



## **LANBAO SENSOR** complete solution for the sensors

Established in 1998, Shanghai Lanbao Sensing Technology Co., Ltd. is a leading industrial automation products supplier in China. Our main businesses are industrial sensors R&D, production, sales and application, providing customers with standard and individual products and systems. Lanbao industrial sensors covers over 30 series, 3000 specifications, main products are inductive sensors, photoelectric sensors, capacitive sensors and pressure sensors. Lanbao has been making continuous breakthrough in new technology and new material application, which laid the foundation of its leading position in sensing technology.

Lanbao is an ISO9001:2008 quality management system and EU RoHS environmental directives implemented enterprise. Our series products are with CE, UL and CCC certification. The strict test in function, quality, reliability and production feasibility at the design stage of each product and the strict quality management in production ensure excellent quality products.

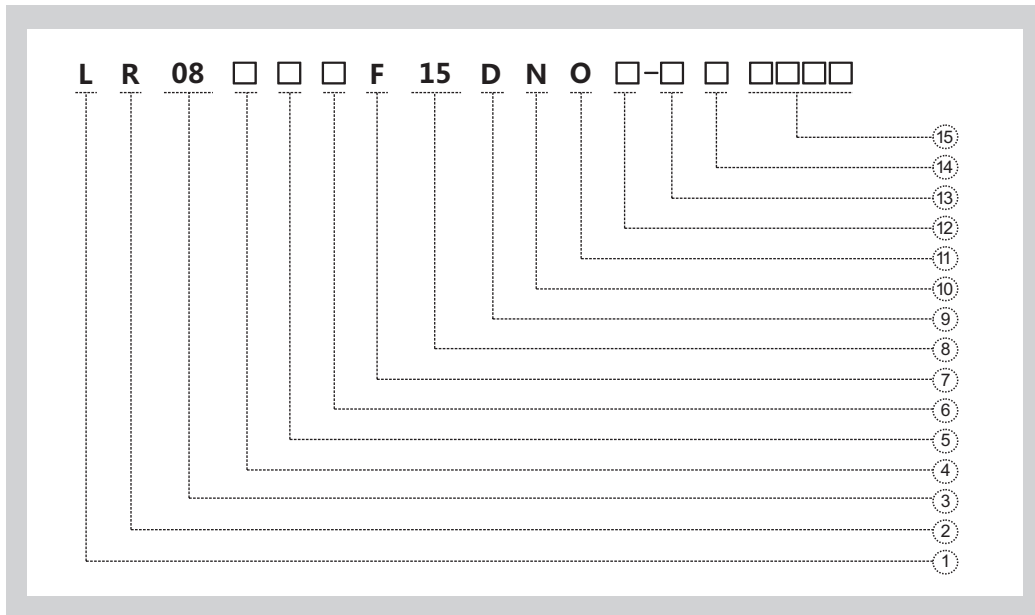
Focus on innovation, quality, service and global market, Lanbao insists on creating maximal value for customers.

## Standard function inductive sensors

- Non-contact detecting way effectively avoids abrasion, safe and reliable.
- Built-in ASIC ensures quick response, high frequency, stable performance.
- Complete range of specification:
  - Smooth cylinder series:  $\phi 4$  to  $\phi 34$ mm;
  - threaded cylinder series :M5 to M30mm;
  - rectangular series: 7\*7mm to 80\*80mm.



## Naming rules



### 1. Type Code

L:Inductive

### 2. Shape Code

R:Cylindrical  
E:Rectangular

### 3. Size Code

Number:Housing diameter  
e.g. 08:M8

### 4. Shape Code

Q:Smooth Cylindrical  
V:Angle Column  
Z:Combination  
H:Ring-shaped  
U:U-shaped  
X:Semi-thread

### 5. Housing Material

N/A:Copper  
S:Plastic  
G:Stainless Steel  
V:Aluminium

### 6. Housing Length

A:Short  
B:Standard  
C:Long

### 7. Mounting

N:Non-flush(nf)  
F:Flush(f)

### 8. Sensing Distance

02:2mm  
04:4mm  
10:10mm

### 9. Supply Voltage

A:20...250VAC  
B:90...250VAC  
C:380VAC  
D:10...30VDC  
E:10...60VDC  
F:8.2VDC  
G:5...60VDC  
L:15...30VDC  
H:20...30VDC  
I:10...40VDC  
J:5VDC  
S:20...250VAC/DC  
T:12...24VDC

