tork

valve & automation

GA SERIES
GAS ALARM DEVICES
USER MANUAL

MARCH 2023

PLEASE READ THE INSTRUCTIONS BEFORE USE!

www.smstork.com

Read the operating instructions first.

- Follow the safety instructions.
- These operating instructions are part of the product.
- Retaing the operating instructions for life of the product.
- Forward instructions to future users or owners of the product.

Target Group:

This document contains information for installation, commissioning and maintenance personnel.

INDEX

1. SAFETY INSTRUCTIONS

1.1. Security Basics

• Our products are designed and manufactured in accordance with accepted standards.

• End user and contractor must comply with requirements such as legal requirements, directives, installation guidelines, regulations and recommendations, electrical connection, commissioning, operation and installation.

• In order to prevent personal injury and possible damage to the product, all personnel working with this device must comply with the safety and warnings specified in the safety instructions.

• Installation, electrical connection, commissioning, operation and maintenance must be performed by suitably qualified personnel authorized by the end user or contractor.

• Personnel must fully read and understand the instructions before working on this product.

• These instructions are given to know and abide by the officially recognized rules.

• Work in potentially explosive atmospheres is subject to special regulations.

• Before commissioning, it is important to check to make sure all settings are correct.

• Incorrect settings or connections may pose a danger to the application and may damage the valve or installation.

• The manufacturer cannot be held responsible for any consequential damages. This risk is entirely with the user.

• Care should be taken in cases such as transportation, proper storage, assembly and installation.

• Operate the device in accordance with the instructions.

• End user or contractor are responsible for implementing the necessary protective measures, providing and procuring enclosures, barriers or personal protective safety equipment for personnel.

• Maintenance and service operations should only be performed by trained and authorized personnel. During maintenance intervention on the faulty unit, it must be worked in accordance with the operating instructions.

• Any device changes require the manufacturer's prior written approval.

• Relevant explanation on opening the covers or loosening the screws is available in the operating instruct.

1.2. Warnings and precautions

The following warnings draw particular attention to safety-related procedures on these devices.

DANGER	WARNING	CAUTION	NOTE
Indicates an imminent dangerous situation with a high level of risk. Ignoring this warning will result in death or serious injury	Indicates a potentially hazardous situation with moderate risk. Ignoring this warning could result in death or serious injury.	Indicates a potentially dangerous situation with a low level of risk. It may cause property damage, minor or moderate injury. This warning should be heeded.	Potentially dangerous situation. Ignoring this warning does not apply to property damage and personal injury.

1.3. Considerations

CAUTION Pay attention to the following points in order to use the device safely.

- The device should not be used for any other purpose.
- Maintenance and service operations should only be performed by trained and authorized personnel.
- The device must be protected from vibrations and mechanical shocks.
- The frequency and voltage of the power line should comply with the device specifications, and it should be able to deliver sufficient current to the device.
- Devices that may cause electrical noise should not be located in the supply line.
- The device should not be constructed in such a way that the device's power cables, sensor cables, output connection cables and the gas alarm device and cables to which it is connected prevent the movements of persons.
- The device must be used with accessories and parts supplied by the manufacturer. The use of different accessories and parts may cause the device to malfunction or malfunction.
- The device and its cables should not be subjected to any mechanical stress.
- The device and its accessories should be checked at least once a year.
- If possible, a fire extinguisher should be available.
- The user must have the necessary training and knowledge about fire extinguishing.
- After making sure that the device connections are made correctly and completely, the device should be started.

WARNING If the device gives an alarm in cases such as gas leakage detection or malfunction due to possible reasons, the following in the environments where gas leakage occurs

- First of all, stay calm.
- Heed and obey the warnings, alarms and messages specified in this instruction and the device.
- The device shuts down the energy of the relevant system connected to the output relay in case of any malfunction, inability to detect leaking gases or in case of alarms due to different reasons.
- Check if there is a gas leak in the environment where gas alarm detectors are located. If there is, open the doors and windows without panicking and let it get ventilated.

