

**Q68CT  
CT input module**

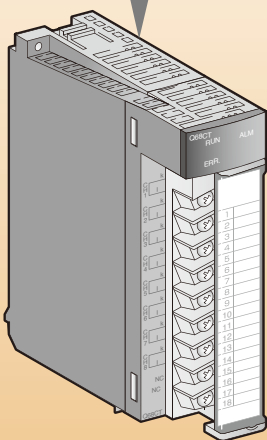
**Connecting the MELSEC-Q series and CT sensor!  
No more need to connect to an external signal converter!**

**High accuracy measurements!**

Reference accuracy  
**±0.5%\***

Sampling cycle  
Max. speed  
**10ms/8CH**

\* Ambient temperature: 25±5°C



CT input module

**Q68CT New!**

**What is a CT sensor?**

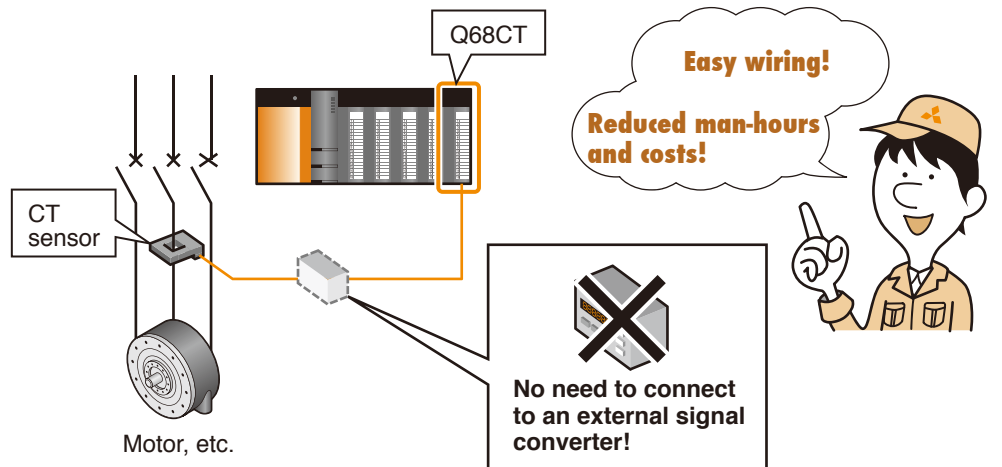
A CT sensor means "Current Transformer" and is a current sensor which is necessary to measure an alternating current.

**Point1**

**Direct CT sensor connection reduces wiring and saves space!**



- Connection to external signal converter not required
- Multi-point measurement up to 8 channels possible
- Set the CT sensor type (input range) for each channel
- Easily switch the input range with by operating the GX Works2



**Point2**

**Predictive maintenance of devices by detecting the peak current!**

- Changes in the alternating current signal are detected allowing the device state to be checked at real-time

## Features

# Point 1 Direct CT sensor connection reduces wiring and saves space!

Reduced costs!

- **Connection to external signal converter not required**

Connect directly to the CT sensor without an external signal converter. This simplified configuration makes it easy to structure a system. Reduce wiring steps and costs.

- **Multi-point measurement up to 8 channels possible**

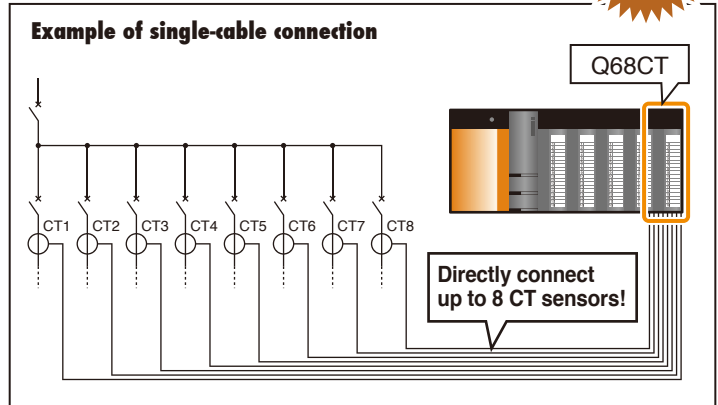
The alternating current for up to 8 channels can be measured with one module. This expands the range of applications at low cost.

