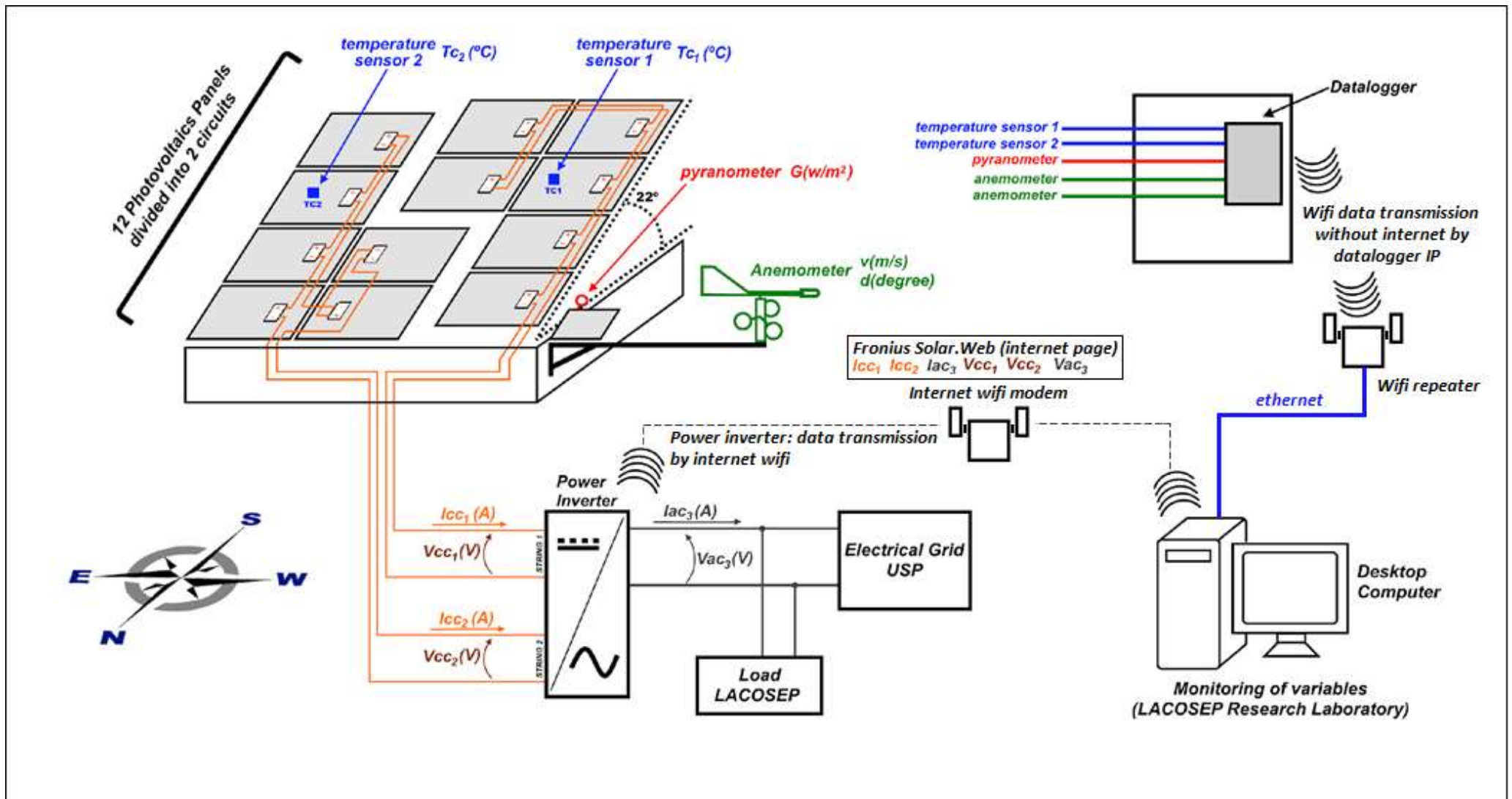


# Schematic of LACOSEP Photovoltaic Power and Meteorological Monitoring System



## Nomenclature:

Timestamp = data (dd/mm/yyyy) and hour (hh:mm)

$T_{c1}$  = Panels temperature of circuit 1 ( $^{\circ}\text{C}$ )

$T_{c2}$  = Panels temperature of circuit 2 ( $^{\circ}\text{C}$ )

$v$  = Wind speed (m/s)

$d$  = Wind direction (degree)

$G$  = Solar radiation ( $\text{W}/\text{m}^2$ )

$I_{cc1}$  = DC current (A) of circuit 1

$I_{cc2}$  = DC current (A) of circuit 2

$V_{cc1}$  = DC voltage (V) of circuit 1

$V_{cc2}$  = DC voltage (V) of circuit 2

$P_{cc1}$  = DC power (W) of circuit 1 obtained by  $V_{cc1} * I_{cc1}$

$P_{cc2}$  = DC power (W) of circuit 2 obtained by  $V_{cc2} * I_{cc2}$

$I_{ac3}$  = AC current (A) output of power inverter

$V_{ac3}$  = AC voltage (V) output of power inverter

$E_{c1}$  = Power energy (Wh) of circuit 1

$E_{c2}$  = Power energy (Wh) of circuit 2

$E_t$  = Total power energy (Wh) obtained by  $E_{c1} + E_{c2}$

$T$  = Ambient temperature ( $^{\circ}\text{C}$ )

$RH$  = Relative Humidity (%)

INMET = National Institute of Meteorology (<http://www.inmet.gov.br/>)

Observation: The power inverter power factor is  $\cos\Phi = 1$ , therefore the AC output of power inverter is:  $P_{ac3} = I_{ac3} * V_{ac3} * \cos\Phi$

LACOSEP photovoltaic system monthly report

Photovoltaic Power and Meteorological Measurements

(Data from São Paulo University in São Carlos/SP)

Timestamp (date, hour)	Tc <sub>1</sub> (°C)	Tc <sub>2</sub> (°C)	v (m/s)	d (degree)	G (W/m <sup>2</sup> )	Icc <sub>1</sub> (A)	Icc <sub>2</sub> (A)	Vcc <sub>1</sub> (V)	Vcc <sub>2</sub> (V)	Pcc <sub>1</sub> (W)	Pcc <sub>2</sub> (W)	Iac <sub>3</sub> (A)	Vac <sub>3</sub> (V)	E <sub>c1</sub> (Wh)	E <sub>c2</sub> (Wh)	E <sub>ct</sub> (Wh)

INMET Measurements

(Data from São Carlos/SP)

Timestamp (date, hour)	T (°C)	RH (%)	G (W/m <sup>2</sup> )