DANGER Against the risk of fire;

- Close the gas valve, starting from the place closest to you.
- Do not plug any electrical appliances into sockets.
- Do not use electrical devices. Warn users.
- Do not use devices such as doorbells, cell phones and walkie-talkies.
- Contact a specialist from the gas distribution company in a suitable, safe place.
- Secure yourself first. If there is a flame, extinguish it. If there is a natural gas sourced flame, it is useless and dangerous to try to extinguish the flame without closing the gas valve. If the flame size is large, immediately inform service units such as fire extinguishing, fire brigade and take action.
- If electrical equipment is on fire, do not try to extinguish it with water. Use a fire extinguisher.
- If you smell gas before the device alarms, intervene appropriately by following the warnings and instructions without waiting for the device to alarm.

continues, leave the area for precaution. Contact the gas distribution company to check the parts, make them safe and make the necessary maintenance and repairs. If there is a device problem, inform the manufacturer.

• Check all accessories and connections before using or recommissioning the device. Do not use damaged accessories and cables. Improper accessories, faulty or poor connections can cause unexpected problems such as electrical shocks.

• Before commissioning the device, make the necessary settings on the device, make sure that it detects gas, that the output control relays work, that the buzzer (audible warning) and signal output work.

• When the device needs to be tested with gas, first check if there are gas leaks or situations that may cause danger or other devices in the environment. If there is a danger, cut the power of the device and take it to a safe environment and perform the test procedures there.

• During installation/assembly and commissioning, the user should use suitable assembly tools and avoid actions that may endanger his own safety.

1.4. References and symbols

Below references and symbols are used in this instruction.

SIGNS /SYMBOLS	DEFINITIONS
L(phase)	Live end connection point on AC voltage supplies
N (neutral)	Neutral end connection point in AC voltage supplies
Grounding symbol ⏚	Connection point for earthing connection of the device
NO	"Normally Open". Ignition connection point
COM	"Common" Contact connection point
NC	"Normally Closed". Ignition connection point

Table 1: Symbols

Reference Standards: EN 50194-1, EN 60335-1, EN 60079-29-1, EN 50244

2. INFORMATION

2.1. Basic information

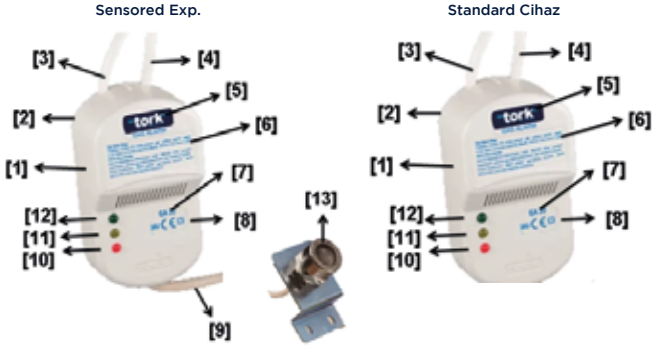
Gas alarm devices are used to give visual and audible warnings if there is any natural gas or LPG leak in houses and similar places, valves, sirens, etc. connected to the output of the device. It is designed to control systems. They are electrical gas alarm devices that are installed in a fixed place and work continuously. Thanks to its relay output, it automatically switches to devices such as aspirator, siren, gas cut-off valve in case of alarm. It gives audible and visual (led) warning.

The concentration limit of air or certain flammable gases that will not cause explosion or flashing is called the Lower Explosion Limit (APS). The APS value of natural gas is 0.5% and LPG is 2%, and the gas alarm device starts to give an audible and light alarm before the gas leak reaches one of these values. For natural gas, the alarm level of the device is 0.5% (five per thousand) or 5000ppm (five thousand per million). The alarm level of the device for LPG is 0.3% (three per thousand) or 3000 ppm (three thousand per million).

2.2. Working principle

Gas alarm device is a device that detects explosive and flammable gases in the environment. The detected gases may contain methane (CH4), Propane (C3H8) and butane (C4H10) or a mixture of these gases. Natural gas is methane gas. LPG is made from butane gas, Propane gas is a mixture of these two gases.
When 230V AC 50/60Hz supply voltage is supplied to the gas alarm device, the green LED lights up. During the 1.5-minute calibration (during the warm-up period of the sensor), the sensor warms up to its normal detection level. The device becomes active. It is not recommended to test with any gas before the calibration period expires.
After the calibration period, if the gas leakage density is above the alarm limit level of the device, the sensor gives a visual and audible alarm within 10 seconds at the latest after detecting the gas. The device gives an alarm when the gas leakage density exceeds the device alarm level limit value. As long as the gas leakage density is above the limit level, the device continues to alarm, closing the relay contact and energizing the connected system. If a NO (normally open) gas valve is used at the output of the device, it closes, the fluid is not allowed to pass through the gas valve. If a NC(normally closed) gas valve is used, it opens and fluid is allowed to pass through the gas valve. When the gas leakage density drops below the device alarm level limit value, the device automatically starts to return to normal conditions and becomes ready to detect the gas leakage density in the environment again.