### 10. Output Way

B:AC/DC 2 wires  
L:DC 2 wires  
T:AC 2 wires  
P:PNP  
N:NPN  
E:NPN/PNP  
F:NPN+PNP  
K:Relay

### 11. Output Status

A:NO/NC Reversible  
B:NO/NC Optional  
Cable Optional;Potentiometer optional  
O:NO  
C:NC  
R:NO+NC  
IU:Voltage+Current  
(0...10V,0...20mA)  
U:Voltage(0...10V)  
I:Current(0...20mA)  
I4:Current(4...20mA)

### 12. By Sensor Function

N/A:Standard function  
M:Analogue  
N:NAMUR  
W:High Temperature Resistant(-25°C...120°C)  
W1:Low Temperature Resistant(-40°C...70°C)  
W2:High Temperature Resistant(-25°C...100°C)  
B:High Pressure Resistant  
T:Speed  
Z:Self-Diagnosis  
Y:Extended Sensing Distance  
G:High Frequency  
Q:Metal Sensing Face  
A:Welding-immune  
K:EMI  
F:Detect Iron Object  
NF:Detect Non-Iron Object  
J:Rotation Speed

### 13. Cable Length

N/A:2m  
3M:3m

### 14. Connection

N/A:2M cable  
E1:M8 connector (3 pins)  
E2:M12 connector (4 pins)  
E3:M8 connector (4 pins)  
E4:M12 trapezoid connector (4 pins)  
E5:M12 connector (5 pins)  
D:Terminal

### 15. Special Requirement

In 4 Digits

## Wiring diagram

| DC 2 Wires | Lead wire | M8 Connector | M12 Connector | Terminal connect |
|------------|-----------|--------------|---------------|------------------|
| <b>NO</b>  |           |              |               |                  |
| <b>NC</b>  |           |              |               |                  |

| DC 3 Wires    | Lead wire | M8 Connector | M12 Connector | Terminal connect |
|---------------|-----------|--------------|---------------|------------------|
| <b>NPN NO</b> |           |              |               |                  |
| <b>NPN NC</b> |           |              |               |                  |
| <b>PNP NO</b> |           |              |               |                  |
| <b>PNP NC</b> |           |              |               |                  |

| DC 4 Wires       | Lead wire | M12 Connector | Terminal connect |
|------------------|-----------|---------------|------------------|
| <b>NPN NO+NC</b> |           |               |                  |
| <b>PNP NO+NC</b> |           |               |                  |

| AC 2 Wires    | Lead wire | M12 Connector | Terminal connect |
|---------------|-----------|---------------|------------------|
| <b>SCR NO</b> |           |               |                  |
| <b>SCR NC</b> |           |               |                  |

# Inductive sensors

| AC/DC 2 Wires | Lead wire | M12 Connector | Terminal connect |
|---------------|-----------|---------------|------------------|
| <b>NO</b>     |           |               |                  |
| <b>NC</b>     |           |               |                  |
| <b>NO/NC</b>  |           |               |                  |

| NAMUR | Lead wire | M8 Connector | M12 Connector | Terminal connect |
|-------|-----------|--------------|---------------|------------------|
|       |           |              |               |                  |

| Analog output                         | Lead wire | M12 Connector | Terminal connect |
|---------------------------------------|-----------|---------------|------------------|
| <b>3 Wires Voltage output</b>         |           |               |                  |
| <b>3 Wires Current output</b>         |           |               |                  |
| <b>4 Wires Voltage/current output</b> |           |               |                  |

| Remarks          | M8 Connector | M12 Connector |
|------------------|--------------|---------------|
| <b>Connector</b> |              |               |

# Inductive sensors

## Frequency enhanced

P.137

| Model | Output     | Supply Voltage | Mounting | Sensing Distance | Specifications | Housing Material    | Connection    |
|-------|------------|----------------|----------|------------------|----------------|---------------------|---------------|
| LR12X | DC 3 Wires | DC10-30V       | f/nf     | 2mm,4mm          | M12*1*53       | Nickel-copper alloy | Cable         |
| LR12X | DC 3 Wires | DC10-30V       | f/nf     | 2mm,4mm          | M12*1*56       | Nickel-copper alloy | M12 Connector |
| LR18X | DC 3 Wires | DC10-30V       | f/nf     | 5mm,8mm          | M18*1*53       | Nickel-copper alloy | Cable         |
| LR18X | DC 3 Wires | DC10-30V       | f/nf     | 5mm,8mm          | M18*1*56       | Nickel-copper alloy | M12 Connector |

