

## LT follow Control unit with integrated power supply



Functional description LT follow

Fabrication and Marketing  
Licht-Technik  
Hagenbach & Grill  
Osterwaldstr. 9-10 80805 München  
Tel. 089-360528-0 Fax 089-360528-30  
E-Mail: [info@Licht-Technik.com](mailto:info@Licht-Technik.com)  
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Caution! Operate the device only after having read and **understood** operating instructions!

## **The control unit LT follow**

The LT follow is a small and easy to use control panel for one LT dimmer shutter and one LT color changer with standard DMX512-1990 outputs. It has an integrated power supply with 2,5A (60W).

It is very useful in combination with follow spot lamps. The color can be easily set by pressing a knob and the dimmer can be adjusted with the fader.

An extern/intern switch can be used to operate the device as stand alone or in combination with the main control desk. In this case a master channel can determine the maximum shutter position.

The fan of the color changer is controlled via the position of the dimmer shutter. The maximum fan speed can be set at the color changer.

The device uses the Licht-Technik talk back protocol "Netspider" to read all required information from the devices.

The device can be operated with 100 - 240VAC; 47-63Hz. The power supply is designed in switching technology to provide high reliability and reduction of heat.

The housing is 2mm powder coated.

## Table of content

Operating and safety instructions.....	5
General description and function.....	6
User interface elements.....	7
Cabling.....	8
Getting started and operation.....	9
Indications.....	10
Programming of the connected devices.....	11
Technical data.....	12
Error messages / malfunctions.....	15
Warranty.....	16
Further information.....	16
EC Declaration of Conformity.....	17

# Operating and safety instructions

## **Before opening the housing disconnect the device from the mains !!!**

**Do not** try to touch the electronic through any openings, also with any objects. This can cause an electrical accident that can lead to death!

Use the panel only in **horizontal** position

Admissible **ambient temperature**: 0..+40 °C.

The device is **not** for use in **outside** area. Only applicable indoor in clean and dry environment.

The device must be kept **dry**. In case of water condensation a waiting period of 2 hours is necessary until the state of being acclimatised is reached.

Observe **mains** supply voltage: 100 - 240VAC; 47-63Hz.

Maximum power output: 60W.

Only Licht-Technik devices can be connected and operated correctly. Connected number and types of devices can be:

- No device **or**
- 1 Dimmer Shutter **or**
- 1 Color changer **or**
- 1 Dimmer shutter and 1 Color changer

When it has to be assumed that a safe operation is no longer possible, the equipment must be switched off immediately and be secured against unintended operation.

### **This is the case when**

- the equipment shows visible damages;
- the equipment is no longer functional;
- parts of the equipment are loose or slackened;
- connecting lines show visible damages.

Prior to starting the equipment the user must check the usefulness of the device for its intended purpose. In particular, Licht-Technik shall decline any liability for damages of the equipment as well as for consequential damages resulting of the device being used inappropriately, of inexpert installation, incorrect starting and use, and of non-compliance with the valid safety regulations.

## General description and function

Power up of the LT follow must be done with switched on and connected devices. The reason is that the LT-follow is looking for devices only in the first second after power up, because there should be no communication during normal operation. If the device would try to find new devices all the time, a fade over for example would result in a bad movement of the shutter, because movement information would be lost during a communication.

After one second the LT follow has collected all information of the connected devices via the Licht-Technik Netspider protocol. It reads the following parameters:

- Type of device
- 1. DMX-address (position)
- Maximum fan-speed-value of the color changer (Menu P22), if connected.
- Speed channel (P02), if color changer is connected.
- Speed of color changer if connected.

After cabling and the first power-up the user must program the dimmer shutter and Color changer. A separate DMX-address must be set for the four functions.

After that, you have to power down the LT follow to read the new parameters, the devices must be kept switched on. After powering up again the system is ready for operation.

The buttons "forward" and "back" control the color. These buttons have a rollover function, this means, if the last color is the current frame and the forward button is pressed the color changer is controlled to move to frame one.

