CITY OF NEW YORK
DEPARTMENT OF BUILDINGS

Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use in accordance with the Report of Materials and Equipment Acceptance (MEA) Division.

Patricia J. Lancaster, A.I.A., Commissioner

MEA 225-03-E
Report of Material and Equipment Acceptance Division

Manufacturer – Brand-Rex Limited, Lancashire, WN7 4NB, UK.
Multiple Listee – Kidde-Fenwal Inc., 400 Main Street, Ashland, MA 01721.
Multiple Listee Trade Name(s) – Kidde-Fenwal.
Product –Linear Heat Sensor Cables.
Pertinent Code Section(s) –RS 17-3.
Test – FMRC Standard 3210 (7/78) – Thermostats for Automatic Fire Detection.
Laboratory – FM Approvals.
Test Reports – FM Approvals Private Labeler Agreement, and FM Approvals Reports: 3003834 dated August 9, 1999, 3006776 dated April 24, 2000, 0D6A9.AY dated June 25, 1999, 3005155 dated November 24, 1999, 3008933 dated September 8, 2000, and 3008312 dated August 7, 2000. Private Labeler Agreement Project Identifier: 3016704 dated March 3, 2003.
Description – Linear Heat Sensor Cables intended for Automatic Fire Detection.

Kidde-Fenwal Model No.	Brand Rex Model No.	Description
73-200000-001	H8040	Cable – Linear Heat Sensor
73-200000-002	H8045	Cable – Linear Heat Sensor
73-200000-003	H8028	Cable – Linear Heat Sensor
73-200000-004	H8069	Cable – Linear Heat Sensor
73-200000-005	H9650	Cable – Linear Heat Sensor
73-200000-011	H8040N	Cable – Linear Heat Sensor
73-200000-012	H8045N	Cable – Linear Heat Sensor

1. H8040 cable is color coded red with green stripe.
2. Model H8045 is similar to Model H8040. It is color coded red with a black stripe. This cable is used for area protection with a maximum spacing of 20 feet between parallel cable runs.
3. Model H8028 is color coded black.
4. Models H8069 and H9650 cables are used for proximity detection only. Model H8069 is color coded red and H9650 is color coded white.

5. The H8040N cable is shipped with a label containing the manufacturer's name and address, cable temperature rating, type designation, and the Factory Mutual Research Approval symbol. The H8040N cable is black in color with H8040N printed on the cable.
6. The H8045N cable is shipped with a label containing the manufacturer's name and address, cable temperature rating, type designation, and the Factory Mutual Research Approval symbol. The H8045N cable is black in color with H8045N printed on the cable.
7. Line Type Heat Sensing Cable. Cable Type H8028 operates at 220°F (105°C); H8040 operates at 145-158°F (63-70°C); H8045 and H8045N operates at 180°F (82°C); H8069 operates at 350°F (177°C); and H9650 operates at 452°F (233°C). Each cable is a continuous line type open circuit detector that shorts when in an alarm condition. Cable H8028 is suitable for outdoor use. Accessories for installing the cable include Thomas & Betts Model TC5375 standoff support/cable ties, Mode TC88 routing clamp, Model TC5345A or TC5347A mounting base plus cable ties and Scotchlok Communication Model U1R cable connectors. Max rating for all cables is 1 A, 110 V dc. Spacing guide: parallel cable runs should not be more than 20 ft (6 m) apart. Note: the Types H8069 and H9650 are intended for proximity detection only.

Pursuant to "Promulgation of the Rules relating to Materials and Equipment Application Procedures" dated November 5, 1992. The Bureau of Fire Prevention has no objections letter dated September 4, 2003, F.P. Index #0308018.

Recommendation- That the above linear heat sensor cables be accepted on condition that all uses, configurations, arrangements and functions, application and installations shall comply with the provisions of New York City Buildings Code, specifically Subchapter 17, and Reference Standard 17-3 through 17-3C, including the NFPA as appropriate, the FM Approval, manufacturer's instructions, the Fire Department Rules and the New York City Electrical Code.

All shipments and deliveries of such equipment shall be provided with a metal tag, suitably placed, certifying that the equipment shipped or delivered is equivalent to those tested an accepted for use, as provided for in Section 27-131 of the Building Code.

Final Acceptance December 19 2003

Examined by Donald

LHS™ Linear Heat Sensor

Kidde Fenwal

Effective: November 2002

Installation Instructions
73-200

DESCRIPTION

The Kidde-Fenwal LHS™ Linear Heat Sensor cable is a flexible, durable and cost-effective fixed-temperature fire detector, suitable for protecting a wide range of commercial and industrial fire applications.

LHS is a small diameter cable capable of detecting heat from a fire over its entire length. The sensor cable consists of a twisted pair of 19 AWG copper coated steel conductors covered by a temperature sensitive insulation, and protected by either a plastic braid or jacket for various environmental applications (see Figure 1).

