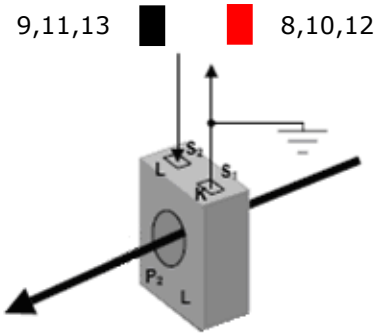
Installation of Current Transformers

Most fixed current transformers are labelled as shown below, one side P1-K and the other P2-L.

With current entering from P1 side as shown below the signal is from S1 through the instrument to S2.



The numbers shown above (9,11,13 and 8,10,12) corresponds to the points of connection on ClimaCheck EP Pro Power meter (EM24).

Voltage is connected to 31, 32, 33 for L1, L2 and L3. Neutral is connected to 41. (Systems without neutral can be measure with adapted settings and if necessary a separate supply voltage.)

The EP Pro Power Meter has to be configured with the current ratio of the transformers used. Please refer to the ClimaCheck EP Pro Manual for this operation.

Note that connection must be 100% correct for proper result. Always check voltage, currents, power factor and power for logical values versus expected load.

Always use as short cables as possible with large area to minimize resistance between meter and transformers. The used conductor area and length have a vital impact on the accuracy of the measurement as the equipment allows some burden in the connection, but if the specified burden is exceeded it will have a big effect on the result. The burden depends on the size of the current and cable resistance and can be calculated with the following formula:

The measured circuits total burden

$$VA = VA_L + VA_{I1} + VA_{I2} + \cdots + VA_{In}$$

Where VA = total burden
VA_{I1} = Burden in instrument 1 to n

Burden for EP Pro I/FI and II/FII 1/5(10)A < 0.3VA

In the measuring circuit the conductor burden VA_L shall be included. See table below for some given sizes/length.

Area (mm²)	Conductor burden depending on lenght (m) and secondary current (5A / 1A)										
	1	2	4	6	8	10	15	20	30	40	50
2 x 0,5	1,750 / 0,070	3,500 / 0,140	7,000 / 0,280	10,500 / 0,420	- / 0,560	- / 0,700	- / 1,050	- / 1,400	- / 2,100	- / 2,800	- / 3,500
2 x 0,75	1,167 / 0,047	2,333 / 0,093	4,667 / 0,187	7,000 / 0,280	9,333 / 0,373	- / 0,467	- / 0,700	- / 0,933	- / 1,400	- / 1,867	- / 2,333
2 x 1,0	0,875 / 0,035	1,750 / 0,070	3,500 / 0,140	5,250 / 0,210	7,000 / 0,280	8,750 / 0,350	- / 0,525	- / 0,700	- / 1,050	- / 1,400	- / 1,750
2 x 1,5	0,583 / 0,023	1,167 / 0,047	2,333 / 0,093	3,500 / 0,140	4,667 / 0,187	5,833 / 0,233	8,750 / 0,350	- / 0,467	- / 0,700	- / 0,933	- / 1,167
2 x 2,5	0,350 / 0,014	0,700 / 0,028	1,400 / 0,056	2,100 / 0,084	2,800 / 0,112	3,500 / 0,140	5,250 / 0,210	7,000 / 0,280	10,500 / 0,420	- / 0,560	- / 0,700
2 x 4,0	0,219 / 0,009	0,438 / 0,018	0,875 / 0,035	1,313 / 0,053	1,750 / 0,070	2,188 / 0,088	3,281 / 0,131	4,375 / 0,175	6,563 / 0,263	8,750 / 0,350	- / 0,438
2 x 6,0	0,146 / 0,006	0,292 / 0,012	0,583 / 0,023	0,875 / 0,035	1,167 / 0,047	1,458 / 0,058	2,188 / 0,088	2,917 / 0,117	4,375 / 0,175	5,833 / 0,233	7,292 / 0,292

Conductor burden can also be calculated with the following formula:

$$VA_L = \frac{0{,}0175x * 2D * I^2}{Cu}$$

Where D = conductor length between meter and current transformer
I = secondary rated current
Cu = conductor area (mm)

The specified burden for the standard ClimaCheck CT's can be found in the tables below:

Model CTD-1X from 50A to 100A			
Primary Current	Burden (VA)		
A	CL 0.5	CL 1	CL 3
50		1	1.25
60		1	1.25
70		1.5	1.75
75	1	1.25	1.75
80	1.25	1.5	2
100	1.5	1.75	2.25

Model CTD-1X from 120A to 300A			
Primary Current	Burden (VA)		
A	CL 0.5	CL 1	CL 3
120	1.75	2	2.5
125	2	2.25	2.75
150	2.25	2.5	3
160	2.5	2.75	3.25
200	3	3.25	3.75
250	4.5	4.75	5.25
300	5	5.5	6

Range Table

Model CTD-3X from 50A to 200A			
Primary Current	Burden (VA)		
A	CL 0.5	CL 1	CL 3
50			1.75
60			2
70			2.5
75			3
80			3
100		2	3.5
120		2.25	4
125		2.5	4.5
150	2.25	3	6
160	2.5	3.5	6.5
200	3	4.5	8.5

Model CTD-3X from 250A to 1200A			
Primary Current	Burden (VA)		
A	CL 0.5	CL 1	CL 3
250	3.5	6.5	10.5
300	7	10	13
400	9	14	17
500	14	18	21
600	17	21	24
700	22	26	29
750	24	28	31
800	25	29	32
1000	35	39	42
1200	40	44	47

Model CTD-2X from 40A to 125A			
Primary Current	Burden (VA)		
A	CL 0.5	CL 1	CL 3
40			1.25
50			1.5
60			2
70			2.5
75		1.75	2.5
80		2	2.75
100		2.5	3
120		2.75	3.75
125	2	2.75	3.75

Model CTD-2X from 150A to 600A			
Primary Current	Burden (VA)		
A	CL 0.5	CL 1	CL 3
150	3	4	5
160	3	4	5
200	4	5	6.5
250	5.5	7	8
300	7	8.5	9.5
400	12	13.5	14.5
500	14	15.5	16.5
600	17.5	19	20