CONVERLIGHT®
by ChromoGenics

ConverLight® Contol Unit (CCU), Technical Specification

This is a product sheet for the ConverLight® Control Unit (CCU), to inform the customer, or other contractor, of its technical details and requirements.

OVERVIEW CONVERLIGHT

ConverLight is a dynamic Glass with controllable solar control that improves indoor comfort and contributes to better energy efficiency in the building, without loss of views and daylight. With ConverLight, it is always possible to customize the solution depending on the conditions and requirements for the current installation.

TECHNICAL SPECIFICATION CCU

CONVERLIGHT®
DYNAMIC GLASS

CONVERLIGHT®
CONTROL UNIT

CCU

Power: 24-48VDC

Control Signal: ±24V pulse
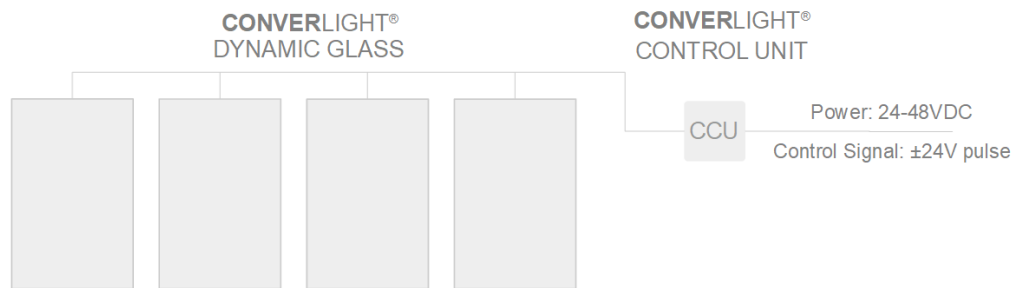
ConverLight Dynamic Glass is always delivered with the ConverLight Control Unit (CCU) as it regulates the dynamic properties of the Glass. The CCU contains a patented algorithm that provides a simple and flexible control of the Glass's dynamic properties. The CCU is powered by 24-48V DC, controlled by a 24V pulse and can control up to 4pcs ConverLight Dynamic Glass. The control of the dynamic properties is stepless and takes place with a soft and comfortable switch. The CCU has a completely open interface, which means that it can either be connected to the ChromoGenics Control System (CCS), or its own control solution.

