Easergy
TH110

Installation and Operation Manual

NVE62740-01

12 / 2020

zigbee
certified
product

www.se.com

Schneider Electric

Legal Information

Safety information

Important information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a «Danger» or «Warning» safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

This is the symbol used for wireless communication based on radio frequency technologies. It could be combined with the safety alert symbol when a minimum distance is required.

⚠ DANGER
DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING
WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION
CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE
NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this signal word.

Please note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Radio Frequencies

The TH110 device obtained the radio frequency conformity delivered by the following certification organisms:

Certification organism	Certification organism country	Certification marks
ANATEL	Brazil	ANATEL 08765-17-06851
IC	Canada	See on the device
KCC	South Korea	R-C-SEk-TH110
NCC	Taïwan	CCAM19LP0790T6
	European Union	See on the device
FCC	USA	See on the device
ICASA	South Africa	TA-2019 / 5829 ICASA APPROVED

European Radio Electric Directive (2014/53/EU)

Hereby, Schneider Electric declares that the radio equipment type wideband transmission system is in compliance with directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address:

https://www.se.com/ww/en/download/document/PHA7259400/

Parameter	Value	Unit
Operating frequency range	2400 – 2483.5	MHz
Maximum transmitted power	10	dBm

Eurasian Conformity Mark (EAC)

Translation of this document in Russian language is available at the following internet address:
https://www.se.com/ww/en/download/document/ NVE6274002/

Notices

FCC Part 15 Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception which can be determined by turning the equipment off and on, the user is encouraged to try to correct interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

Any change or modification of the product not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IC

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.
Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

NCC

根據 NCC 低功率電波輻射性電機管理辦法規定：

According to the NCC Administrative Regulations on Low Power Radio Waves Radiated Devices:

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

Article 12 Without permission granted by the DGT, any company, enterprise, or user is not allowed to change frequency, enhance transmitting power or alter original characteristic as well as performance to an approved low power radio-frequency device.

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Article 14 The low power radio-frequency devices shall not influence aircraft security and interfere legal communications; If found, the user shall cease operating immediately until no interference is achieved. The said legal communications means radio communications is operated in compliance with the Telecommunications Act. The low power radio-frequency devices must be susceptible with the interference from legal communications or ISM radio wave radiated devices Wireless device operate in the frequency band of 5.25-5.35 GHz, limited for Indoor use only.

KCC

제품사양 및 인증정보

항목	내용	
주파수범위	송신	2 405 MHz ~ 2 480 MHz
	수신	2 405 MHz ~ 2 480 MHz
변조방식	O-QPSK	
전파형식	G1D	

인 증 번 호 : R-C-SEk-TH110
상 호 : 슈나이더일렉트릭코리아
기자재 명칭 : 특정소출력 무선기기(무선데이터통신시스템용 무선기기)
모 델 명 : TH110
제 조 년 월 : 별도표기
제조자 및 제조국가 : PT. Flextronics Manufacturing Indonesia / INDONESIA

Table of Contents

1 Safety Precautions

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Read and understand this guide and the guides according to the switchgear or other equipment where the Easergy TH110 will be installed before performing any installation or maintenance operation. If the installation and user guides of the switchgear and other equipment do not cover the integration of the Easergy TH110, contact the manufacturer of the switchgear.
- Do not replace the Easergy TH110 by any similar product not specified within this document.
- Do not use the Easergy TH110 in a manner not specified by this document.
- Check if the technical ratings of the Easergy sensor TH110 are adapted to the application (See §3 Installation & Operation manual).
- Place the Easergy TH110 sensors only on the locations prescribed on the specific equipment installation guide.
- Do not leave protruding sharp edges on the ferromagnetic ribbon after cutting off the excess material.
- Tighten the fixing and self-gripping tape around the Easergy TH110 sensor to fully restrain its movement.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, NOM-029-STPS, CSA Z462 or local applicable regulations.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

2 Cautions

⚠CAUTION

EXPOSURE TO CHEMICAL AGENTS

- Do not use chemical solvents or alcohol.

