

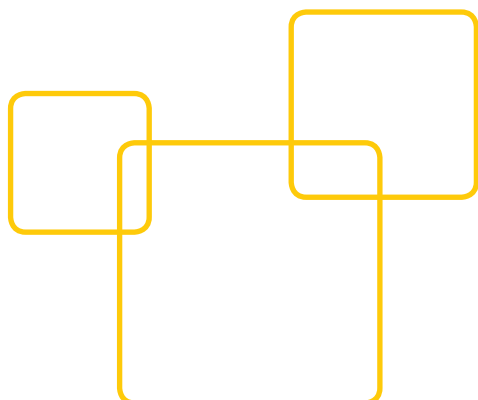


Technical Manual Light Controller XS

Light Control Gear for Intelligent Built-in Luminaire Solutions

Light Controller XS

Version 1.1





CONTENTS

■ GENERAL	2
■ LEGAL NOTES	3
■ GENERAL PRODUCT DESCRIPTION	4
■ INSTALLATION NOTES	5-6
■ FUNCTIONS	7-10
■ TECHNICAL DETAILS	11

■ GENERAL

Introduction

Thank you for purchasing the LiCS system made by Vossloh-Schwabe. Before using the product, please read this operating manual to familiarise yourself with LiCS' functions and to make more effective use of the product. Once you have read the manual, please keep it in a safe place for future reference. Anybody who is involved with setting up, commissioning, operating, maintaining and repairing the system must:

- be suitably qualified,
- strictly observe the instructions contained in this manual.

Use of Symbols in the Manual

The following symbols are used in the manual to highlight procedures, limitations, precautionary measures and instructions that must be observed for safety reasons.



Marks warnings that, if not observed, can lead to death, injury and property damage. Warnings of this kind must be observed to ensure safe operation of this product.



Marks important information and limitations that must be observed. Please read these points carefully to ensure fault-free operation of the system or of individual components.



Marks additional information regarding system operation and/or the operation of individual components. Reading these notes is recommended.

Abbreviations used in the manual:

- ➔ LiCS = Lighting Control Solutions
- ➔ DALI = Digital Addressable Lighting Interface
- ➔ LL = Light level
- ➔ t = Time

