



1. GENERAL DESCRIPTION

The **LS 220** series distance sensor measure distances of up to 150 meters, at output rates of up to 50 Hz, using the proven phase comparison method, which allows accuracy of few millimeters. On natural surfaces, within a range of 30 m, the accuracy fall below the millimeter. The LS 220 series is available in several models for different industrial field-buses standards based on wired or wireless ethernet.

1.1 MODELS

The sensors **LS 220** series are available in several models, which must be specified at order time:

| MODEL | INTERFACE | PROTOCOL |
|-----------|----------------------|-------------------------------|
| LS 220 PN | Ethernet 10/100Mb | Profinet-RT IO-DEVICE Class B |
| LS 220 EP | | Ethernet/IP |
| LS 220 IT | | Modbus/TCP, MQTT, HTTP |
| LS 220 WF | Wi-Fi 802.11 a/b/g/n | |

1.2 ASCII TCP/IP PROTOCOL

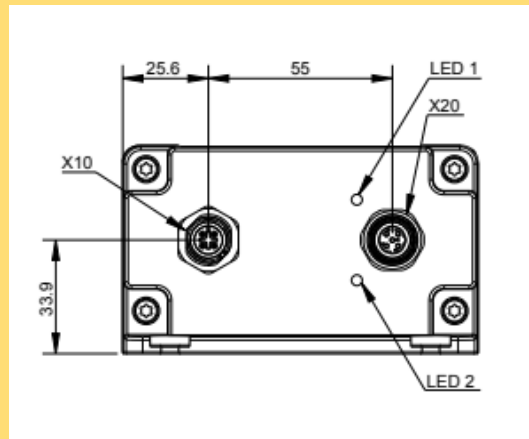
All the models implement, simultaneously with the communication functions over the field-bus, the ASCII communication protocol based on TCP/IP socket, which can be used both for the set-up of the sensor and for the communication of the measurements results.

3. MEASUREMENT PROCESS SPECIFICATIONS

| Measure method | Phase comparison |
|------------------------------|--|
| Laser source | |
| Divergence | 0.6mrad |
| Class | Laser Class 2, EN 60825-1:2014 |
| Power | ≤ 1mW |
| Wave length λ | 650nm (red) |
| Measurement mode | Single shot Continuos Continuos, up to 7m Continuos, cooperative target External trigger |
| Frequency | up to 50Hz |
| Resolution | 0.1mm |
| Working range | |
| Nominal | from 0.1m to 150m |
| Collaborative target | from 25m to 150m |
| Natural surface ¹ | from 0.1m to 30m |
| Accuracy | |
| from 15°C a +30°C | ± 3mm (±1mm up to 30m) |
| from -10°C a +50°C | ± 5mm |

¹ Measurement range and accuracy for naturally diffuse reflecting surface, depending on target reflectivity, stray light and environmental conditions.

4. ELECTRICAL SPECIFICATIONS



4.1 CONNECTOR X10, POWER SUPPLY / TRIGGER

| | |
|---------------------|--|
| Connector type | M12 4 pin, male, A-coded |
| Supply voltage | from 10VDC to 30VDC |
| Current consumption | <TBD> |
| Trigger input | according to IEC 61131-2 Type 3 ($U_L \leq 5V$, $U_H \geq 11V$, $I_L 2.5mA$) |

| PIN | COLOR | | DESCRIPTION |
|-----|-------|-----|----------------------------|
| 1 | BROWN | L+ | POWER SUPPLY 10V .. 30V DC |
| 2 | WHITE | I/Q | EXTERNAL TRIGGER INPUT |
| 3 | BLUE | L- | GND |
| 4 | BLACK | C/Q | NOT USED |

4.2 CONNECTOR X20, ETHERNET

| | |
|---------------------|---|
| Connector type | M12 4 pin, female, D-coded |
| Communication speed | 10/100Mb/s |
| ESD protection | IEC 61000-4-2, $\pm 30kV$ contact, $\pm 30kV$ air |

| PIN | COLOR | | |
|-----|--------|-----|--|
| 1 | YELLOW | TD+ | |
| 2 | WHITE | RD+ | |
| 3 | ORANGE | TD- | |
| 4 | BLUE | RD- | |

NOTES:

- (1) Connector X20 (Ethernet) is fitted on PN (Profinet-RT), EP (Ethernet/IP) and IT models.
- (2) Model WF uses a RP-SMA male connector.
- (3) Model type must be specified at order time.

