



IQ Com Generator Converter

Static bonding becomes intelligent!

A newly introduced IQ Com Generator converter makes it possible to connect any existing CM5 charging generator to the Manager IQ Easy or Extension IQ Easy.

Many settings, parameters, warnings and alarms are available. But MOST IMPORTANT, it is now possible to pair the CM5 with a Sensor IQ Easy to enable Closed Loop Feedback charging.

Charging materials to create a bonding force to assist in various processes can be difficult to manage.

By applying a fixed high voltage to a charging electrode, mounted at the right distance with a reference potential at the other side sounds easy. However the resulting static charge on the material can change dramatically when conditions change. Speed of the material, friction and separation from an idler roller, pollution or wearing of the electrode pins, change of material, humidity, electrode distance are some of the main factors.

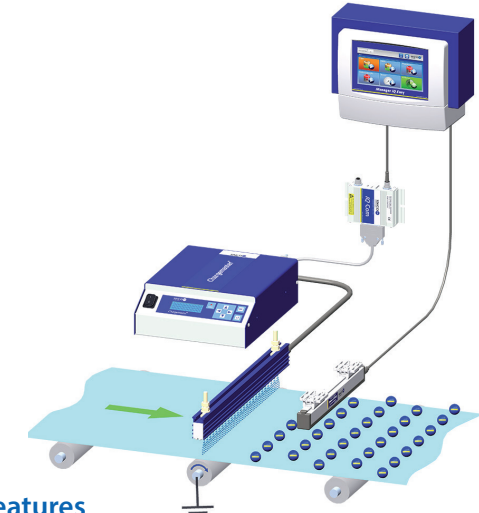
When for example a charging electrode is supplied with 10 kV it the resulting charge on the material can easily vary between 5 and 20 kV. This can lead to unwanted situations and needs constant monitoring of the charging effect and setting new setpoint charging voltages.

The solution is here:

A CM5 charging generator connected to the Manager IQ Easy through the IQ Com in combination with a Sensor IQ Easy, placed downstream of the charging electrode, enable closed loop feedback charging.

What is closed loop feedback charging (CLFB)

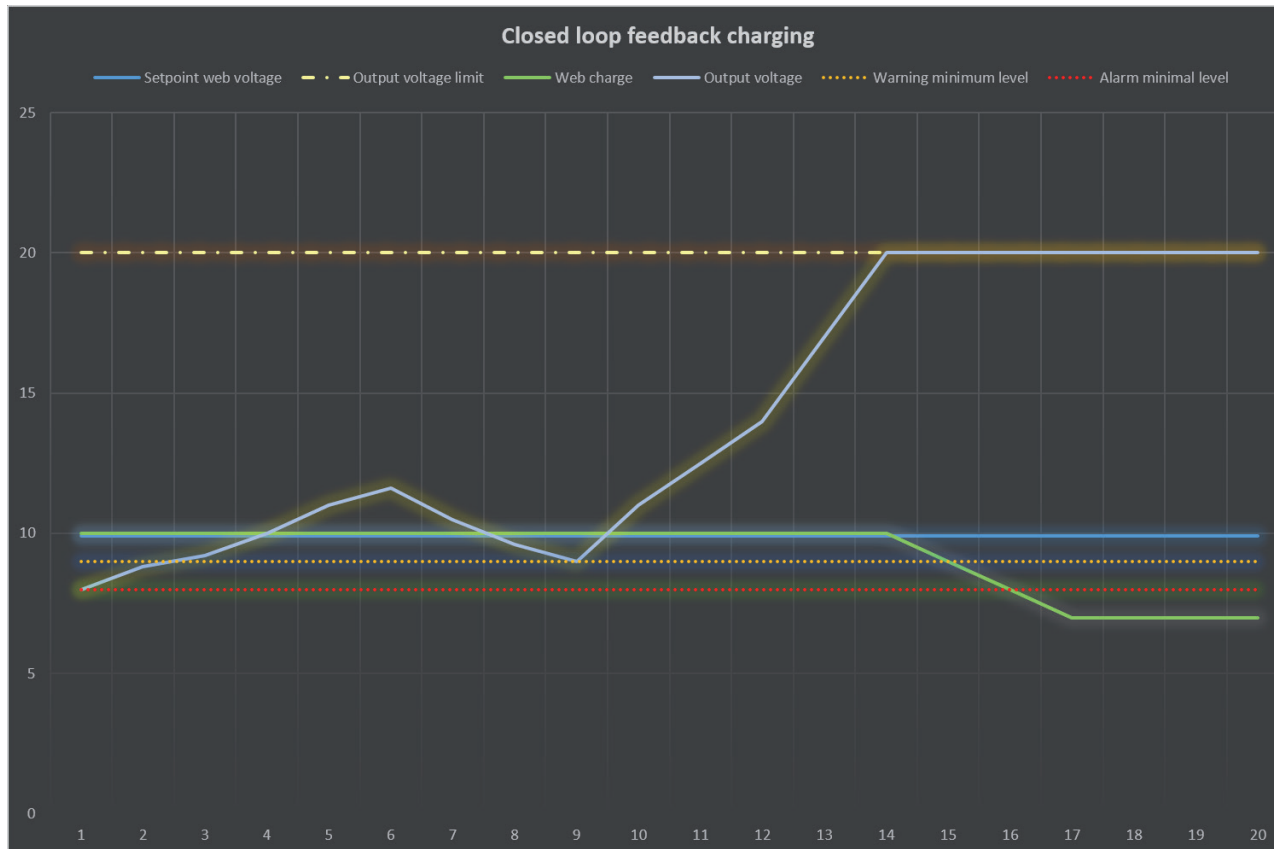
The Sensor downstream measures the static charge on the moving material at 1 to 16 positions and communicates the values with the IQ Com. An intelligent algorithm will evaluate the measured value against the desired charge on the material (setpoint) and correct the output of the charging generator until the measured value is equal to the desired charge.