Failure to follow these instructions can result in injury.

⚠CAUTION

EXPOSURE TO HOT SURFACES

- As the sensor can measure temperatures above 50°C:
  - Heat and cut resistant ANSI level 3 or higher safety gloves are required.
  - Allow surface to cool before servicing.

Failure to follow these instructions can result in injury.

⚠CAUTION

EXPOSURE TO RADIO FREQUENCY

- Read and understand this guide before performing any installation with the sensor Easergy TH110.

Failure to follow these instructions can result in injury.

FCC: This device complies with FCC RF radiation exposure limits set forth for general population. This device must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

IC: This device complies with Industry Canada RF radiation exposure limits set forth for general population. This device must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. *Le présent appareil est conforme aux niveaux limites d'exigences d'exposition RF aux personnes définies par Industrie Canada. L'appareil doit être installé afin d'offrir une distance de séparation d'au moins 20cm avec l'utilisateur, et ne doit pas être installé à proximité ou être utilisé en conjonction avec une autre antenne ou un autre émetteur.*

3 Installation

The Easergy TH110 is a batteryless and wireless communication temperature sensor using ZigBee 2.4GHz protocol according to the IEEE 802.15.4.

The Easergy TH110 is a mobile device as defined by the FCC.

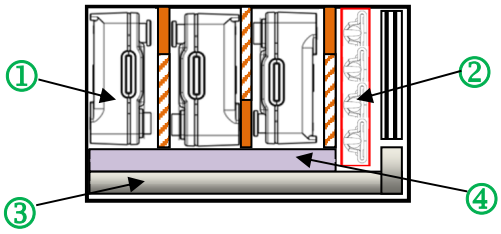
This product is Green Power by the Zigbee Alliance.

This Installation and Operation manual explains the correct installation of the Easergy TH110 thermal monitoring sensor.

3.1 Easergy TH110 sensor kit of 3 packaging contents

- Verify that the reference number printed on the packaging label coincides with the purchase order..
- Remove the Easergy TH110 sensors and accessories from the packaging and verify the contents.

Ref.	Detail	Qty.
①	Easergy TH110 sensor 	3
②	Tie locking head 	4
③	Fixing & self-gripping tape L=565mm & W=16mm 	3
④	Quick start guide	1



By using the big box references:

- The tie locking heads to fix the ferromagnetic ribbon shall be procured separately on the market: Supplier: PANDUIT - Product ref.: MTHH-C316;
- The Fixing & self-gripping tape shall be procured separately from Schneider Electric.

3.2 Ferromagnetic ribbon packaging content

• The ferromagnetic ribbon is ordered separately

• Remove the ferromagnetic ribbon from the packaging and inspect that it has not been damaged during shipment.

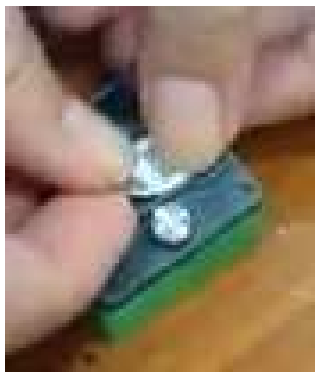
3.3 Pairing of the Easergy TH110 sensor

• Each sensor must be paired with a ZigBee Green Power access point to collect the data.

• By default, the sensor is set to pairing mode and ready to be paired with any open access point as soon as the sensor is powered on.

