Data sheet


# ML20M-P1211

## ML20

ARRAY SENSORS

SICK
Sensor Intelligence.


Illustration may differ

## Ordering information

| Type | part no. |
|---|---|
| ML20M-P1211 | 1044675 |

Other models and accessories ➜ www.sick.com/ML20

## Detailed technical data

### Features

| | |
|---|---|
| **Dimensions (W x H x D)** | 46 mm x 77 mm x 46 mm |
| **Sensing distance** | ≤ 20 mm |
| **Sensing distance tolerance** | ± 2.5 mm |
| **Housing design** | Rectangular |
| **Light source** | LED, White [1] |
| **Wave length** | 400 nm ... 700 nm |
| **Light spot size** | 60 mm x 3 mm |
| **Repeatability** | 0.6 mm [2] |
| **Max. movement speed** | 7 m/s |
| **Adjustment** | Start stop teach, trigger teach |
| **Image length (min.)** | ≥ 40 mm |
| **Picture length (max.)** | ≤ 1,000 mm |
| **Picture height (min.)** | ≥ 34 mm |
| **Tolerance lateral movement** | ± 5 mm |

[1] Average service life: 100,000 h at $T_U$ = +25 °C.

[2] Statistical error 2 σ.

### Mechanics/electronics

| | |
|---|---|
| **Supply voltage** | 12 V DC ... 30 V DC [1] |
| **Ripple** | ≤ 5 $V_{pp}$ [2] |
| **Power consumption** | < 6 W [3] |
| **Switching output** | PNP |

[1] Limit values when operated in short-circuit protected network: max. 8 A.

[2] May not exceed or fall below $U_V$ tolerances.

[3] Without load.

[4] Detailed description of the status output in operating manual.

[5] Sum $I_{out}$ = Q + Q status.

[6] Fade-out of identical areas.

| | |
|---|---|
| **Switching output (voltage)** | PNP: HIGH = $V_S$ – ≤ 2 V / LOW < 0,5 V |
| **Status output** | PNP: HIGH = $V_S$ – ≤ 2 V / LOW < 0,5 V [4] |
| **Output current $I_{max.}$** | < 100 mA [5] |
| **Input, teach-in (ET)** | PNP: Teach: U = 12 V ... < $U_V$, Run: U < 2 V |
| **Input, blanking input (AT)** | PNP: blanked: U = 12 V ... < Uv, free-running U < 2 V [6] |
| **Initialization time** | < 10 s |
| **Retention time (ET)** | ≥ 6 s, non-volatile memory |
| **Connection type** | Connector M12, 12-pin |
| **Protection class** | III |
| **Circuit protection** | $U_V$ connections, reverse polarity protected<br>Output Q short-circuit protected<br>Interference pulse suppression |
| **Enclosure rating** | IP65 |
| **Weight** | 325 g |
| **Housing material** | Metal, metal |
| **Encoder resolution** | 100 µm ... 400 µm (in 1 µm) |
| **Encoder input** | Differentiel: 4,5 V - 5,5 V / TTL / RS-422, single ended: 12 V - 30 V / HTL / push-pull |

[1] Limit values when operated in short-circuit protected network: max. 8 A.
[2] May not exceed or fall below $U_V$ tolerances.
[3] Without load.
[4] Detailed description of the status output in operating manual.
[5] Sum $I_{out}$ = Q + Q status.
[6] Fade-out of identical areas.

## Ambient data

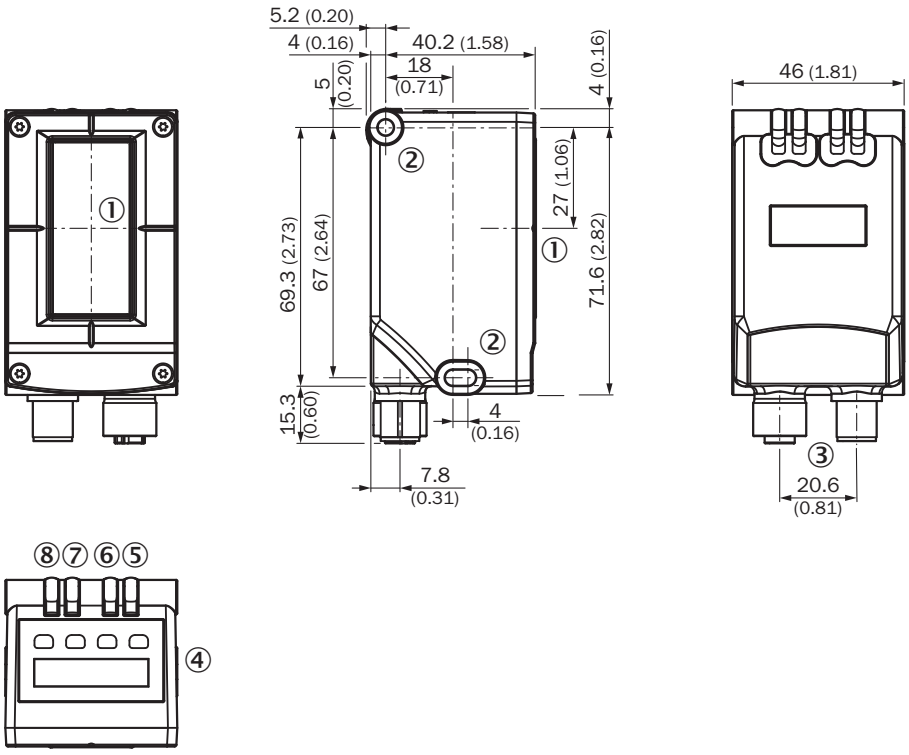
| | |
|---|---|
| **Ambient operating temperature** | –10 °C ... +55 °C |
| **Ambient temperature, storage** | –20 °C ... +75 °C |
| **Ambient light immunity** | 30,000 lx |
| **Shock load** | According to IEC 60068 |
| **UL File No.** | NRKH.E181493 & NRKH7.E181493 |

