# RAMO 22 E, M12, round collar, illuminated, 2 NC + 1 NO, Gold, M12 8-pin A-coded, reset by rotating, Mushroom head red, arrows red, bezel red, illuminable



## Description

**Functional description:**
In addition to two redundant normally closed contacts for the emergency stop function, this special RAMO emergency stop button offers an additional fully functional normally open contact (signaling contact).

Redundancy is an increasing requirement for safety applications in machine and control engineering and helps to minimize the probability of component failure.

The signaling contact is a normally open contact and can, for example, transmit information to a monitoring screen or safety master. The safety controller can then initiate a controlled shutdown, for example, depending on the location and type of hazard. The emergency stop button complies with current standards. Due to the force-guided mechanical movement sequence, it is safe from being outwitted in accordance with DIN EN ISO 13850.

Emergency stop with M12 connection: RAMO E switches are designed with two NC contacts for a switching voltage of 35 V. They comply with all applicable ISO and IEC standards and are characterized by their simple, time-saving installation. Like the entire RAMO series, the emergency stop switches feature installation-friendly M12 plug-in connections that reduce wiring effort to a minimum.

## technical data

**general**

| | |
|---|---|
| Potential free | yes |
| Color of mushroom | red |
| Legending color | red |
| Bezel color | red |
| Collar color | yellow |
| Luminous element color | red |
| Collar shape | round |
| Operating temperature, min. | -40 °C |
| Operating temperature, max. | 85 °C |
| Storage temperature, min. | -40 °C |
| Storage temperature, max. | 90 °C |

**direct links**

RAFI eCatalog

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| | |
|---|---|
| illuminated | Yes |
| Luminous elements | LED |
| Packaging | Box |
| Packaging unit | 2 pcs. |
| Operating life | 50,000 cycles |
| B10 | 65,000 cycles |
| B10d | 130,000 cycles |
| Degree of protection, front side, according to DIN EN 60529 | IP65<br>IP66 |
| Degree of protection, rear side, according to DIN EN 60529 | IP65<br>IP67 |
| Environment resistance | IEC 60068-2-14<br>IEC 60068-2-30<br>IEC 60068-2-33<br>IEC 60068-2-78 |
| Shock resistance according to standard IEC 60068-2-27 | 50 g at 11 ms amplitude semi-sinusoidal |
| Corrosive gas testing according to standard | IEC 60068-2-60 |
| Salt-spray resistance according to standard | IEC 60068-2-11 |
| UV resistance according to ISO 4892-2 | Method A: Artificial weathering |
| Impact resistance IK | 07 side<br>08 frontal |
| Oscillation restistance according to standard IEC 60068-2-6 | 5 g at 10...500 Hz |
| Minimum order quantity (MOQ) | 2 pcs. |
| Pollution degree acc. to DIN EN 61010-1 | Pollution degree 2 |
| RoHS compliant | Yes |
| REACH compliant | Yes |

**› mounting diameters**

| | |
|---|---|
| Outside dimension, length | 30 mm |
| Outside dimension, width | 30 mm |
| Outside dimension, height | 69.9 mm |
| Mounting hole | 22.3 mm |
| Mounting depth | 30.1 mm |
| Installation height | 39.8 mm |
| Grid, min. | 30 mm |

**› mechanical data**

| | |
|---|---|
| Terminal on the rear | M12 8-pin A-coded |
| Fixing | Threaded ring |
| Actuation function | latching |
| Threaded ring torque, max. | 1.2 Nm |
| Resistance to force on the side M12 | 300 N |
| Contact function | 2 NC + 1 NO |

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| | |
|---|---|
| Contact material | Gold |
| PIN 1 | Normally closed contact 1 |
| PIN 2 | Normally closed contact 2 |
| PIN 3 | GND |
| PIN 4 | Normally closed contact 1 |
| PIN 5 | Normally closed contact 2 |
| PIN 6 | LED + |
| PIN 7 | Normally open contact 1 |
| PIN 8 | Normally open contact 1 |
| Resetting | by rotating |