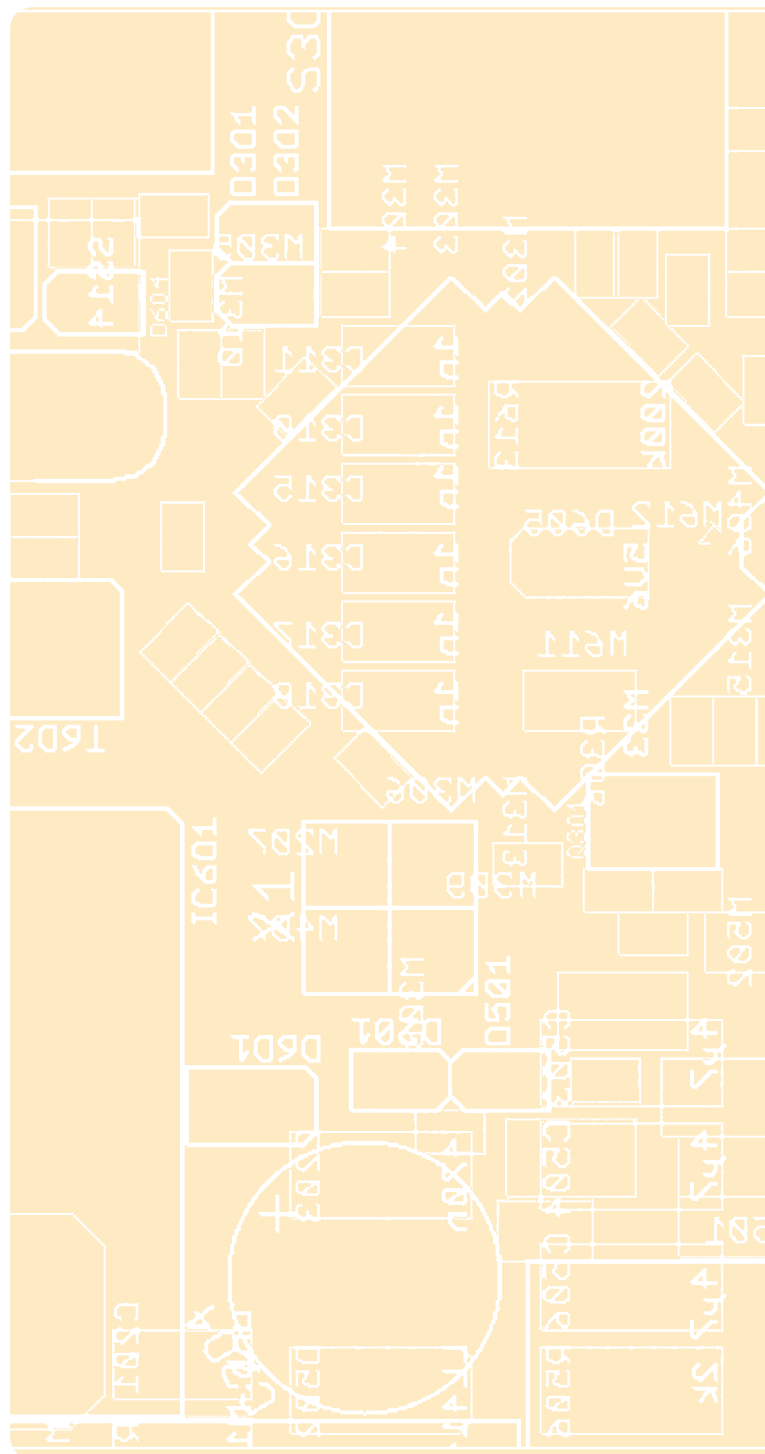
■ LEGAL NOTES

Trademarks

- The Vossloh-Schwabe and the LiCS logos are trademarks of Vossloh-Schwabe Deutschland GmbH.
- Other product and company names mentioned in this manual, e.g. EnOcean, may be trademarks of their respective owners.

Copyright

© Copyright 2014 by Vossloh-Schwabe. All rights reserved. Without the prior written consent of Vossloh-Schwabe, no part of this document may be reproduced or transmitted in any way or using any means, be they electronic or mechanical, incl. photocopying and any form of recording, or using any form of information storage medium or information retrieval system.



LIGHT CONTROLLER XS

INSTALLATION AND FUNCTIONS



- **GENERAL PRODUCT DESCRIPTION4**
- **LIGHT CONTROLLER INSTALLATION5**
- **CIRCUIT DIAGRAM6**
- **CONNECTION TERMINALS6**
- **CONTROLLER BEHAVIOUR DURING COMMISSIONING (DEFAULT SETTINGS)7**
- **PB AND SENSOR FUNCTIONS7-9**
- **PB AND SENSOR COMBINATIONS10**
- **TECHNICAL DETAILS11**

■ **GENERAL PRODUCT DESCRIPTION**

The XS Light Controller is a light management system that was developed to enable control and adjustment of lighting without requiring connection to a PC or a higher-level bus system.

Communication between the Light Controller and luminaires is based on the standardised DALI protocol. Vossloh-Schwabe Light Controllers comply with all previously adopted parts of the IEC 62386 standard. The controller is designed for installation inside a luminaire and features an integrated dip switch for easy configuration of the entire lighting system without requiring a PC. Any subsequently required system changes can be effected in the same easy way.

One independent standard push button can be connected to an XS Light Controller. In addition, up to 10 DALI devices can be connected to the DALI bus.

These features make the XS Light Controller ideal for a multitude of island applications, e.g. in the following areas:

- Offices, industrial facilities and storage areas/warehouses
- Luminaires in standard lamps
- Public buildings (e.g. schools and hospitals)
- Stairwells and hallways
- Sanitary facilities

Installation



Vossloh-Schwabe LiCS products must be installed and commissioned only by suitably qualified and trained staff.



Please read this manual carefully prior to installing and commissioning the system to ensure its safe and correct operation. Please keep the manual in a safe place for easy reference in the future.

Power Supply



All equipment must be disconnected from the power supply before any work is performed on it.



Tampering with your LiCS products by opening them involves the risk of incurring a fatal electrical shock (live components) and is therefore prohibited! All repairs must be carried out by the manufacturer.



