

EMS-LD-R500

Locating leak detection sensing rope, 500 m

Distance-read sensing rope for one supervised run, ordered cut to length and terminated

Conductive distance-read sensing rope supplied as a 500 m coil that reports the wet point to a 0.1 m position resolution. Locating accuracy on a 500 m run is ± 3.1 m and repeatability is ± 1.85 m, calculated from the total cable on the channel. It catches the 50 mm film of fluid that bridges the two sensing wires and returns to normal status within 15 s of being wiped dry.

ORDERING INFORMATION

Part number	EMS-LD-R500
Sensing length	500 m per coil
Cable mass	14.87 kg before packaging
Position resolution	0.1 m
Locating accuracy	± 3.1 m at 500 m total cable on the channel
Locating repeatability	± 1.85 m at 500 m total cable on the channel
Compatible controllers	EMS-LD-C8, EMS-LD-C16
Termination	Cut to length to order; pre-installed terminator available

DETECTION PERFORMANCE

Parameter	Value	Notes
Sensing principle	Conductive / resistance, distance-read	Fluid bridging the two sensing wires creates the current path the controller converts to a distance
Position resolution	0.1 m	Granularity of the reported distance; not a locating accuracy figure
Locating accuracy	± 3.1 m at 500 m total cable on the channel	Controller dependent; the length in the formula is the total cable on the channel, not one rope length
Locating repeatability	± 1.85 m at 500 m total cable on the channel	Controller dependent; separate from position resolution and coarser than it
Minimum leak to alarm	50 mm (2 in) of fluid at any point along the run	Measured across the mesh at the point of contact
Detection length	500 m of sensing rope per coil	Detection length is additive across ropes on one channel: five 100 m ropes on one channel are calculated at 500 m
Minimum cable per distance-read channel	10.67 m (35 ft)	Set per channel on a distance-read controller, not per rope; this rope is above it
Glycol detection floor	15 % propylene glycol by weight and above (PG15 / PG25 / PG35)	Below that concentration the bridging current falls away
Response time	Reported wet point within the controller response setting	Controller dependent; the distance-read panels set 5–990 s in 5 s steps
Dry and reset	Within 15 s of removal from standing water	Returns the channel to normal status without a site visit

ROPE CONSTRUCTION AND MECHANICAL LIMITS

Parameter	Value	Notes
Construction	Fluoropolymer core; 2 × 26 AWG continuity and signal wires; 2 × 30 AWG conductive-fluoropolymer-jacketed sensing wires; no exposed metal	Conductive / resistance construction with no exposed metal along the run
Diameter	6.0 mm nominal (0.24 in); 6.35 mm maximum	Nominal figure with the maximum permitted by the construction
Weight	29.7 g/m (0.02 lb/ft)	Finite figure per metre; multiply by the ordered length
Breaking strength	72 kg cable only; 32 kg including connectors	The connector is the weaker point of the assembly
Shear strength	Above 81.65 kg	Cable body, connectors excluded
Cut-through	Above 22.7 kg with a 0.13 mm blade at 0.2 in/min	Applies to the jacket; a dropped floor tile is the field case
Abrasion	Above 65 cycles per the UL 719 test method	Heavy-jacket construction is published at 60 cycles per the same method
Bend radius	12.70 mm minimum (bend diameter 25.4 mm)	Tighter bends than this stress the mesh and the jacket
Connector	4-pin twist-lock, 24.38 mm diameter, pre-installed male and female	Termination is fitted before shipment; the same connector carries the leader and the terminator
Colour	High-visibility yellow (standard); orange (heavy jacket)	Heavy jacket is published at 60 abrasion cycles per the UL 719 method

INSTALLATION AND ENVIRONMENT

Parameter	Value	Notes
Operating temperature	0 to +75 °C	Cable surface temperature, installed
Storage temperature	–30 to +85 °C	Before installation, in the original reel or coil
Humidity	5–95 % RH, non-condensing	Installed condition
Plenum rating	UL CL2P, meets NFPA 262	Required for a run under a raised floor or in a ceiling air-handling space
Fluid read by the rope	Water and water-glycol blends at 15 % propylene glycol by weight and above (PG15 / PG25 / PG35)	Glycol detection floor of the conductive construction
Wider envelope seen in the trade	Sensors tested from 10 % to 55 % propylene glycol	Trade test envelope, not a rating of this rope
Fluids not reliably read	Near-DI water and pure dielectric fluids	The bridging current across the mesh is weak or absent
Fluids needing another construction	Acids and bases (chemical-resistant jacket); oil and immersion fluids (a separate sensing family, not supplied here)	Strongly conductive fluids attack the standard jacket
CRAC offset	Keep the run at least 1.8 m (6 ft) clear of a downflow CRAC unit air supply	Inside that zone the panel alarms on contamination with no leak present
Crossing rule	Break a run that crosses itself with a 3 m non-sensing jumper (EMS-LD-X3)	A distance-read channel averages two wet points into one wrong distance

Parameter	Value	Notes
Dry and reset	Within 15 s of removal from standing water	Measured after wiping the run dry; the alarm clears without a site visit
Proof test	At commissioning, then at least once a year	The older published recommendation is monthly
Cleaning	Isopropyl alcohol wipe-down in place; warm soapy water at about 1 cup of detergent per gallon for a full wash	Dry 6 to 48 h after a wet wash, depending on room conditions
Replace rather than clean	Jacket damaged by a dropped tile, or dissolved by floor-sealing chemicals	Watch for metallic chips and solder swarf around pipework and electrical work
Ingress protection	Not specified in this product class	No IP rating is published for a sensing cable in this class; the rating carried by the rope is the UL CL2P plenum rating, meeting the NFPA 262 flame-travel and smoke test

