

# Electric charge amount calculation Surge Counter **BQSC series**



<Source of photos>

Next-Generation Wind Power Generation Technology R & D

[Natural Environment Response Technologies, etc. (Lightning Protection Measures)] Report

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Device model: Photonics PH-209002

 **Lightning measurement**

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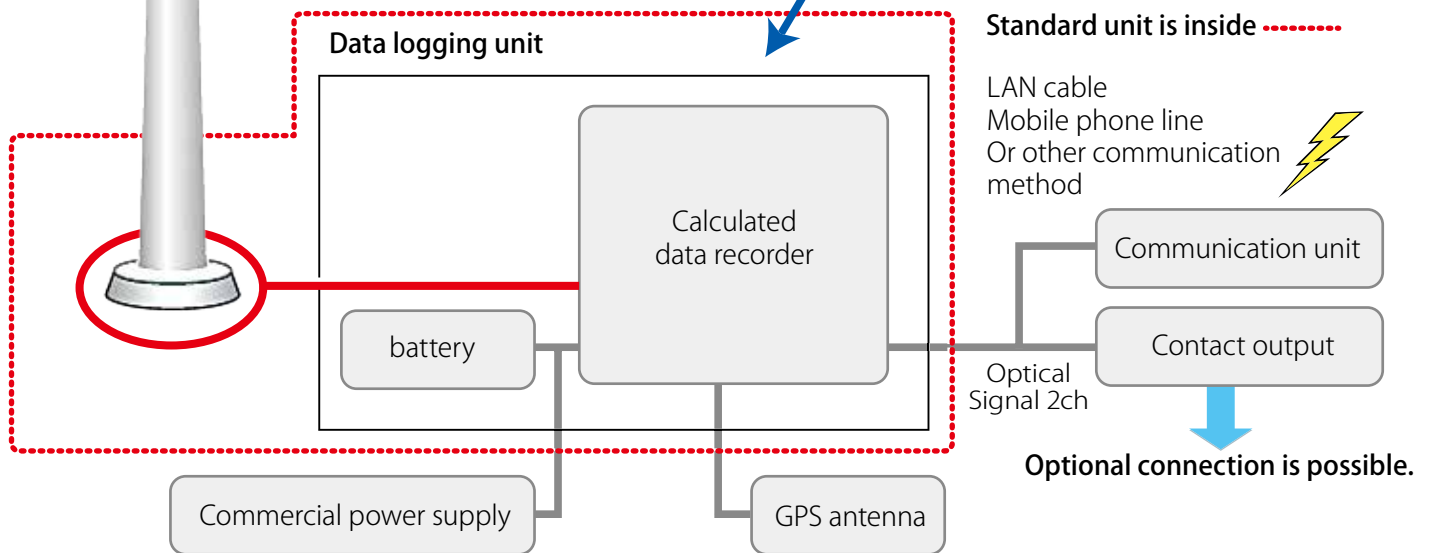
1-34 Kanda-Jimbocho, Chiyoda-ku Tokyo 101-0051 Japan Phone : 81-3-5962-8548 Fax: 81-3-6856-4866  
<https://www.lightning-measurement.com/> [info@lightning-measurement.com/](mailto:info@lightning-measurement.com/)

Manufacturer: Photonics Co., Ltd.

1-19-38 Hon-Machi, Higashi-Murayama Tokyo 189-0014 Japan  
[pho@poppy.ocn.ne.jp](mailto:pho@poppy.ocn.ne.jp)

# Electric Charge amount calculation surge counter : BQSC series

Rogowski coil is installed surrounding the windmill tower to get only the lightning signal from the sensor installed blade. With the installation, the disturbance noise does not affect to the sensor. The sensor only detects the lightning Current on the blade.



