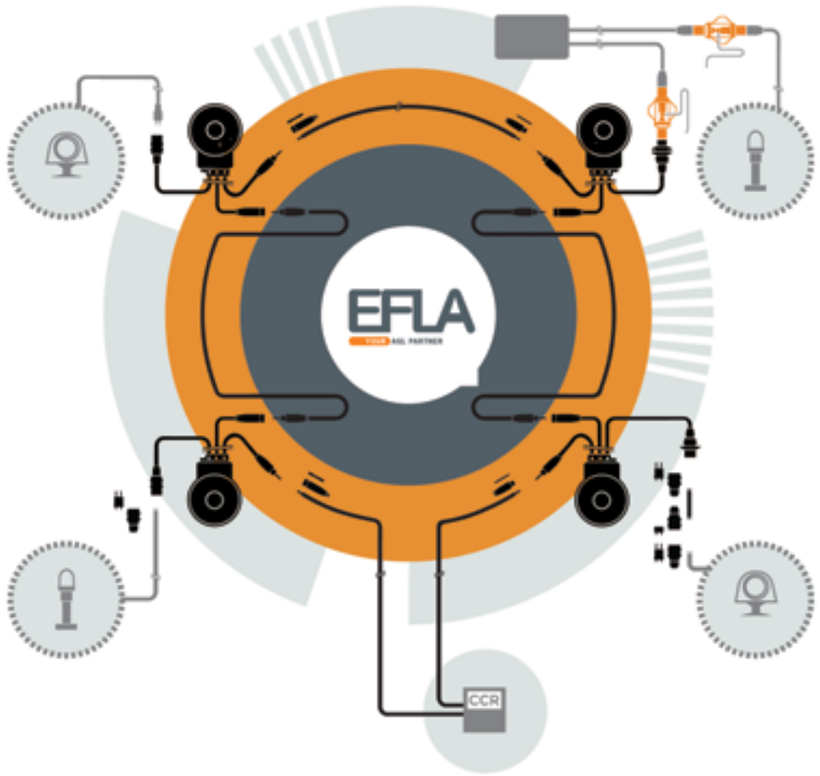
EFLA

YOUR AGL PARTNER

PRODUCT CATALOGUE



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About us

Seamless Connectivity in Airfield Lighting - **EFLA is the only company in the world specializing in seamless power and communication in Airfield Ground Lighting circuit.** We develop, manufacture and sell series isolation transformers, connector kits and prefabricated cable leads for airfield lighting circuit. The materials and electrical design have to meet the highest qualifications, since components are installed in underground pits and cans, or buried directly in the ground.

Our story began over 30 years ago in Northern Europe, Finland. Today we are a leading manufacturer and supplier of AGL electrical circuit components with a true global footprint covering all continents. Our products can be found on most International Airports such as Singapore, Sidney, Abu Dhabi, Dubai, Amsterdam, Frankfurt, Madrid, Paris, Beijing, Kuala Lumpur, Delhi, Moscow and Salt Lake City.

EFLA's name also stands for our core values: **Evolving as individuals and as a company, Focusing on customers, Living by trust capital and Appreciating everyone.** These key values form a firm basis for constantly delivering on promises and exceeding our customers' expectations. Our customers experience this as:

Global certified product portfolio

Unique capacity with short lead times

Best support for complex AGL system

EFLA works with AGL circuit consultants, manufacturers, installation companies and airports all around the world. High quality AGL components are manufactured and tested in Finland and delivered to all continents. Thanks to modern machinery and automated production EFLA meet well the industry's requirement for short lead times.

KR600 - Low-leakage transformers to series circuit

FAA AC 5345-47, L-830 / L-831, 60 Hz / 50 Hz
EN 61823

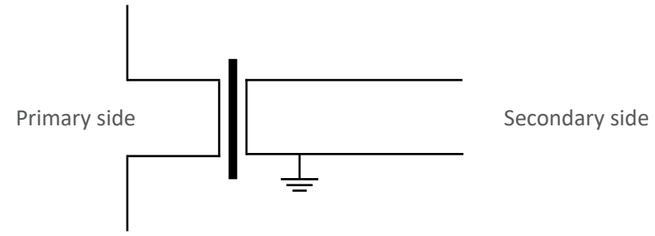
KR600 is used to supply the current in the AGL series circuit and to provide a separation point between the primary and secondary circuits. Thermoplastic elastomer(TPE) encapsulated KR600 series transformers are designed in toroidal shape, which provides superior electrical performance. Toroidal is symmetric “donut” shape which ensure lowest leakage inductance on top of the common features, which support single lamp control and more advanced control and monitoring requirements. KR600 is the most energy efficient transformer in the market. Transformers are certified by FAA and approved by IEC. They also comply with ICAO Annex 14 and several other national standards (MAK, CAAC)

Electrical characteristics

- Rated power 10 - 500 W
- Rated current 6.6 A/6.6 A , other currents upon request
- Rated Voltage 5000V/600V
- Power factor > 0,97
- L (leak) 20µH - 130 µH
- L (magn) 13.0mH - 64 mH

KR600 with or without earthing (grounding)

EFLA supplies transformers with or without earthing. The earthing is connected to the end of the secondary winding in the side of the larger socket. This means that the thicker pin is grounded to the secondary side.



Electrical information

EFLA Type with Earthing	EFLA Type without Earthing	FAA Type	Rated Power [W]	Rated Current [A]	Power Range [W]	Load [Ω]	Efficiency [%]	Power Factor
KR621	KR621.1	L-830-16 L-831-16	10/15	6.6/6.6	10-15	0.34*	> 70	> 0.97
KR625	KR625.1	L-830-17 L-831-17	20/25	6.6/6.6	20-25	0.57*	> 70	> 0.97
KR631	KR631.1	L-830-1 L-831-1	30/45	6.6/6.6	25-60	0.57-1.38	> 85	> 0.97
KR636	KR636.1	L-830-3 L-831-3	65	6.6/6.6	50-85	1.15-1.95	> 85	> 0.97
KR641	KR641.1	L-830-4 L-831-4	100	6.6/6.6	80-125	1.84-2.87	> 85	> 0.97
KR646	KR646.1	L-830-18 L-831-18	150	6.6/6.6	120-178	2.75-4.13	> 90	> 0.97
KR651	KR651.1	L-830-6 L-831-6	200	6.6/6.6	160-230	3.67-5.28	> 90	> 0.97
KR661	KR661.1	L-830-10 L-831-10	300	6.6/6.6	220-338	5.05-8.25	> 90	> 0.97
KR681	KR681.1		500	6.6/6.6	400-523	12.00*	> 90	> 0.97

