

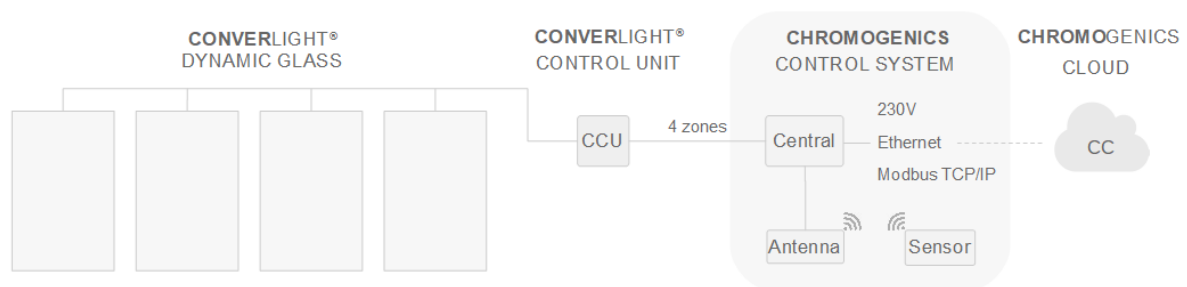
ChromoGenics Control System (CCS), Technical specification

This is a product sheet for the ChromoGenics Control System (CCS), to inform the customer, or other contractor, of its technical details and requirements.

DEFINITION CONVERLIGHT® DYNAMIC

ConverLight Dynamic is a controllable solar-control glass that provides improved indoor comfort and contributes to better energy efficiency in the building, without blocking views and daylight exposure. With ConverLight, it is always possible to customize the solution depending on the conditions and requirements for the current installation.

TECHNICAL SPECIFICATION CCS



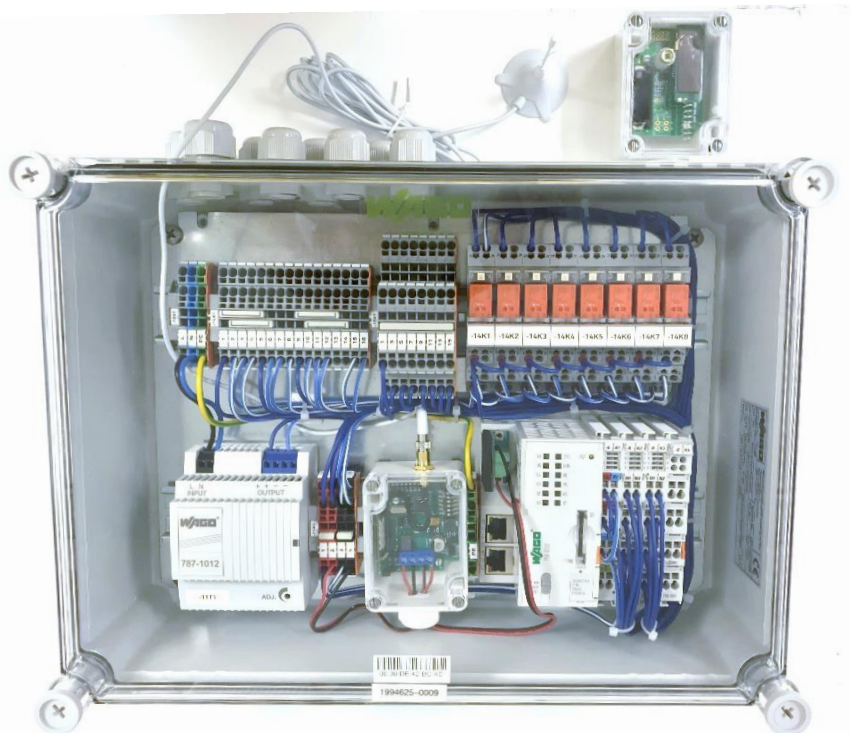
CCS is a control and automation solution adapted for ConverLight Dynamic Glass. A CCS can control up to 4 zones (more optional), powered by 230V, can be overridden with MODBUS TCP / IP and connected to the ChromoGenics Cloud (CC) monitoring service via Ethernet. A CCS can directly power up to 8 CCUs (24 ConverLight Dynamic Glass), and in larger installations external power units located close to CCUs are used.