Features

- Thanks to the IQ Com generator Converter it is possible to connect a Chagemaster CM5 to an IQ Easy system, which has many advantages:
- Production failures and production stops will be reduced
- Quality assurance: you can find back all data and action logs.
- You will get a warning when there is something wrong with a device so that you can intervene on time. The warnings and alarms will give you the chance to plan the maintenance or replacing of equipment before full break down. So no surprise machine stops due to defective static control equipment anymore!
- When the Chagemaster is connected to the IQ Com, the Chagemaster can be operated from the Manager IQ Easy.
- CLFB (Closed Loop FeedBack) mode operation; when using CLFB mode, the IQ Com must be paired with a Sensor IQ Easy bar. The Sensor IQ Easy bar will measure the static charge on the web and the generator output voltage will adapt constantly so that the static charge stays constant at the desired level.





The graph shows an example of a realistic application.

The [Setpoint web voltage] is set to 10 kV. This means 10 kV static web charge is desired on the surface.

The [Output voltage limit] is set to 20 kV to try prevent the web charge to go over 20 kV.

You can see the real output voltage of the static generator fluctuating depending on environmental conditions.

Fe. if the speed of the material increases from point 11 on it may happen that the output of the generator is limited to the [Output voltage limit] of 20 kV but the real voltage on the material will drop below 10 kV because more charge is needed.

In that case, when the real web charge drops below [Warning minimal level] (9 kV) a warning will be generated and indicated. Equally when the web charge drops below 8 kV an Alarm will be generated.

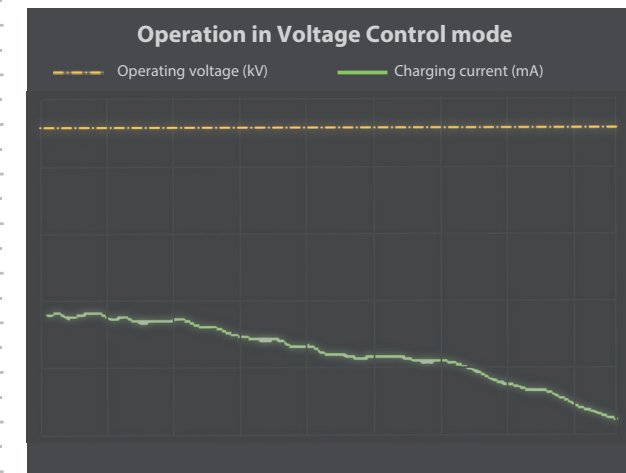
Warnings and alarms can be set for the Sensor IQ Easy to guard if the desired charge on the material can be reached.