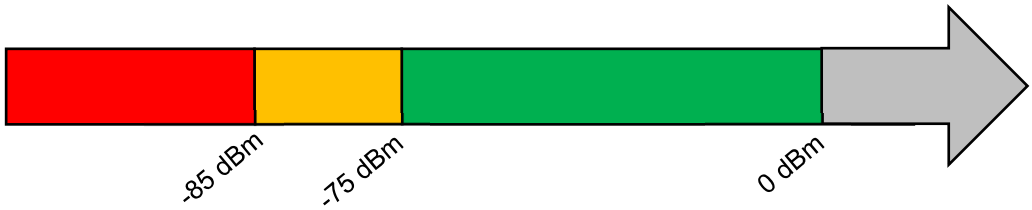
• A set of two QR codes is placed on the bottom surface of the sensor. The two QR codes are identical and they're intended for facilitating pairing operations; the scan of the QR code returns the sensor ZigBee ID and serial number. One of the two QR codes is a detachable sticker that may be located in proximity of the sensor after its installation in order to retrieve the sensor information when the bottom surface is not visible. For that, it's recommended to maintain no detachable part by the hand before to detach the second part. The QR code removable sticker should be detached with plyers or without protective gloves due to small size of the sticker.

Both QR codes may be left on the sensor if not needed.



3.4 RSSI level

The Received Signal Strength Indicator (RSSI) is a measure of the signal power level at the receiver. It's a negative value measured in decibels (dBm) on a logarithmic scale. The bigger the absolute value of the RSSI, the lower the strength of the signal is (RSSI absolute value and distance between sensor and its receiver are directly proportional).
Received power levels are impacted by several factors. Examples are the location of the receiver or its antenna and the presence of metallic barriers between the sensor and the receiver.
RSSI level guidelines are:



Good Zigbee reception

Limited Zigbee reception, risk of unstable communication

Bad Zigbee reception, not adequate shall be improving

3.5 Installation of the Easergy TH110 Sensors

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, NOM-029-STPS, CSA Z462 or local applicable regulations.
- Turn off all power supplying this equipment before working on or inside equipment.

Failure to follow these instructions will result in death or serious injury.

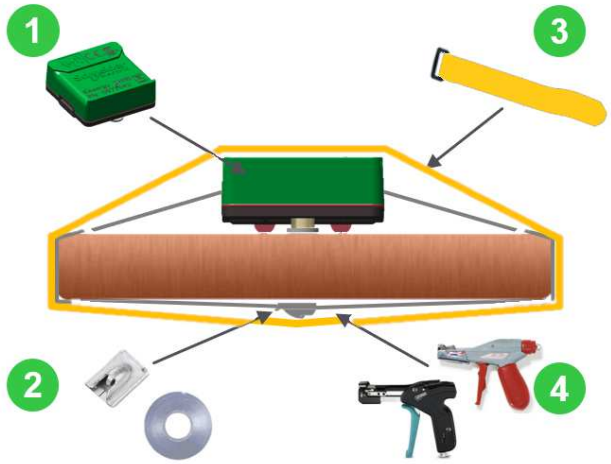
⚠ CAUTION

EXPOSURE TO CUTTING PARTS

- Heat and cut resistant ANSI level 3 or higher safety gloves are required.
- Use protective gloves and follow all security instructions

Failure to follow these instructions can result in injury.

The following referenced items need to be prepared before performing a TH110 sensor installation:



1. Thermal sensor Easergy TH110
2. Tie locking head and ferromagnetic ribbon.
3. Self-gripping tape.
4. Specified tie tools: Phoenix Contact PN 1212610 or HellermannTyton PN MK9SST.

Easergy TH110 Installation Steps:

(1) Prepare the referenced items and tools.

(2) If the TH110 sensor was paired prior to installation, verify that the sensor ZigBee ID matches the designated location and phase within the monitored equipment by checking the ID number on the side of the sensor, the sensor QR code, or other marking means such as factory-provided labels.

(3) After inspecting for damage or dents and cleaning any dust over the ferromagnetic ribbon with a dry rag or paper towel, cut a strip of ribbon to a length matching the perimeter of the installation location + 100mm.

