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प्लाज़्मा अनुसंधान संस्थान
INSTITUTE FOR PLASMA RESEARCH
परमाणु ऊर्जा विभाग, भारत सरकार का एक सहायता



प्राप्त संस्थान

An Aided Institute of Department of Atomic Energy,
Government of India

इन्दिरा पुल के पास, भाट, गांधीनगर - 382 428 भारत

दूरभाष: (079) 2396 2020/2021/2028

फैक्स: 91-079-23962277

वेब: www.ipr.res.in

NEAR INDIRA BRIDGE, BHAT

DIST. GANDHINAGAR - 382 428 (INDIA)

Phone: (079) 2396 2020/2021/2028

Fax : 91-079-23962277

Web : www.ipr.res.in

ENQUIRY

ENQUIRY NO : IPR/EQL/18-19/457

Date : 06-03-2019

Due on : 23-05-2019 by 1:00 PM IST

Reminder-1 Dt: 08-04-2019

Reminder-2 Dt: 26-04-2019

Please send your offer in sealed envelope specifying Enquiry No, Date & Due Date,
ALONG WITH your credentials for the following items:

Important Note:

Please note that e-mail quotations are not acceptable however you may send your
queries (if any) to localpurchase@ipr.res.in

Please ensure your sealed quotation reaches this office not later than above mentioned
due date and time.

Kindly go through the following documents properly before quoting which are available on
the IPR web portal i.e., http://www.ipr.res.in/documents/tender_terms.html / attached
herewith.

- 1) Instructions to the bidders & Terms and conditions (refer Form No: **IPR-LP-01.V4**)
- 2) Bidding format

GST for Goods and Services (IGST/CGST/SGST TAX BENEFITS): Please refer **clause
no: 8** of Form No: **IPR-LP-01.V4**

QUOTATION SHOULD BE ADDRESSED TO PURCHASE OFFICER ONLY

Sr No	Description	Quantity
1	Stepper motor System as per attached specification sheet	1.0 Nos.

Note: Note : (1) Unsigned quotations are not acceptable.
Quotation should be submitted duly signed on ALL PAGES
invariably
(2) TDS as per CGST Act : As per provisions of section
No. 51 of the CGST Act 2017, TDS @ 2% (IGST 2% or
CGST 1% and SGST 1%) will be deducted while making
payment to the suppliers where total value of
orders/contracts/work orders exceeds Rs. 2.5 Lakhs, in
the event of order in Indian Rupees

Encl: As Per Attachment

Sd/-

Mr. D. Ramesh
Purchase Officer-II

Information to Vendors: We are working towards a single platform for our future requirement. Hence, please refer IPR website i.e,
<http://www.ipr.res.in/documents/tenderseng.html> for our future requirement.

Technical specification for stepper motor system

A. Hardware

1. HMI

Sr.no.	Parameter	Specifications
a.	Type	Touch panel screen
b.	Display	Colour
c.	Size	≥ 7 inch
d.	Supply voltage	≥ 24v DC
e.	Resolution	≥ 800 X 480 pixel

2. Communication cable (HMI to Control system)

Sr.no.	Parameter	Specifications
a.	Cable Type	Ethernet cable, CAT5 cable or best
b.	Shielding	Outer
c.	Cable length	50mtr

3. Control system (PLC)

A. CPU

Sr.no.	Parameter	Specifications
a.	User memory	≥ 12 KB program memory, ≥ 8 KB data memory
b.	On board digital I/O	12 input points, 8 output points
c.	I/O module extension	6 extension modules
d.	Memory	Micro SDHC card

B. Communications

Sr.no.	Parameter	Specifications
a.	Communication port required	1 Ethernet port
b.	Data transmission rate	Ethernet: 10/100 Mb/s

C. Power source

Sr.no.	Parameter	Specifications
a.	Input voltage	230V AC, 50Hz
b.	Output	24V, ≥ 5A

c.	Protection	Overload, short circuit, over voltage.
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D. Digital input Modules

