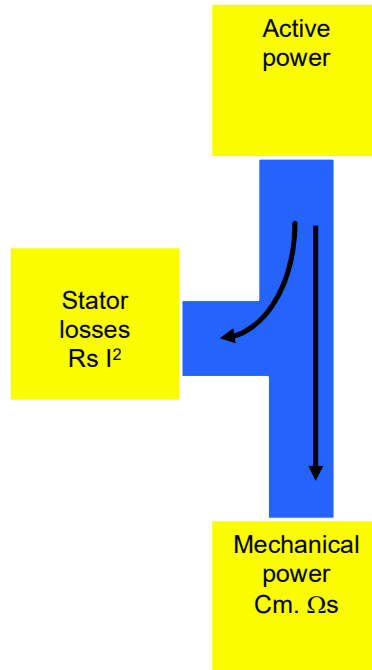
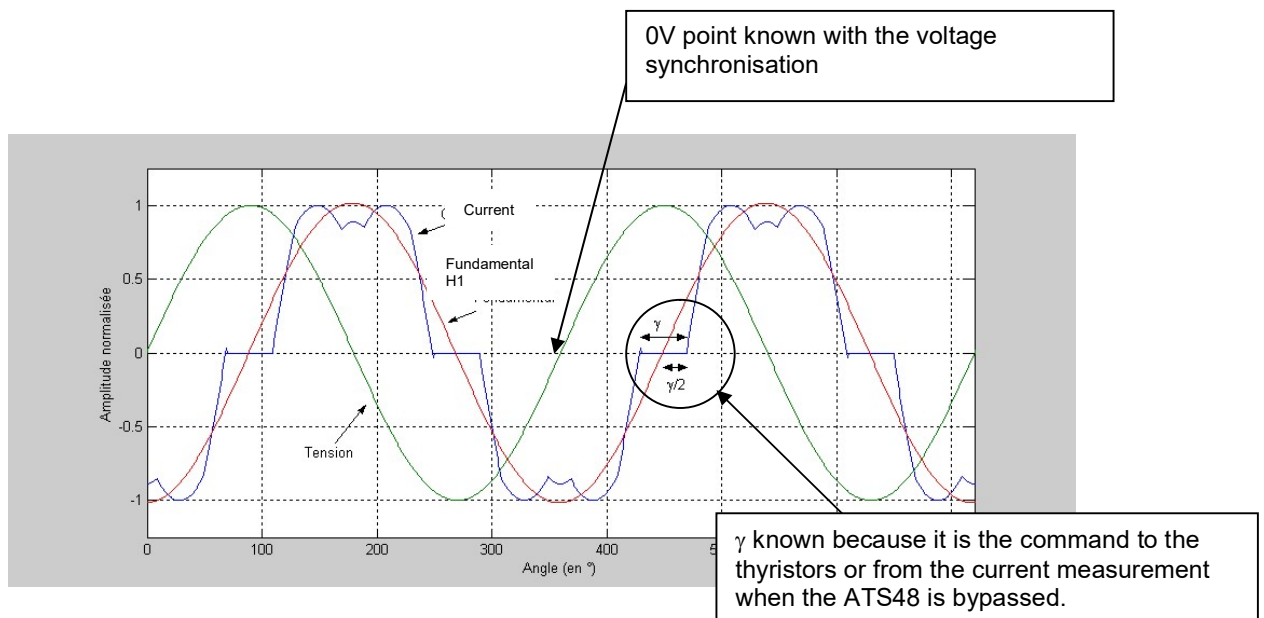


ATS48 AO Analog output assignment calculation & scale

- **Motor current OCr** -> Directly from the current measurement of the ATS48
- **Motor torque Otr** -> proportional to the power at steady state when the starting time is finished. During acceleration or deceleration, the stator losses are taken into account.



- **Motor thermal state Oth** -> $(\text{current measured}/I_N)^2$ and filters calculation to take into account the thermal constants time and the class (tHr parameter) of the motor.
- **Cosinus phi OCO** -> OV point known with the voltage synchronisation and γ known with the current measurement. The angle φ between the voltage and the fundamental H1 is known. So, $\text{Cos}\varphi$ is known.



- **Active Power OPr** -> $100 \cdot [(LCR \text{ parameter value} \cdot \text{Cos}\varphi \text{ calculated OCO}) / (I_N \text{ parameter value} \cdot \text{Cos}\varphi \text{ nominal})]$.
 $\text{Cos}\varphi \text{ nominal}$ is not visible by the customer (inside the memory of the product).

AO scale

Parameter X on AO		Min Max values depending on ASC parameter	Output on AO	
			0-20mA : $I_s = 20 \text{ mA} \cdot \frac{X(\%)}{ASC}$	4-20mA : $I_s = 16 \text{ mA} \cdot \frac{X(\%)}{ASC} + 4 \text{ mA}$
Motor current	Min	0	0 mA	4 mA
	Max	$\geq ASC/100 \cdot I_N^*$	20 mA	20 mA
Motor torque	Min	0	0 mA	4 mA
	Max	$\geq ASC$	20 mA	20 mA
Motor thermal state	Min	0	0 mA	4 mA
	Max	$\geq ASC$	20 mA	20 mA
Cosφ	Min	0	0 mA	4 mA
	Max	$\geq ASC$	20 mA	20 mA
Active power	Min	0	0 mA	4 mA
	Max	$\geq ASC$	20 mA	20 mA

* I_N : motor nominal current which is a parameter to set.