

the sensor people





Part no.: 50135732 LCS-1M30P-F15NNO-M12 Capacitive sensor





Figure can vary

Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Circuit diagrams
- Operation and display
- Accessories
- Notes





Technical data

Basic data	
Series	LCS-1
Switching distance S _n	2 15 mm
Assured switching distance	15 mm
Electrical data	
Protective circuit	Short circuit protected Polarity reversal protection
Performance data	
Supply voltage	10 30 V, DC
Residual ripple	0 10 %, From U _B
Open-circuit current	15 mA
Temperature drift, max. (in % of S _r)	20 %
Repeatability, max. (in % of S _r)	2 %
Rated operating current	100 mA
Outputs	
Number of digital switching outputs	1 Piece(s)
Switching outputs	
Туре	Digital switching output
Voltage type	DC
Switching output 1	
Assignment	Connection 1, pin 4
Switching element	Transistor, NPN
Switching principle	NO (normally open)
"iming	
Switching frequency	100 Hz
Connection	
lumber of connections	1 Piece(s)
Connection 1	
Type of connection	Connector
Function	Signal OUT Voltage supply
Thread size	M12
Туре	Male

Mechanical data	
Design	Cylindrical
Thread size	M30 x 1.5 mm
Dimension (Ø x L)	30 mm x 79 mm
Type of installation	Embedded
Housing material	Plastic, Polybutylene (PBT)
Sensing face material	Plastic, Polybutylene (PBT)
Cover material	Plastic, Polybutylene (PBT)/polyamide (PA 12)