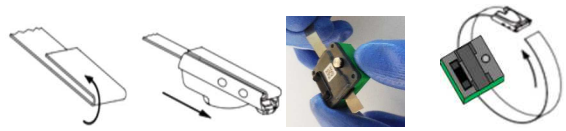
(4) Prepare the ferromagnetic ribbon with the self-locking tie locking head and the sensor.

a. Take one end of the strip of ferromagnetic ribbon and bend it back about 13mm.

b. Take a tie locking head and slide it through the entire length of the band until it reaches the bend.

c. Insert the flat tail of the ferromagnetic ribbon inside the Easergy TH110 through the opening. Avoid deforming the ferromagnetic ribbon before closing the loop with the tie lock and the sensor.

Don't push on the thermistor during manipulations



Steps: (4) a. (4) b. (4) c

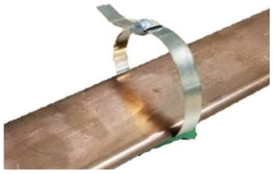
⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Place the Easergy TH110 sensors only on the locations prescribed on the specific equipment installation guide.
- If the installation and user guides of the switchgear and other equipment do not cover the integration of the Easergy TH110, contact the manufacturer of the equipment.
- Do not leave protruding sharp edges on the ferromagnetic ribbon after cutting off the excess material.
- Tighten the fixing and self-gripping tape around the Easergy TH110 sensor to fully restrain its movement.

Failure to follow these instructions will result in death or serious injury.

(5) Place the Easergy TH110 sensor on the location to be monitored making sure the thermistor on the bottom surface is in full contact with the designated measurement point and then close the ferromagnetic ribbon loop by inserting the flat and free end of the ribbon through the tie lock.



Step (5)

Consider the following:

- The sensor location shall be in accordance with the installation prescriptions of the electrical equipment.
- Select a clean top-surface of a flat or round busbar.
- Prefer horizontal installation.
- The thermistor shall be oriented toward the monitored connection point.
- **Warning**: no displacement or mechanical shocks on the NTC metallic head of the TH110 shall occur during or after tightening of the ferromagnetic ribbon and the fixing-strap.
- **Important:** when active conductor have many separated bars, placing the ferromagnetic ribbon only around one bar.
- When placing the TH110 sensors on Circuit Breaker arms, attention to the positioning shall be paid to avoid mechanical interferences and potential damage to the sensor when racking in/out the breaker.

(6) Introduce the protruding portion of ferromagnetic ribbon shown in step (5) inside the tie tool (Ref. 4, 1212610 by Phoenix Contact or MK9SST by (HellermannTyton).

(7) The adjustable tension force is indicated by a dial in the handle area. Set the tool at level 1 (around 200N Max of tensile force) and pull the ferromagnetic ribbon by operating the tool handle.

Step: (7)

(8) Complete the pulling operation of the ferromagnetic ribbon
   a. When the tension reaches the pre-set value, the ferromagnetic ribbon is automatically cutby the tool.
   b. Discard the excess ferromagnetic ribbon.
   c. Flatten out any sharp edges protruding from the self-locking head after the ribbon is cut.
   d. If necessary, flatten the excess ribbon protruding from the tie locking head with a set of pliers.

(9) Install the fixing and self-gripping tape (Ref. 3) over the Easergy TH110 sensor and the ferromagnetic ribbon:
   a. Wrap the fixing and self-gripping tape around the sensor and insert its loose end in the buckle.
   b. Pull tightly to ensure a secure mounting and press the rough side against the soft side to lock the tape in position. To finish the installation, cut off the non-gripped part with scissors.

4 Operation

4.1 General

The product Easergy TH110 is a battery-free wireless thermal sensor able to harvest the energy required for its operation from the electromagnetic field generated by the current flowing through the monitored conductor. It is intended to be used within indoor high and low voltage electrical distribution products or assemblies to monitor the temperatures of any energized connection. The sensor shall be used with a Schneider Electric access point able to communicate with sensors using ZigBee Green Power wireless communication protocol.

4.2 Product technical datasheet

Main

Range of product	Easergy
Product or component type	Indoor thermal sensor for wireless access point
Rated supply	Starting current: for energy harvesting 0.4 A/cm of the peripheral AC live part (Batteryless)
	Supply is not disturbed by temporary overvoltage within the limit of the HV or LV switchgear.