* According to FAA AC 150/5345-47

Leakage inductances

EFLA Type with Earthing	EFLA Type without Earthing	Power [W]	Short Circuited voltage [V]	L (magn) [mH]	L (leak) [mH]
KR621	KR621.1	10/15	< 6.7	13.0	< 0.02
KR625	KR625.1	20/25	< 6.7	13.0	< 0.02
KR631	KR631.1	30/45	< 6.7	16.0	< 0.03
KR636	KR636.1	65	< 6.7	19.0	< 0.04
KR641	KR641.1	100	< 6.7	14.0	< 0.04
KR646	KR646.1	150	< 6.7	24.0	< 0.06
KR651	KR651.1	200	< 6.7	25.0	< 0.06
KR661	KR661.1	300	< 6.7	35.0	< 0.1
KR681	KR681.1	500	< 6.7	64.0	< 0.13

Customized transformers

On the top of our standard 6.6/6.6 A series isolation transformers, EFLA also delivers customized transformers with e.g. special ratings based on different project specifications, e.g. 6.6/2.2 A, 2.2/2.2 A, and other ratings case by case.

The transformers can also be equipped with different cable lengths and with different connectors, e.g. FAA Style 7 connectors for the secondary side.

Dimensions

	EFLA type	D [mm]	L [mm]	H [mm]	Weight [kg]
KR621	KR621.1	89	115	45	1.03
KR625	KR625.1	89	115	45	1.03
KR631	KR631.1	100	125	55	1.6
KR636	KR636.1	126	168	56	1.9
KR641	KR641.1	147	193	54	3.0
KR646	KR646.1	147	193	60	3.12
KR651	KR651.1	147	193	64	3.37
KR661	KR661.1	147	193	73	4.17
KR681	KR681.1	147	193	95	5.33

Materials and connections

- Thermoplastic elastomer (TPE) is a modern material with excellent electrical and mechanical properties and good chemical resistance to the chemicals typically used at airfields. TPE also has very good resistance to weathering, its insulation withstanding UV-radiation and ozone exposure. The material is also resistant to temperature effects (up to 135 °C, 275 °F).
- Tin-plated copper or brass for the contact parts, while the socket is supplied with a copper beryllium sleeve-type spring, ensuring adequate contact pressure.
- Primary leads 6 mm² with the standard length of 0.6 m with a FAA L-823, Style 2 Plug & Style 9 Receptacle
- Secondary leads 2.5 mm² with the standard length of 1,2m with a FAA Style 8 Receptacle

Accessories for transformers

Transformer hanger - TS1

STAINLESS STEEL AISI316 hanger to place transformers in good order and away from water and dirt in underground pit holes. There are two ways to install hanger; either by screwing it on the wall or hanging it on rail.

KR500 - Transformers to series circuit

FAA AC 5345-47, L-830 / L-831, 60 Hz / 50 Hz

KR500 is used to supply the current in the AGL circuit and to provide a separation point between the primary and secondary circuits. KR500 series offers standard transformer features. Transformers are certified by FAA. They also comply with ICAO Annex 14 and MAK.

Electrical characteristics

- Rated power 30 - 300 W
- Rated current 6.6 A/6.6 A , other currents upon request
- Rated voltage 5000V/600V
- Power factor > 0,97

Materials and connections

- Thermoplastic elastomer (TPE) is a modern material with excellent electrical and mechanical properties and good chemical resistance to the chemicals typically used at airfields. TPE also has very good resistance to weathering, its insulation withstanding UV-radiation and ozone exposure. The material is also resistant to temperature effects (up to 135 °C, 275 °F).
- Tin-plated copper or brass for the contact parts, while the socket is supplied with a copper beryllium sleeve-type spring, ensuring adequate contact pressure.
- Primary leads 6 mm² with the standard length of 0.6 m with a FAA L-823, Style 2 Plug & Style 9 Receptacle
- Secondary leads 2.5 mm² with the standard length of 1,2m with a FAA Style 8 Receptacle

Electrical information

EFLA Type with Earthing	EFLA Type without Earthing	FAA Type	Rated Power [W]	Rated Current [A]	Power Range [W]	Load [Ω]	Efficiency [%]	Power Factor
KR531	KR531.1	L-830-1 L-831-1	30/45	6.6/6.6	25-60	0.57-1.38	> 85	> 0.97
KR536	KR536.1	L-830-3 L-831-3	65	6.6/6.6	50-85	1.15-1.95	> 85	> 0.97
KR541	KR541.1	L-830-4 L-831-4	100	6.6/6.6	80-125	1.84-2.87	> 85	> 0.97
KR546	KR546.1	L-830-18 L-831-18	150	6.6/6.6	120-178	2.75-4.13	> 90	> 0.97
KR551	KR551.1	L-830-6 L-831-6	200	6.6/6.6	160-230	3.67-5.28	> 90	> 0.97
KR561	KR561.1	L-830-10 L-831-10	300	6.6/6.6	220-338	5.05-8.25	> 90	> 0.97

Dimensions

	EFLA type	D [mm]	L [mm]	H [mm]	Weight [kg]
KR521	KR521.1	89	115	45	1.03
KR525	KR525.1	89	115	45	1.03
KR531	KR531.1	100	125	55	1.6
KR536	KR536.1	135	180	55	1.9
KR541	KR541.1	120	160	55	3.0
KR546	KR546.1	147	193	60	3.12
KR551	KR551.1	147	193	64	3.37
KR561	KR561.1	147	193	73	4.17
KR581	KR581.1	147	193	95	5.33

KRV & KRVS - Transformer to parallel circuit

KRV parallel transformers are designed to be connected to a normal line voltage (for example, 230 VAC). Thermoplastic elastomer(TPE) encapsulated parallel transformers are designed in toroidal shape, which provides superior electrical performance. Transformers supply a certain voltage on the secondary side. They are typically used in helidecks and helipads. EFLA has two types of parallel voltage transformers: KRV for single wires and KRVS for two-core cables. The standard primary voltage is 230 VAC, the current rating of 20 A and the frequency of 50/60 Hz.

KRV

The KRV transformers are installed using EFLA's standard KD510-series primary connector kits or prefabricated cable leads and assemblies or extension cords. Also, end caps KDCV01 are be used at the end of a circuit.

KRVS

The KRVS transformers are installed using EFLA's standard KD501- and KD502-series secondary connector kits or prefabricated secondary leads, cable assemblies and extension cords. The end cap KDVS.END is used at the end of a circuit. The transformers can be connected by using a prefabricated distribution connector KDCV. P2R.