- **Set the CT sensor type (input range) for each channel**

The CT sensor type (input range) can be set for each channel. CT sensors from "0 to 5A AC" to "0 to 600A AC" can be selected with one module.

- **Easily switch the input range with by operating the GX Works2**

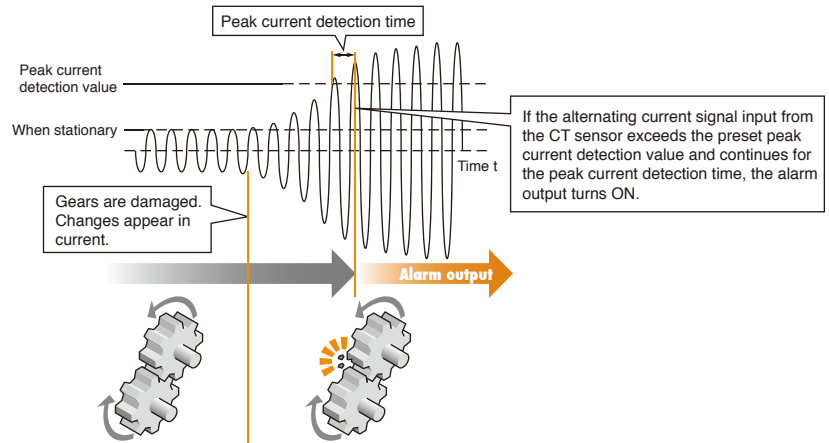
Switch the input range using the GX Works2 configurator function. Operations are easy and don't require a manual. The initial settings and automatic refreshing, etc., can also be set in the same manner, thus reducing the sequence program. The setting status and operation status can also be confirmed easily.



# Point 2 Predictive maintenance of devices by detecting the peak current!

- **Changes in the alternating current signal are detected allowing the device state to be checked at real-time**

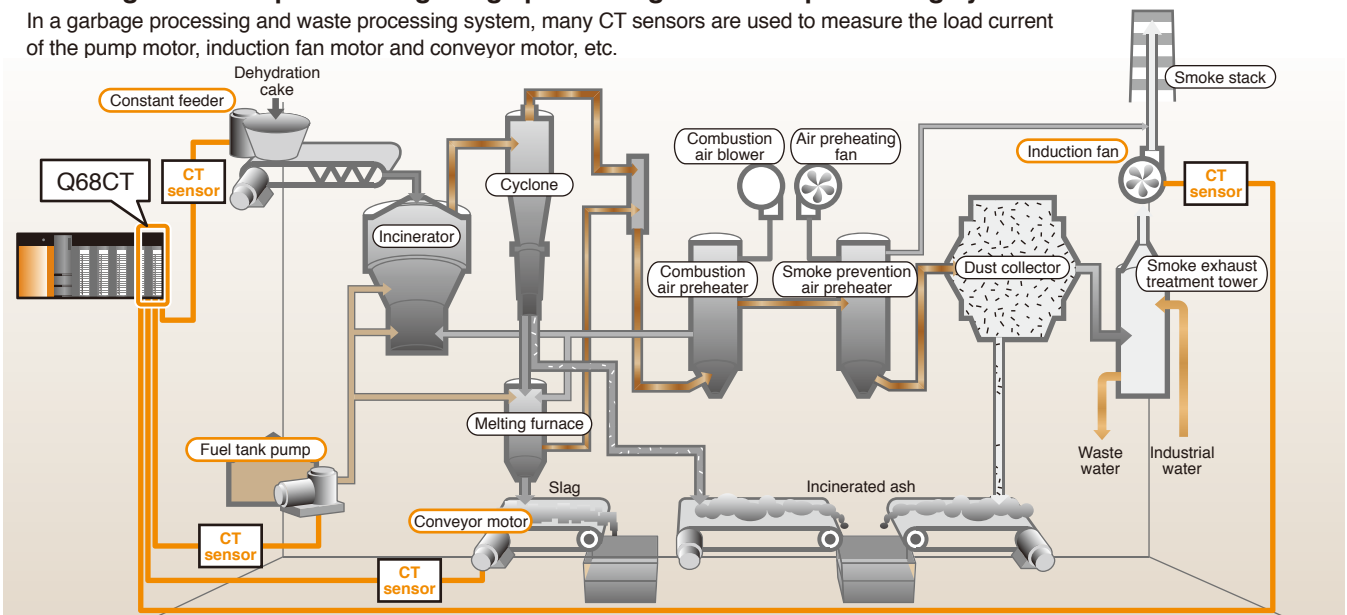
The device can be serviced and troubleshooting performed by detecting the peak current. Take a motor for example. The load applied on the motor because of gear wear and damage changes and causes the load current to suddenly fluctuate. The device trouble can be diagnosed by detecting the transient peak current at this time.



