

RTPC

Generation \sim

Demodulation \otimes

$$f_{\text{sampling}} = 50\text{kHz}$$

$$f = 10\text{kHz}$$

$$V = \sin(2\pi ft)$$

Phase
tuning

ϕ_0

V_{CPS}

CPS_REF

ϕ

CPS_LINE_RAW

CPS_1_H_RAW

DAQBOX

DAC

ADC

Lab

Input
amplification

Output
differential &
amplification

Vacuum

C_L

C_R

EM

$$V_{\text{CPS}} = \text{Real} \left(V_{\text{out}} \cdot e^{i2\pi ft + \phi + \phi_0} \right) \longrightarrow x = \text{Gain}(x) \cdot V_{\text{CPS}}$$