2.3. Device overview



Gas Alarm Devices

1 - Top cover
2 - Bottom cover and screws
3 - 230VAC 50/60Hz supply cable
4 - Output signal control cable
5 - Company emblem
6 - Information
7 - Device model
8 - Certificates
9 - Sensor cable
10 - Alarm led (Danger warning)
11 - General fault or sensor fault led
12 - Power led
13 - Atex housing sensor

2.4. Label and description

Label

1 - Usage Areas
2 - Standard
3 - Device Type
4 - Operating Voltage
5 - Power
6 - Sensor Type
7 - Led Meanings
8 - Brief Assembly Information
9 - Warning
10 - Production Date

Description

In the figure on the side, technical information that briefly summarizes the product identity is given. This information is screen printed on the bottom cover of the device. It may vary depending on the device model. The manufacturer reserves all rights.

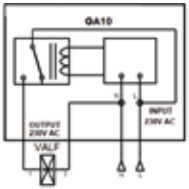
2.5. Purpose of usage

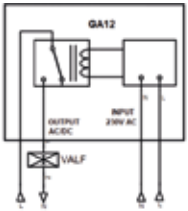
This document has been prepared to provide information on assembly, installation, use, commissioning and maintenance of TORK brand gas alarm devices.

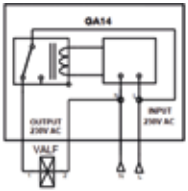
2.6. Technicial Specifications

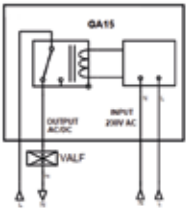
Detected Gases	: Natural Gas (methane), LPG (Liquefied Petroleum Gas)
Device Type	: Type A (Visual (Led), Audible Alarm and Output Signal)
Visual Warning	: Green Led(device active), Red led(alarm), Yellow Led(Fault)
Sensor Type	: Semiconductor (5V30.1)
Body Material	: ABS
Calibration Time	: 3 1.5 dk.
Response Time	: <10 sn.
Audible Warning	: Piezoelectric Buzzer
Alarm Intensity (Sound)	: 85 dB
Operating Voltage	: 230VAC 2,5VA + -% 10, 50/60Hz
Power Consumption	: 3W
Gas Detection Range	: 3-20 %LEL (APS)
Protection Class	: IPX2D
Operating Temperature	: -10 ° C ... +50 ° C
Relative Humidity	: 0-95%
Working Area	: House and similar places (GA20, GA22: Potentially explosive areas such as industrial kitchen and boiler room)
Body Dimensions	: GxYxD =60 mm x 100 mm x 45 mm
Output Signal Relay Contact:	* GA10 - 230V ACV 5A (NA), normally open contact * GA12 -230V ACV 5A, 28VDC 5A, DRY CONTACT ACV/DCV (NA), normally open contact * GA14 - 230V ACV 5A (NK), normally closed contact * GA15 - 230V ACV 5A, 28VDC 5A, DRY CONTACT (NK), normally closed contact * GA22 - 230V ACV 5A, 28VDC 5A, DRY CONTACT (NA), normally open Contact(ATEX Plastic Body Gas Alarm Device) * GA20 - 230V AC 5A (NA), normally open contact (ATEX Plastic Body Gas Alarm Device)
Reference Standards	: EN 50194-1, EN 60335-1, EN 60079-29-1, EN 50244