The "flash" button is for setting the fader value to maximum.

The external/internal switch can be used to select the operation mode. In internal mode the shutter and the color changer is controlled by the LT follow. In external mode, the LT-follow handles the incoming value of the programmed shutter position address as a master value. The color changer is controlled from the main desk in external mode except the fan, because the DMX-channels are put through by the LT follow.

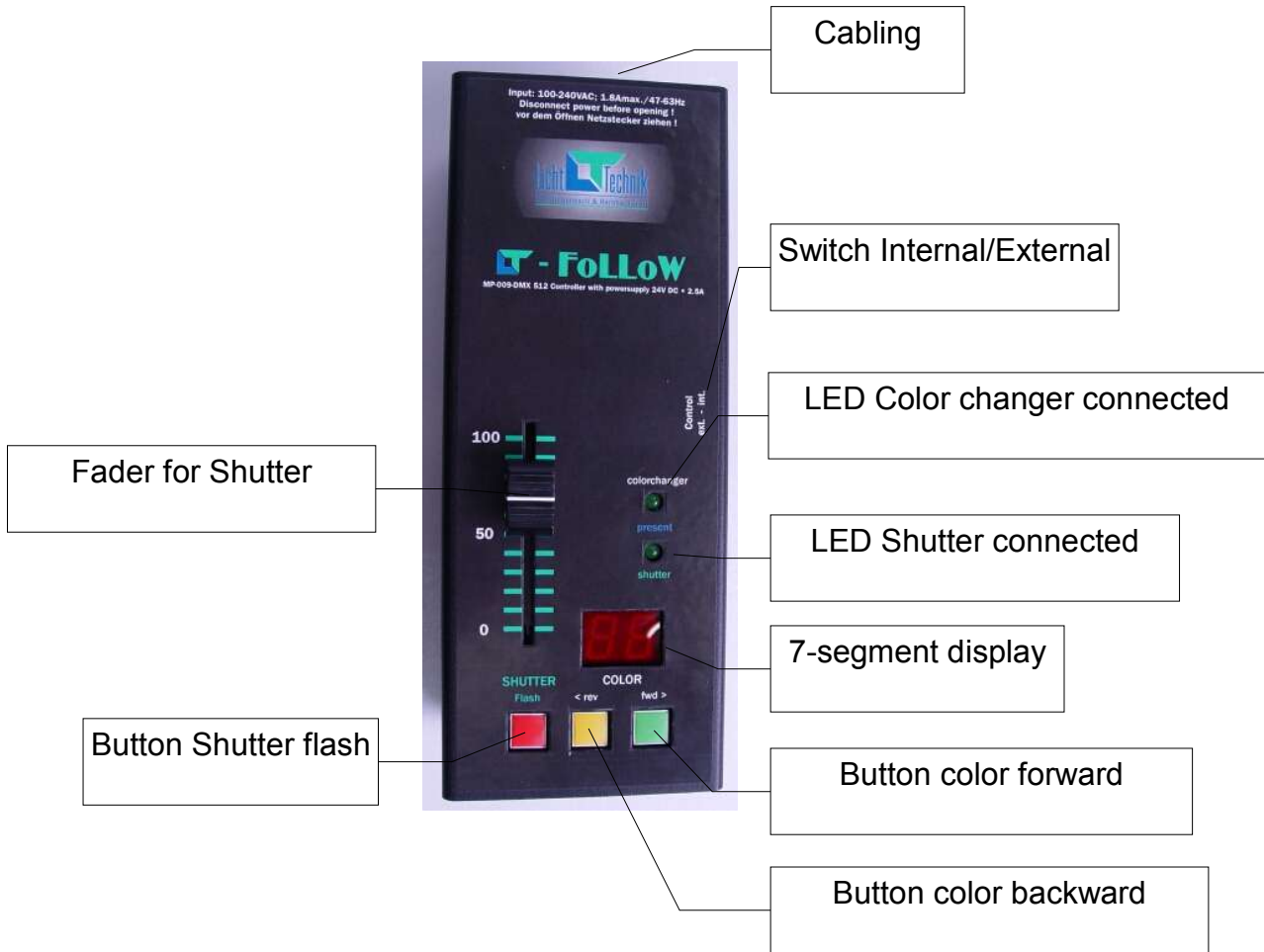
The current control option is indicated by the right dot of the 7-segment display. It lights when the external operation is selected.