Technical Specification CCU			
Mechanics / Housing			
Type	**W x H x D (mm)**	**Protection**	**Remark**
Circuit Board	51 x 102 x 10	-	Must be protected by some type of enclosure
Standard	55 x 104 x 30	IP10	
Alternative	85 x 157 x 35	IP20	With hidden connections
Power			
Voltage	**Power during switch**	**Power after switch**	**Remark**
24-48VDC	Max: <9.8W Mean: <1W	Min: 0.7W Mean: 0.7W	Effect depends on the number of Glass connected, Glass sizes, see "1-4 ConverLight Dynamic Glass " below.
Control			
Voltage	**Power**	**Time**	**Remark**
±24V, pulse	Pulse: <0.38W No Pulse: 0W	0-10s (>15s)	The voltage can at maximum differ ± 10%. > 15s are interpreted as infinite pulse.
1-4 ConverLight Dynamic Glass			
Voltage	**Power during switch**	**Power after switch**	**Remark**
±0-3V	Max: <0.37 W/m^2 Glass Mean: <0.05W/m^2 Glass	Min: 0.0W/m^2 Mean: <0.000001W/m^2	Switch takes about 20min depending on the Glass size, season and weather.
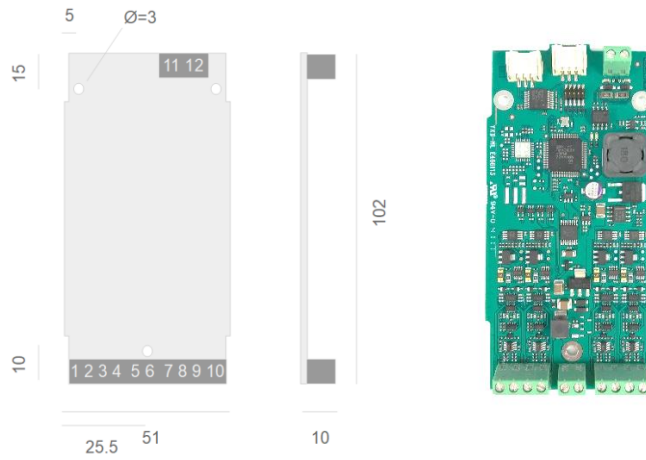
Schematic and real image on circuit board
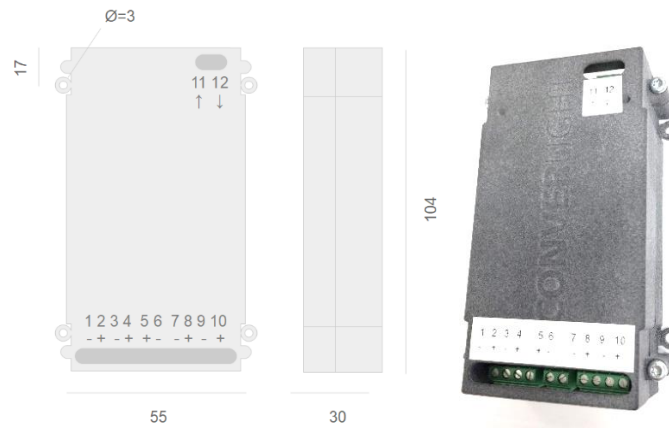
Schematic and real image on standard hausing
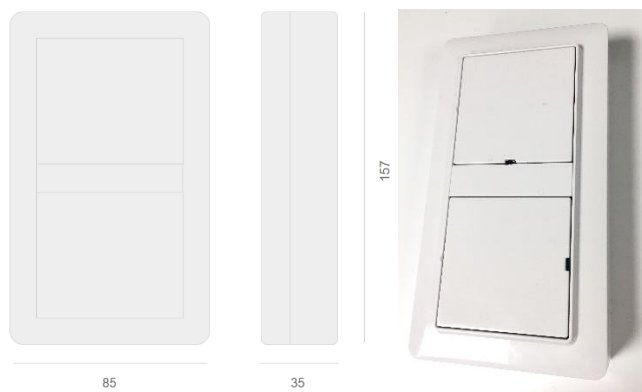
Schematic and real image on alternative hausing

Connections				
Explanation connection terminals				
Terminal	**Connection**	**Polarity**	**Area**	**Length**
1	Glass 3	Black cable (-)	$2x0.5mm^2$ - $2x1.0mm^2$ ($<0.040\Omega$/m)	1-10m[1]
2	Glass 3	Red cable (+)		
3	Glass 4	Black cable (-)	$2x0.5mm^2$ - $2x1.0mm^2$ ($<0.040\Omega$/m)	1-10m[1]
4	Glass 4	Red cable (+)		
5	Kraft	+24-48VDC	$2x0.5mm^2$ - $2x1.0mm^2$	Length corresponding to <10V voltage drop at power-max @ 24VDC
6	Kraft	-24-48VDC		
7	Glass 1	Black cable (-)	$2x0.5mm^2$ - $2x1.0mm^2$ ($<0.040\Omega$/m)	1-10m[1]
8	Glass 1	Red cable (+)		
9	Glass 2	Black cable (-)	$2x0.5mm^2$ - $2x1.0mm^2$ ($<0.040\Omega$/m)	1-10m[1]
10	Glass 2	Red cable (+)		
11	Control	± 24V, pulse	$2x0.5mm^2$ - $2x1.0mm^2$	Length corresponding to <2.4V voltage drop
12	Control	± 24V, pulse		