## electrical data

| | |
|---|---|
| Rated insulation voltage | 250 V |
| Rated surge voltage | 2,500 V |
| Operating voltage of the luminous element, min. | 10 V |
| Operating voltage of the luminous element, max. | 30 V |
| Rated voltage, min. | 5 V |
| Rated voltage, max. | 35 V |
| Voltage type | DC |
| Rated operating voltage | 24 V |
| Operating current of the luminous element, min. | 12 mA |
| Operating current of the luminous element, max. | 18 mA |
| Rated current, min. | 0.001 A |
| Rated current, max. | 0.1 A |
| Power loss | 0.00080 W |
| Categories of use | AC-15 (35V)<br>DC-13 (35V) |
| Overvoltage category | 2 |
| Kind of short circuit protective device | fuse 250 V / 0,1 A / 1,5 kA gG quick |
| Conditional short circuit current | 1,000 A |
| Contact resistance new status | 0.04 |

## Specifications according to IEC 60947-5-1

| | |
|---|---|
| Rated operating voltage | 35 V (AC-15)<br>35 V (DC-13) |
| Rated surge voltage | 2,500 V |

## Specifications according to UL 60947

| | |
|---|---|
| UL Enclosure Type Rating front side | type 4X indoor |
| Operating temperature, max. to UL/TÜV | 85 °C |

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## Use according to UL:

Only approved for Class 2 power sources or limited voltage/current.
Installation only by trained personnel.
Type 4x Indoor only with cable "Cat. No. 7000-12221-0340100 PUR 4x0.34mm² with M12 connector, rated power max. 30VAC/DC 4A, manufactured by Murrelektronik GmbH".
For use on a flat surface of a type 1 or type 4x enclosure (indoor).

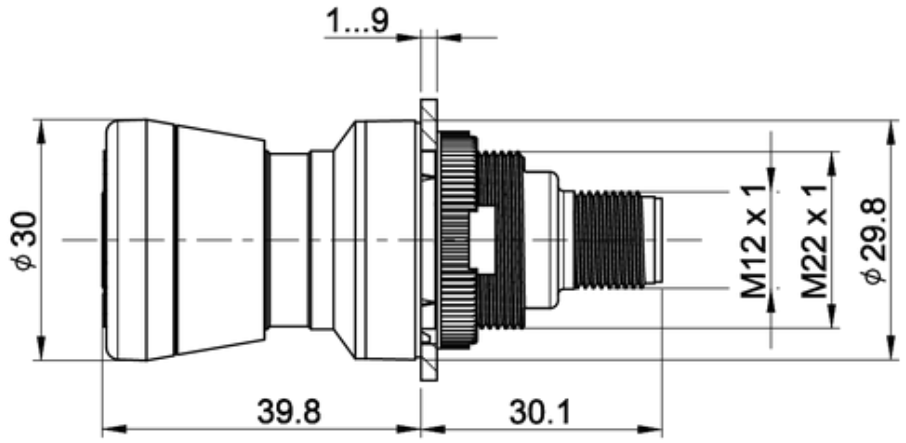
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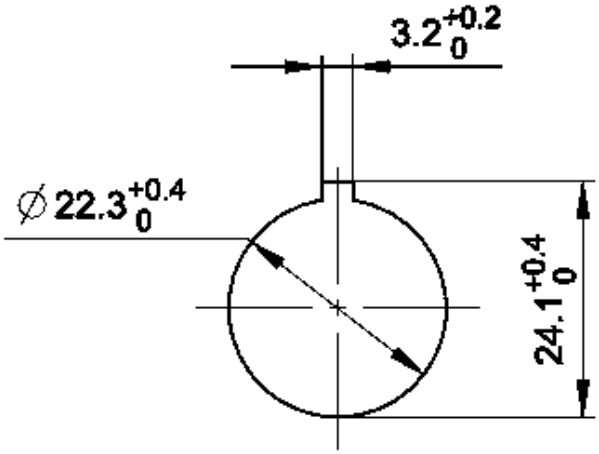
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## drawings