Connections

	KRV	KRVS
Primary leads	2 x 60 cm/1.969 ft	60 cm/1.969 ft
Primary connector type	T-connector FAA L-823 Style 2 Plug & Style 9 Receptacle	FAA L-823 Style 1
Secondary lead	1 x 1.2 m/3.937 ft, 2 x 2.5 mm^2	60 cm/1.969 ft
Secondary connector type	FAA-L-823 Style 7	FAA L.823 Style 7

Electrical information

EFLA type for KRV	EFLA type for KRVS	Primary voltage	Secondary voltage	Secondary power
KRV530	KRVS530	230 V	6.8 V	45/50 W
KRV536	KRVS536	230 V	9.85 V	65 W
KRV540	KRVS540	230 V	15.2 V	100 W
KRV545	KRVS545	230 V	22.7 V	150 W
KRV550	KRVS550	230 V	30.2 V	200 W

Dimensions

	EFLA type	D [mm]	L [mm]	H [mm]	Weight [kg]
KRV530	KRVS530	100	125	55	1.4
KRV536	KRVS536	126	168	56	1.5
KRV540	KRVS540	147	193	60	2.3
KRV545	KRVS545	147	193	60	2.4
KRV550	KRVS551	147	193	63	3.3

Accessories for transformers

EFLA type	Description
KDCVO1	End cap for KRV-series
KVDS.END	End cap for KRVS-series
KDCV.2PR	Distribution connector for KRVS-series

KDVS.END

KDCV01

KDCV.P2R

Primary Connectors

FAA AC 150/5345-26, L-823, Styles 3 & 10, Class B ICAO Annex 14, Part 5, Electrical Systems

The primary circuit is the foundation of an AGL system. Connectors are the most sensitive parts of the primary circuit and therefore, high-quality connectors are the easiest way to increase the reliability of airfield lighting circuit.

EFLA connectors provide watertight and durable installation to any environments. Primary connectors are available for screened (shielded) and unscreened (unshielded) cables. Fast and simple installation is guided with attached manuals and visualized videos.

EFLA's primary connectors are packed and delivered in kits including all the necessary parts for making the assembly on primary cables. Each primary connector kit contains components for a pair (a plug and a receptacle).

Electrical characteristics

- Superior isolation resistance by thermoplastic elastomer (TPE)
- Nominal rating: 25 A and 5000 V
- Cable diameter 8,5 - 19,0 mm (0.354 - 0.827 inches)
- Conductor size 6 - 13 mm² (8 - 6 AWG)
- ROHS compliance with EU directive NO2002/95/EC
- Available for screened cables and unscreened cables.

KDL C/W Cable Gland

KDL1 & KDL10 are the most robust and fastest-to-install connectors in the market, designed for a fast-and-easy watertight connection between the primary cable and the series isolating transformer. The connectors allow a fast mounting and assembly on site. KDL is fitted with unique cable gland, designed for industry experts requirements for easy and reliable use. Highest insulation resistance is provided by three insulation barriers. Screen continuity without crimping minimizes risk for leakages. KDL connector tolerates bending well and one connector fits to all cable diameters. KDL connectors are FAA certified.

KDL1 for screened cable

KDL10 for unscreened cable

Technical data

EFLA Type	Conductor Size (mm²)	AWG	Cable Diameter (mm/inch)	Diameter at Wire Insulation (mm/inch)
KDL1	6	8	9.0 – 17.0 mm 0.354 – 0.669”	7.5 – 13.0 mm 0.295 – 0.512”
KDL1.6	10	6	9.0 – 17.0 mm 0.354 – 0.669”	7.5 – 13.0 mm 0.295 – 0.512”
KDL10	6	8	9.0 – 17.0 mm 0.354 – 0.669”	7.0 – 13.0 mm 0.276 – 0.669”
KDL10.6	10	6	9.0 – 17.0 mm 0.354 – 0.669”	7.0 – 13.0 mm 0.276 – 0.669”

KD - Series

KD classic primary connector design has been the industry requirement for over 30 years. This silicon filled connector is fast to install and insulated screen continuity is available as an option. KD classic fits with a wide range of cable sizes and KD classic is FAA certified. Available for screened cables (KD500) and unscreened cables (KD510).

KD500 for screened cable

KD510 for unscreened cable

Technical data

EFLA Type	Conductor size [mm²]	AWG	Cable diameter [mm, inch]	Diameter at wire insulation [mm, inch]	Diameter/Length of assembly [mm, inch]
KD500	6	8**	10.0 – 14.5 mm, 0.393 – 0.570”	7.0 – 10.5 mm, 0.275 – 0.413”	23.5/222 mm, 0.925/8.74”
KD500.1	6	8**	14.0 – 18.5 mm, 0.551 – 0.728”	10.0 – 13.5 mm, 0.393 – 0.531”	23.5/222 mm, 0.925/8.74”
KD500.6	6	8**	8.5 – 11.5 mm, 0.334 – 0.452”	5.0 – 7.5 mm, 0.196 – 0.295”	23.5/222 mm, 0.925/8.74”
KD500.2	10*	6	14.0 – 18.5 mm, 0.551 – 0.728”	10.0 – 13.5 mm, 0.393 – 0.531”	23.5/222 mm, 0.925/8.74”
KD500.5	10*	6	10.0 – 14.5 mm, 0.393 – 0.570”	7.0 – 10.5 mm, 0.275 – 0.413”	23.5/222 mm, 0.925/8.74”
KD510	6	8**	10.0 – 14.5 mm, 0.393 – 0.570”	7.0 – 10.5 mm, 0.275 – 0.413”	23.5/222 mm, 0.925/8.74”
KD510.1	6	8**	14.0 – 18.5 mm, 0.551 – 0.728”	10.0 – 13.5 mm, 0.393 – 0.531”	23.5/222 mm, 0.925/8.74”
KD510.6	6	8**	8.5 – 11.5 mm, 0.334 – 0.452”	5.0 – 7.5 mm, 0.196 – 0.295”	23.5/222 mm, 0.925/8.74”
KD510.2	10*	6	14.0 – 18.5 mm, 0.551 – 0.728”	10.0 – 13.5 mm, 0.393 – 0.531”	23.5/222 mm, 0.925/8.74”
KD510.5	10*	6	10.0 – 14.5 mm, 0.393 – 0.570”	7.0 – 10.5 mm, 0.275 – 0.413”	23.5/222 mm, 0.925/8.74”

*16 mm2 stranded, **up to 19 strands

KDR Resin

KDR resin connector is designed for extreme conditions. KDR connector comes with polyurethane resin, which is poured inside the connector housing upon installation. This provides a permanent connection between connector housing and cable, that cannot be dismantled. Insulated screen continuity and epoxy resin version to high humidity environment are available on request.