LHS is designed for open area as well as proximity detection. A wide range of jackets and operating temperatures (see Table 1) are available for proper system design, including confined areas or harsh environments which prohibit the use of other forms of detection. LHS cable is compatible with any Fire Control Panel.

The LHS linear heat detector is Factory Mutual Approved. An FM Approved installation requires the LHS cable to be connected to an FM Approved Fire Control Panel.

OPERATION

The heat from a fire causes the LHS cable's special insulation to melt at a specific temperature, allowing the two conductors to short together, thus creating an alarm condition on the Fire Control Panel. The LHS cable may also be used as a stand-alone contact device. The LHS normal operating state is an open circuit.

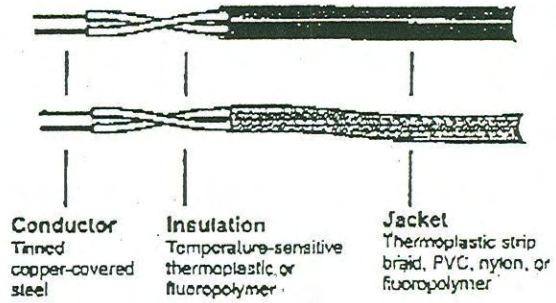

Figure 1. Cable Construction

DESIGN CONSIDERATIONS

The system design and installation must follow accepted principles of fire protection engineering, as well as comply with applicable codes and standards:

- NFPA-72, National Fire Alarm Code
- NEC 760, National Electric Code
- Any local installation requirements
- Requirements of the Authority Having Jurisdiction

Table 1. LHS Sensor Cable Specification

Part Number	73-200000-001	73-200000-011	73-200000-002	73-200000-012	73-200000-003	73-200000-004	73-200000-005
Operating Temperature	155°F (68°C)	155°F (68°C)	185°F (85°C)	185°F (85°C)	220°F (105°C)	350°F (176°C)	465°F (240°C)
Maximum Ambient Temp	Up to 113°F (45°C)	Up to 113°F (45°C)	Up to 113°F (45°C)	Up to 113°F (45°C)	Up to 158°F (70°C)	Up to 221°F (105°C)	Up to 392°F (200°C)
Application	Indoor Only	Indoor/Outdoor	Indoor Only	Indoor/Outdoor	Indoor/Outdoor	Indoor/Outdoor	Indoor/Outdoor
Approved Spacing	20 ft. (6 m) maximum	20 ft. (6 m) maximum	20 ft. (6 m) maximum	20 ft. (6 m) maximum	20 ft. (6 m) maximum	Proximity Detection	Proximity Detection
Flame Detection	5 seconds (max)	5 seconds (max)	5 seconds (max)	5 seconds (max)	12 seconds (max)	20 seconds (max)	20 seconds (max)
Outer Jacket Material	Polypropylene Braid	Nylon	Polypropylene Braid	Nylon	PVC	PVC	FEP
Outer Jacket Color	Red/Green Tracer	Black Marked H004ON	Red/Black Tracer	Black Marked H004SN	Black	Red	White
Conductor Insulation	EVA	EVA	EVA	EVA	Polythene	Polypropylene	FEP
Conductor Color	1 Black 1 Red	1 Black 1 Red	1 Black 1 Red	1 Black 1 Red	1 Black 1 Red	1 Black 1 Black/White	1 Black 1 White
External Diameter	0.146 inch (3.7 mm)	0.132 inch (3.35 mm)	0.146 inch (3.7 mm)	0.132 inch (3.35 mm)	0.167 inch (4.25 mm)	0.171 inch (4.35 mm)	0.138 inch (3.5 mm)
Electrical Rating	1 Amp maximum, 110 Vdc maximum						
Conductor Resistance	30.48 ohms/1000 ft. @ 68°F (100 ohms/1000 m) @ 20°C						
Conductor Capacitance	20.21 pF/ft. (66.32 pF/m)	20.21 pF/ft. (66.32 pF/m)	25.42 pF/ft. (83.41 pF/m)	25.42 pF/ft. (83.41 pF/m)	19.96 pF/ft. (65.48 pF/m)	17.52 pF/ft. (57.48 pF/m)	19.22 pF/ft. (63.07 pF/m)
Insulation Rating	1000 megohm per 3280 ft. (1000 m) after 1 minute @ 500 Vdc Minimum						
Weight	11.29 lb./1000 ft. (16.8 kg/km)	10.65 lb./1000 ft. (15.85 kg/km)	11.29 lb./1000 ft. (16.8 kg/km)	10.65 lb./1000 ft. (15.85 kg/km)	15.25 lb./1000 ft. (22.7 kg/km)	12.67 lb./1000 ft. (18.85 kg/km)	14.65 lb./1000 ft. (21.8 kg/km)