### Dimensioned drawing




### Mounting hole drawing



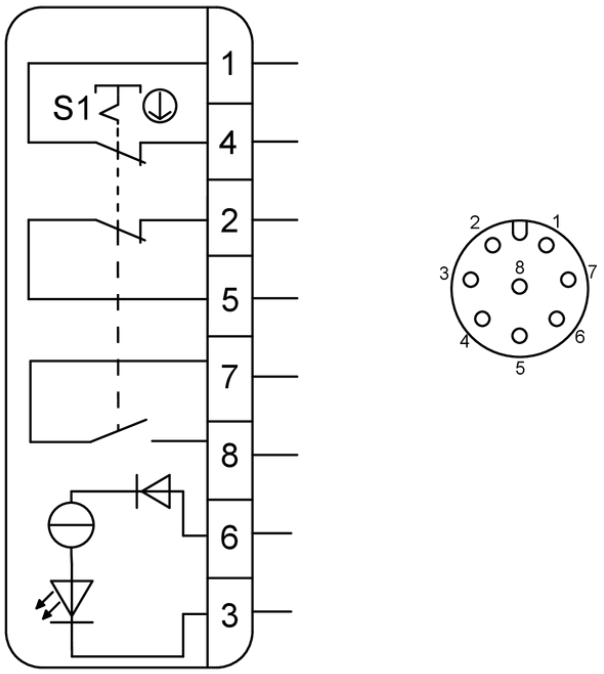

acc. to IEC 60947-5-1

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## Schematic diagram




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## mounting

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### DEUTSCH (DE)

**Betriebsanleitung**
**NOT-HALT-BEFEHLSGERÄTE**

**Baureihe**
LUMOTAST 16, LUMOTAST 22, LUMOTAST 25, RAMO 22
RAMO 30

**1. Sicherheitshinweise**
- Vor Inbetriebnahme bitte Betriebsanleitung sorgfältig lesen.
- Not-Halt-Befehlsgeräte erfüllen eine Personenschutz-Funktion. Unsachgemäßer Einbau, sachwidrige Anwendung oder Manipulationen können zu schweren Verletzungen von Personen führen!
- Not-Halt-Befehlsgeräte dürfen nicht umgangen, entfernt oder auf andere Weise unwirksam gemacht werden!
- Vor Beginn der Installation Anlage und Gerät spannungsfrei schalten!
- Vor Erst-Inbetriebnahme der Maschine oder Anlage Not-Halt-Befehlsgerät durchTestbetätigung auf korrekte Montage und Funktion überprüfen.
- Not-Halt-Befehlsgeräte mit sichtbaren Beschädigungen sind unverzüglich auszutauschen.
- Not-Halt-Funktion darf nicht als Ersatz für Schutzmaßnahmen oder andere Sicherheitsfunktionen verwendet werden.
- Not-Halt-Funktion darf die Wirksamkeit von Schutzreinrichtungen oder von Einrichtungen mit anderen Sicherheitsfunktionen nicht beeinträchtigen.

**2. Allgemeine Beschreibung und bestimmungsgemäße Verwendung**
Not-Halt-Befehlsgeräte sind elektromechanische Schaltgeräte zum Schutz von Personen. Sie dienen der schnellen Abschaltung um Maschinen, Fahrzeuge und Anlagen in einen sicheren Zustand zu bringen, um Gefahren und Schäden für Mensch und Maschine zu vermeiden oder zu verringern.
Für die Inbetriebnahme, den Einsatz und technischen Überprüfungen gelten im speziellen folgende Vorschriften:
- Die Maschinenrichtlinie 2006/42/EG
- Die Sicherheitsvorschriften sowie
- Die Unfallverhütungsvorschriften / Sicherheitsregeln

Hersteller und Benutzer von Maschinen, an denen Not-Halt-Befehlsgeräte eingesetzt werden, tragen die Verantwortung für die Beachtung der Betriebsanleitung, wie auch für die Einhaltung der für sie geltenden Sicherheitsvorschriften und -regeln. Für den Einbau und Betrieb von Not-Halt-Befehlsgeräten müssen zur bestimmungsgemäßen Verwendung folgende Anforderungen beachtet und eine Gefahrenbewertung durchgeführt werden:
- EN ISO 13849-1:2023
- EN ISO 13850:2015
- EN ISO 13849-2:2012
- EN 60204-1:2006/A1:2009
- EN 60947-5-5:1997 + A1:2005 + A11:2013 + A2:2017