KDR600 for screened cable

KDR610 for unscreened cable

Technical data

EFLA Type	Conductor size [mm²]	AWG	Cable diameter [mm, inch]	Diameter/Length of assembly [mm, inch]
KDR600	6	8**	9.0 – 19.0 mm, 0.354 – 0.748”	31/270 mm, 1.22/10.62”
KDR600.2	10*	6	9.0 – 19.0 mm, 0.354 – 0.748”	31/270 mm, 1.22/10.62”
KDR610	6	8**	9.0 – 19.0 mm, 0.354 – 0.748”	31/270 mm, 1.22/10.62”
KDR610.2	10*	6	9.0 – 19.0 mm, 0.354 – 0.748”	31/270 mm, 1.22/10.62”

*16 mm2 stranded, **up to 19 strands

Screen continuity

The standard screen continuity for both KD500 & KDR600 is a 300 mm long, 2.5 mm² tinned copper wire. Following options for screen continuity are available.

KD500.X

KDR600.X
KD500.X/YG

KDR600.X/B
KD500.X/B

Accessories for primary connectors

EFLA Lock

The reusable EFLA Lock reinforces the connection when connectors are connected together or to transformers. EFLA Lock makes the connection resistant up to 25 kg pulling force. The order code for a bag of 50 pcs EFLA Locks is PMR703.

Protection Hat

An open connector should be protected against water and dirt. The protection hat is an easy way to protect your assembled connectors before transformer installation.

Repair Lock

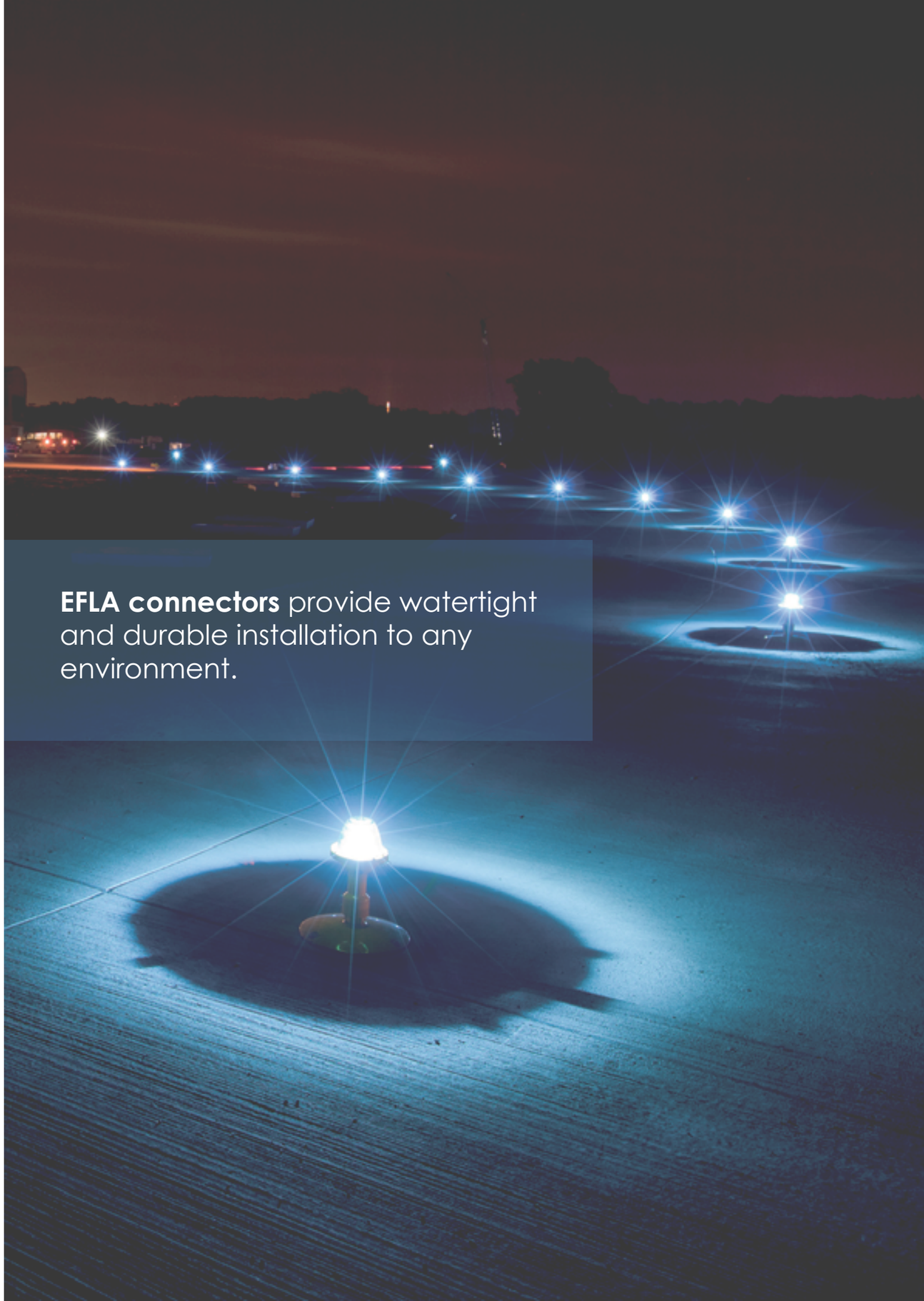
Repair lock is a stronger option for the normal EFLA Lock. It is secured with screws and makes the connection resistant for pulling force up to 50 kg.

Primary Connector Adapter

Solves the problem of making simple primary installation in limited space by allowing the male and female connector to be assembled in a 180° angle. The unit complies with FAA-L-823 styles 2 and 9 wiring 6 mm², 19 strands, 5 kV.

Suggested crimping tools

	Manual Crimping Tools	Electric Crimping Tools
Primary connectors	Elpress EWB 4099C KLAUKE K05/6 KLAUKE K24 KLAUKE K18	Elpress PVL 130S - WB4099



Secondary Connectors

FAA AC 5345-26, L-823, Class B, ICAO: Aerodrome Design Manual Part 5

The secondary circuit supplies power to light fixture and delivers control and monitoring data. High quality secondary connectors ensure watertight connection along with seamless power and communication.

EFLA connectors provide watertight and durable installation to any environments. Nominal rating is 20A and 600V. Secondary connectors are available in standard 2-pin versions, and in breakaway option to frangible approach mast installations. Fast and simple installation is guided with attached manuals.

