ia IIC T6

I.S. Class 1 Division 1 Group A-D T6

Permitted for Zone 0, Equipment group II, Gas group C, Temperature class T6

6. Technical Data

Power Supply	: Solar cells
Working Temperature	: 0°C ... +40°C
Storage Temperature	: -20°C ... +50°C
Dimensions	: 70 x 140 x 10 mm
Weight	: 100g
CE-Indicator	:  0102

7. Repairs

The general terms and conditions of ELEX V apply to repair work. The manufacturer must carry out the repair work in order to check for the safe functioning of the protective circuits.

8. Cleaning and Maintenance

The equipment must only be cleaned with a damp cloth or sponge. Do not use abrasive solutions or scrubbing equipment for cleaning. It is recommended that the manufacturer check the functioning and accuracy of the equipment every two years.

9. Guarantee and Liability

ecom instruments GmbH grants a guarantee, for a period of 2 years from the date of delivery, for the operation and material of this product under normal operating and maintenance conditions.

This guarantee does not apply to products used improperly, altered or neglected, or exposed to accidental damage or abnormal operating conditions as well as improper handling. Guarantee claims can only be granted if the defective equipment is returned to ECOM.

We reserve the right to repair, modify or exchange any equipment.

The guarantee regulations are the only rights to compensation of a purchase and are valid above all other contracts or legal guarantee duties. ECOM takes no responsibility for any consequential damages or losses, including the loss of data, independent of whether legal or illegal actions, or actions treated as other handling, can be traced back to violation of the guarantee.

In the case of some countries, where the restrictions of a legal guarantee as well as the exception or restriction of consequential damage is not permitted, it could be that the above mentioned limitations and exceptions are not valid for every purchase. Should an appropriate court find any condition of such regulations ineffective or non-acceptable, the effectiveness or forcibility of any other condition, under such guarantee regulations, remains untouched.

Certificate of Conformity

Physikalisch-Technische Bundesanstalt (PTB)

[approx. Physical-Technical Federal German Institute]
Braunschweig and Berlin

(13) **Appendix**

(14) **EC Prototype Test Certificate PTB 01 ATEX 2133**

(15) Description of instrument

The above instrument, TI – 36 Ex Solar – is a pocket calculator designed for computations and calculations to be carried out in explosion-hazardous areas. The energy supply for the instrument is provided exclusively via an incorporated solar cell.

The type of protection of the instrument is as follows:

⊕ II 2 G EEx ia IIC T4

The permissible ambient temperature is as follows:
-20°C to +50°C

Electrical data

Power supply: $U_{max} \leq 4.74 \text{ V}$
 $P_{max} \leq 7.40 \text{ mW}$
Panasonic BP – 5511C4C (solar cell)

(16) Test report PTB Ex 01-20445

(17) Special conditions
none

(18) Basic safety and health requirements
Covered by the standards

Certification Agency for Explosion Protection


By Order: Braunschweig, September 21, 2001

Signature: illegible
Dr.-Ing. U. Johannsmeyer
Government Director

Round seal:
Physikalisch-Technische Bundesanstalt (PTB)
Braunschweig and Berlin

page 2/2

I hereby certify that this is a true and complete translation of a document in the German language.
D-97209 Veitshöchheim, November 22, 2001



12. Approval Report

Factory Mutual Research

NOT to be distributed outside of FMGlobal except by CUSTOMER.

APPROVAL REPORT

**TI-36Ex SOLAR CALCULATOR
FOR USE IN
HAZARDOUS (CLASSIFIED) LOCATIONS**

Prepared for:

**ECOM Rolf Nied GmbH
Industriestraße 2
D-97959 Assamstadt, Germany**

**Project ID: 3009965
Class 3610, 3611
Date: February 2, 2001
Supersedes report dated December 21, 2000**

Factory Mutual Research Corporation
1151 Boston-Providence Turnpike
P.O. Box 9102
Norwood, MA 02062

An FM Global Affiliate



ecom instruments GmbH

Industriestr.2
D-97959 Assamstadt

Tel.: +49 (0) 62 94/42 24 0
Fax: +49 (0) 62 94/42 24 90

E-Mail: sales@ecom-ex.com
Internet: www.ecom-ex.com