## Examples of Application

### Monitoring of motor operation in garbage processing and waste processing system

In a garbage processing and waste processing system, many CT sensors are used to measure the load current of the pump motor, induction fan motor and conveyor motor, etc.



## Function List

Item		Description	
Sampling cycle switching function		A sampling cycle can be selected from 10ms/8CH, 20ms/8CH, 50ms/8CH, or 100ms/8CH.	
Digital conversion method	Sampling processing	CT input values are converted to digital values in each sampling cycle. The converted values are stored as digital output values in the buffer memory.	
	Averaging process	Time average	Digital conversion is performed for a set time, and a sum of the converted values except the maximum and minimum values is averaged. The averaged values are stored in the buffer memory.
		Count average	Digital conversion is performed the set number of times, and a sum of the converted values except the maximum and minimum values is averaged. The averaged values are stored in the buffer memory.
		Moving average	Digital output values for the specified number of times are averaged in each sampling cycle. The averaged values are stored in the buffer memory.
Primary delay filter		Depending on the set time constant, digital output values with smoothed noise can be obtained.	
Input signal error detection function		Overrange of a CT input value (excess of a peak value) can be detected. Since a CT input module can detect that a high current out of range flew through a measured target, an error on the measured target is monitored easily.	
Peak current detection function		When digital output values exceed the set peak current detection value consecutively for the duration of the peak current detection time set in advance, an error can be detected.	
Dropout function		When an input current is around 0A, a CT's conversion accuracy is low. To avoid digital output of such an unstable CT input value, digital output values within the set value can be dropped to 0 forcibly.	
Scaling function		A digital output value can be scaled into a value within the range of the set scaling upper limit value to lower limit value. The sequence programming for scale conversion can be omitted.	
Warning output function	Process alarm	When a digital output value enters the alert output range set in advance, an alert is output.	
	Rate alarm	When a change rate of a digital output value is equal to or more than the rate alarm upper limit value (%/s) or that is equal to or less than the rate alarm lower limit value (%/s), an alert is output.	
Maximum value/minimum value hold function		The maximum and minimum of digital output values or scaling values are stored to the buffer memory for each channel.	
Logging function		A digital output value or scaling value can be logged. 5000 data can be logged for each channel.	
Set value backup function		Set values in the buffer memory can be backed up into the non-volatile memory. Since backup data are restored at the next start-up, programs for initial settings are not required after the set value backup function was executed.	
Default setting registration function		Values in the buffer memory can be changed back to the default.	