EFLA's secondary connectors are packed and delivered in kits including all the necessary parts for making the assembly on secondary cables. Each secondary connector kit contains components for a plug or a receptacle. The plug and receptacle are delivered separately.

Electrical characteristics

- Superior isolation resistance by thermoplastic elastomer (TPE)
- Nominal rating: 20 A and 600 V
- Cable diameter 8.5 - 18 mm (0.334 - 0.708'')
- Wire diameter 2.8 - 8mm (0.110 - 0.314'')
- Conductor size 1.5 - 6 mm² (16 - 10/8 AWG)

KD501/502 for Two Core Cable

KD501/502 have been the industry requirement for over 30 years. This waterproof silicon filled connector is used with double insulated two core cables, 3-pin also available. Connector is fast to install, approx. 1 min. KD501/502 connectors are FAA certified.

KD501-series (Plug)

KD502-series (Receptacle)

KD3P/3R for Three Core Cable

KD3P

KD3R

Dimensional data

EFLA type two core cable	EFLA type 3-pole secondary connector	Type	Conductor size	AWG	Cable diameter	in inches
KD501	KD3P	Plug	1.5 – 2.5 mm²	16–14	8.5 – 13.5 mm	0.334 – 0.531
KD501.1	KD3P.1	Plug	4.0 – 6.0 mm²	12–10 / 8	11.5–18.0 mm	0.157 – 0.708
KD501.2	KD3P.2	Plug	4.0 – 6.0 mm²	12–10 / 8	8.5 – 13.5 mm	0.334 – 0.531
KD502	KD3R.	Receptacle	1.5 – 2.5 mm²	16–14	8.5 – 13.5 mm	0.334 – 0.531
KD502.1	KD3R.1	Receptacle	4.0 – 6.0 mm²	12–10 / 8	11.5–18.0 mm	0.157 – 0.708
KD502.2	KD3R.2	Receptacle	4.0 – 6.0 mm²	12–10 / 8	8.5 – 13.5 mm	0.334 – 0.531

KD503 for Two Single Core Wires

KD503 connectors have been industry requirement for over 30 years. This connector is silicon and used with two single core wires. Connector is fast to install, approx. 1min. KD 503 connectors are FAA certified.

KD503-series (Plug)

KD 503R-series (Receptacle)

Dimensional data

EFLA Type	Type	Conductor Size	AWG	Wire Diameter
KD503	Plug	1.5-2.5 mm^2	16-14	2.8-4.0 mm, 0.110-0.157”
KD503.1	Plug	4.0-6.0 mm^2	12-10/8	3.8-5.5 mm, 0.149-0.216”
KD503.2	Plug	4.0-6.0 mm^2	12-10/8	2.8-3.4 mm, 0.110-0.133”
KD503.3	Plug	4.0-6.0 mm^2	12-10/8	5.0-8.0 mm, 0.196-0.314”
KD503/R	Receptacle	1.5-2.5 mm^2	16-14	2.8-4.0 mm, 0.110-0.157”
KD503R.1	Receptacle	4.0-6.0 mm^2	12-10/8	3.8-5.5 mm, 0.149-0.216”
KD503.2	Receptacle	4.0-6.0 mm^2	12-10/8	2.8-3.4 mm, 0.110-0.133”
KD503R.3	Receptacle	4.0-6.0 mm^2	12-10/8	5.0-8.0 mm, 0.196-0.314”

Accessories for secondary connectors

Offers a quick solution to handle more complex secondary circuit application requirements in terms of parallel transformer setting, double loading on secondary and short impedance on secondary side.

- Special solution for special secondary requirement
- Easy and fast installation

KDCA.P2R

In some cases, it is possible to use two loads after one AGL series transformer. KDCA.P2R has been designed for this purpose. The distance between connectors is approx. 20 cm.

Materials: Both of the above mentioned products are made by assembling prefabricated products in combination.

KDCA.2PR

If the load supplied by standard AGL series transformers is insufficient, it is possible to use two AGL series transformers connected through KDCA.2PR. Distance between connectors is approx. 20 cm.

Note: When the secondary circuit is earthed, only one of the transformers can have the earthing option.

KDC506.SHORT

This connector is designed for the short-circuited secondary side of an unused AGL transformer, almost eliminating the impedance of the secondary side. The connector also operates as a watertight cap.

Current rating: 20A, Voltage rating: 600V

KDCY

An easy and space saving way to divide the secondary circuit into two parallel circuits. Perfect for installations where long cable are not wanted/needed.

Suggested crimping tools

	Manual Crimping Tools	Electric Crimping Tools
Secondary connectors	Elpress DKB 0760	Elpress PVL 130S - RB0560

Prefabricated Leads

FAA AC 5345-26 Class A, Type I and II, FAA-L-824, MIL-C-3432, ICEA S-66-524, MIL-C-4921

Fastest and the most secure way to build an AGL circuit is to use factory molded prefabricated leads. They provide 100 % adhesion between connector housing and cable, minimizing human error during installation work.

EFLA prefabricated leads and extension cords provide watertight and durable connection to any environments. Prefabricated primary lead`s nominal rating is 5000 V/25 A and secondary lead's nominal rating is 600 V/20 A.

EFLA prefabricated leads are manufactured and delivered according to requested cable length and they are available with all FAA Style options. Special prefabricated leads that meet the frangibility requirement are also available.

KDC Primary Leads for Unscreened Cable

KDCP510 (plug)

KDCR510 (receptacle)

KDCP510 & KDCR510 are used for connecting the transformer to the primary circuit. KDC primary leads guarantee highest possible dielectric strength for AGL circuit, since cable`s outer sheath and all connections involved are made from same thermoplastic elastomer (TPE) material. EFLA primary leads are manufactured in accordance with the specifications FAA L-824 MIL-C-3432, ICEA S-66-524, MIL-C-4921.

- Superior isolation resistance by thermoplastic elastomer (TPE)
- Conductor is a bare copper, 19 strands/min 6 mm² upon request AWG 8 (8,3 mm²)
- Nominal rating: 5000 V
- Style connector variants 2 (Plug) and 9 (Receptacle)

Primary leads are manufactured and delivered according to requested cable length and either in prefabricated leads (connector in one end) or extension cords (connector in two ends). Primary leads fit with EFLA Lock, which prevents accidental release of primary circuit.

