# efector160
## LK1023

1: 4-digit alphanumeric display
2: LEDs
3: Programming buttons
4: Housing connection (flat-pin connector 6.3 mm following DIN 46244)

Made in Germany

| Product characteristics | |
|---|---|
| Electronic level sensor | |
| Connector | |
| Probe length: L = 472 mm | |
| 2 switching outputs | |
| 4-digit alphanumeric display | |

| Application | | |
|---|---|---|
| Application | | coolants / oils |
| **Medium temperature oil** | | |
| - Continuous | [°C] | 0...70 |
| - Short time | [°C] | 0...90 |
| Medium temperature water and hydrous media | [°C] | 0...35 (LK1023 + E43101: 0...60) **) |
| Medium temperature coolant emulsions | [°C] | 0...35 (LK1023 + E43101: 0...60) **) |
| Maximum speed of the change of level | [mm/s] | 200 |

| Electrical data | | |
|---|---|---|
| Electrical design | | DC PNP |
| Operating voltage | [V] | 18...30 DC |
| Current consumption | [mA] | < 60 |
| Protection class | | III |
| Reverse polarity protection | | yes |

| Outputs | | |
|---|---|---|
| Output | | 2 switching outputs |
| Output function | | 2 x normally open / closed programmable |
| Current rating | [mA] | 200 |
| Voltage drop | [V] | < 2.5 |
| Short-circuit protection | | thermal, pulsed |

LK0472B-B-00KQPKG/US

| Overload protection | | yes |
|---|---|---|

## Measuring / setting range

| Probe length L | [mm] | 472 |
|---|---|---|
| Active range A | [mm] | 390 |
| Inactive range I1 / I2 | [mm] | 53 / 30 |
| Setting range | | |
| Set point, SP | [mm] | 40...395 |
| Reset point, rP | [mm] | 35...390 |
| in steps of | [mm] | 5 |
| Hysteresis | [mm] | 5 |
| Overflow protection OP | [mm] | 139 - 163 - 188 - 212 - 236 - 261 - 285 - 310 - 334 - 358 - 383 - 407 |
| Hysteresis OP | [mm] | 3 |

## Accuracy / deviations

| Deviations (% of value of measuring range) | | |
|---|---|---|
| Switch point accuracy | | ± 5 |
| Repeatability | | ± 2 |

## Reaction times

| Power-on delay time | [s] | 3 |
|---|---|---|

## Software / programming

| Programming options | | hysteresis / window function; N.O. / N.C; position of SP/rP; position of OP; OP adjustment; medium adjustment; offset; display unit |
|---|---|---|

## Environment

| Ambient temperature | [°C] | 0...60 |
|---|---|---|
| Storage temperature | [°C] | -25...80 |
| Maximum vessel pressure | [bar] | 0.5 (when mounted with mounting accessories E43001 - E43007) |
| Protection | | IP 67 |

## Tests / approvals

| EMC | | EN 61000-4-2 ESD: | 4 kV CD / 8 kV AD |
|---|---|---|---|
| | | EN 61000-4-3 HF radiated: | 10 V/m |
| | | EN 61000-4-4 Burst: | 2 kV |
| | | EN 61000-4-6 HF conducted: | 10 V |
| Shock resistance | | DIN EN 60068-2-29: | 15 g (11 ms) |
| Vibration resistance | | DIN EN 60068-2-6: | 5 g (10...2000 Hz) |
| MTTF | [Years] | 228 | |

## Mechanical data

| Materials (wetted parts) | | PP |
|---|---|---|
| Housing materials | | stainless steel (304S15); FKM; NBR; PBT; PC; PEI; PP; TPE / V |
| Weight | [kg] | 0.412 |

## Displays / operating elements

| Display | | Display unit / status | 2 x LED green |
|---|---|---|---|
| | | Switching status | 2 x LED yellow |
| | | Measured values | 4-digit alphanumeric display |
| | | Programming | 4-digit alphanumeric display |

## Electrical connection

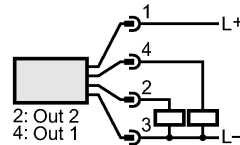| Connection | | M12 connector (according to EN 61076-2-101); gold-plated contacts |
|---|---|---|

**Wiring**

# efector160

**LK1023**

LK0472B-B-00KQPKG/US

**Level sensors**

Programming of the output function:
Hno = hysteresis / normally open
Hnc = hysteresis / normally closed
Fno = window function / normally open
Fnc = window function / normally closed

2: Out 2
4: Out 1

L+
L−

## Remarks

| Remarks | cULus - Class 2 source required<br>**) for water and hydrous media with temperatures > 35 °C install the unit into a climatic tube<br>(order no. E43101) |
|---|---|
| Pack quantity                    [piece] | 1 |

## Other data

| Recommended media | Hydrous coolants, oils, water, media similar to water |
|---|---|
| Cannot be used for: | extremely conductive and adhering media, granulates and bulk materials, acids and alkalis, food and electroplating applications |
| Dielectric constant medium | > 2 |