Technical Specification CCS			
Mechanical / Housing			
Type	WxHxD (mm)	Protection	Comment
Central	378x278x130	IP66	Wall mounted
Antenn	34x100	-	Incl. 2.5m cable
Sensor	58x78x4	IP65	Wall mounted
Incoming Power			
Voltage	Frequency	Nominal Current	Comment
230VAC	50Hz	16A	Main Power
Incoming Communication			
Type	Contact Type	Comment	
Ethernet	RJ45	Requires internet for monitoring service ChromoGenics Cloud (CC).	
MODBUS/TCPIP	RJ45	For the control / communication with other equipment.	
Sensor			
Type	Kraft	Communication	Comment
Light-sensor (lux)	None (solar-cell)	Wireless (Enocean)	Up to 30m, at longer distances, cable is used for antenna. More sensors possible.
Outgoing Control Signal			
Zones	CCU / Zone	Control Signal	Comment
4	unlimited	±24V, pulse	More zones possible as an option
Outgoing Power			
Amount CCU	Voltage	Max Power	Comment
8	24VDC	60W (2.5A)	For more CCUs or longer distances, external power units are used.

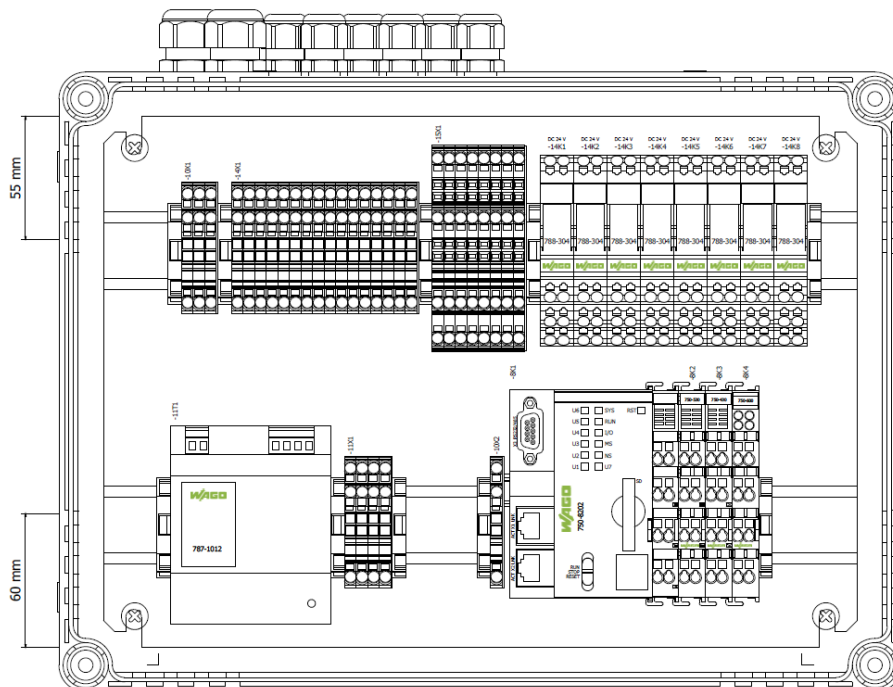
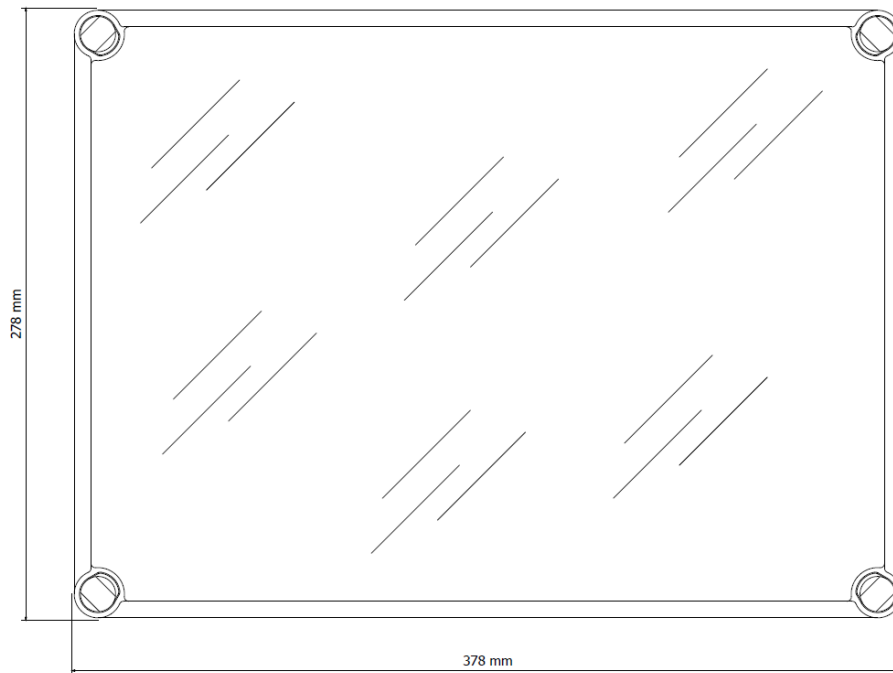
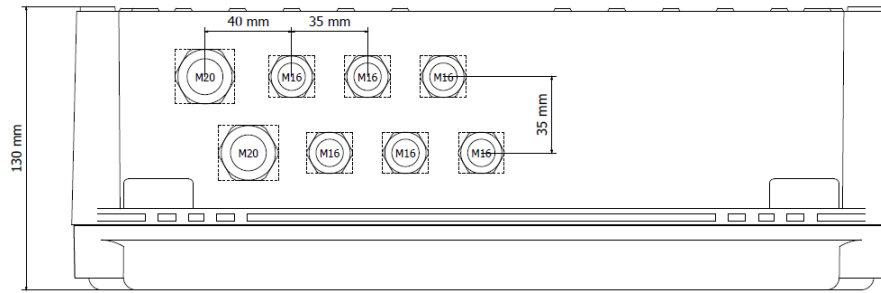
Wiring				
Explanation Connection Terminals				
Terminal	Connection	Polarity	From / To	Dimension ¹
-10X1				
L	Incoming Power	230V Brown Phase	Mains Power	3x2.5mm ²
N	Incoming Power	230V Blue Neutral	Mains Power	
PE	Incoming Power	230V Green-Yellow Protective Earth	Mains Power	
-14X1				
1	Zone 1; Outgoing Power	+24VDC ²	CCU Term. 5	2x2x0.8mm ² (Length corresponding to <10V voltage drop at power-max @ 24VDC)
2	Zone 1; Outgoing Power	-24VDC ²	CCU Term. 6	
3	Zone 1; Outgoing Control Signal	± 24V, pulse	CCU Term. 11	
4	Zone 1; Outgoing Control Signal	± 24V, pulse	CCU Term. 12	
5	Zone 2; Outgoing Power	+24VDC ²	CCU Term. 5	2x2x0.8mm ² (Length corresponding to <10V voltage drop at power-max @ 24VDC)
6	Zone 2; Outgoing Power	-24VDC ²	CCU Term. 6	
7	Zone 2; Outgoing Control Signal	± 24V, pulse	CCU Term. 11	
8	Zone 2; Outgoing Control Signal	± 24V, pulse	CCU Term. 12	
9	Zone 3; Outgoing Power	+24VDC ²	CCU Term. 5	2x2x0.8mm ² (Length corresponding to <10V voltage drop at power-max @ 24VDC)
10	Zone 3; Outgoing Power	-24VDC ²	CCU Term. 6	
11	Zone 3; Outgoing Control Signal	± 24V, pulse	CCU Term. 11	
12	Zone 3; Outgoing Control Signal	± 24V, pulse	CCU Term. 12	
13	Zone 4; Outgoing Power	+24VDC ²	CCU Term. 5	2x2x0.8mm ² (Length corresponding to <10V voltage drop at power-max @ 24VDC)
14	Zone 4; Outgoing Power	-24VDC ²	CCU Term. 6	
15	Zone 4; Outgoing Control Signal	± 24V, pulse	CCU Term. 11	
16	Zone 4; Outgoing Control Signal	± 24V, pulse	CCU Term. 12	