Data logging unit can be installed outdoor (the water proofed box is required)



Installed Rogowski coil

## Characteristics

1. The sensor only detects the lightning signal from the lightning hit windmills.  
The signal is not affected by the disturbance noise.
2. Trigger time, Current polarity, Peak Current, and Charge amount are recorded on SD card. (Current waveform is option)
3. With GPS clock, Time accuracy is  $< +/-0.5$  sec.
4. Measured data is recorded on SD card with FAT format
5. Measured data can be easily edited on PC.
6. Remote data transfer.
7. Additional blade sensor is available (option)

## Main functions and measurement contents

### ● Model

Electric charge amount  
Surge Counter  
(BQSC series)

### ● Main functions and features

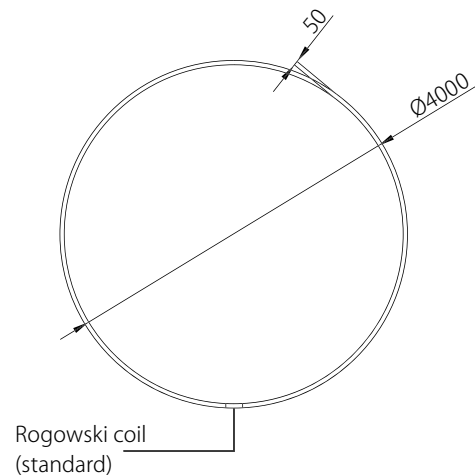
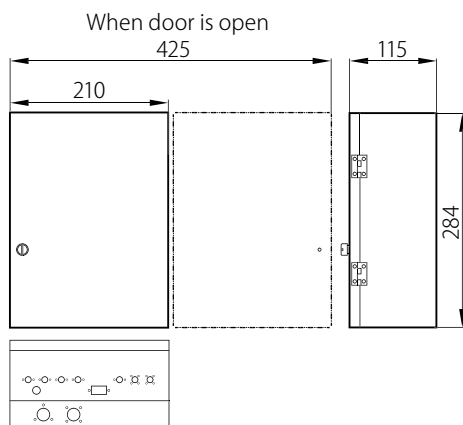
- Measurement contents' recording and display
- Remote data transfer of the measured contents (time of lightning, peak current value, transmission of polarity, and amount of charge)
- 2 or 3 channels optical output when the peak Current value / charge amount exceeds the set value.

\*Option: Recording of lightning current waveform

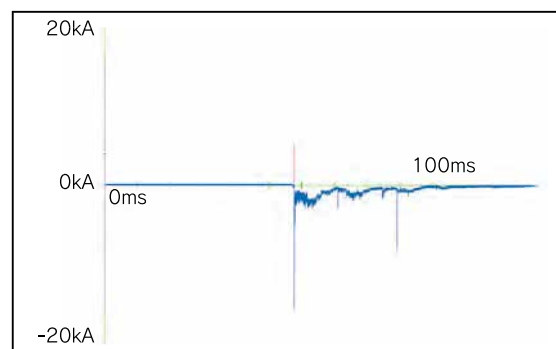
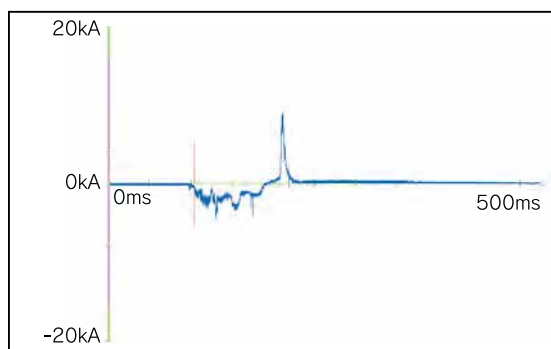
### ● Measurement contents

- Lightning date and time
- Peak Current ((Max. of measured current values)
- Polarity (Direction of Current flow)
- Electric charge amount