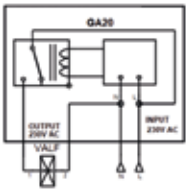
2.7. Connection diagrams

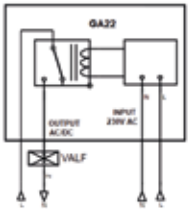












2.8. Product coding system

GA XX

10	Standard Gas Alarm Device_
12	Normally Open Dry Contact Output Gas Alarm Device
14	Normally Closed 230VAC Output Gas Alarm DEvice
15	Normally Closed Dry Contact Output Gas Alarm Device
20*	Plastic Body Exproof 230 VAC Output Gas Alarm Device
22*	Plastic Body Exprood Dry COntact Output

* Only GL.01 Ex Proof Sensor Housing is used in GA 20 and GA22 Series Gas Alarm Devices

2.9. Device selection table

Model	Supply Voltage	Output Relay Contact Type		Detected Gases	Detected Gases	Protection Class	Technical Sizes		
		If NO Valve Relay is connected	If NC Valve is connected		(gr)	IP	Y(mm)	G(mm)	D(mm)
GA10	230VAC 50/60 Hz	NO (normally open contact) No alarm: No output. 230VAC 50/60 Hz (valve open) While there is an alarm: There is an output. 0v (valve closed)	NO (normally open contact) No alarm: No output. 0V (valve closed) While there i is an alarm: There is an output. 230VAC 50/60 Hz (valve open)	Natural Gas (methane), LPG (Liquefied Petroleum Gas)	220	IPX2D	100	60	45
GA12		NO (normally open dry contact) There is an alarm: There is an exit. (valve closed) No alarm: No output. (valve open)	NO (normally open dry contact) There is an alarm: valve closed No alarm: valve open						
GA14		NC (normally closed) In alarm state: 0V No alarm: 230 VAC 50/60 Hz							
GA15		NC (normally closed) Dry Contact							
* GA22		NA (normally open) In case of alarm: 230VAC 50/60Hz No Alarm: 0V			515	IPX2D (ATEX sensor)			
* GA20		NO (normally open) In case of alarm: 230VAC 50/60Hz No Alarm: 0V							

3. ASSEMBLY

3.1. Assembly warnings

Before installation, any kind of impact, vibration, grounding that may damage GA series gas alarm devices Consider all changing conditions such as falls and exposure to rain.
In order to ensure proper installation or assembly, it is important to follow the information written in these instructions. Take it into consideration.

CAUTION **Gas alarm devices should not be installed in the places specified below.**

- Directly above the stoves,
- Areas where the temperature may drop below -10°C or exceed +40°C,
- Just above the sink,
- In closed places such as cabins,
- In a closed area (for example, in a closet or behind a curtain),
- Near a door or window,
- Near an extractor fan,
- Places where dirt and dust can block the sensor,
- Wet areas.

WARNING **Risk of property damage or serious injury.**

- Check the packaging.
- Check the product. If there are any missing or faulty parts, contact the manufacturer or sales representative.
- Before installing the product, prepare a suitable environment that will not pose a hazard.
- To test the product with gas, you must have a %LEL device with you and measure the gas supplied to the device for testing with a %LEL device.
- Ensure that the device detects gas density in the 0-20% LEL range and gives a warning. Under normal conditions, the device is sent to the user with a factory setting of 10-15% LEL.

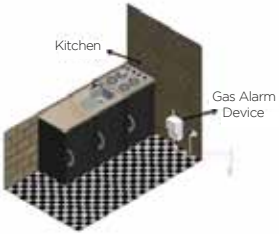
NOTE **Each gas has % LEL (Lower explosion limit) limit values determined by standards. Activate the product by taking these limit values into account.**

3.2. Assembly way

Detection depends on the density of the gas detected in the environment.
- Gas alarm device for CH4(methane) gas detection should be mounted on the ceiling at a distance of 30 cm.
- Gas alarm device for LPG gas detection should be mounted 30cm above the ground.
- Avoid installing the gas alarm device in places that would interfere with its normal operation.

3.2.1 LPG

LPG is heavier than air. In case of gas leakage, the gas sinks to the floor. Therefore, the alarm device for LPG should be placed 5-25 cm above the ground and 1-2 m away from the gas source, projectionally. This place should not be adjacent to the door, window exits.



Installation of gas alarm device in an environment where LPG is used

3.2.2. Natural gas

Natural gas is lighter than air. In case of gas leakage, the gas rises towards the ceiling and accumulates in the areas close to the ceiling. Therefore, the alarm device for natural gas should be placed 5-15 cm below the ceiling and 1-2 m away from the gas source, projectionally. This location should be above the highest window or door opening.