¹ Cable dimension is only an example, choice of dimension one should considered cable length, voltage drop, power-max.

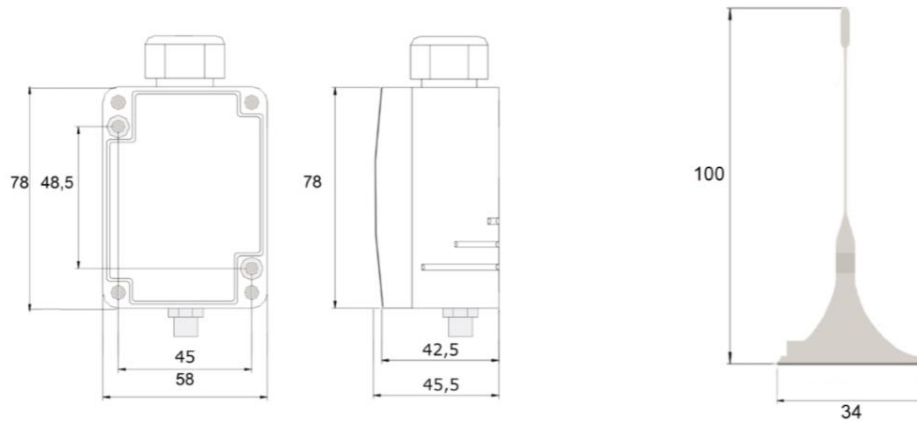
² For long distances or high total power, external power units near CCUs are recommended.