Plastic

4 -pin

A-coded

Material

No. of pins

Encoding



Operation and display Type of isplays LED Number of LEDs 2 Plene(e) Switching distance, adjustable Yes Environmental data Ambient temperature, operation -25 85 °C Certifications Degree of protection IP 67 Protection class III Certifications Coll U.S Standards applied IEC 60947-5-2 Certifications O.U. U.S Standards applied IEC 60947-5-2 Certifications O.U. U.S Certifications O.U. U.S Certifications O.U. U.S Certification O.U. U.S Certifications O.U. U.S Certifications O.U. U.S Certifications O.U. U.S Certifications O.75 Accionate description O.1 - 0.25 Accionate description O.1 - 0.25 Certification		
Type of display LED Number of LEDs 2 Piece(s) Switching distance, adjustable Yes Environmental data Ambient temperature, operation 2585 °C Certifications Degree of protection IP 67 Protection class III Certifications o UL US Standards applied IEC 60947-5-2 Correction factors Correction factors Actifications 0.75 Actifications 0.75 Actifications 0.75 Actifications 0.75 Actifications 0.75 Actification 0.85 Annonia 0.7-0.85 Aniline 0.4 Gasoline 0.1 Cululidid 0.15 Epoory resin 0.15 Clude oil 0.15 Epony resin 0.15 Crude oil 0.25 Ethanol 0.85 Ethylene glycol 0.93 Fron R22 and 502 (liquid)	Net weight	40 g
Type of display LED Number of LEDs 2 Piece(s) Switching distance, adjustable Yes Environmental data Ambient temperature, operation 2585 °C Certifications Degree of protection IP 67 Protection class III Certifications o UL US Standards applied IEC 60947-5-2 Correction factors Correction factors Actifications 0.75 Actifications 0.75 Actifications 0.75 Actifications 0.75 Actifications 0.75 Actification 0.85 Annonia 0.7-0.85 Aniline 0.4 Gasoline 0.1 Cululidid 0.15 Epoory resin 0.15 Clude oil 0.15 Epony resin 0.15 Crude oil 0.25 Ethanol 0.85 Ethylene glycol 0.93 Fron R22 and 502 (liquid)		
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Certifications c UL US Standards applied IEC 60947-5-2 Correction factors Acetone 0.75 Acrylic resin 0.1 0.25 Alcohol 0.85 Anminolia 0.4 Gasoline 0.1 Celluloid 0.15 Liquid chlorine 0.15 Ebonite 0.15 Epoxy resin 0.15 0.35 Cirude oil 0.05 Ethanol 0.85 Ethylene glycol 0.93 Freon R22 and 502 (liquid) 0.35 Grain 0.15 0.3 Gless 0.2 0.55 Glycerin 0.98 Rubber 0.15 0.9 Wood, dry 0.1 0.4 Carbon dioxide 0 Air 0 Marble 0.5 Flour 0.05 Milk powder 0.2 0.25 0.55 Melamine resin 0.25 0.55 Milk powder 0.2	Degree of protection	IP 67
Standards applied IEC 60947-5-2	Protection class	III
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Actone 0.75 Actylic resin 0.1 0.25 Alcohol 0.85 Ammonia 0.7 0.85 Anliline 0.4 Gasoline 0.1 Celluloid 0.15 Liquid chlorine 0.15 Ebonite 0.15 Epoxy resin 0.15 Crude oil 0.05 Eithanol 0.85 Ethylene glycol 0.93 Grain 0.15 0.3 Grain 0.15 0.3 Glass 0.2 0.55 Glycerin 0.98 Rubber 0.15 0.9 Wood, wet 0.6 0.85 Wood, wet 0.6 0.85 Wood in oixide 0.6 0.85 Marbie 0.5 Flour 0.05 Marbie 0.5 Flour 0.05 Marbie 0.5 Flour 0.05 Marbie 0.5 Flour 0.2 Milk powder	Standards applied	IEC 60947-5-2
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Ethanol 0.85 Ethylene glycol 0.93 Freon R22 and 502 (liquid) 0.35 Grain 0.15 0.3 Glass 0.2 0.55 Glycerin 0.98 Rubber 0.15 0.9 Wood, wet 0.6 0.85 Wood, dry 0.1 0.4 Carbon dioxide 0 Air 0 Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Epoxy resin	0.15 0.35
Ethylene glycol 0.93 Freon R22 and 502 (liquid) 0.35 Grain 0.15 0.3 Glass 0.2 0.55 Glycerin 0.98 Rubber 0.15 0.9 Wood, wet 0.6 0.85 Wood, dry 0.1 0.4 Carbon dioxide 0 Air 0 Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Crude oil	0.05
Freon R22 and 502 (liquid) 0.35 Grain 0.15 0.3 Glass 0.2 0.55 Glycerin 0.98 Rubber 0.15 0.9 Wood, wet 0.6 0.85 Wood, dry 0.1 0.4 Carbon dioxide 0 Air 0 Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Ethanol	0.85
Grain 0.15 0.3 Glass 0.2 0.55 Glycerin 0.98 Rubber 0.15 0.9 Wood, wet 0.6 0.85 Wood, dry 0.1 0.4 Carbon dioxide 0 Air 0 Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Ethylene glycol	0.93
Glass 0.2 0.55 Glycerin 0.98 Rubber 0.15 0.9 Wood, wet 0.6 0.85 Wood, dry 0.1 0.4 Carbon dioxide 0 Air 0 Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Freon R22 and 502 (liquid)	0.35
Glycerin 0.98 Rubber 0.15 0.9 Wood, wet 0.6 0.85 Wood, dry 0.1 0.4 Carbon dioxide 0 Air 0 Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Grain	0.15 0.3
Rubber 0.15 0.9 Wood, wet 0.6 0.85 Wood, dry 0.1 0.4 Carbon dioxide 0 Air 0 Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Glass	0.2 0.55
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Wood, dry 0.1 0.4 Carbon dioxide 0 Air 0 Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Rubber	0.15 0.9
Carbon dioxide 0 Air 0 Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Wood, wet	0.6 0.85
Air 0 Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Wood, dry	0.1 0.4
Marble 0.5 Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Carbon dioxide	0
Flour 0.05 Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Air	0
Melamine resin 0.25 0.55 Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Marble	0.5
Milk powder 0.2 Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Flour	0.05
Nylon 0.2 0.3 Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Melamine resin	0.25 0.55
Oil-containing paper 0.25 Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Milk powder	0.2
Paper 0.1 Polyamide 0.3 Polyester resin 0.15 0.5	Nylon	0.2 0.3
Polyamide 0.3 Polyester resin 0.15 0.5	Oil-containing paper	0.25
Polyester resin 0.15 0.5	Paper	0.1
	Polyamide	0.3
Pressboard 0.1 0.3	Polyester resin	0.15 0.5
	Pressboard	0.1 0.3

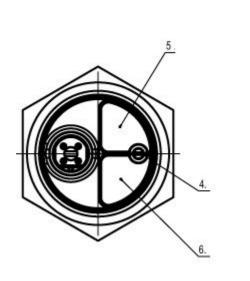


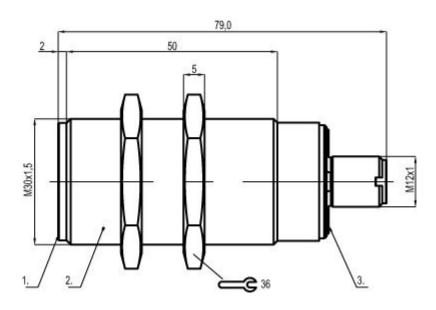
PTFE	0.1
Quartz glass	0.2
Salt	0.35
Sand	0.15 0.3
Water	1
Cement dust	0.25
Sugar	0.15