**3. Produktbeschreibung**
Aufbau: Die Not-Halt-Befehlsgeräte bestehen aus einer Kombination von Betätigern mit einem oder mehreren Schaltelementen. Die Not-Halt-Befehlsgeräte gibt es als Einbauversion oder in einem Gehäuse verbaut. Die Betätigung erfolgt durch Drücken, die Entriegelung erfolgt je nach Variante entweder durch:
- Drehbewegung nach rechts oder beide Richtungen (je nach Variante)
- Ziehen entgegen der Betätigungsrichtung

"Aktiv/Inaktiv"-Varianten:
- "Aktiv": beleuchtet, rot, Not-Halt Funktion gegeben
- "Inaktiv": unbeleuchtet, transparent, keine Not-Halt Funktion

Varianten mit Schloss:
- Die Entriegelung erfolgt per Rechtsdrehung des Schlüssels nach Betätigung des Not-Halt-Befehlsgerätes. Der Schlüssel muss in jedem Betätigungszustand abgezogen werden und sollte sich nur während des Entriegelns im Betätiger befinden. Damit lassen sich Verletzungen der Hände vermeiden.

### ENGLISH (EN)

**Operating Instructions**
**EMERGENCY STOP Control Units**

**Series**
LUMOTAST 16, LUMOTAST 22, LUMOTAST 25, RAMO 22
RAMO 30

**1. Safety information**
- Please read the operating manual carefully before commissioning.
- Emergency stop control components are there to protect personnel. Improper installation, improper use or manipulation can lead to serious injuries to persons!
- Emergency stop control components must not be bypassed, removed or otherwise rendered ineffective!
- Disconnect the system and device from the power supply before starting installation!
- Before commissioning the machine or system for the first time, check the emergency stop control component for correct installation and function by test actuation.
- Emergency stop control components with visible damage must be replaced immediately.
- The emergency stop function must not be used as a substitute for protective measures or other safety functions.
- The emergency stop function must not impair the effectiveness of safety features or of devices with other safety functions.

**2. General description and intended use**
Emergency stop control components are electromechanical switching devices for the protection of personnel. They are used for quick shutdown to bring machines, vehicles and systems into a safe condition to avoid or reduce hazards and damage to people and machines.
The following regulations apply in particular to commissioning, use and technical inspections:
- The Machinery Directive 2006/42/EC
- The safety regulations as well as
- The accident prevention regulations / safety rules

Manufacturers and users of machinery on which emergency stop control components are used assume responsibility for the observance of the operating manual, as well as for the observance of the safety rules and regulations applicable to them. For the installation and operation of emergency stop control components, the following requirements must be observed and a hazard assessment carried out for the intended use:
- EN ISO 13849-1:2023
- EN ISO 13850:2015
- EN ISO 13849-2:2012
- EN 60204-1:2006/A1:2009
- EN 60947-5-5:1997 + A1:2005 + A11:2013 + A2:2017

**3. Product description**
Structure: The emergency stop control components consist of a combination of actuators with one or more switching elements. The emergency stop control components are available as a built-in version or installed in a housing. Actuation takes place by pressing, unlocking takes place depending on the type either by:
- Rotation to the right or both directions (depending on the variant)
- Pulling against the actuating direction

„Active/Inactive" types:
- „Active": illuminated, red, emergency stop function active
- „Inactive": non-illuminated, transparent, no emergency stop function

Types with a key lock:
- Unlocking is performed by turning the key to the right after actuating the emergency stop control component. The key must be removed in every actuation state and should only be in the actuator during unlocking. This helps to avoid injuries to the hands.

### FRANÇAIS (FR)

**Mode d'emploi auxiliaires de commande**
**d'ARRÊT D'URGENCE**

**Série**
LUMOTAST 16, LUMOTAST 22, LUMOTAST 25, RAMO 22
RAMO 30

**1. Consignes de sécurité**
- Lire la notice d'utilisation attentivement avant la mise en service.
- Les auxiliaires de commande d'arrêt d'urgence ont une fonction de protection des personnes. Un montage incorrect, une application ou des manipulations non conformes peuvent occasionner des graves blessures aux personnes !
- Les auxiliaires de commande d'arrêt d'urgence ne doivent pas être contournés, retirés ou rendus inefficaces de toute autre façon !
- Avant de commencer l'installation, mettre l'installation et l'appareil hors tension !
- Avant la première mise en service de la machine ou de l'installation, vérifier que l'auxiliaire de commande d'arrêt d'urgence est monté et fonctionne correctement.
- Les auxiliaires de commande d'arrêt d'urgence présentant des dommages visibles doivent être remplacés sans délai.
- La fonction d'arrêt d'urgence ne doit pas servir de substitut aux mesures de protection ou autres fonctions de sécurité.
- La fonction d'arrêt d'urgence ne doit pas entraver l'efficacité des dispositifs de protection ou dispositifs assurant d'autres fonctions de sécurité.

