

ASP LMS Module

Individual Lamp Control & Monitoring System (ILCMS) Component

Compliance with Standards

- FAA** Approved for use with SMGCS Systems. This includes both Stop Bar and Runway Guard Light control/monitoring according to AC 150/5340-28 (Current Edition); manufactured to AC 120-57 (Current Edition).
- ICAO** Complies with CAT I/II/III ICAO lamp supervision requirements. Supports A-SMGCS for enhanced aircraft guidance in all weather conditions. Supports safety of airport operations by integration in runway safety nets.
- IEC** Developed in accordance with IEC 61508

Introduction

The RELIANCE® ASP Intelligent Lighting system is designed to provide individual monitoring of airfield lighting using the series circuit as a means of communication for the lamp and sensor status information coming from the airfield.

The same concept is used for lighting control, and as such provides the foundation for an SMGCS or A-SMGCS. This includes for example automation of stop bars, with or without sensors, and taxiway guidance in combination with status monitoring.

The RELIANCE Intelligent Lighting system is a cost-effective solution for upgrading existing or new series circuits with selective switching and/or individual monitoring of all or a selected number of lights in an airfield.

LMS

The LMS concept used in the RELIANCE Intelligent Lighting system is designed to provide selective switching and/or monitoring of airfield lighting. Each light is individually controlled using an addressable LMS switching unit connected to a standard series circuit isolation transformer. Communications to/from the LMS uses a unique power line communication technique, developed by ADB SAFEGATE, where the communication signals are superimposed on the series circuit current.

Main Characteristics and Figures

- Up to 127 Remotes per circuit, providing a potential of 255 individually addressable lights per circuit
- Up to 12 km roundtrip circuit length
- Lamp Failure is detected within 5 seconds.

- Stopbar response time from receiving a command to true feedback indication is less than 2 seconds
- Power up default state (ON – OFF – Flash)
- Failsafe state (ON – OFF – Flash – no change)
- Soft On/Off to mitigate CCR load changes
- RGL functionality
- Running Rabbit Functionality

Circuit Specifications

Cable type L-824 is recommended, for example FLYCY or equivalent. The following parameters (D) represent the specific characteristic needed in an equivalent L-824 cable. Reuse of existing installations and layout with maximum cable length or number of lights to be verified.

Cable type (specification)	L-824
Capacity of the cable	<165 nF/km ¹
Inductance of the cable	<0.20 mH/km ¹
Typical impedance (125 kHz)	35 Ohm
Attenuation of the signal at 125 kHz	<5.8 dB/km ¹
Length of the serial circuit	12 km (max)
Insulation resistance of the series circuit against the L-824 shield or ground	50 Megaohms (min) ²
Secondary transformer attenuation	≤ 23 dB at 100 kHz ¹

Notes

¹ Contact ADB SAFEGATE for support.

² Technical requirement, not excluding ICAO/FAA compliance.

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Technical Specifications

Characteristic	Symbol	Min	Typ	Max	Unit
Series Circuit					
Supply current from series circuit (50/60Hz)	I _{SUPPLY}	2.5		7.1 ¹	A _{RMS}
				8.2 ²	A _{RMS}
Peak input voltage series circuit terminals Single LMS	V _{SUPPLY}			130	VAC
Peak input voltage series circuit terminals Dual LMS	V _{SUPPLY}			260	VAC
Isolation voltage	V _{ISO}	1500			VAC
Interface isolation transformer rating	P _{IT}	45		500	W
Output					
Lamp wattage each lamp @ 6.6 A _{RMS}	P _{LAMP}	0		300 ³	W
Miscellaneous					
LMS power consumption @ 6.6 A _{RMS} Single LMS	P _{LMS}		7.5	10	W
LMS power consumption @ 6.6 A _{RMS} Dual LMS	P _{LMS}		7.5	11	W
Environment					
Operating humidity range	RH	0		100	%
Operating temperature range	T _A	-30		+65	°C
Storage temperature range	T _{STG}	-30		+100	°C
Encapsulation class	IP68				
Dimensions excluding cables					
Width	L _W		204		mm
Length	L _L		140.5		mm
Depth	L _D		76.2		mm
Secondary Cable Length	L _{female}		0.445		m
	L _{male}		0.415		m
Mass					
Single LMS	M _S		1.14		kg
Dual LMS	M _D		1.26		kg

Notes

¹ In accordance with FAA advisory circular 150/5345-47A (Isolation transformers for airport lighting systems).

² For max 1s, in accordance with FAA advisory circular 150/5345-10E (Specification for CCRs and regulator monitors).

³ Provided I_{PEAK}/I_{RMS} ≤ 2.9.

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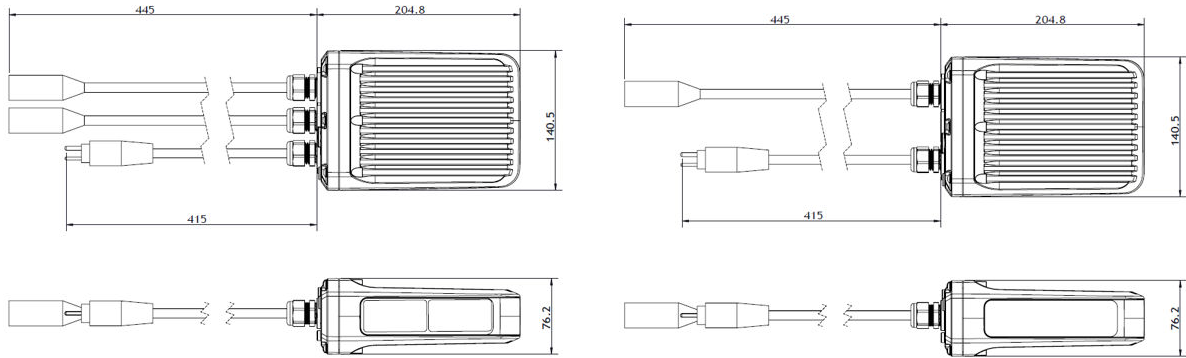


Table 1: Ordering Codes

Description	Ordering Code
LMS SINGLE REMOTE	LMSC000001
LMS DUAL REMOTE	LMSC000002
LMS SINGLE REMOTE PARAMETERS LOADED	LMSC100001
LMS DUAL REMOTE PARAMETERS LOADED	LMSC100002
LMS RGL 30S 60HZ	LMSC111202
LMS RGL 30S 50HZ	LMSC111102
LMS RGL 45S 50HZ	LMSC112102
LMS RGL 45S 60HZ	LMSC112202
LMS SINGLE REMOTE MK10	LMSC000011
LMS DUAL REMOTE MK10	LMSC000012
LMS DUAL PROGRAMMED MK10	LMSC100012
LMS SINGLE PROGRAMMED MK10	LMSC100011

Note: The MK10 version comes with a different microchip but has identical features as the standard version.