REQUEST #RFP_2019_0163
Integrated module of terminal block and CT core

RESPONSE DUE DATE: January 10, 2020

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Opportunity
Joint/contract development, technology licensing, product supply

Timeline
Phase 1: Proof of Concept: within 6 months
Phase 2: Performance Verification: within 3 months after phase 1
Phase 3: Preparation for mass production: within 1 year after phase 2

Financials
Necessary development expense will be covered (Details to be discussed).

DESCRIPTION
NineSigma, representing a global industrial equipment manufacturer ("Client"), seeks integrated module of terminal block and current transformer (CT) core with high robustness and safety for digital relay and digital metering device. The client would like to seek a development partner for the target below.

Development Target
The main purpose of this project is not to develop a single product of CT and Terminal Block, but to develop a module that combines CT and Terminal Block. The target is to develop an integrated module that satisfies the following:

• Robustness against large current
  ○ Continuous current rating
    ▪ Up to 10A
  ○ There should be no abnormality even if a current of 500A is applied for 1 sec.
  ○ There should be no abnormality even if a current of 150A is applied for 10 sec.

• Safety
  ○ To be safe if the integrated module is disconnected from PCB while primary current applied.
  ○ To meet UL safety standard

• CT Core will be provided by Client
  ○ Provided CT Specifications:
    ▪ Measuring range of the primary current: 0.1 ~ 250A
    ▪ Continuous current rating: Up to 10A
    ▪ Good linearity: 0.1% or less
    ▪ Low measurement variation: 0.1% or less

Although the Client seeks CT and terminal block that can meet the above-listed requirements, it is not necessary for all of them to be met at this point. We accept proposals that will likely be verified at a lab level through additional development within 6 to 9 months.

POSSIBLE APPROACHES
The Client expects technologies such as the following approaches, but is open to others:

• Connection method of Terminal block
  ○ Screw type (Mandatory)
  ○ Push-in type (Optional)
BACKGROUND
The Client engages in the development of integrated module of terminal block and CT core for digital relay and digital metering device applications in the smart energy field. In order to apply to these applications, safety and robustness against high current and measurement accuracy of the module are required. The integrated module will be used inside digital relay and digital metering device.

To establish a development of integrated module of terminal block and CT core such as customization of conventional products, etc. have been tried. However, there are problems with safety and robustness against high current, etc., As a result, the required characteristics have not been achieved.

Therefore, the Client has decided to make this RFP to quickly identify a high-performance product or a prospective technology development partner, aiming at solving the technological challenges and putting the technology to practical use at an early stage.

ITEMS TO BE SUBMITTED
Please include the following items in your proposal:

- Overview and principle of proposed technology
- Characteristics and uniqueness of the technology
- Development stage: lab level verification, under development for practical use, or implemented for practical use
- Current performance (If NOT use provided CT core)
  - CT core
    - Material
    - Structure type
  - Measurement range of current
  - Current linearity (%)
  - Measurement variation (%)
  - Robustness against 500A current for 1 sec./150A current for 10 sec.
  - Size
- Expected challenges in this project
- Future development plan to achieve the client’s requirements
- Past results (e.g. research papers, patents)
- Profile of proposer

Please submit your proposal via NineSights, the platform of NineSigma’s Open Innovation community, which allows you to manage all your proposals. Please contact the Solution Provider Help Desk phd2@ninesigma.com for assistance about registration and proposal submission.

NOTES ON RESPONSE
Proposal shall have clear points and should not include confidential information. Supplemental files may be submitted in addition to the proposal.

RESPONSE EVALUATION
The client will evaluate all responses with the following criteria.
- Overall scientific and technical merit
- Approach to proof of concept or performance
- Economic potential of concept
- Realism of the proposed plan (action items, timeline, roles, deliverables, cost estimation)
- Potential for proprietary position
- Respondents’ capability and related experiences

ANTICIPATED PROJECT PROCESS
After the submission due date, the client will review all submitted proposals. NineSigma will send the review results to each proposer 6-8 weeks after the due date. The client possibly asks clarifying questions before selecting the most suitable candidates for collaboration. The client will select best candidates through evaluations. During the selection process, the client may execute NDA with selected respondents, seek further information disclosure, and discuss specific development targets or potential opportunities. The client will execute necessary agreements with the selected respondents and move to the advanced development phase. Specifics of any collaboration will be determined through consultation with the concerned parties.