## Gear speed monitoring

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| Model | Output     | Supply Voltage | Mounting | Sensing Distance | Specifications | Housing Material    | Connection    |
|-------|------------|----------------|----------|------------------|----------------|---------------------|---------------|
| FY12  | DC 3 Wires | DC10-30V       | f        | 2mm,2mm          | M12*1*53       | Nickel-copper alloy | Cable         |
| FY12  | DC 3 Wires | DC10-30V       | f        | 2mm,2mm          | M12*1*56       | Nickel-copper alloy | M12 Connector |
| FY18  | DC 3 Wires | DC10-30V       | f        | 2mm,2mm          | M18*1*53       | Nickel-copper alloy | Cable         |
| FY18  | DC 3 Wires | DC10-30V       | f        | 2mm,2mm          | M18*1*56       | Nickel-copper alloy | M12 Connector |

## Full metal housing

P.140

| Model | Output     | Supply Voltage | Mounting | Sensing Distance | Specifications | Housing Material | Connection    |
|-------|------------|----------------|----------|------------------|----------------|------------------|---------------|
| LR12X | DC 3 Wires | DC10-30V       | f        | 2mm              | M12*1*53       | Stainless steel  | Cable         |
| LR12X | DC 3 Wires | DC10-30V       | f        | 2mm              | M12*1*56       | Stainless steel  | M12 Connector |
| LR18X | DC 3 Wires | DC10-30V       | f        | 5mm              | M18*1*53       | Stainless steel  | Cable         |
| LR18X | DC 3 Wires | DC10-30V       | f        | 5mm              | M18*1*56       | Stainless steel  | M12 Connector |
| LR30X | DC 3 Wires | DC10-30V       | f        | 10mm             | M30*1.5*53     | Stainless steel  | Cable         |
| LR30X | DC 3 Wires | DC10-30V       | f        | 10mm             | M30*1.5*56     | Stainless steel  | M12 Connector |

| Item Code        | LR12X   |         | LR18X   |         |
|------------------|---------|---------|---------|---------|
| Mounting         | ● Flush | ● Flush | ● Flush | ● Flush |
| Sensing distance | 2mm     | 2mm     | 5mm     | 5mm     |

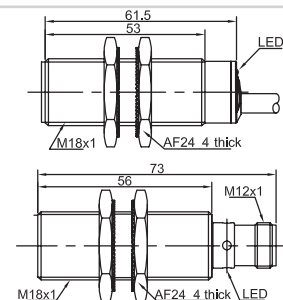
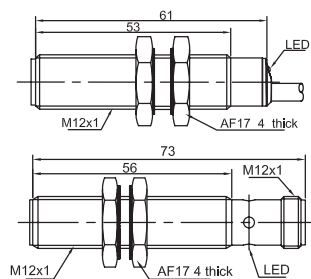


|        |        |               |                  |               |                  |
|--------|--------|---------------|------------------|---------------|------------------|
| Output | NPN NO | LR12XCF02DNOQ | LR12XCF02DNOQ-E2 | LR18XCF05DNOQ | LR18XCF05DNOQ-E2 |
|        | NPN NC | LR12XCF02DNCQ | LR12XCF02DNCQ-E2 | LR18XCF05DNCQ | LR18XCF05DNCQ-E2 |
| Output | PNP NO | LR12XCF02DPOQ | LR12XCF02DPOQ-E2 | LR18XCF05DPOQ | LR18XCF05DPOQ-E2 |
|        | PNP NC | LR12XCF02DPCQ | LR12XCF02DPCQ-E2 | LR18XCF05DPCQ | LR18XCF05DPCQ-E2 |