4.3 INDICATORS

| LED | COLORE | DESCRIZIONE |
|-----|------------------|---------------------|
| 1 | YELLOW/RED/GREEN | SENSOR / LINK STATE |
| 2 | YELLOW/RED/GREEN | FIELD-BUS STATE |



TECHNICAL SPECIFICATIONS
LS 220 – LASER DISTANCE SENSOR

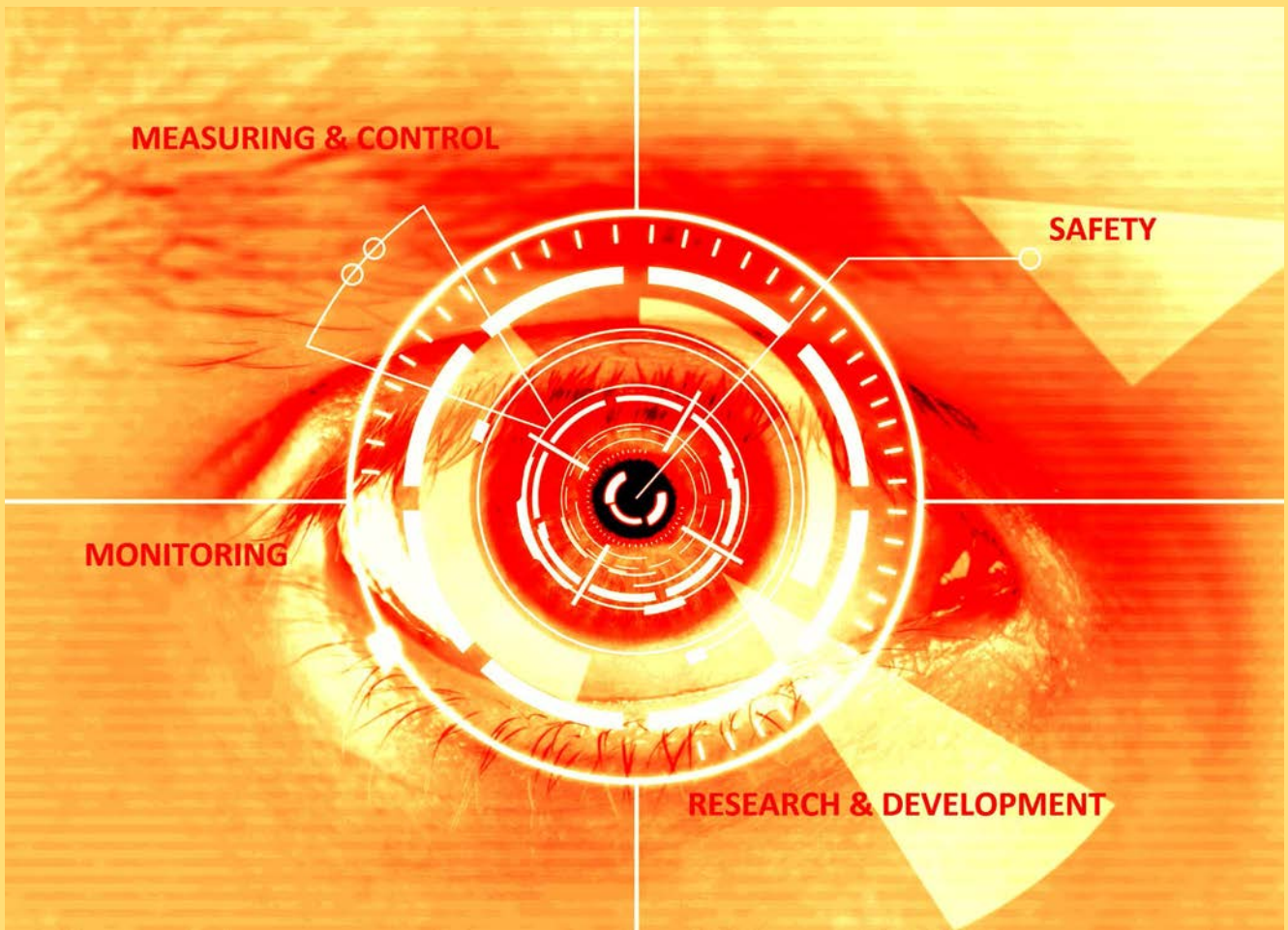
Doc: D03002-0009
Rev: A01EN Date: 20201112
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NOTE

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGES WITHOUT NOTICE

REVISIONS

| Rev | Date | Author | Description |
|-----|------------|------------|-----------------------------------|
| A00 | 07/11/2020 | P. Cardoni | Initial edition |
| A01 | 12/11/2020 | P. Cardoni | Protection level and WF connector |



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