The fan is automatically controlled with the shutter position and the master value programmed directly at the device. This means, if the shutter is fully open (DMX out = 100%) the fan speed is the programmed master value. If the shutter is fully closed (DMX-out = 0%) the fan speed is 0. All other speeds are calculated linear depending on the shutter position and the master value.

The speed of the color changer in internal mode is set in P20 directly at the device.

If only a color changer is connected, the fan is controlled in internal and external mode by the fader.

# User interface elements



## Cabling



Important! Check the mains voltage: 100 - 240VAC; 47-63Hz.



## Getting started and operation

Switch off all devices and the LT-follow. Cable the system like illustrated on page 8. Switch on the devices. Switch on the LT-follow. After power up the LT follow shows "SE". This means the device is in **SE**tup and **SE**arch mode. After one second the device should have found the devices and indicates this with the two LEDs.

**Please note:** Make sure that the devices are switched on. The LT follow will not connect to devices which are powered after the LT-follow!

The LT follow shows "Er" after one second in one of the following situations:

- No device is connected
- Devices are connected but powered off
- The devices are powered on after the LT follow.

The different indications of the 7-segment display are described in the next chapter on page 10.

### **Operation of Color changer in internal mode:**

The color changer is operated by the forward and back button. Pressing the forward button increases the current color number by one. Pressing the back button decreases the current color number by one.

If the first color is reached and the back button is pressed the new color number will be the last color number.

If the last color is reached and the forward button is pressed the new color number will be number one. The speed of the color changer is set in Menu P20 at the device.

### **Operation of Color changer in external mode:**

The DMX channels are put through the LT follow, so that the color changer is controlled by the main desk, except the fan. The fan is still controlled by the dimmer shutter position. If only a color changer is connected the fan is controlled by the fader.

### **Operation of dimmer shutter in internal mode:**

Use the fader to position the dimmer shutter!

### **Operation of dimmer shutter in external mode:**

The external DMX-signal is the master value for the dimmer shutter. The 100% position of the fader is the value of the master.

All unused DMX-channels are put through the LT-follow.

Always perform a reset (power off LT follow) after:

- Changing any relevant parameters.
- Changing the cartridge of the color changer.
- Changing one or both device(s).

## Indications

Mode	Connected devices	Indication	Remark
Switch on time	don't care	SE	Searching for 1 sec.
Internal	none	Er	Error
Internal	1 Shutter	DMX-value shutter position in %	
Internal	1 Color changer	Color number	
Internal	1 Shutter 1 Color changer	Color number	
External	none	Er	Error
External	1 Shutter	DMX-value shutter position in %	
External	1 Color changer	CC	CC = Color changer External
External	1 Shutter 1 Color changer	DMX-value shutter position in %	

The right dot of the 7-segment display shows the current mode. It is lightened when is external mode.

The two green LEDs show which devices have been found.

## Programming of the connected devices

Device	Menu	Description	Value	Remark
Color changer	P01	DMX-address position	1..512	
	P02	DMX-address Color changer speed	1..512	
	P03	DMX-address fan speed	1..512	
	P11	Move mode color changer	1	frame by frame
	P20	Internal color changer speed	0..255	Used as speed for CC in Internal mode
	P22	Internal fan speed	0..255	Used as master for fan control
Shutter	P01	DMX-address position	1..512	
	P15	Shutter move mode	3	One Channel mode

Make sure that no DMX-address is used two times. For example, do not use the same address for position and fan.

Always perform a reset (power off LT follow) after:

- Changing any parameters shown in the table above.
- Changing the cartridge of the color changer.
- Changing one or both device(s).

