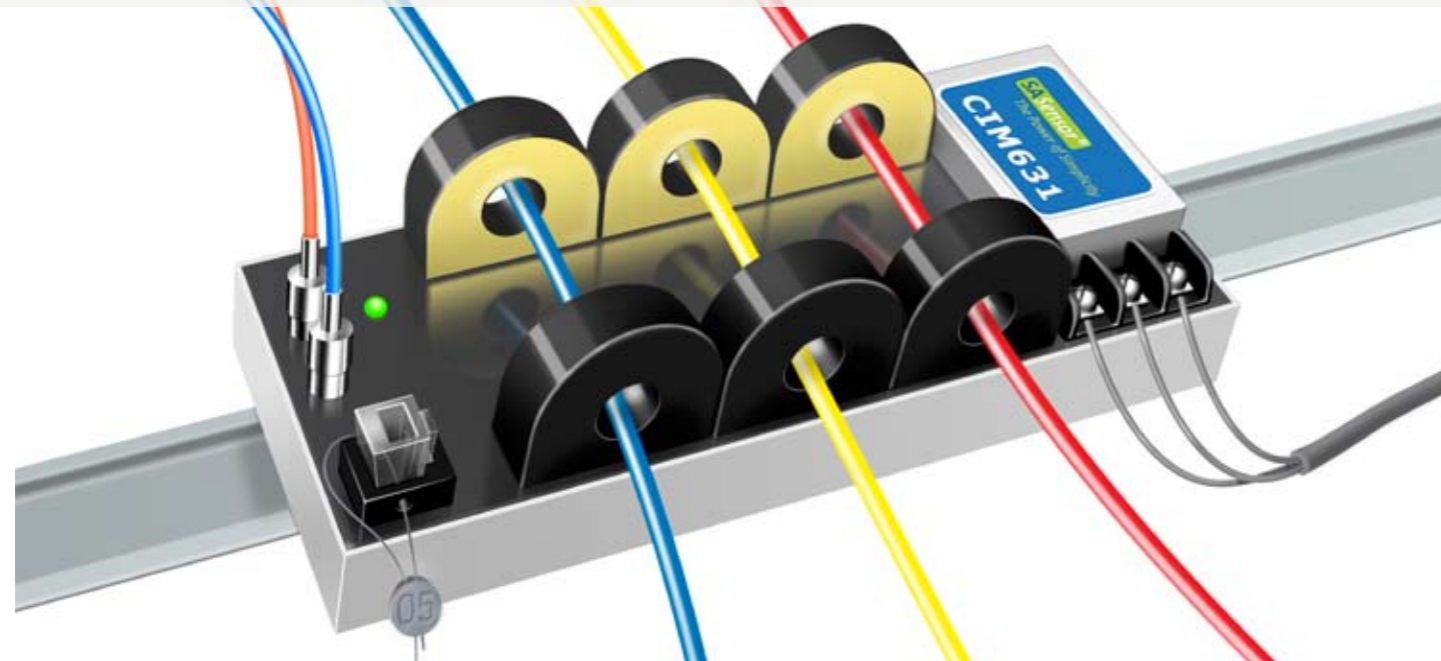


Current Interface Module (CIM)

One device for short-circuit and metering currents



The Current Interface Module (CIM) measures and digitizes the three phase currents supplied by the secondary windings of a conventional current transformer (CT). The digitized signals from the CIM contain all information of the original secondary currents over their full dynamic range.

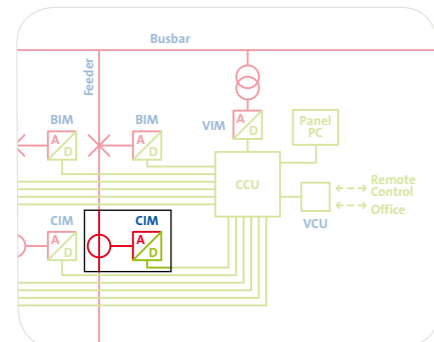
The measuring range is defined from 1 mA to 500 A (secondary). The guaranteed accuracy is defined from 10 mA to 300 A. To facilitate the extreme wide value range, the CIM is equipped with two input cores per phase. The first (M) core is called the measurement input and the second core (P) is called the protection input. It communicates by fiber

optic Ethernet to the SASensor computing devices.

The CIM features:

- Three phase current inputs to obtain 3-phase and neutral measurements.
- Two ports of 100Base-FX Fast Ethernet with ST connector for optical fibre with only one strand for transmit.
- Power supply capable for wide input AC and DC voltage range.
- Status LED.

The CIM is designed for long life and maintenance free operation.



The SASensor Current Interface Module can be connected to all conventional current transformers.



Current Interface Module (CIM)

Robust design for long life

Designed for a optimized operational life

The CIM is robustly designed for a long life and is ready for future application functions. The overwhelming functional properties will not limit future functions executing in the SASensor computing devices. The installed base of interface modules can remain untouched even if new functions are required. This saves the cost and risks of primary outage, time consuming engineering and site installation work.

Three phases

The CIM is connected to conventional current transformers (CTs). The secondary side of the CTs is wired contact-less through the input cores of the CIM. No extra termination is created, therefore improving the reliability of the connection.

Full range, Accurate & Dynamic

The CIM is equipped with double AD-converters to obtain a large measurement range from 1 mA to 500 A. The dynamic specification of the CIM enable functions like power quality measurements, protection functions and disturbance recording. The CIM is calibrated to compensate for value and phase errors. This makes the CIM suitable for revenue metering applications.

CIM631's waiting in the factory to be calibrated.