Complementary

Voltage limit of the live and measured part	52kV
Induced voltage	15V max
Current limit of the live and measured part	5000A without exceeding the temperature rise limits
Dimensions range of live and measured part	Perimeter range: 60 – 300 mm
Power consumption	20mA during radio transmission mode
	2µA max in sleeping mode
Wireless communication protocol	Zigbee Green power at 2.4 GHz according to IEEE 802.15.4
Transmission period	60s
Connection type	See associated Zigbee concentrator (EBX 200, Sologate, E-gate…)
Marking	CE (cf applicable Directives)
Mounting support	Direct on live part or shielded insulation part by fixing tape
Height	15 mm
Depth	31 mm
Width	31 mm
Product weight	0.015 kg

Environment

Product certifications	CB IECEE ID: FR682889
	cBVus ID: CABA
	FCC ID: 2AHP8-097742
	IC: 21245-097742
	Marine & Offshore: 49122/A1 BV
	LV Directive 2014/35/EU
	EU EMC Directive 2014/30/EU
	EU RED Directive 2014/53/EU
Main standards	EN / IEC 61010 2010 (UL 61010 -1 2012)
	IEC/EN 62311:2008
	ETSI EN 300 328 V1.9.1(2015) & ETSI EN 300 328 V2.2.1 (2016)
	IEEE 802.15.4 2013
Power emission	EIRP= +5dBm
Resistance to electrostatic discharge	2-4-8-15kV (Direct & Indirect contact) according to EN/IEC 61000-4-2
	2-4-8-15kV (in air) according to EN/IEC 61000-4-2
Resistance to electromagnetic fields	30V/m (80MHz...5.7 GHz) according to EN/IEC 61000-4-3
	20 V/m (80MHz....5.9 GHz) according to EN/IEC 61000-4-3
Resistance to conducted disturbances, induced by radio frequency fields	20 V (0.15...80 MHz) according to EN/IEC 61000-4-6
Power frequency magnetic field immunity	1000A/m Pulse and 300A/m Continue EN/IEC 61000-4-8

Pulse magnetic field immunity	1000A/m Pulse EN/IEC 61000-4-9
Damped oscillatory magnetic field immunity	30A/m (0.1 & 1 MHz) EN/IEC 61000-4-10
Electrical fast transient/burst immunity	4kV 1 min EN/IEC 61000-4-4
	2kV 5min (Marine) EN/IEC 61000-4-4
Damped oscillatory wave immunity	3kV (CM - 100kHz & 1MHz) EN/IEC 61000-4-18
	2.5kV (CM - 3MHz, 10MHz, 30MHz) EN/IEC 61000-4-18
Surge immunity	0.5-1-2-4kV (Common mode) EN/IEC 61000-4-5
	0.5-1-2-4kV (Differential mode) EN/IEC 61000-4-5
Immunity to conducted RF disturbances	30V Continuous (0 – 150kHz) EN/IEC 61000-4-16
	300V Short duration (0 – 150kHz) EN/IEC 61000-4-16
Ambient air temperature for operation	-25...80°C Any live and measured parts shall be lower than IEC limits (115°C Max)
Accuracy	+/-1°C between -25°C...80°C and +/-2°C outside the range.
Measured temperature for operation (live and measured part)	-25...115°C for 80°C at maximum ambient temperature -25...125°C for 40°C at maximum ambient temperature
	150°C max (limited time)
Ambient air temperature for storage	-40...70°C
Relative humidity	10...95 % over a period of 24h condensation may occasionally occur in operation
	10...90 % over a period of one-month condensation may occasionally occur in operation
IP degree of protection	IP54 IEC 60529
Mechanical impact	IK07 IEC 62262 (Exposed side vs Measuring side)
Pollution degree	2 IEC 61010-1
Operating altitude	0...4000 m
Storage altitude	0...4000 m
Vibrations sinusoidal during transport	5-8Hz Ampl 7.5mm, 8-200Hz 2g, 200-500Hz 4g 20 cycles Test Fc according to IEC 60068-2-6 (2M3 according to IEC 60721-3-2)
Vibrations random during transport	10-2000Hz 0,1g/Hz 30 min/axe according to IEC 60068-2-64
Shocks	3 shocks 2 directions 3 axes 40g 6ms (Ea) according to IEC 60068-2-27 (2M3)
	1000 shocks 2 directions 3 axes 20g 16ms (Ea) according to IEC 60068-2-27
Free falls	2m 2 free falls according to IEC 60068-2-31
Vibrations sinusoidal in operation (Installed on bar)	5-500Hz 1g 1cycle (10min) 3mm Test Fc according to IEC 60068-2-6 (3M5 according to IEC 60721-3-3)
Shocks in operation (Installed on bar)	3 shocks 3 directions 10g 11ms (Ea) according to IEC 60068-2-27 (3M5 according to IEC 60721-3-3)
Glow-wire flammability withstand	960°C
Maximum distance between sensor and the access point	100m in free field unobstructed
	25m when the components are separated by one layer of metal
	10m when the components are separated by two layers of metal