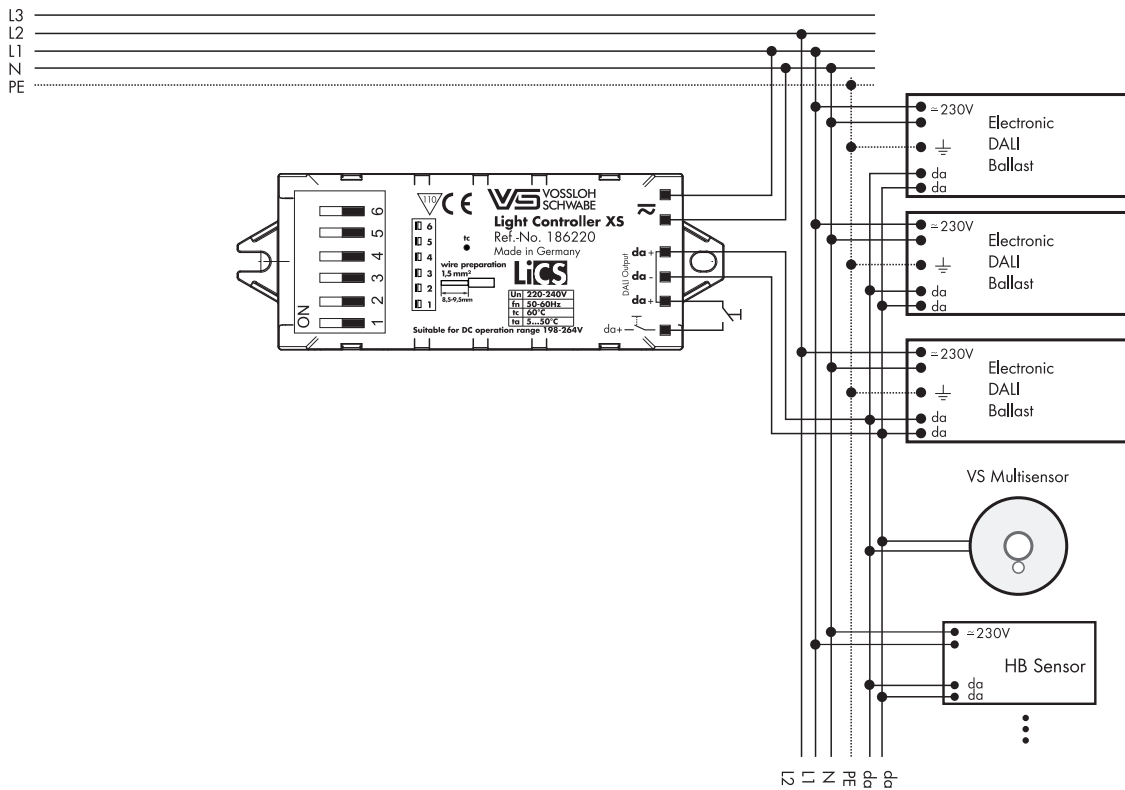
The installation instructions provided for the individual LiCS products must be strictly observed. All valid safety-relevant and accident-prevention directives and laws must also be observed.

■ INSTALLATION OF THE LIGHT CONTROLLER

Please note the Light Controller is designed for installation in a luminaire or an installation socket.

- Installation any way up.
- Suitable for installation only in dry rooms or in luminaires, boxes, casings or similar.
- Should the XS Light Controller be destined for outdoor applications or for use in wet rooms, a casing with a suitable degree of protection must be used.
- Attach using 3 mm or 4 mm screws.
- Install only on a solid and flat surface.

CIRCUIT DIAGRAM



CONNECTION TERMINALS

1 to 3

General: the integrated connection terminals can be wired using either rigid or flexible conductors with a cross-section of 0.5–1.5 mm² and a stripped end length of 7–10 mm.

1

= Mains power 230 V

The Light Controller is a protection class II device. The voltage terminals are designed for use with 220–240 V, 0/50–60 Hz mains power. The equipment must be fitted with a 10 A or 16 A, Type B automatic circuit breaker.

2

= Push

A commonly available push button can be connected to the terminal. As this push button will also be connected to mains voltage, it must be sufficiently voltage-proof.

If necessary, several push buttons can be connected in parallel to a single terminal that, when activated, will each perform the same function. A maximum cable length of 15 m per push button must not be exceeded.

3

= DA

By default, the DALI bus is delivered with basic insulation only. All DALI lines must therefore be mains voltage-proof, but can be wired to the individual devices together with the mains conductor, e.g. NYM 5 x 1.5 mm².

Please ensure the maximum DALI bus length of 100 m for all conductor cross-sections is not exceeded during installation.