Installation of gas alarm device in an environment where LPG is used

3.3. Protection measures

Before each use of the device, take precautions against damage such as breaking, crushing, cracking in the connections, electrical leakage, liquid leaks and accumulations.

3.4. Hazardous area classification

Zone 0 (Zone 0): Areas where flammable gases, steams or liquids can be found in concentrations where they can ignite continuously or for a long time under normal operating conditions are classified as Zone 0.

Zone 1 (Zone 1): Areas where flammable gases, steams or liquids can be found in concentrations where they can ignite in some cases or for a short time under normal operating conditions are classified as Zone 1. Flameproof (Ex db) detectors are suitable for use in Zone 1.

Zone 2 (Zone 2): Areas where flammable gases, steams or liquids will not be in ignitable concentrations under normal operating conditions are classified as Zone 2. Flameproof (Ex db) detectors are suitable for use in Zone 2. Gas alarm detectors can give visual or audible warnings or initiate automated control processes with siren, lamp, switch and other control elements when integrated with control panels, in accordance with pre-set alarm values.

4. TRANSPORT, STORAGE AND PACKAGING

4.1. Transport

During the transportation of GA series gas alarm detectors, consider all kinds of variable transportation conditions such as impacts, vibrations, falling, rain, transportation that may cause damage. Pack it well so that it reaches the installation site securely.

4.2. Storage

- Store in a well-ventilated dry place (maximum humidity 75%).
- Cover to protect against dust and dirt.
- Protect against ground moisture by storing on a shelf or on a wooden pallet.
- Apply a suitable corrosion inhibitor to unprotected surfaces.
- Protect against excessive temperature, humidity and water.
- Keep away from harmful oscillations such as magnetic field, radiation.

NOTE **Risk of damage due to excessively low temperatures.**

- GA series gas alarm detectors can be stored permanently down to –20 °C.
- Before commissioning the device, keep it at 10-25 °C for one or two days under normal conditions. If there is moisture or wetness in the device, wait for the device to dry or the humidity to disappear. Otherwise, try to install it.

4.3. Packaging

Our products are protected by special packaging for transportation when leaving the factory. The packaging used in packaging consists of environmentally friendly materials that can be easily cleaned. It should be separated and recycled. Packaging materials such as wood, cardboard, paper, PE foil are used. TORK recommends recycling and collection centers for the disposal of packaging materials.

4.4. Warranty Certificate

WARRANTY CERTIFICATE

Manufacturer	**:** SMS Sanayi Malzemeleri Üretim ve Satışı A.Ş.
Address	
Head Office	**:**Y.Dudullu Mh. Bostancı Yolu Kuru Sk. No:16
Ümraniye - İstanbul / TURKEY	
Factory	**:** İMES O.S.B 5. Cd. No: 6 Çerkeşli OSB Mh. Dilovası - Kocaeli / TURKEY
Product	**:** PNEUMATIC PISTON VALVE
Trade Mark	**:** TORK
Model	**:**.....
Serial Number	**:**.....
Delivery Place & Date	**:**.....
Warranty Period	**:** 2 Years
Max. Repair Time	**:** 20 working days
Seller / Distributor	**:**.....
Address	**:**.....
	.....
	.....
	.....

Manufacturer Representative		Seller / Distrubutor Representative	
Name / Surname	:	Name / Surname	:
Title	:	Title	:
Date	:	Tarih	:
Signature	:	Signature	:

4.5. Warranty Conditions

• The warranty period starts from the delivery date of the product and the warranty period is 2 years.

• The entire product, including all its parts (against failures that may arise from our production and assembly errors and/or defective parts), is within the scope of our company's warranty.

• If the product fails within the scope of warranty;

• The time spent in repair is added to the warranty period. The repair period of the product is maximum 20 business days.

• The warranty starts from the date of notification of the product defect to the TORK authorized service, or in the absence of an authorized service station, to the seller, dealer, agency, representative, importer or manufacturer of the product. The consumer can make the failure notification via telephone, fax, e-mail, registered letter with return receipt or similar, but in case of conflict, the burden of proof rests with the consumer.