Current Interface Module (CIM)

High precision in measuring, monitoring and protection

Protection and high precision measurement in one device

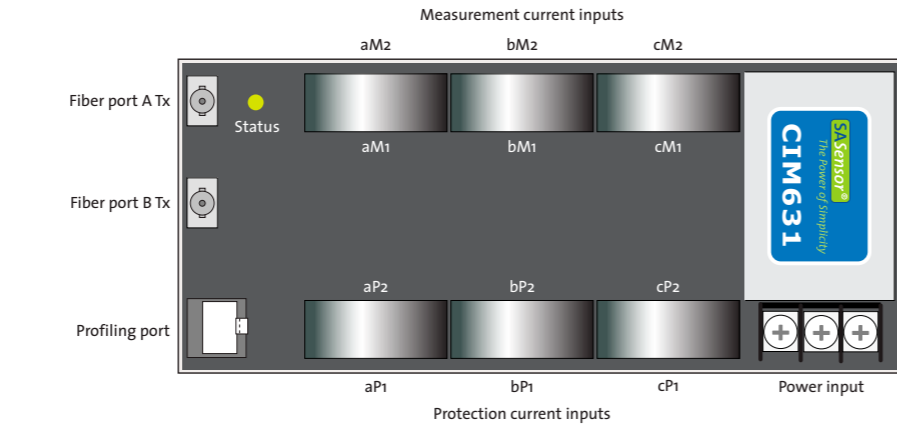
The CIM has two current input channels per phase: *Protection current inputs* and *Measurement current inputs*. The inputs consist of 3 x 2 input cores that enable contact-less measurements over the full dynamic range of the secondary current in both 50 Hz and 60 Hz power systems.

From signal processing point of view the inputs are identically handled in the software. The measuring ranges are different with a reasonable area of overlap.

The CIM hold its own calibration tables to compensate for non-linearity in value and phase displacement over the specified temperature, frequency and defined measurement range.

The CIM can be connected in two ways to the secondary winding of a conventional CT:

1. The M core of the CT is connected to the measurement input and the P core of the CT is connected to the protection input.



2. The P core of the CT is connected to both the measurement and protection input in series.

Protection current input

High range Protection inputs with

- dynamic range from 100 mA - 500 A.
- typical accuracy defined from 500 mA - 300 A.

Measurement current input

Low range Measurement inputs with

- dynamic range from 1 mA - 7.2 A.
- typical accuracy defined from 10 mA - 7.0 A.

Outside the defined accuracy range, the measurements values are more indicative due to noise in the low area and influence of saturation in the high range.

No time sync

The CIM works with a free running clock. Internal time delays are measured during calibration. Functional software in the computing device will resample the raw data and compensate for time delays.

Simplex fiber optic connection

The connection of the CIM to the SA Sensor computing devices is just a transmitting single Ethernet fiber. The Ethernet port is dual redundant to cater for redundancy of the computing devices.

Current inputs	
Number of phases	3
Current inputs	Contact-less (wire through)
Bandwidth	10 ... 3840 Hz (-3dB)
Measurement inputs:	
* Dynamic range	1 mA ... 7.2 A
* Accuracy defined	10 mA ... 7.0 A
Protection inputs:	
* Dynamic range	100 mA ... 300 A
* Accuracy defined	500 mA ... 300 A
L/H range switching of protection inputs:	
* upgoing range	125 A
* downgoing range	80 A

Power supply input	
DC input range	38 V ... 275 V
AC input range	88 V ... 265 V
Frequency	DC, 50 Hz and 60 Hz
Max. power consumption	2 W
Connector type	3-Pole screw terminal
DC input protection	Insensitive for input polarity
Hold-up time	50 ms
Frequency	DC, 50 Hz and 60 Hz

Mechanical	
Dimensions (L x W x H)	194 x 88 x 45 mm
Required height	110 mm
Weight	0.75 kg

Electromagnetic compatibility				
Test	Standard	Enclosure	PSU	CT IN
Electrostatic discharge	IEC 61000-4-2	6 kV contact 8 kV air		
RF immunity radiated	IEC 61000-4-3	10 V/m		
Fast transient	IEC 61000-4-4	4 kV	4 kV	4 kV
Surge	IEC 61000-4-5		2 kV LE, 2 kV LL	4 kV LE
RF immunity conducted	IEC 61000-4-6	10 V	10 V	10 V
PF magnetic field	IEC 61000-4-7	100 A/m cont		
Dips	IEC 61000-4-11		0, 30, 60 %	
Interruptions	IEC 61000-4-11		100 %	
Variations	IEC 61000-4-11		+35 ... -20%	
100 kHz, 1 MHz oscillatory wave	IEC 61000-4-12 IEC 61000-4-18		2.5 kV CM 1.0 kV DM	2.5 kV CM 1.0 kV DM
Ripple	IEC 61000-4-17		12% Un	

Electromagnetic emission				
Test	Standard	Enclosure	PSU	CT IN
Radiated	IEC 61000-6-4 CISPR 22		Class A	
Conducted	IEC 61000-6-4 CISPR 22		Class A	

Climatic conditions				
Test	Standard	Enclosure	PSU	CT IN
Operating temperature	IEC 60068-2-1 IEC 60068-2-2		0 ... +55 °C	
Storage temperature	IEC 60068-2-1 IEC 60068-2-2		-10 ... +70 °C	
Humidity	IEC 60068-2-78		+40°C, 93% r.h., 10 days	

Mechanical conditions				
Test	Standard	Enclosure	PSU	CT IN
Vibration	IEC 60068-2-6		Class 1	
Shock	IEC 60068-2-31		Class 1	