Classification		
eCl@ss 8.0	27270102	
eCl@ss 9.0	27270102	
ETIM 5.0	EC002715	

Dimensioned drawings

All dimensions in millimeters





- Active surface
- Housing
- 2 3 4 5 6 Cover
- Potentiometer
- Green LED, operating voltage display Yellow LED, function indicator

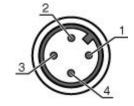
Electrical connection

Connection 1	
Type of connection	Connector
Function	Signal OUT Voltage supply
Thread size	M12
Туре	Male

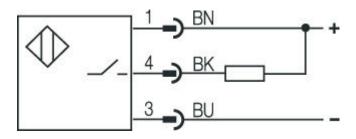


Connection 1	
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

Pin	Pin assignment	Conductor color
1	+1030 V DC	Brown
2	n.c.	White
3	GND	Blue
4	OUT	Black



Circuit diagrams



Operation and display

LEDs

LED	Display	Meaning
1	Green, continuous light	Ready
2	Yellow, continuous light	Switching output/switching state

Accessories

Connection technology - Connection cables

Part no.	Designation	Article	Description
50112960	K-D M12A-4P-10m- FAB	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: FAB
50104570	K-D M12A-4P-2m- FAB	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: FAB



Part no.	Designation	Article	Description
50104572	K-D M12A-4P-5m- FAB	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: FAB
50112961	K-D M12W-4P-10m- FAB	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: FAB
50104571	K-D M12W-4P-2m- FAB	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: FAB
50104573	K-D M12W-4P-5m- FAB	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: FAB
50130654	KD U-M12-4A- P1-020	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR
50130672	KD U-M12-4A- P1-020-DP	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR
50130657	KD U-M12-4A- P1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR
50130675	KD U-M12-4A- P1-050-DP	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR
50130658	KD U-M12-4A- P1-100	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR
50130676	KD U-M12-4A- P1-100-DP	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR



	Part no.	Designation	Article	Description
	50130648	KD U-M12-4A- V1-020	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC
	50130652	KD U-M12-4A- V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
W	50130653	KD U-M12-4A- V1-100	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PVC
W	50132431	KD U-M12-4A- V1-200	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 20,000 mm Sheathing material: PVC
W	50132430	KD U-M12-4A- V1-300	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 30,000 mm Sheathing material: PVC
W	50130692	KD U-M12-4W- P1-020	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR
W	50130718	KD U-M12-4W- P1-020-DP	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR
W	50130694	KD U-M12-4W- P1-050	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR
W	50130720	KD U-M12-4W- P1-050-DP	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR
W	50130695	KD U-M12-4W- P1-100	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR



	Part no.	Designation	Article	Description
W	50130721	KD U-M12-4W- P1-100-DP	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR
W	50130688	KD U-M12-4W- V1-020	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC
W	50130690	KD U-M12-4W- V1-050	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
W	50130691	KD U-M12-4W- V1-100	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PVC
W	50132641	KD U-M12-4W- V1-200	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 20,000 mm Sheathing material: PVC

Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
Offi	50117490	BTU D18M-D12	Mounting system	Design of mounting device: Mounting system Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal

Mounting technology - Other

Part no.	Designation	Article	Description
50132730	AC D30M-CS	Clamp	Contains: 2x M36 mounting nut Diameter, inner: 30 mm Design of mounting device: Mounting clamp Mounting bracket, at system: Screw type, Through-hole mounting Mounting bracket, at device: Insertable, Clampable with limit stop Type of mounting device: Clampable, With limit stop Material: Metal
50111503	MC 030K	Clamp	Diameter, inner: 30 mm Design of mounting device: Mounting clamp Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Rigid Material: Plastic



Part no.	Designation	Article	Description
50111504	MC 030K-LS	Clamp	Diameter, inner: 30 mm Design of mounting device: Mounting clamp Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Clampable with limit stop Type of mounting device: Rigid Material: Plastic

Notes

Observe intended use!

- · This product is not a safety sensor and is not intended as personnel protection.
- The product may only be put into operation by competent persons.
- · Only use the product in accordance with its intended use.