Ordering information

KDCX510. X . X

EFLA type			Cable cross section		Cable length = X	
KDCP510	primary plug	Style 2	6	6 mm²	Standard lengths	Customized lenghts, for example
KDCR510	primary receptacle	Style 9	8	8.3 mm²	30 (cm)	5 (cm)
KDCE510	Extension cable	Style 2 & 9			60 (cm)	10 (cm)
					100 (cm)	1000 (cm)
					150 (cm)	

KDC Secondary Leads for Two Core Cable

KDC secondary leads are used for connecting the transformer and the secondary circuit. KDC secondary leads with double insulated two core cable provides unique dielectric strength for secondary circuit, since cable`s outer sheath and all connections are made from same thermoplastic elastomer (TPE). Secondary leads are delivered either in prefabricated leads or in extension cords. Secondary leads are available with various cable diameter and with frangible break-away feature. KDC secondary leads are FAA certified and fulfill specifications MIL-C-3432, MIL-C-4921 and ICEA S-66-524.

- Superior isolation resistance by thermoplastic elastomer (TPE)
- Copper conductors: 1.5 mm², 2.5 mm², 4 mm²; Class 5 (IEC60228)
- Nominal rating: 600 V
- Style connector variants: style 1, 6, 7 , 8 and break-away

The leads are available with two-core cables or with two single core wires. The latter is available even with higher temperature resistant wires.

KDC501-series (Style 1)

KDC502-series (Style 7)

KDC508-series (Style 8)

KDC507-series (Style 7)

KDC Secondary Leads for Two Single Wires

KDC503-series (Style 1)

KDC503R-series (Style 7)

KDC506-series (Style 6)

KDC506S-series (Style 6)

With Zyrad 150 °C / 300 °F **With Teflon 200 °C / 390 °F**

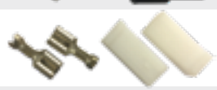
Also available in ZYRAD wires: KDCZ506 and KDCZ506S or Teflon wires: KDCT506 and KDCT506S

Dimensions

Conductor size	Diameter of insulation approx. (mm)	Outer diameter (mm)	Max. conductor resistance at 20 °C (ohm/km)
2 x 1.5mm²	0.8	8.5 ± 0.3	13.7
2 x 2.5mm²	3.7	9.7 ± 0.3	7.98
2 x 4mm²	4.6	11.7 ± 0.3	4.95
1 x 1.5mm²	1.0	3.2 ± 0.3	13.7
1 x 2.5mm²	1.2	4.6 ± 0.3	8.21
1 x 2.5mm² (T=Teflon)	0.6	2.9 ± 0.1	13.7
1 x 2.5mm² (Z=Zyrad)	0.8	3.7 ± 0.1	13.7

Free end of the leads

The standard free end is sheath stripping of 5 cm.The following connectors are available.

		Free end type
	2 pcs 1.5-2.5 mm2 6.3 mm flat connectors, uninsulated	KDCO1
	2 pcs 1.5-2.5 mm2 6.3 mm flat connectors with common insulator	KDCO2
	2 pcs 1.5-2.5 mm2 6.3 mm flat connectors with single insulators	KDCO3
	2 pcs 2.5 mm2 M4 cable shoes	KDCO10
	2 pcs 1.5 – 2.5 mm2 M6 cable shoes	KDCO11
	2 pcs 0.5 – 1.5 mm2 M4 cable shoes	KDCO12
	2 pcs 1.5 – 2.5 mm2 M5 cable shoes	KDCO13
	2 pcs 0.75-1.5 mm2 flat connectors, uninsulated	KDCO14
	2 pcs 1.5 mm2 flag connectors, uninsulated	KDCO15
	2 pcs 1.5-2.5 mm2 flag connectors, uninsulated	KDCO16
	2 pcs 1.0-1.5 mm2 flag connectors, uninsulated	KDCO17
	2 pcs 1.5 mm2 insulated flag connectors	KDCO18
	2 pcs 1.5-2.5 mm2 wire-end claws	KDCO19

Ordering information

KDC(E)50X . X . X . (X) → **Free end type**

EFLA type

KDC501	secondary plug	Style 1
KDC502	secondary receptacle	Style 7
KDC503	secondary plug	Style 1
KDC503R	secondary receptacle	Style 7
KDC506	secondary plug	Style 6
KDC506S	secondary plug	Style 6
KDCT506	secondary plug	Style 6
KDC508	secondary receptacle	Style 8

Cable cross section

1	1.5 mm²
2	2.5 mm²
4	4 mm²

Cable length = X

Standard lengths	Customized lenghts, for example
30 (cm)	5 (cm)
60 (cm)	10 (cm)
100 (cm)	1000 (cm)
150 (cm)	

* **KDCE50X** stands for extension cord with a plug and receptacle.

KDC6 Extension Cords for Frangible Masts

Frangible KD6 connector is designed with break-away point and protected with a special sleeve. Upon an impact, connector breaks safely and doesn't cause additional hazard, like ignition of kerosin. KD6 connectors are fully compliant with ICAO Aerodrome Design Manual Part 6, frangibility requirements.

- Superior isolation resistance by thermoplastic elastomer (TPE)
- Nominal rating: 20 A and 600 V
- Wire diameter 2,8 - 8,0 mm (0.110 - 0.314 inches)
- Conductor size 1,5 - 6 mm2 (16 - 10/8 AWG)
- ROHS compliance with EU directive NO2002/95/EC

Proven frangibility

- Full scale impact tested break-away mechanism according to the ADM Part 6 Chapter 5 and FAA AC 150/5345-45g, section 4
- Ensure proper frangibility behavior of mast structure
- Prevent any additional hazards in case of an impact, like fires or cable wrapping around the aircraft

Lowest cost of ownership

- Easy and fast plug and play installation on-site
- Maintenance free solution for the whole frangible mast lifespan including cable assemblies and mount ties

Extension cord information

Type	Extension cord, plug & receptacle
Housing	TPE molded
Cross section	Two-core, 2 x 2.5 mm^2
Length*	According to customer specs
Diameter of insulation (apporox.)	3.7 mm
Outer diameter	9.7 ± 0.3 mm
Max. conductor resistance at 20 °C	7.98 ohm/km
Dual insulation	EPR-insulated & TPE-sheathed
Core insulation	Special EPR compound
Outer sheath	Halogen free TPE compound (IEC 60752-2 / EN 50267-2-3)
Conductors	Copper, Class 5 (IEC 60228)
Nominal voltage	600 V
Temperature range	-40 °C to +120 °C (-40 °F to 248 °F)
Short term short circuit temperature resistance	300 °C (570 °F)
Bending radius	5D
Specifications	FAA L-824, MIL-C-3432, MIL-C-4921 & ICEA S-66-524 ICAO ADM6 FAA AC 150/5220-23

