

DETAILED CONTROL PLATFORM SPECIFICATIONS FOR MICROGRID TESTBED SETUP

Technical Specifications:

- ❖ **Number of ADCs = 40**, with at least **8** simultaneous (≥ 250 kSPS) high-speed acquisition of the channel signals.
 - ADC input signal range = ± 10 volts.
 - Availability of check/testing points at the output of every ADC.
 - Provision to add/access additional ADCs externally.

- ❖ **Number of DACs = 32**
 - DAC Output voltage range = bipolar with ± 10 volts.
 - Update rate should be ≥ 350 kSPS.

- ❖ **Encoder: 06**
- ❖ **Number of Digital I/Os = 56**
 - Range= 0 to 5 volts (OR) Optically isolated ± 15 volts output.

- ❖ **Number of PWMs = 32**
 - PWM generation blocks with speeds around ≥ 100 kHz is desirable.
 - The sampling of ramp signal in PWM block: 20 times the PWM frequency (≥ 2 MHz).

- ❖ **Loop Speed**
 - A system with 2 three-phase inverters, 7 DC-DC converters with fairly medium size algorithm to control them with sampling time of $10 \mu\text{s}$ (100 kHz).
 - All hardware setup is outside the digital platform such as transducers, inverters and DC-DC converters.
 - The digital platform should acquire all necessary input signals, process them fast in the loop speed of 1-10 μs .
 - All the control signals (sensor outputs) should be able to access with the necessary check points.

- ❖ **Communication Platform**
 - Communications between different DSP / dSPACE / OPAL-RT/Sb-Rio or any other controllers are required while interacting various Microgrids.

- ❖ **Miscellaneous:** Necessary software, cables, connectors and other accessories should be provided.

❖ **Additional Requirements:**

- Control platform should have a provision to extend ADCs count to 64, PWMs to 48 in future.

Note to Vendors:

1. Representatives/Distributors quoting on behalf of OEM should submit authorization certificate specific to this tender and the tender number should be mentioned in the authorization letter from OEM with the quotation.
2. The bid should be accompanied with detailed product specifications and relevant datasheets supporting the compliance with the required specifications.
3. Product should be supplied with a warranty, minimum of 5 years from the date of installation.