Control mode

The charging generator CM5 has different ways in which the output voltage and current can be arranged. The generator can work in VC mode (Voltage Control), CC mode (Current Control) or CLFB mode. The default mode is VC mode. The settings are available on the screen of the Manager IQ Easy.

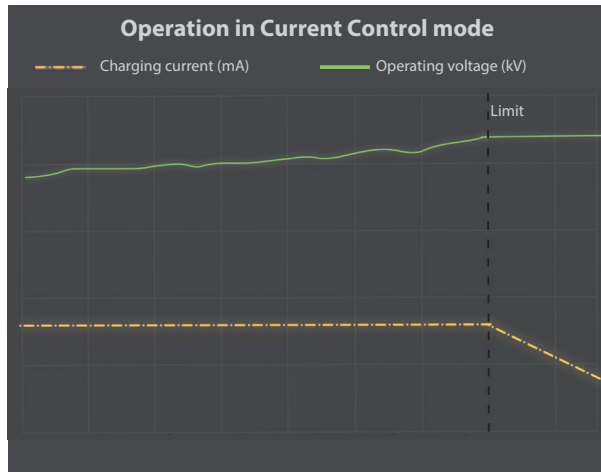
Operation in Voltage Control mode

If the CM5 is set to VC mode, the desired output voltage must be set with the parameter "Setpoint voltage." The generator will now consistently maintain the set output voltage and adjust it depending on the load with a larger or smaller current. The charging current depends on the load of the generator and the possible fouling of the charging bar/electrode. The maximum output current can be set using the parameter "Output current limit". Only if the output current reaches the value of the "Output current Limit" parameter, will the output voltage drop.



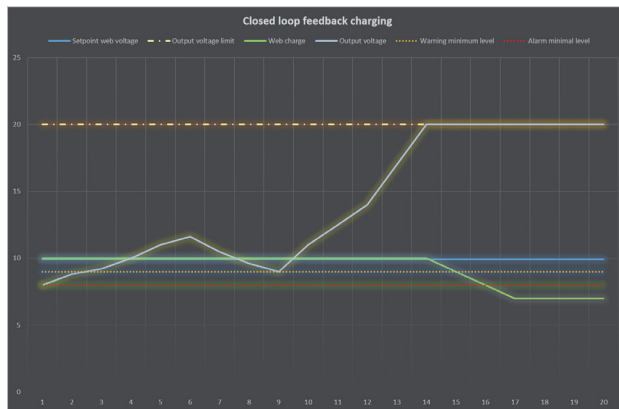
Operation in Current Control mode

If the CM5 is set to CC mode, the desired output current must be set with the parameter "Setpoint current." The generator will now consistently maintain the set output current and adjust it depending on the load with a larger or smaller voltage. The maximum output voltage can be set using the parameter "Output voltage limit". Only if the output voltage reaches the value of the "Output voltage limit" parameter, will the output current drop.