Total conductor resistance must not exceed a value of 6.2 Ω. If the mains power conductor and the DALI conductor are to be laid together in a single cable, this must not exceed a length of 100 m regardless of the cross-section.



No DALI control gear or DALI bus supply units made by other manufacturers may be connected to a LiCS DALI system.

Only DALI control gear and LiCS MultiSensors may be connected. On no account may mains voltage or any other external voltage be applied to the DALI control line as this could lead to the destruction of individual system components.

FUNCTIONS

■ CONTROLLER BEHAVIOUR DURING COMMISSIONING (DEFAULT SETTINGS)

When the system is first connected to mains power following installation, the controller will switch lighting on only after a button has been pressed.

Once the system has been configured, the push button can be reconfigured to perform a new function.

On disconnection from mains power, all DALI system devices will enter "System Failure Level" status at a default light level of 100%.

■ PB AND SENSOR FUNCTIONS

The controller can be used to assign different functions to control elements, for which purpose the following device settings must be selected.

Configuration Settings

Switch	Action	Switch Position	
		OFF	ON
1	Push button	On/Off/Dim (Push)	On/Off
2	Light sensor	Inactive	Active
3	Movement sensor	Semi-automatic	Automatic

Settings

Action	Time	Switch Position	4	5	6
Set times for movement sensor	Movement sensor off	off	off	off	off
	60 min.	off	off	off	on
	30 min.	off	off	on	off
	20 min.	off	off	on	on
	10 min.	on	off	off	off
	3 min.	on	on	on	off
	1 min.	on	on	on	on

■ PB FUNCTIONS AND CONFIGURATION

1. Push

This is a combined ON-OFF-DIM function. A short press of the button will turn the respective luminaires ON or OFF, whereas a longer press will dim luminaires up or down.

➤ Short press of the button (80 ms < t < 460 ms)

Ein- bzw. Ausschalten der Beleuchtung im Wechsel.
Beim Einschalten wird das zuletzt aktivierte Lichtniveau wieder aufgerufen.

➤ Long press of the button (t > 460 ms)

Changes the current light level. After the push button is released, the dimming direction will reverse so that the next press of the push button will dim the system in the opposite direction. Once the upper or lower light level has been reached the dimming process will stop.

A long press of the button after powering the system up will always cause the luminaires to dim up. A long press of the button when the system is switched off will switch the luminaires on and dim them up.

2. ON/OFF

When the system is in ON/OFF mode, pressing the button will alternately switch the system on or off, but will not let you change the light level.

■ SENSOR FUNCTIONS AND CONFIGURATION

VS MultiSensors are fitted with both a movement and a light sensor. After the sensors have been integrated into the system, both functions can be separately activated or deactivated in the Light Controller. The default setting for both sensors is inactive.



All sensors perform the same function

Light Sensor

A light sensor serves to keep light at a constant level in a room or at a workplace, to which end the light intensity is measured and the level adjusted by adding or removing artificial light in the presence of either too little or too much natural light. The limits are constituted by the system's upper and lower light levels. Should the measured light intensity still be too high upon reaching the basic light level, lighting will be switched off after a waiting period of approx. 1 minute. The required light level must be checked at relevant spots in the room with the help of lux meters. The required light level (consisting of artificial and natural light) is then achieved by dimming artificial light levels up or down.



Die Einstellung des erforderlichen Lichtwertes sollte idealerweise ohne Einwirkung von Fremdlicht (nach Sonnenuntergang) durchgeführt werden, um einen zuverlässigen Referenzwert zu erhalten. Es wird empfohlen nach der Konfiguration des Lichtsensors die Funktion "Push" beim Taster in Funktion "Ein-Aus" umzuprogrammieren. Hintergrund: Das Verändern des Lux-Wertes durch manuelles Dimmen (durch Taster) verändert den Referenzwert.



The reference value is set using the push button and the "push" function. The push button is used to dim the system to the desired light level, which will then be maintained at this constant level.