Sr.no.	Parameter	Specifications
a.	Number of input points	14
b.	Rated voltage	≥ 24V DC, ≥ 4 mA,
c.	Logic 1 signal (min)	15 V DC
d.	Logic 0 signal (min)	5 V DC
e.	Isolation (field side and logic side)	Minimum 500 V AC for 1 min

E. Digital output Modules

Sr.no.	Parameter	Specifications
a.	Number of output	10
b.	Type	Relay
c.	Voltage range	5 ~ 30 V DC
d.	Rated current at each point (max)	≥ 2.0 A
e.	Isolation (field side and logic side)	Minimum 1000 V AC, for 1 min
f.	Isolation resistance	Minimum 100 MΩ
g.	Switching delay	Max. 10 ms

F. Enclosure / Panel Box

Sr.no.	Parameter	Specifications
a.	Material	MS / Aluminium with colour coating
b.	Mounting arrangement	Wall mount
c.	Enclosed units	Control Unit which consist PLC, Driver unit, I/O modules, Power supply etc. (Refer block diagram No. 3)

4. Stepper motor

Sr.no.	Parameter	Specifications
a.	Input voltage	≥ 24VDC
b.	Torque	≥ 13.55 N-cm
c.	Direction	Both (forward -reverse)

d.	Encoder	Yes
e.	Decoder	Yes
f.	Input and signal Cable length	At least 25 meter (For Input supply cable) At least 25 meter (For signal cable)
g.	Quantity	2 Nos.

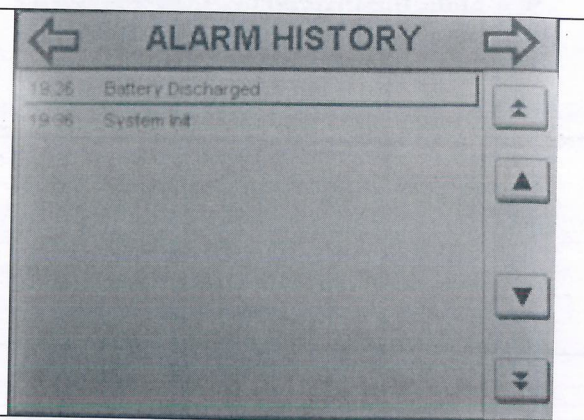
5. Stepper Motor Driver

Sr.no.	Parameter	Specifications
a.	Line supply	230 ± 10% V, 50Hz
b.	Motor Control voltage	≥ 24 VDC
c.	Maximum current (A)	≥ 4A
d.	Protection	Earth fault protection, output short-circuit protection, overvoltage
e.	Degree of protection	IP 20
f.	Digital inputs/outputs	10inputs - NPN/PNP; 6outputs - NPN
g.	Analog outputs	2 Analog outputs, output voltage range +/- 10V, 10bits
h.	Communication	USB/Modbus
i.	Speed control input	External Analog input or internal set point
j.	Torque control input	External Analog input or internal set point

B. CONNECTION BLOCK DIAGRAM

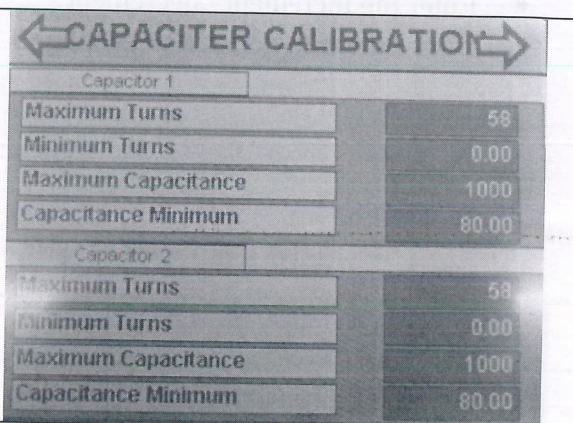
13. Display -13

- View the alarm history
- View in all error, like battery discharge, system initialization interlock, and overload trip.