• The product;

• In the event that it breaks down at least four times within a year or six times within the warranty period determined by the manufacturer and/or importer, provided that it remains within the warranty period, from the date it is delivered to the consumer, and if the user is not able to benefit from this product due to these faults,

• In case of exceeding the maximum time required for repair,

• If it is determined that the repair of the malfunction is not possible with a report prepared by the seller, dealer, agency, representative or one of our company's officials, respectively, if the service station is not available, the product will be replaced free of charge.

• The warranty period of the product that has been changed during the warranty period, the purchased product, TORK Industrial Automation Products San. Trade Ltd. St. limited to the remaining warranty period provided by

• Free repair and product replacement obligations are eliminated in the following cases.

• Failure of the product due to use contrary to the methods or conditions specified in the user manual,

• The product and the warranty labels on its contents are damaged/torn,

• If it is determined or noticed that the product has been opened/repaired before, other than TORK Authorized Service personnel,

• In case the outer surfaces of the product and its components are broken within the customer's responsibility,

• Incorrect handling (bump, drop, impact), inadequate maintenance, abuse, use contrary to the environmental characteristics specified in the user manual, use of the product in excessively humid, dusty or hot environments, use in environments that are damaging to electronic circuits and corrosive, failures caused by accidents, impacts, electricity (voltage changes), natural disasters,

• Malfunctions or damages during transportation that are not under the responsibility of SMS Sanayi Malzemeleri Üretim ve Satası A.S.,

• In case the defective part is replaced with parts other than TORK Authorized technical services and/or parts without SMSTORK warranty

• If it is determined by a report to be issued by the TORK authorized service, whether the malfunctions occur as a result of usage error or not.

• If the device fails after the warranty period, if you have a service agreement with TORK, request the type of service available in this agreement. If you do not have a service agreement, you can get service by contacting the TORK dealer or customer service center.

• Use original packaging materials whenever possible. The responsibility of the damages that may occur during shipment due to improper packaging belongs to the customer.

• Regarding the Warranty Certificate; For problems that may arise, an application can be made to the Ministry of Customs and Trade, General Directorate of Consumer Protection and Market Surveillance.

4.6. Permission from the Ministry of Industry

T.C. SANAYİ VE TİCARET BAKANLIĞI
TÜKETİCİNİN VE REKABETİN KORUNMASI GENEL MÜDÜRLÜĞÜ

Belgenin Veriliş Tarihi ve Sayısı: 28.11.2013-41513

Belgenin Geçerlilik Tarihi: 28.11.2015

Bu belgenin kullanılmasına; 4077 sayılı Tüketicinin Korunması Hakkında Kanun ve bu Kanuna dayanılarak yürürlüğe konulan Sanayi Mallarının Satış Sonrası Hizmetleri Hakkında Yönetmelik uyarınca, T.C. Gümrük ve Ticaret Bakanlığı Tüketicinin Korunması ve Piyasa Gözetimi Genel Müdürlüğü tarafından izin verilmiştir.

İmalatçı ve İthalatçı Firmanın

Ünvanı	: SMS SANAYİ MALZEMELERİ ÜRETİM VE SATIŞI A.Ş.
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Telefon	: 0216 364 34 05
Telefaks	: 0216 364 37 57
Malın Cinsi	: GAZ ALARM CİHAZI
Markası	: TORK
Bedeli	:
Bandrol ve Seri No	:
Teslim Tarihi ve Yeri	:
Garanti Süresi	: 2 Yıl
Azami Tamir Süresi	: 20 İş günü
Satıcı Firmanın Ünvanı	:
Adres	:
Telefon	:
Telefaks	:
Fatura Tarihi ve No	:

PETEK ECE TİRYAKİOĞLU
Bakan a.
DAİRE BAŞKANI V.

Belgenin Doğruluğu www.tuketici.gov.tr Adresinden Kontrol Edilebilir.

4.7. Certificates

tork

valve & automation

Merkez Ofis : Bostancı Yolu Cad, Kuru Sok, No16 Y. Dudullu, 34776 Ümraniye / İstanbul - Türkiye
Fabrika : Çerkeşli OSB Mah. İmes 2. Cad. No.5 41455 Dilovası / Kocaeli - Türkiye

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SMS SANAYİ MALZEMELERİ ÜRETİM VE SATIŞI A.Ş.

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