[1] *Can be 15m if one cable does not go close to power or communication cable, 20m if one uses twisted-pair cable and does not go close to power or communication cable.*
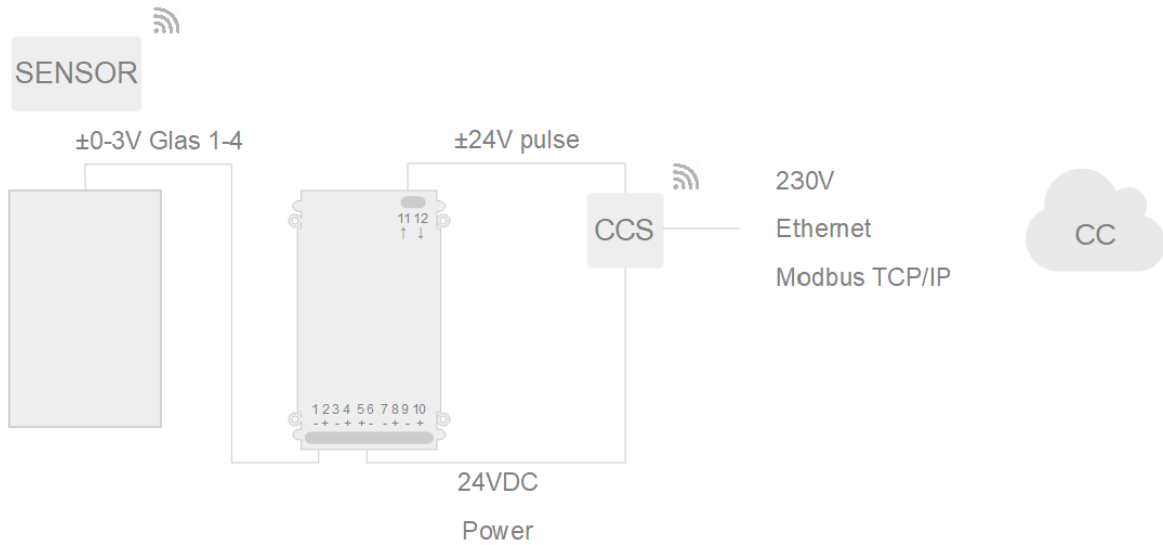
Instruction Control (terminal 11-12)				
Stepless control between 0-100% dynamics[2]				
Terminal	**Connection**	**Polarity**	**Setpoint / Dynamic state**	**Remark**
11	24V -	10s (>15s)	100% (fully dark)	Becomes 100% regardless of starting position
12	24V +	10s (>15s)		
11	24V +	10s (>15s)	0% (fully bright)	Becomes 0% regardless of starting position
12	24V -	10s (>15s)		
11	24V -	5s	50% (of fully dark)	Becomes 50% if CCU starts at 0%, otherwise starting position + 50%.
12	24V +	5s		
11	24V +	5s	50% (of fully bright)	Becomes 50% if CCU starts at 100%, otherwise starting position - 50%.
12	24V -	5s		

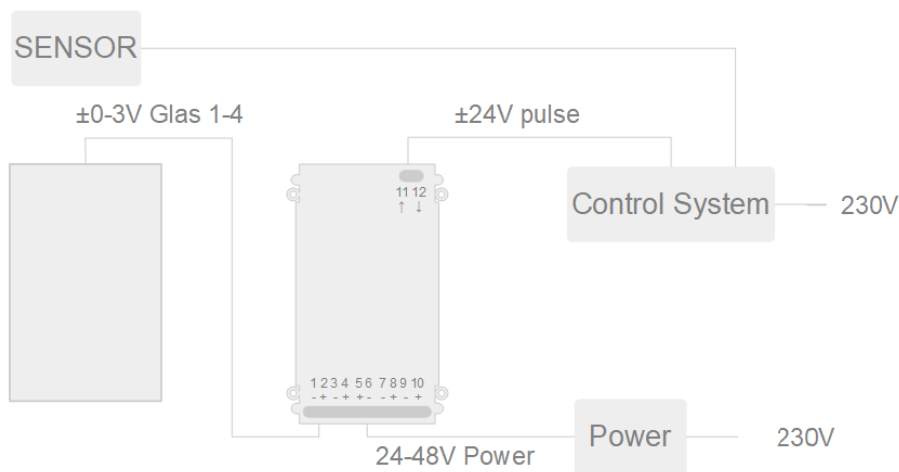[2] *When starting, or restarting (e.g. power failure), CCU goes to 0% (full bright mode)*

Meets the EMC standard according to EN 6000-6

Product safety according to EN 60950

EXAMPLE CHROMOGENICS CONTROL SYSTEM (CCS)

SENSOR

±0-3V Glas 1-4

±24V pulse

11 12
↑ ↓

CCS

230V

Ethernet

Modbus TCP/IP

CC

1 2 3 4 5 6 7 8 9 10
- + - + + - - + - +

24VDC

Power

EXAMPLE OWN CONTROL SOLUTION

SENSOR

±0-3V Glas 1-4

±24V pulse

11 12
↑ ↓

Control System

230V

1 2 3 4 5 6 7 8 9 10
- + - + + - - + - +

24-48V Power

Power

230V

Any questions, please contact ChromoGenics.