## Technical data

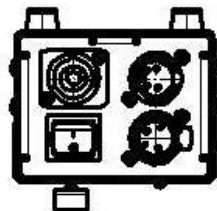
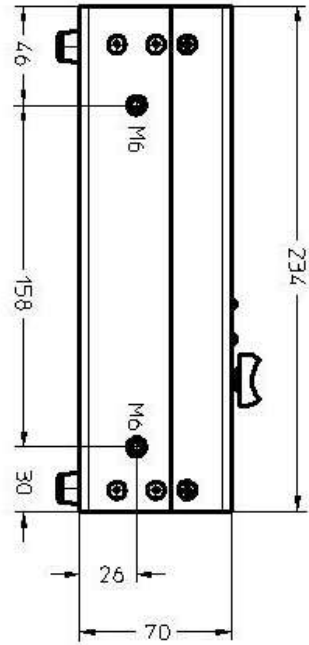
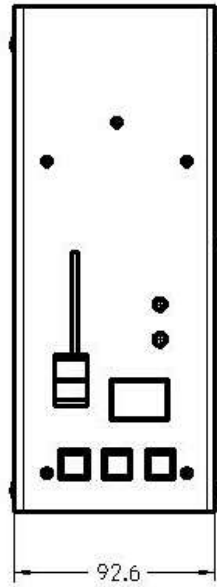
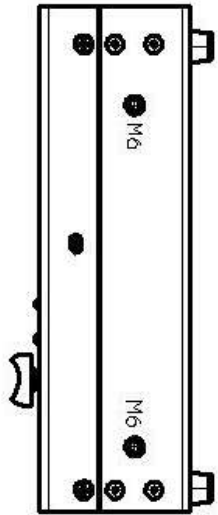
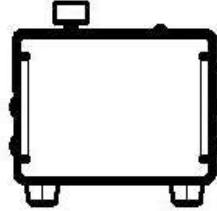
### Weight and dimensions:

Length	Width	Height	Weight
235 mm	93 mm	80 mm	1kg

<b>Mains voltage:</b>	100 - 240VAC; 47-63Hz
<b>Admissable ambient temperature:</b>	0..40 °C
<b>Maximum power output:</b>	60W; 2,5A
<b>Output voltage:</b>	24 V DC
<b>Fuse:</b>	internally, 200mA, slow blow

### Pin configuration:

<b>OUT 4pin:</b>	4pin. XLR female, gold contacts	
	PIN 1 0 V (GND)	cross section min 0,75mm <sup>2</sup>
	PIN 2 Data –	cross section min 0,25mm <sup>2</sup>
	PIN 3 Data +	cross section min 0,25mm <sup>2</sup>
	PIN 4 +24 V DC	cross section min 0,75mm <sup>2</sup>
	Housing: shield	
<b>IN 5pin:</b>	5pin. XLR male, gold contacts	
	PIN 1 Shield	cross section min 0,25mm <sup>2</sup>
	PIN 2 Data –	cross section min 0,25mm <sup>2</sup>
	PIN 3 Data +	cross section min 0,25mm <sup>2</sup>
	PIN 4 not connected	cross section min 0,25mm <sup>2</sup>
	PIN 5 not connected	cross section min 0,25mm <sup>2</sup>
<b>Cable 4pin:</b>	2x 1mm <sup>2</sup> Power supply (Pin 1 and 4)	
	2x 0,25mm <sup>2</sup> twisted pair, 110 Ohm characteristic impedance (Pin 2 and 3). Shielded.	
<b>Cable 5pol:</b>	3x 0,25mm <sup>2</sup> twisted pair (pin 2 and 3),	
	110 Ohm characteristic impedance (pin 2 and 3).	
	Shielded.	



Geräte Typ:

Mischpulver MP-009



Vas. Hochdruck & Berührungsfrei  
Ostfriesenstraße, 9-10  
30559 München

## Error messages / malfunctions

The built in power supply is short circuit protected, overload proof and very reliable in operation. In case of a defect no changable parts can be reached.