## Performance Specifications

Item		Specifications		
		Q68CT		
Number of input points		8 points (8 channels)		
Operation method		Effective value operation		
Input range		0 to 5A AC, 0 to 50A AC, 0 to 100A AC, 0 to 200A AC, 0 to 400A AC, 0 to 600A AC		
Digital output	Converted current value	0 to 12000		
	Scaling value	-32768 to 32767		
Input frequency		50/60Hz		
Excessive input		200% for 1 minute, 150% for continuous time		
I/O characteristics, maximum resolution		Input range	Digital output value	Maximum resolution
		0 to 5A AC	0 to 10000	0.5mA
		0 to 50A AC		5mA
		0 to 100A AC		10mA
		0 to 200A AC		20mA
		0 to 400A AC		40mA
0 to 600A AC	60mA			
Accuracy (accuracy for the maximum digital output value) <sup>1,2</sup>	Ambient temperature 25 ± 5°C	Within ±0.5% (±50 digits)		
	Ambient temperature 0 to 55°C	Within ±1.0% (±100 digits)		
Sampling cycle <sup>3</sup>		10ms/8CH, 20ms/8CH, 50ms/8CH, 100ms/8CH		
Response time <sup>4</sup>		0.4s or less		
Number of access to the non-volatile memory		Up to 10 <sup>12</sup> times		
Isolation method		Between input terminals and the programmable controller power supply: Transformer Between input channels: No isolation		
Dielectric withstand voltage		Between I/O terminals and the programmable controller power supply: 1500V ACrms for 1 minute		
Insulation resistance		Between I/O terminals and the programmable controller power supply: 500V DC 10MΩ or higher		
Number of occupied I/O points		16 points (I/O assignment: 16 points for intelligent)		
External connection system		18-point terminal block		
Applicable wire size		0.3 to 0.75mm <sup>2</sup>		
Applicable solderless terminal		R1.25-3 (Do not use a solderless terminal with an insulation sleeve.)		
Internal current consumption (5V DC)		0.35A		
Weight		0.19kg		

<sup>1</sup> Except in case when the CT input module is influenced by noise.

<sup>2</sup> The accuracy when a CT is connected is a sum of the CT input module's accuracy and the CT's accuracy. The following is the formula to calculate accuracy.

(Accuracy) = (Accuracy of the CT input module) + (Accuracy of the CT to be used)

For the accuracy of the CT to be used, contact its manufacturer.

<sup>3</sup> The default value is 10ms/8CH.

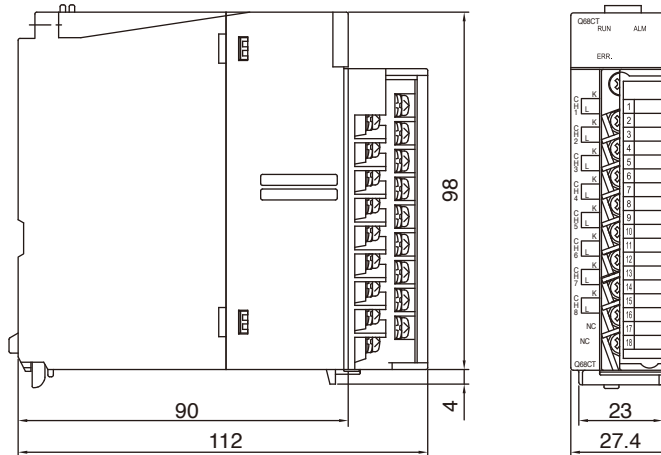
<sup>4</sup> Response time complies with IEC 60688. The larger one of the following.

· The time from when the CT input changes from 0 to 90% till when the converted digital value reaches 90% ± 1%

· The time from when the CT input changes from 100 to 10% till when the converted digital value reaches 10% ± 1%

# External Dimensions

## Q68CT



Unit: mm

## Product List

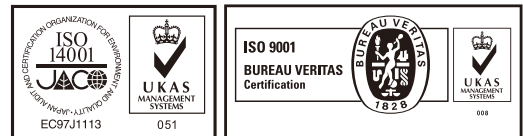
Product name	Model
CT input module	Q68CT

### Connectable CT sensors

Model name	Manufacturer	Analog input range	Model name	Manufacturer	Analog input range
EMU-CT50	Mitsubishi Electric Corporation	0 to 50A AC	CTL-10-3FC	U.R.D. Co., Ltd. (introduced products)	0 to 5A AC, 0 to 50A AC
EMU-CT100		0 to 100A AC	CTL-16-3FC		0 to 100A AC
EMU-CT400		0 to 400A AC	CTL-24-3FC		0 to 200A AC
EMU-CT600		0 to 600A AC	CTL-36-6SC		0 to 400A AC
CTF-5A	Multi Measuring Instruments Co., Ltd. (introduced products)	0 to 5A AC	CTL-36-9SC		0 to 600A AC
CTF-50A		0 to 50A AC			
CTF-100A		0 to 100A AC			
CTF-200A		0 to 200A AC			
CTF-400A		0 to 400A AC			
CTF-600A		0 to 600A AC			

\* Refer to the manual for details on connecting the cables etc.

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