| Technical Parameter      |                      |                      |                      |                      |                      |
|--------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Supply voltage           | 10...30 VDC          | 10...30 VDC          | 10...30 VDC          | 10...30 VDC          | 10...30 VDC          |
| Switch point drift       | < ±10% Sr            | < ±10% Sr            | < ±10% Sr            | < ±10% Sr            | < ±10% Sr            |
| Load current             | <200mA               | <200mA               | <200mA               | <200mA               | <200mA               |
| Voltage drop             | <2.5V                | <2.5V                | <2.5V                | <2.5V                | <2.5V                |
| Consumption current      | <15mA                | <15mA                | <15mA                | <15mA                | <15mA                |
| Hysteresis               | 1...20%              | 1...20%              | 1...20%              | 1...20%              | 1...20%              |
| Repeat accuracy          | <3%                  | <3%                  | <3%                  | <3%                  | <3%                  |
| Frequency                | 300Hz                | 300Hz                | 200Hz                | 200Hz                | 200Hz                |
| Output indicator         | Yellow LED           | Yellow LED           | Yellow LED           | Yellow LED           | Yellow LED           |
| Polarity protection      | yes                  | yes                  | yes                  | yes                  | yes                  |
| Dielectric strength      | 1000V/AC 50/60Hz 60s | 1000V/AC 50/60Hz 60s | 1000V/AC 50/60Hz 60s | 1000V/AC 50/60Hz 60s | 1000V/AC 50/60Hz 60s |
| Short-circuit protection | yes                  | yes                  | yes                  | yes                  | yes                  |
| Ambient temperature      | 80bar                | 80bar                | 60bar                | 60bar                | 60bar                |
| Ambient moisture         | -25...+70°C          | -25...+70°C          | -25...+70°C          | -25...+70°C          | -25...+70°C          |
| Protection degree        | 35...95%             | 35...95%             | 35...95%             | 35...95%             | 35...95%             |
| Housing material         | IP67                 | IP67                 | IP67                 | IP67                 | IP67                 |
| Connection               | Stainless steel      | Stainless steel      | Stainless steel      | Stainless steel      | Stainless steel      |
| Certification            | 2m PVC Cable         | M12 Connector        | 2m PVC Cable         | M12 Connector        | M12 Connector        |



\* Cable material and length can be customized





| Item Code        | LR30X   |         |  |  |
|------------------|---------|---------|--|--|
| Mounting         | ● Flush | ● Flush |  |  |
| Sensing distance | 10mm    | 10mm    |  |  |



|        |        |               |                  |  |  |
|--------|--------|---------------|------------------|--|--|
| Output | NPN NO | LR30XCF10DNOQ | LR30XCF10DNOQ-E2 |  |  |
|        | NPN NC | LR30XCF10DNCQ | LR30XCF10DNCQ-E2 |  |  |
| Output | PNP NO | LR30XCF10DPOQ | LR30XCF10DPOQ-E2 |  |  |
|        | PNP NC | LR30XCF10DPCQ | LR30XCF10DPCQ-E2 |  |  |

| Technical Parameter      |  |                      |                      |  |  |
|--------------------------|--|----------------------|----------------------|--|--|
| Supply voltage           |  | 10...30 VDC          | 10...30 VDC          |  |  |
| Switch point drift       |  | < ±10% Sr            | < ±10% Sr            |  |  |
| Load current             |  | <200mA               | <200mA               |  |  |
| Voltage drop             |  | <2.5V                | <2.5V                |  |  |
| Consumption current      |  | <15mA                | <15mA                |  |  |
| Hysteresis               |  | 1...20%              | 1...20%              |  |  |
| Repeat accuracy          |  | <3%                  | <3%                  |  |  |
| Frequency                |  | 100Hz                | 100Hz                |  |  |
| Output indicator         |  | Yellow LED           | Yellow LED           |  |  |
| Polarity protection      |  | yes                  | yes                  |  |  |
| Dielectric strength      |  | 1000V/AC 50/60Hz 60s | 1000V/AC 50/60Hz 60s |  |  |
| Short-circuit protection |  | yes                  | yes                  |  |  |
| Ambient temperature      |  | 40bar                | 40bar                |  |  |
| Ambient moisture         |  | -25...+70°C          | -25...+70°C          |  |  |
| Protection degree        |  | 35...95%             | 35...95%             |  |  |
| Housing material         |  | IP67                 | IP67                 |  |  |
| Connection               |  | Stainless steel      | Stainless steel      |  |  |
| Certification            |  | 2m PVC Cable         | M12 Connector        |  |  |



\* Cable material and length can be customized