LOCATING TOLERANCE WORKED PER TOTAL CABLE LENGTH

Parameter	Value	Notes
15 m of cable on one channel	Locating accuracy ± 0.68 m · repeatability ± 0.64 m	Arithmetic from ± 0.6 m plus 0.5 % of total cable length for accuracy and ± 0.6 m plus 0.25 % of total cable length for repeatability; total cable on the channel, not one rope
25 m of cable on one channel	Locating accuracy ± 0.73 m · repeatability ± 0.66 m	Arithmetic from ± 0.6 m plus 0.5 % of total cable length for accuracy and ± 0.6 m plus 0.25 % of total cable length for repeatability; total cable on the channel, not one rope
50 m of cable on one channel	Locating accuracy ± 0.85 m · repeatability ± 0.73 m	Arithmetic from ± 0.6 m plus 0.5 % of total cable length for accuracy and ± 0.6 m plus 0.25 % of total cable length for repeatability; total cable on the channel, not one rope
100 m of cable on one channel	Locating accuracy ± 1.1 m · repeatability ± 0.85 m	Arithmetic from ± 0.6 m plus 0.5 % of total cable length for accuracy and ± 0.6 m plus 0.25 % of total cable length for repeatability; total cable on the channel, not one rope
250 m of cable on one channel	Locating accuracy ± 1.85 m · repeatability ± 1.23 m	Arithmetic from ± 0.6 m plus 0.5 % of total cable length for accuracy and ± 0.6 m plus 0.25 % of total cable length for repeatability; total cable on the channel, not one rope
500 m of cable on one channel	Locating accuracy ± 3.1 m · repeatability ± 1.85 m	Arithmetic from ± 0.6 m plus 0.5 % of total cable length for accuracy and ± 0.6 m plus 0.25 % of total cable length for repeatability; total cable on the channel, not one rope

APPLICATIONS

- Bulk reel for a hall-wide supervised run on one channel
- Retrofit coverage of a complete data hall floor in one order
- Long pipe routes and ceiling air-handling spaces of a large hall

COMPATIBLE CONTROLLERS

- EMS-LD-C1, EMS-LD-C2 (zone panels, no distance report)
- EMS-LD-C4, EMS-LD-C8, EMS-LD-C16 (distance-read panels, 10.67 m minimum per channel)

INCLUDED IN THE BOX

- 500 m of sensing rope on a reel or coil
- Reel label and packing list carrying the model code
- Pre-installed male and female 4-pin twist-lock connectors

CONSTRUCTION OPTIONS ON THE SAME LADDER

- Standard conductive-fluid construction, high-visibility yellow
- Chemical-resistant construction for acids and bases
- Low-smoke zero-halogen construction
- Rodent-resistant construction
- Heavy jacket, orange, published at 60 abrasion cycles per the UL 719 method

SCOPE

- Sensing rope, leader cable and end-of-line terminator only
- No coolant distribution units and no cold plates

ROPE LENGTH LADDER

Parameter	Value	Notes
500 m · 14.87 kg	EMS-LD-R1	0.03 kg
500 m · 14.87 kg	EMS-LD-R5	0.15 kg
500 m · 14.87 kg	EMS-LD-R15	0.45 kg
500 m · 14.87 kg	EMS-LD-R25	0.74 kg
500 m · 14.87 kg	EMS-LD-R50	1.49 kg
500 m · 14.87 kg	EMS-LD-R100	2.97 kg
500 m · 14.87 kg	EMS-LD-R250	7.44 kg
500 m · 14.87 kg	EMS-LD-R500	14.87 kg

COMPATIBLE CONTROLLERS

Parameter	Value	Notes
EMS-LD-C1	Zone panel, 1 channel, no distance report	Pairs with this rope only where the total cable on the channel is under 100 m
EMS-LD-C2	Zone panel, 2 channels, no distance report	Pairs with this rope only where the total cable on the channel is under 100 m
EMS-LD-C4	Distance-read panel, 4 channels	0.1 m position resolution; locating accuracy ± 0.6 m plus 0.5 % of total cable length
EMS-LD-C8	Distance-read panel, 8 channels	0.1 m position resolution; locating accuracy ± 0.6 m plus 0.5 % of total cable length
EMS-LD-C16	Distance-read master panel, 16 channels	0.1 m position resolution; locating accuracy ± 0.6 m plus 0.5 % of total cable length

NOTES

- Position resolution is the granularity of the reported distance and is not the same figure as locating accuracy or locating repeatability; the three are separate rows above.

- Locating accuracy is ± 0.6 m plus 0.5 % of total cable length; locating repeatability is ± 0.6 m plus 0.25 % of total cable length. Worked values at 100 m, 250 m and 500 m on one channel are ± 1.1 m / ± 0.85 m, ± 1.85 m / ± 1.23 m and ± 3.1 m / ± 1.85 m.
- The length used in the tolerance formula is the total cable on the channel, so five 100 m ropes on one channel are calculated at 500 m, not at 100 m.
- A supervised loop takes one leader cable and one end-of-line terminator per controller; without the terminator a cut cable reads as a quiet loop.
- An IP rating is not specified for this product class; the rating carried by the cable is the UL CL2P plenum rating, meeting the NFPA 262 flame-travel and smoke test.
- Certification names are published on the badge cards; approval documents are shown on request.
- EMS-Trade Cooling cuts the rope to length, inspects it and packs it with the model code on the reel label.

Full specification sheet and current pricing	EMS-LD-R500
EMS-Trade Cooling · ems-cool.com	Rev. A
Typical lead time confirmed on order acknowledgement.	2026-09-19