Offer Sustainability

Sustainable offer status	In progress
RoHS	EU RoHS Directive 2011/65/EU
REACH	Reference not containing SVHC above the threshold. Candidate list January 2017.
Product environmental profile	ISO 14025
Product end of life instructions	WEEE

5 Maintenance

5.1 General Precautions

⚠ ⚠ DANGER	
	**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH** • Read and understand this guide and the guides according to the switchgear or other equipment where the Easergy TH110 will be installed before performing any installation or maintenance operation. If the installation and user guides of the switchgear and other equipment do not cover the integration of the Easergy TH110, contact the manufacturer of the switchgear. • Do not replace the Easergy TH110 by any similar product not specified within this document. • Do not use the Easergy TH110 in a manner not specified by this document. • Check if the technical ratings of the Easergy sensor TH110 are adapted to the application (See §3 Installation & Operation manual). • Place the Easergy TH110 sensors only on the locations prescribed on the specific equipment installation guide. • Do not leave protruding sharp edges on the ferromagnetic ribbon after cutting off the excess material. • Tighten the fixing and self-gripping tape around the Easergy TH110 sensor to fully restrain its movement. • Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, NOM-029-STPS, CSA Z462 or local applicable regulations. • This equipment must only be installed and serviced by qualified electrical personnel. • Turn off all power supplying this equipment before working on or inside equipment. • Always use a properly rated voltage sensing device to confirm power is off. • Replace all devices, doors and covers before turning on power to this equipment. **Failure to follow these instructions will result in death or serious injury.**

5.2 Periodical maintenance

⚠ CAUTION

EXPOSURE TO HOT SURFACES AND CUTS

- As the sensor can measure temperatures above 50°C:
  - Heat and cut resistant ANSI level 3 or higher safety gloves are required.
  - Allow surface to cool before servicing.

Failure to follow these instructions can result in injury.

The Easergy TH110 sensors do not require specific maintenance or calibration. However, it is recommended to visually inspect the sensors while routine switchgear maintenance is performed. The sensors should be inspected for proper placement, signs of visual damage and to ensure that no debris accumulated between the sensor and the contact point.

If needed, contact the nearest **Schneider Electric** services center to perform any form of maintenance.

If any self-gripping tape requires replacing, proceed to remove the old one and installing a new one as defined in §3.4 (step 9) following all safety procedures specified in this guide.

In harsh conditions (aggressive atmosphere, dust, ambient temperature greater than 40°C), please consult the nearest **Schneider Electric** services center about the entire installation.

6 Troubleshooting

If you require assistance from the technical support team, please follow the upcoming guidelines:

- Don't remove the sensors until instructed to do so.
- If you use a ZBRN32 (or any other ZigBee access point), download a backup of the setting files of the receiver (Refer to the receiver manual for instructions on the backup procedure).
- Send some visual aids (screenshots or videos) clearly showing the abnormal behavior.