Movement Sensor

The sensor can be activated in one of two modes:

➤ ON/OFF Mode (Automatic)

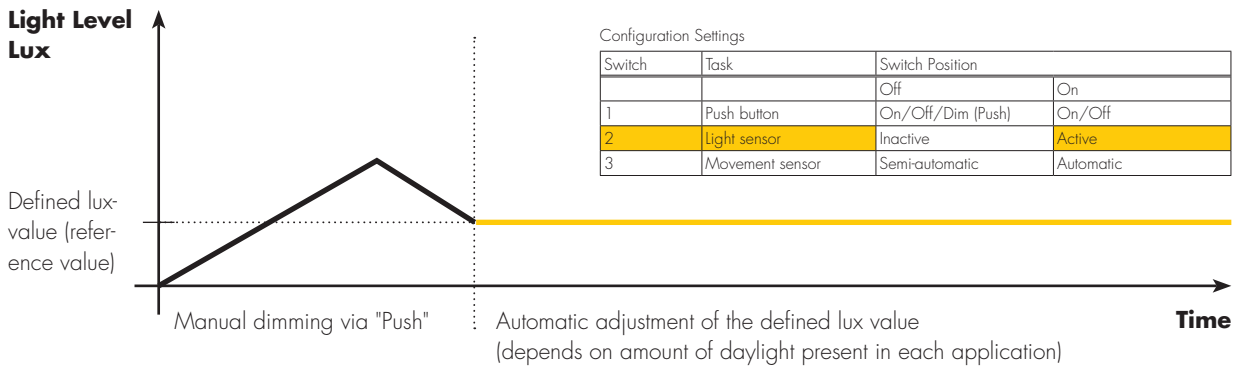
If the sensor detects movement, the lighting will be switched on at 100% and a countdown will be started. Each new detection within the countdown period will then start the countdown anew. Once the countdown has run down (time can be set between 1 minute and 60 minutes), lighting will be switched off.

➤ OFF Mode (Semi-automatic)

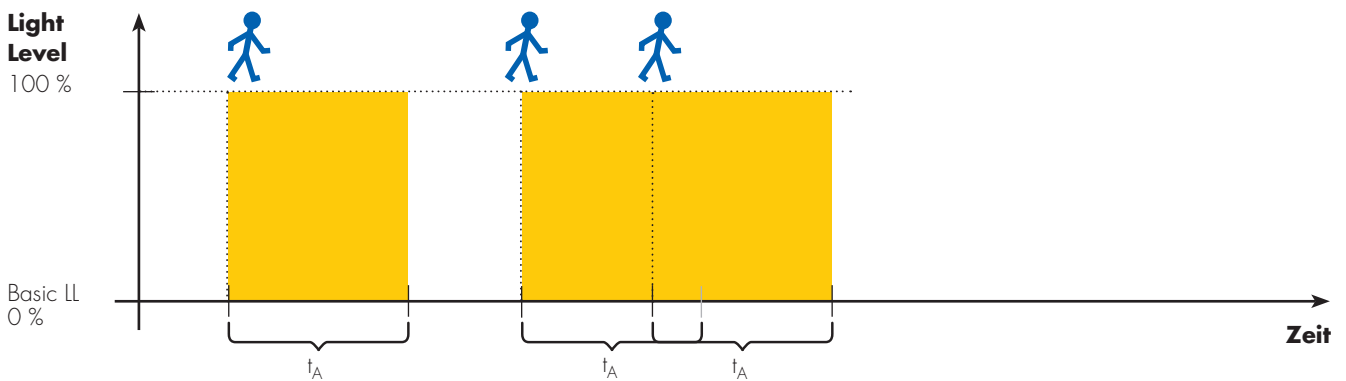
The sensor will not switch the lighting system on if movement is detected. The lighting system has to be switched on manually using a push button. Following that, the sensor will have to detect movement to activate a countdown. Each new detection within the countdown period will start the countdown anew. Once the countdown has run down (time can be set between 1 minute and 60 minutes), lighting will be switched off.

Functional Description

Example: Light Sensor



Example: Movement Sensor – ON/OFF Mode



When integrating the light sensor, switch 2 must additionally be set to "on".

In line with the diagram above, the two following tables detail the necessary configuration settings of the XS Light Controller:

Configuration Settings

Switch	Task	Switch Position	
		Off	on
1	Push button	On/Off/Dim (Push)	On/Off
2	Light sensor	Inactive	Aktiv
3	Movement sensor	Semi-automatic	Automatic

Time Settings and Switch Positions

Task	Time	Switch Position		
		4	5	6
Countdown settings for movement sensor	Movement sensor off	off	off	off
	60 min.	off	off	on
	30 min.	off	on	off
	20 min.	off	on	on
	10 min.	on	off	off
	3 min.	on	on	off
	1 min.	on	on	on



= Start event (movement sensor)

■ PB AND SENSOR COMBINATIONS

The controller lets you use a combination of push buttons and sensors. This considerably extends the possible uses in various applications.