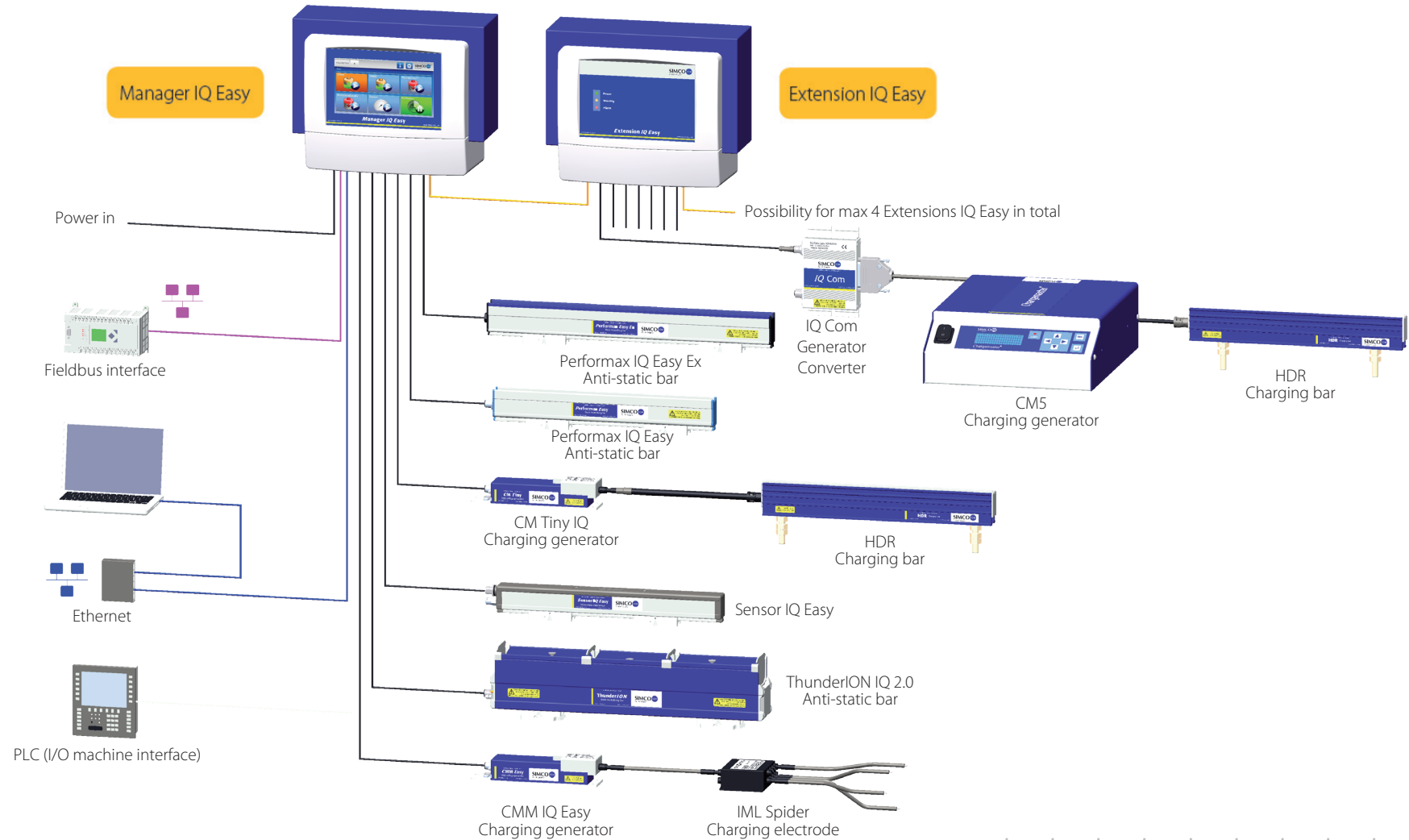
CLFB (Closed Loop FeedBack) mode operation

If the CM5 is set to CLFB mode, the desired webvoltage must be set with the parameter "Setpoint webvoltage". When using CLFB mode, the IQ Com must be paired with a Sensor IQ Easy bar. The Sensor IQ Easy should be mounted downstream of the charging electrode. The Sensor will measure the web tension and the generator output voltage will adapt constantly so that the desired web tension is reached. The maximum output voltage of the generator can be set with the parameter "Output voltage limit".



Technical specifications

Connection to Manager IQ Easy		M12 5 pin connector (male)
Supply voltage	21 – 27 V DC (from Manager)	
Current Consumption	Max. 0,2A	
Connection to machine interface / PLC		M12 5 pin connector (female)
24V DC output	21 – 27 V DC, 100 mA max.	
Remote on/off via Manager or additional via M12	15 – 30 V DC = high voltage ON 0 – 5 V DC = high voltage OFF	
HV OK output	24 V DC (±3 V), 50 mA max.	
Connection to CM5		Sub-D25 connector
User interface:		
Status LED	1 green/red 2 colour LED on the front	
Touchscreen	On the Manager IQ Easy	
LED indications		
Green flashing, fast	Start up	
Green flashing, slow	Standby, HV output CM5 inactive	
Orange	Normal operation, HV output CM5 active	
Red	1) HV output CM5 overloaded, HV output active 2) Arcing, HV output temporarily not active	
Red flashing, slow (1Hz)	Warning	
Red flashing, fast (5Hz)	Communication with Manager IQ Easy lost, HV output The charging electrode is not active	
Environment:		
Usage	Industrial, indoor use	
Temperature	0 – 55°C	
Installation	Dust free	
Protection class	IP42	
Mechanical:		
Length	80mm	
Width	140mm	
Height	30mm	
Weight	0,3 kg	
Housing	Aluminium	



IQ Com Generator Converter connected to the IQ Easy platform

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