**2. Description générale et utilisation conforme**
Les auxiliaires de commande d'arrêt d'urgence sont des appareils de commutation électromécaniques de protection des personnes. Ils servent à la mise l'arrêt rapide pour mettre les machines, véhicules et installations dans un état sûr, afin d'éviter ou réduire dangers et dommages pour les gens et la machine.
Les prescriptions suivantes s'appliquent tout particulièrement pour la mise en service, l'utilisation et les vérifications techniques :
- La directive machine 2006/42/CE
- Les prescriptions de sécurité et
- Les prescriptions de prévention des accidents / règles de sécurité

Le constructeur et l'utilisateur de machines sur lesquelles des auxiliaires de commande d'arrêt d'urgence sont mis en œuvre assument la responsabilité du respect de la notice d'utilisation ainsi que des prescriptions et règles de sécurité qui s'appliquent à eux. Pour le montage et l'exploitation d'auxiliaires de commande d'arrêt d'urgence, les exigences suivantes doivent être respectées et une évaluation des risques doit être menée pour une utilisation conforme :
- EN ISO 13849-1:2023
- EN ISO 13850:2015
- EN ISO 13849-2:2012
- EN 60204-1:2006/A1:2009
- EN 60947-5-5:1997 + A1:2005 + A11:2013 + A2:2017

**3. Description du produit**
Structure : les auxiliaires de commande d'arrêt d'urgence sont une combinaison d'actionneurs avec un ou plusieurs éléments de commutation. Les auxiliaires de commande d'arrêt d'urgence existent en version encastrable ou montés dans un boîtier. L'actionnement est réalisé par pression, le déverrouillage selon la variante par :
- Mouvement de rotation vers la droite ou dans les deux sens (selon la variante)
- Tirage dans le sens contraire de l'actionnement

Variantes « actif/inactif » :
- « Actif » : éclairé, rouge, fonction d'arrêt d'urgence présente
- « Inactif » : non éclairé, transparent, aucune fonction d'arrêt d'urgence

Variantes avec serrure :
- Le déverrouillage est réalisé par rotation à droite de la clé après actionnement de l'auxiliaire de commande d'arrêt d'urgence. La clé doit pouvoir être retirée dans n'importe quel état d'actionnement et ne doit se trouver dans l'actionneur que pendant le déverrouillage. Ceci permet d'éviter les blessures aux mains.

| Produkt<br>Product<br>Produit | Einbau Ø mm<br>Mounting Ø mm<br>Montage Ø mm | Betätiger<br>Actuator<br>Actionneur | Schaltelement<br>Contact Block<br>Elément de commutation |
|---|---|---|---|
| LUMOTAST 16 | Ø 16.2 | 1.15.213.xxx/xxxx<br>9.15.213.xxx/xxxx | integriert / integrated / intégré |
| LUMOTAST 22 | Ø 22.3 | 1.15.105.xxx/xxxx<br>9.15.105.xxx/xxxx | |
| LUMOTAST 25 | Ø 16.2 | 1.15.154.xxx/xxxx<br>9.15.154.xxx/xxxx | |
| RAMO 22 | Ø 22.3 | 1.10.031.xxx/xxxx<br>9.10.031.xxx/xxxx | |
| RAMO 30 | Ø 30.3 | 1.11.031.xxx/xxxx<br>9.11.031.xxx/xxxx | |

**Tabelle 3.1** Weitere technische Daten sind dem eCatalog zu entnehmen: ecatalog.rafi-group.com
**Table 3.1** Further technical data can be found in the eCatalog: ecatalog.rafi-group.com
**Tableau 3.1** Vous trouverez d'autres données techniques dans le eCatalog : ecatalog.rafi-group.com



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