Trouble	***Recommended Solutions***
Sensor is not detected by the access point.	Check if other sensors are also not being detected.
	Check if the sensor was already detected by the access point.
	Ensure the measured part is energized by following all the safety procedures stated on this guide.
	Ensure the measured part is energized with a current over the starting current value by following all the safety procedures stated on this guide. *Energy harvesting should be at least 0.4A/cm of the peripheral AC live part during usual operation and it should be at least 1.6A/cm during pairing process. For example, if 10cm of ferromagnetic ribbon are used to mount a sensor, a minimum of 4A (0.4A/cm*10cm) is required to operate the sensor and a minimum of 16A (1.6A/cm*10cm) is required for the sensor pairing operation.*
	Check if the sensor is already paired to any other access point.
	Check if the distance between the sensor and the access point is within the specified limits. - *Fixed in the middle of 5 cells (600mm max) in a row if the access point is without external antenna.* - *Fixed in the middle of 7 cells (600mm max) in a row if the access point is with external antenna.* - *The distance between sensor and access point need to be less than 10m with no more than two layers of metal interposed between them.*
	Check if the ferromagnetic ribbon is broken due to damage
	Ensure the sensor has been properly marked and located within the assembly by checking its marking against the ID communicated by the sensor.
Measurement is near to ambient temperature, but it is abnormal compared to the measurement of an adjacent phase.	Check if the associated phase is loaded and balanced with the adjacent phase.
	Check if the sensor is fixed as specified in this guide and in the right position. If it's not possible to check please, call the nearest **Schneider Electric** Customer Care Center.
Measurement is no more received by the access point.	Check if the sensor is still paired with the access point. The ID number must be listed inside the access point back up files. If not, refer to the access point documentation.

	Check on the access point if the RSSI is above the value requested. (-75dBm for ZBRN32). The reception could random if the sensor signal is at its limit RF range (refer to above point 3.5)
Measurement is above the limits.	Check if installation conditions may have damaged the sensing element, due to, for example: - Shock on the product or on the NTC - High clamping force on the NTC with the Kevlar strip - Move product after mounting on the bar

7 Environnemental impacts

7.1 Product environmental profile

The EIME (Environmental Impact and Management Explorer) software, version V3, and its database, version 5.4 were used to assess the product environmental profile (PEP). The assumed service life of the product is 20 years with a utilization rate based on the mission profile of the Easergy TH110 and the electrical power model used is European. The scope of the analysis was limited to the Easergy TH110 sensor and its accessories to be supplied and fixed. The environmental impacts were analyzed for the Manufacturing (M) phases, including the processing of raw materials, and for the Distribution (D) and Utilization (U) phases. Easergy TH110 is compliant with the RoHS directive. RoHS restricts the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment.

7.2 Product Overview

The range is RoHS compliant: as the product of the range are designed in accordance with the RoHS Directive (European Directive 2011/65/EC of 08 June 2011), they can be incorporated without any restriction within an assembly or an installation submitted to this Directive. RoHS restricts the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment. Easergy TH110 is compliant with the RoHS directive.

7.3 End of life

At end of life, the products of the Easergy TH110 sensor shall be dismantled to facilitate the recovery of the various constituent materials.

7.4 Recycling

Schneider Electric is committed to a long-term environmental approach. As part of this, the Easergy TH110 sensor has been designed to be environmentally friendly, notably in terms of the product's recyclability. The materials used are identified in product environmental profile (PEP) analysis and easily separable. It has been carried out in conformity with ISO 14040 "Environmental management: life cycle assessment - principle and framework".

At the end of its life, Easergy TH110 can be processed, recycled and its materials recovered in conformity with the draft European regulations on the end-of-life of electronic and electrical products.

Schneider Electric
35 rue Joseph Monier
92500 Rueil Malmaison – France
Phone: +33 (0) 1 41 29 70 00
www.se.com

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