## Classifications

| | |
|---|---|
| **ECLASS 5.0** | 27270906 |
| **ECLASS 5.1.4** | 27270906 |
| **ECLASS 6.0** | 27270906 |
| **ECLASS 6.2** | 27270906 |
| **ECLASS 7.0** | 27270906 |
| **ECLASS 8.0** | 27270906 |
| **ECLASS 8.1** | 27270906 |
| **ECLASS 9.0** | 27270906 |
| **ECLASS 10.0** | 27270906 |
| **ECLASS 11.0** | 27270906 |
| **ECLASS 12.0** | 27270906 |
| **ETIM 5.0** | EC001820 |

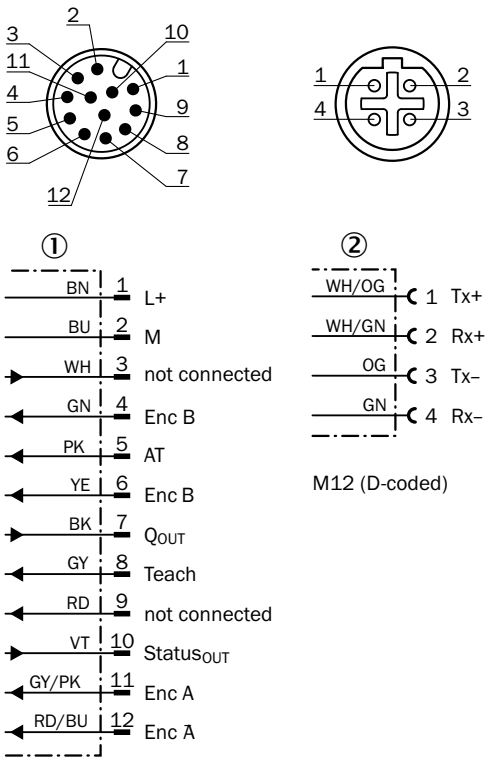
| | |
|---|---|
| **ETIM 6.0** | EC001820 |
| **ETIM 7.0** | EC001820 |
| **ETIM 8.0** | EC001820 |
| **UNSPSC 16.0901** | 39121528 |

## Dimensional drawing




Dimensions in mm (inch)
① Center of optical axis
② Mounting hole, Ø 4.2 mm
③ Connector M12, 12-pin/Connector M12, 4-pin, rotatable up to 90° (Ethernet)
④ Display and function buttons
⑤ Function signal indicator (green) "on"
⑥ Function signal indicator (yellow) "Q"
⑦ Function signal indicator (green) "Link"
⑧ Function signal indicator (yellow) "Act"

## Connection diagram Cd-320




M12 (A-coded)

M12 (D-coded)

① M12 connection diagram, 12-pin
② M12 connection diagram, 4-pin

## Recommended accessories

Other models and accessories ➜ www.sick.com/ML20

| | Brief description | Type | part no. |
|---|---|---|---|
| connectors and cables | | | |
|  | • **Connection type head A:** Male connector, M12, 4-pin, angled, D-coded<br>• **Connection type head B:** Male connector, RJ45, 8-pin, straight<br>• **Signal type:** Ethernet<br>• **Cable:** 5 m, 4-wire, AWG26, PUR, halogen-free<br>• **Description:** Ethernet, twisted pair, shielded | YN2D24-050E-B1MRJA4 | 6039488 |
|  | • **Connection type head A:** Male connector, M12, 4-pin, straight, D-coded<br>• **Connection type head B:** Male connector, RJ45, 4-pin, straight<br>• **Signal type:** Ethernet, PROFINET<br>• **Cable:** 5 m, 4-wire, PUR, halogen-free<br>• **Description:** Ethernet, shielded, PROFINET<br>• **Application:** Drag chain operation, Zones with oils and lubricants | YM2D24-050P-N1MRJA4 | 2106184 |
|  | • **Connection type head A:** Female connector, M12, 12-pin, straight, A-coded<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 12-wire, PVC<br>• **Description:** Sensor/actuator cable, shielded<br>• **Application:** Uncontaminated zones, Zones with chemicals | YF2A2B-050VH2XLEAX | 2130954 |
|  | • **Connection type head A:** Female connector, M12, 12-pin, angled, A-coded<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 12-wire, PVC<br>• **Description:** Sensor/actuator cable, shielded<br>• **Application:** Uncontaminated zones, Zones with chemicals | YG2A2B-050VH2XLEAX | 2130956 |
|  | • **Connection type head A:** Female connector, M12, 12-pin, straight, A-coded<br>• **Connection type head B:** Male connector, M12, 12-pin, straight<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 12-wire, PVC<br>• **Description:** Sensor/actuator cable, shielded<br>• **Application:** Uncontaminated zones, Zones with chemicals | YF2A2B-050VH2M2A2E | 2130957 |

# SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is “Sensor Intelligence.”**

# WORLDWIDE PRESENCE:

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