To ensure the Light Controller behaves in a comprehensible and defined manner, the controller was designed to respond to combined sensor/push button inputs.

This is based on the following underlying reasoning:

as soon as a person consciously intervenes in the system (by pressing a push button), all automatically controlled processes will stop. Automatic operation (sensors) will only resume after further conscious intervention (pressing the push button).

Possible Combinations:

1. Push Button with Sensor (Movement)

System status before pressing the button	Sensor active		Sensor inactive	
	Light on	Light off	Light on	Light off
Status after 1 short press	Sensor inactive	Sensor active	Sensor inactive	Sensor active
	Light off	Light on	Light off	Light on
Status after 1 long press	Sensor active	Sensor active	Sensor active	Sensor active
	Light on	Light on	Light on	Light on

2. Push-Taster mit Sensor (Licht)

System status before pressing the button	Sensor active		Sensor inactive	
	Light on	Light off	Light on	Light off
Status after 1 short press	Sensor inactive	Sensor active	Sensor inactive	Sensor active
	Light off	Light on	Light off	Light on
Status after 1 long press	Sensor active	Sensor active	Sensor active	Sensor active
	Light on	Light on	Light on	Light on

3. ON/OFF Push Button with Sensor

Same as for Push Button with Sensor; a long press of the button will be treated the same as a short press.



Light Controller XS

Ref. No.:	186220
Supply voltage	220–240 V AC/DC
Frequency	0/50–60
Hz Power consumption	0.8
W Ambient temperature ta	5–50 °C
Degree of Protection	IP20
Protection Class:	for luminaires of protection class I and II
DALI power supply	max. 20 mA
No. of DALI devices	max. 10
No. of VS MultiSensors	max. 4
Weight	30 g
Dimensions (L x W x H)	83x30x19 mm

LIGHT CONTROLLER XS

APPENDIX



■ **MAXIMUM NUMBER OF DALI COMPONENTS FOR A LIGHT CONTROLLER**

	MultiSensors						
	0	1	2	3	4	5	
EBs (DALI), LiCS-Extender and HighBay Sensors	1	Save Area	Save Area	Save Area	Save Area	Save Area	Restricted Area
	2	Save Area	Save Area	Save Area	Save Area	Save Area	Restricted Area
	3	Save Area	Save Area	Save Area	Save Area	Restricted Area	Restricted Area
	4	Save Area	Save Area	Save Area	Save Area	Restricted Area	Restricted Area
	5	Save Area	Save Area	Save Area	Restricted Area	Restricted Area	Restricted Area
	6	Save Area	Save Area	Save Area	Restricted Area	Restricted Area	Restricted Area
	7	Save Area	Save Area	Restricted Area	Restricted Area	Restricted Area	Restricted Area
	8	Save Area	Save Area	Restricted Area	Restricted Area	Restricted Area	Restricted Area
	9	Save Area	Restricted Area	Restricted Area	Restricted Area	Restricted Area	Restricted Area

■ Save Area

■ Restricted Area

Whenever an electric light goes on around the world, Vossloh-Schwabe is likely to have made a key contribution to ensuring that everything works at the flick of a switch.

Headquartered in Germany, Vossloh-Schwabe has been a member of the global Panasonic group since 2002 and counts as a technology leader within the lighting sector. Top-quality, high-performance products form the basis of the company's success.

Whether cost-effective standard components or tailor-made product developments are needed, Vossloh-Schwabe can satisfy even the most diverse market and customer requirements. Vossloh-Schwabe's extensive product portfolio covers all lighting components: LED systems with matching control gear units, OLEDs and state-of-the-art control systems (LiCS) as well as electronic and magnetic ballasts and lampholders.

A member of the Panasonic group **Panasonic**

Vossloh-Schwabe Deutschland GmbH

Hohe Steinert 8 · D-58509 Lüdenscheid · Germany
Phone +49 (0) 23 51/10 10 · Fax +49 (0) 23 51/10 12 17
lics-indoor@vsv.vossloh-schwabe.com
www.vossloh-schwabe.com

VS LIGHTING SOLUTIONS

All rights reserved © Vossloh-Schwabe
Specifications are subject to change without notice
LiCS Light Controller XS EN 02/2014