Ordering information

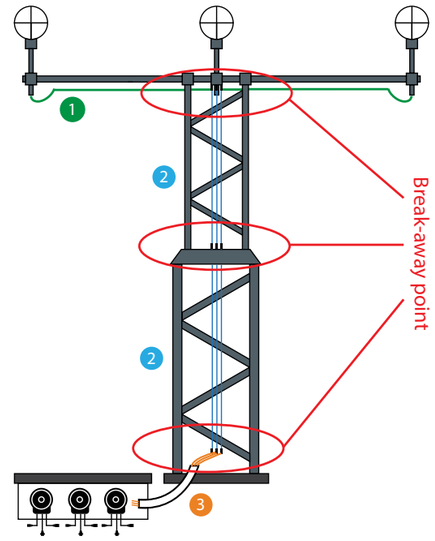
KDCX - X . X . X → Customized cable length (cm)

Extension cord type		Receptacle type		Plug type
Lighting fixture cabling	502	Secondary receptacle style 7	6	Break-away plug
Mast cabling	6R	Break-away receptacle	6	Break-away plug
Transformer pit cabling	6R	Break-away receptacle	501	Secondary plug style 1

Cable cross section	
1	1.5 mm^2
2	2.5 mm^2
4	4 mm^2

Break-away points are illustrated as Figure 1.

Extension cord type	
1	Lighting fixture cabling
2	Mast cabling
3	Transformer pit cabling



Related products

Break-away connector kits	KD6 & KD6R
Mount ties for mast assembly	DTRH-LR0 DT-HQ0
Transformer connector kit	KD501
Light fixture connector kit	KD502

Lightning Protection

Secure fail-safe supply of AGL series circuit

Airfield ground lighting devices, such as light fixtures, have always been vulnerable to damage and destruction due to their exposed positioning on aerodromes and heliports, as well as their connection to high-power electrical network.

After LED transition in AGL, circuit includes more and more sensitive electronics. Lightning strikes are one of the major hazards at airfields. Depending on the region, a mid-size airport can be hit by up to 2000 lightning strikes per year on the aircraft maneuvering and movement areas. Direct lightning strike hit to runway or taxiway may cause massive blackout and equipment damage even for hundreds of light fixtures and transformers.

EFLA Sheriff surge protection device (SPD) to secondary circuit protects airfield ground lighting equipments and system from damages upon lightning strike. Sheriff can be installed in an existing AGL pit or in a deep base.

With Sheriff airports are able to protect investment payback time and secure Fail-Safe supply against lightning strikes and surges.

Sheriff for secondary circuit

Sheriff surge protection device (SPD) protects airfield ground lighting equipment and systems upon lightning strike and surge, preventing power failure to spread in a circuit. Sheriff SPD is patented for lightning and surge protection for AGL circuit, helipads and helidecks.

Sheriff SPD operational status is verified by a portable tester, e.g. annual check or after the lightning strike has hit the runway or taxiway. Portable tester is battery operated and easy to use

Electrical characteristics

Operational voltage	Max. 190 Vac rms
Operational peak voltage	Max. 275 Vac
Operational frequency	50/60 Hz
Power consumption at 6.6 A ac	2 W
Voltage drop at 20 A dc	220 mV
Plug	L-823 Style 1
Receptacle	L-823 Style 7
Earthing contact	M5 Brass screw terminal according to EN61823
DC discharge voltage at 100 V/s	Min. 275 Vdc Max. ~415 Vdc
Insulation resistance (IR) 100 V	> 10^9 Ω
Capacitance	1 MHz < 5 pF
Impulse discharge current (Line to ground)	20,000 A, 8/20 µs > 10 operations 4,000 A, 10/350 µs > 10 operations 8,000 A, 8/20 µs > 10 operations 12,000 A, 10/350 µs > 10 operations
Operating and storage temperature	-40 °C to +85 °C
Drop test (from 2 m 10 times)	Pass

Dimensions and connections

Height (H)	40mm (1.6”)
Length (L)	160mm (6.3”)
Width (W)	80mm (3.2”)
Colour	Yellow
Male connector	FAA L-823 Style 1
Female connector	FAA L-823 Style 7
Earthing connector	M3 Brass Screw terminal according to EN61283

Ordering information

EFLA Type	Ordering code
Sheriff	Sheriff.V1 Lightning arrestor
Portable tester	Portable testor 4030

Cables and Wires

Unscreened Primary Cable

Primary series circuit cables are used in airfield ground lighting (AGL) series circuits to connect the CCR with the primary windings of the series transformers.

EFLA offers TPE insulated unscreened/unshielded primary cables. Same cable is used in EFLA's transformers, prefabricated leads and extension cords. Cable insulation has a nominal voltage of 5000V to ground. Standard copper conductor cross section is 6mm², 19 strands with bending radius 6D, also available AWG8 / 8,3mm².

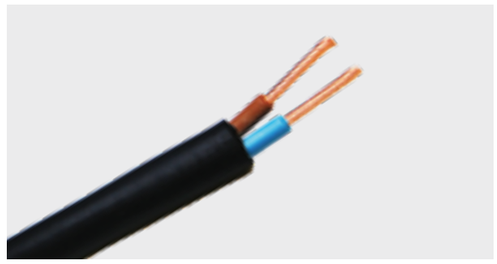
Technical Information

Conductor	Valid for 6mm² (EFLA default) or 8.3mm² (AWG8) uncoated copper acc. to ICEA S-96-659 19-wire class C	
Core insulation	TPE	
Insulation thickness	2.80mm	
Outer diameter approx.	9.30 - 9.80mm	
Color	Black	
Operating voltage	5000 V	
High voltage test	acc. to ICEA S-96-659 § 4.4.1	
DC current resistance at 20 °C	**Cross section (mm²)** 6mm² (EFLA default) or 8.3mm² (AWG8)	**Max. conductor resistance (Ω/km)** acc. to ICEA S-96-659 § 2.4
Temperature range	-50 °C to +70 °C (-58°F to +158°F)	
Short circuit temperature	150°C (302°F)	
Bending radius	6D (D = cable-Ø)	

Secondary Cables & Wires

Secondary series circuit cables are used in airfield ground lighting (AGL) series circuits to connect the transformer with the secondary series circuit.

EFLA offers wide range of secondary wires and double insulated two core cables which are used in Airfield Ground Lighting (AGL) circuit between isolation transformer and light fixture. Cable insulation has a nominal voltage of 600 V to ground. Suggested copper conductor cross section is 2,5mm² / AWG12. To limit power losses for long cable lengths EFLA offers also cross section of 4mm² / AWG 10 and 6mm² / AWG 8 for the most extreme cable lengths.