When connecting a defect cable to the 4pin output, it might be possible to break the DMX line driver of older devices. This happens when there is a short circuit from 24V to pin 2 or 3. The LT-follow and all new devices have voltage-protected line drivers up to 60V.

### No LED lights after power up

- Is the mains cable connected?
- Check the fuse (200mA, slow blow). Replace if broken. Do not short circuit it!

### Er: No devices are connected

- Connect a color changer and/or a shutter.

### E1: DMX-signal missing in external mode

- Is the main desk sending a signal?
- Is the DMX input line right connected?
- Check the 5pin input cable for interruption in Pin2 and/or Pin3.

### E2: DMX-signal interchanged in external mode

- Check the 5pin input cable for an interchange of Pin2 and Pin3.

### E3: DMX-position address error

- Did you program the addresses for shutter-position, color-changer-position, and fan speed right? Program a separate address for each function and repower the LT follow.

### The fan does not work or does not work like desired

- Did you program the fan address right? You have to set the fan address of the device by hand (P03, see table on page 11) to position-address +2 !!

### The color changer does not move

- Internal mode: Is a speed given in P20? Check P20 at the color changer.
- External mode: Is a speed given by the main desk? Check the incoming DMX-value of the speed channel!

If the error could not be recovered please contact Licht-Technik!

## Warranty

The warranty for our products is 2 years. It comprises any repair of failures – free of charge – which can be proved to result from defects of fabrication.

Warranty expires when:

- the device was modified or attempted to be repaired
- damages were caused by the intervention of foreign persons
- damages are due to noncompliance with the operating instructions
- the device was connected to an incorrect voltage or incorrect type of current
- the device was incorrectly operated or when damages were caused by negligent handling or misuse

All maintenance and servicing works related to the product must be carried out by the company *Licht-Technik*. *Licht-Technik* shall not assume any liability for losses or damages of any kind being the results of inexpert servicing.

## Further information

This document and the information contained therein are subject to copyright and neither the whole nor any part of it may, and this is also valid for the described product, be reproduced, copied or recorded in any form without the prior written authorization of *Licht-Technik Vertriebs GmbH*.

The products of *Licht-Technik GmbH* are subject to constant development. Therefore *Licht-Technik* reserves the right to modify components, motors and also technical specifications any time and without prior notice.

# EC Declaration of Conformity

1. **Type of device/product** DMX trsnmittter with integrated power supply  
LT-Follow
2. **Name and address of manufacturer** Licht-Technik Vertriebs GmbH  
Osterwaldstraße 9-10  
80805 München

3. **The manufacturer is responsible for this declaration**

4. **Item of declaration** LT-Follow

5. **The described item is conform to the following guidelines/regulations**

RICHTLINIE 2014/30/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit

RICHTLINIE 2014/35/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung elektrischer Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen auf dem Markt

RICHTLINIE 2011/65/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 8. Juni 2011 zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten

6. **Applied and conform to harmonized standards in particular**

DIN EN 55015; VDE 0875-15-1:2016-04 - Grenzwerte und Messverfahren für Funkstörungen von elektrischen Beleuchtungseinrichtungen und ähnlichen Elektrogeräten (CISPR 15:2013 + IS1:2013 + IS2:2013 + A1:2015); Deutsche Fassung EN 55015:2013 + A1:2015

DIN EN 61547; VDE 0875-15-2:2010-03 Einrichtungen für allgemeine Beleuchtungszwecke – EMV-Störfestigkeitsanforderungen (IEC 61547:2009); Deutsche Fassung EN 61547:2009

DIN EN 60598-1; VDE 0711-1:2015-10 – Leuchten – Teil 1: Allgemeine Anforderungen und Prüfungen (IEC 60598-1:2014, modifiziert); Deutsche Fassung EN 60598-1:2015

7. **Not applicable**

8. **This declaration is invalid if the device is changed techically and/or unintended use.**

**Signed for**

Licht-Technik Vertriebs GmbH

**Place and date of description**

München 6.9.2017



Uwe Hagenbach (Geschäftsführer)



Bernhard Grill (Geschäftsführer)