Picture CCS; Central, Sensor och Antenna.

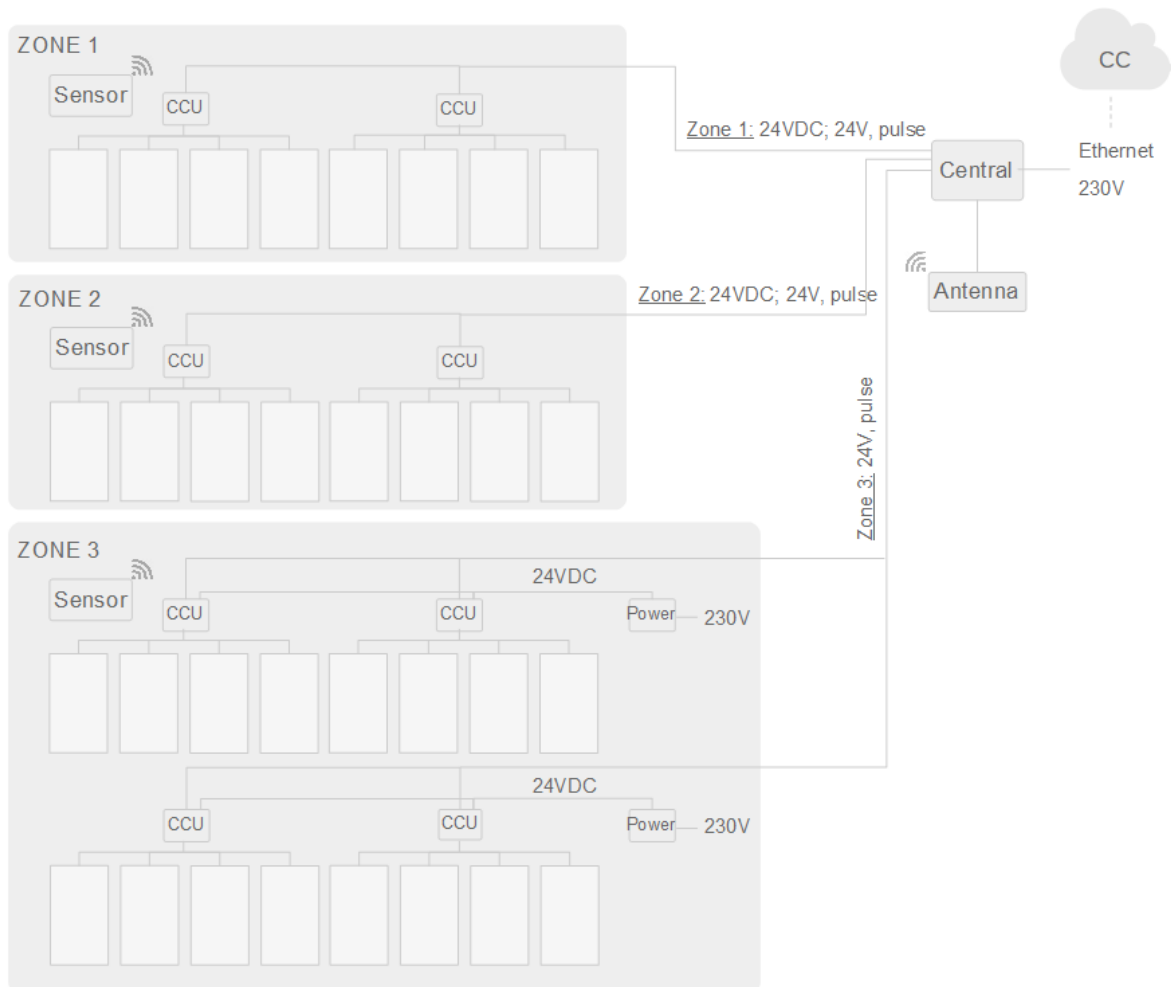


Schematic picture Central



Schematic picture Sensor and Antenna

EXAMPLE CONNECTING THE CHROMOGENICS CONTROL SYSTEM (CCS)



For questions, please contact ChromoGenics.