Technical Information

Conductor	The conductor consists of bare annealed copper according to class 5 of IEC 60228	
Dual insulation	EPR-insulated & TPE-sheathed	
Core insulation	Special EPR compound	
Outer sheath	Halogen free TPR compound (IEC 60752-2 / EN 50267-2-3)	
Insulation thickness	1.0 mm	
Color	Black	
Operating voltage	U/U_0 450/750 V	
Test voltage	6000 V DC	
Nominal voltage	600 V	
DC current resistance at 20 °C	Cross section (mm²) 1.5, 2.5, 4 or 6	Max. conductor resistance (Ω/km) 4.75
Temperature range	-40 °C to +120 °C (-40°F to +248°F)	
Short term short circuit temperature resistance	300°C (570°F)	
Bending radius	Installation: 5 x D Dynamic: 10 x D	

Dimensions

Conductor size	Diameter of insulation approx. (mm)	Outer diameter (mm)	Max. conductor resistance at 20 °C (ohm/km)
2 x 1.5mm²	0.8	8.5 ± 0.3	13.7
2 x 2.5mm²	3.7	9.7 ± 0.3	7.98
2 x 4mm²	4.6	11.7 ± 0.3	4.95
1 x 1.5mm²	1.0	3.2 ± 0.3	13.7
1 x 2.5mm²	1.2	4.6 ± 0.3	8.21
1 x 2.5mm² (YG=earthing)	1.2	4.6 ± 0.3	8.21
1 x 4mm² (YG=earthing)	1.0	4.6 ± 0.3	4.75
1 x 2.5mm² (T=Teflon)	0.6	2.9 ± 0.1	13.7
1 x 2.5mm² (Z=Zyrad)	0.8	3.7 ± 0.1	13.7

Ordering information

X . X

	EFLA type	
OK6	Primary cable	1 x 6mm²
PEJ42	Primary cable	1 x 8.3mm²
OK44	Secondary wire	1 x 1.5mm²
PEJ62	Secondary wire	1 x 2.5mm²
PEJ72	Secondary wire	1 x 2.5mm² (T=Teflon)
OK46	Secondary wire	1 x 2.5mm² (Z=Zyrad)
OK105	Secondary wire (YG)	1 x 2.5mm² (YG=earthing)
OK103	Secondary wire (YG)	1 x 4mm² (YG=earthing)
PEJ36	Secondary cable	2 x 1.5mm²
PEJ63	Secondary cable	2 x 2.5mm²
PEJ64	Secondary cable	2 x 4mm²

Cable length = X	
Standard lengths	Customized lenghts, for example
500 (cm)	200 (cm)
1 000 (cm)	700 (cm)
1 500 (cm)	1300 (cm)

Weights and Packing

Primary connector kits

EFLA type	Weight / 1 pc	Standard packing	Full carton weight	Cbm	Box size
KDL1 series	310 g	50 pcs	16 kg	0.03 cbm	40 x 30 x 25 cm
KDL10 series	200 g	50 pcs	11 kg	0.03 cbm	40 x 30 x 25 cm
KD500 series	130 g	60 pcs	8 kg	0.03 cbm	40 x 30 x 25 cm
KD510 series	110 g	60 pcs	6.9 kg	0.03 cbm	40 x 30 x 25 cm
KDR600/610 series	320 g	20 pcs	6 kg	0.03 cbm	40 x 30 x 25 cm

Secondary connector kits

EFLA type	Weight / 1 pc	Standard packing	Full carton weight	Cbm	Box size
KD501-503 series	50 g	100 pcs	5.5 kg	0.03 cbm	40 x 30 x 25 cm
KD3P & KD3R	50 g	100 pcs	5.5 kg	0.03 cbm	40 x 30 x 25 cm

Contents of connector kits

	KD500	KD510	KDL1	KDL10	KDR600	KDR610	KD501	KD502	KD503	KD3x
Crimp type connecting parts	2	2	2	2	2	2	1	1	1	1
Connector housings	2	2	2	2	2	2	1	1	1	1
EFLA Lock	2	2	2	2	2	2	-	-	-	-
Silicone grease syringe	-	-	-	-	-	-	X	X	X	X
Protective cap for silicone	X	X	X	X	-	-	-	-	-	-
Guiding tool	X	X	X	X	X	X	-	-	-	-
Measuring tool	X	X	X	X	X	X	-	-	-	-
350 mm long continuity connector	2	-	-	-	2	-	-	-	-	-
Terminal block with 2 screws	X	-	-	-	X	-	-	-	-	-
Peeling tool	X	X	-	-	X	X	-	-	-	-
Gloves & sandpaper	-	-	-	-	X	X	-	-	-	-
Cleaning cloth	X	X	X	X	-	-	X	X	X	X
Installation instructions	X	X	X	X	X	X	X	X	X	X

Transformers

	EFLA type	D mm	L mm	H mm	Weight kg	Standard packing pcs	Gross weight kg	Pallet size
KR621	KR621.1	89	115	45	1.03	260	293	120 x 80 x 67 cm
KR625	KR625.1	89	115	45	1.03	260	293	120 x 80 x 67 cm
KR631	KR631.1	100	125	55	1.6	208	358	120 x 80 x 67 cm
KR636	KR636.1	126	168	56	1.9	180	375	120 x 80 x 67 cm
KR641	KR641.1	147	193	54	2.3	160	393	120 x 80 x 67 cm
KR646	KR646.1	147	193	60	3.12	144	475	120 x 80 x 67 cm
KR651	KR651.1	147	193	64	3.37	126	450	120 x 80 x 67 cm
KR661	KR661.1	147	193	73	4.17	108	476	120 x 80 x 67 cm
KR681	KR681.1	147	193	95	5.33	90	505	120 x 80 x 67 cm
KRV530	KRVS530	100	125	55	1.4	208	310	120 x 80 x 67 cm
KRV536	KRVS536	126	168	56	1.5	160	260	120 x 80 x 67 cm
KRV540	KRVS540	147	193	60	2.3	144	350	120 x 80 x 67 cm
KRV545	KRVS545	147	193	60	2.4	144	370	120 x 80 x 67 cm
KRV550	KRVS550	147	193	64	3.3	126	440	120 x 80 x 67 cm

HOW TO ORDER?

Send your order or enquiry to
sales@efla.net or call **+358 20 198 0190** (8am-4pm UTC+2).

All shipments include step-by-step instructions for safe installations.

Read more: **www.efla.net/installation-instructions**

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