

Setting reverse power 32R pick-up value for VAMP 230/255/257/259

The relay will show the pick-up value in input kilowatts, but the setting is done in percent of the nominal apparent power S_N .

$$S_N = CT_{Rated\ Primary} \cdot VT_{Rated\ Primary} \cdot \sqrt{3}$$

Example

Let us say that the pick-up target value for reverse power stage P< 32R is -5 % of the rated active input power of the motor.

Motor data:

Rated current $I_{MOT} = 385\text{ A}$

Rated voltage $U_{MOT} = 6000\text{ V}$

Power factor $\cos\varphi = 0.8$

Current and voltage transformers:

CT = 400/5

VT = 6600/120

First we calculate the nominal apparent power

$$S_N = 400 \cdot 6600 \cdot \sqrt{3} = 4572.6\text{ kVA}$$

and then the rated active input power

$$P_{Input} = I_{MOT} \cdot U_{MOT} \cdot \sqrt{3} \cdot \cos\varphi = 3200.8\text{ kW}$$

The -5 % pick-up setting will be in input kilowatts

$$\begin{aligned} P_{InputReverse} &= -5\% \cdot P_{Input} = -0.05 \cdot 3200.8\text{ kW} \\ &= -160.04\text{ kW}. \end{aligned}$$

The pick-up setting for the relay will be

$$P_{<Setting} = \frac{P_{InputReverse}}{S_N} = -\frac{160.04}{4572.6} = -0.035$$
$$= -3.5\%$$

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