## Outer dimension



## Typical measured data (lightning Current waveform)



\* data was achieved with option

# Electric Charge amount calculation surge counter : BQSC series

| Model                            | BQSC00   | BQSC10                              | BQSC20  | BQSC30   | BQSC40 | BQSC51  | BQSC51M  | Note  |  |
|----------------------------------|--|-------------------------------------|---|--|--------|---|--|---|--|
| Measurement data                 | <ul style="list-style-type: none"> <li>• Trigger time</li> <li>• Charge amount</li> <li>• Peak Current and Polarity</li> </ul> |                                     |   | <ul style="list-style-type: none"> <li>• Trigger time</li> <li>• Charge amount</li> <li>• Peak Current and Polarity</li> <li>• Current waveform *1 option</li> </ul> |        |   | <ul style="list-style-type: none"> <li>• Trigger time</li> <li>• Charge amount</li> <li>• Peak Current and Polarity</li> <li>• Current waveform</li> </ul> |   |  |
| Current range                    | ± 1 ~ ± 100 kA   |                                     |   |  |        |   |  | Can be modified according to the request  |  |
| Frequency range                  | 0.1 Hz ~ 1 MHz   |                                     |   |  |        |   |  | Guaranteed flat range   |  |
| Detective current (Min.)         | 1 kA   |                                     |   |  |        |   |  |   |  |
| Cut off low frequency            | 0.1 Hz   |                                     |   |  |        |   |  |   |  |
| Rise time                        | 5 μ sec.   | 0.5 μ sec. (peak hold type sharing) |   |  |        |   |  |   |  |
| Current value resolution         | 12 bit   |                                     |   | 12bit (effective resolution: 10bit)  |        |   |  | 12bit (effective resolution: 10bit) is due to noise                                 |  |
| Sampling frequency               | 1 MHz  |                                     |   |  |        |   |  |   |  |
| Peak current accuracy            | < +/- 5 %  |                                     |   |  |        |   |  | Calibrated with 30kA, 8μsec / 20μsec test Current                                   |  |
| Charge amount detection accuracy | > 95%  |                                     |   |  |        |   |  | Charge amount repeatability at 100msec rectangular wave input                       |  |
| Detection time                   | 0.5 sec.   | 1 sec.                              |   |  |        |   |  | Integration interval of one waveform's charge amount                                |  |
| Date and time accuracy           | < +/- 1 sec. / day   |                                     | < +/- 0.5 sec. / day (GPS clock)  |  |        |   |  |   |  |
| Data storage                     | SD card  |                                     |   | SD card (8GB SD card included)   |        |   |  |   |  |
| Max. data number                 | > 1,000 (with 8GB SD card)   |                                     |   |  |        |   |  |   |  |
| Contact output                   | 1 signal at the lightning strike<br>1 signal at the time of device error   |                                     | 2 signals at the lightning strike<br>1 signal at the time of device error |  |        | 3 signals at the time of lightning strike<br>1 signal at the time of device error |  | Only the optical signal (option: optical output to relay contact output conversion) |  |
| Input                            | 100 VAC  |                                     |   | Battery (option: 100VAC)   |        |   |  |   |  |
| Data transfer                    | n/a  |                                     |   | 1 : Email via Mobile phone line<br>2 : LAN connection via Media converter  |        |   |  | Choose one transfer (additional AC battery is required)                             |  |
| Transferrable data               | n/a  |                                     |   | <ul style="list-style-type: none"> <li>• Trigger time</li> <li>• Charge amount</li> <li>• Peak Current and Polarity</li> </ul>                                       |        |   |  | Waveform data cannot be transferred   |  |
| Blade sensor                     | n/a  |                                     |   | can be connected (option)  |        |   |  |   |  |
| Dimension                        | 284 mm(H) x 210 mm(W) x 115 mm(D)  |                                     |   |  |        |   |  | (option: the water-proofed box or the sensor)                                       |  |
| Weight                           | 3.2 kg   |                                     |   |  |        |   |  | Only the data unit (excludes Rogowski coil or battery)                              |  |
| Operating temperature            | -10 °C ~ 50 °C   |                                     |   |  |        |   |  |   |  |
| Operating environment humidity   | < 85%  |                                     |   |  |        |   |  | No condensation   |  |

\* Product design, specifications, appearance, and price are subject to change without notice.