14. Display -14

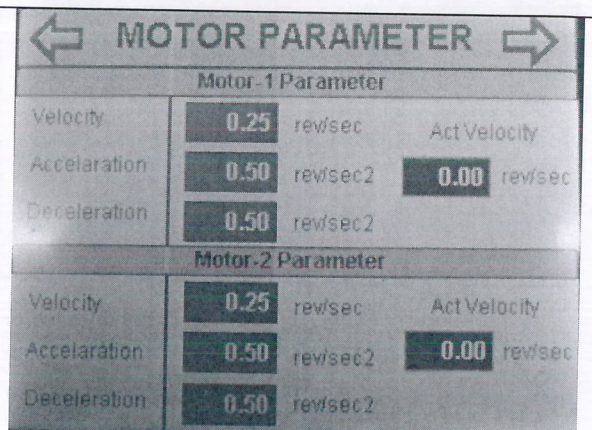
- This display is used for the capacitor calibration function
- Admin password is required for data set/change
- Maximum and minimum value of capacitor and turns for both capacitor C1 and C2 will be entered as Clause B.11



15. Display -15

- This display is used for motor parameter settings
- Admin password is required for data set/change
- Following data set points for both the motors can be changed:

Velocity (rev/sec),
 Acceleration (rev/sec²),
 Deceleration (rev/sec²),
 Actual velocity (rev/sec),



E. Scope of work for Bidder

1. Design, Supply, programming, integration, testing and operation of stepper motor system.
2. Operation and maintenance manual including datasheets / test report / test certificates of important components.
3. Backup of final version of software in CD / USB drive
4. On site demonstration of operation, maintenance and software backup / upgrade to IPR personnel

F. Important instructions to bidders:

1. Party should quote for all the material / components mentioned in this document. Partial quotation will not be considered.
2. Bidder may visit the site before submitting the quotation for any technical clarification, if necessary.

Compliance Form

1. HMI

Sr.no.	Parameter	IPR Specifications	Vendor's Specifications
a.	Type	Touch panel screen	
b.	Display	Colour	
c.	Size	≥ 7 inch	
d.	Supply voltage	≥ 24v DC	
e.	Resolution	≥ 800 X 480 pixel	

2. Communication cable

Sr.no.	Parameter	IPR Specifications	Vendor's Specifications
a.	Cable Type	Ethernet cable, CAT5 cable or best	
b.	Shielding	Outer	
c.	Cable length	50mtr	

3. Control system (PLC)

i. CPU

Sr.no.	Parameter	IPR Specifications	Vendor's Specifications
a.	User memory	≥ 12 KB program memory, ≥ 8 KB data memory	
b.	On board digital I/O	12 input points, 8 output points	
c.	I/O module extension	6 extension modules	
d.	Memory	Micro SDHC card	

ii. Communication

Sr.no.	Parameter	IPR Specifications	Vendor's Specifications
a.	Communication port required	1 Ethernet port	
b.	Data transmission rate	Ethernet: 10/100 Mb/s	

iii. Power source

Sr.no.	Parameter	IPR Specifications	Vendor's Specifications
a.	Input voltage	230V AC, 50Hz	

b.	Output	24V, \geq 5A	
c.	Protection	Overload, short circuit, over voltage.	
iv. Digital input Modules			
Sr.no.	Parameter	IPR Specifications	Vendor's Specifications
a.	Number of input points	14	
b.	Rated voltage	\geq 24V DC, \geq 4 mA,	
c.	Logic 1 signal (min)	15 V DC	
d.	Logic 0 signal (min)	5 V DC	
e.	Isolation (field side and logic side)	Minimum 500 V AC for 1 min	
v. Digital output Modules			
Sr.no.	Parameter	IPR Specifications	Vendor's Specifications
a.	Number of output	10	
b.	Type	Relay	
c.	Voltage range	5 ~ 30 V DC	
d.	Rated current at each point (max)	\geq 2.0 A	
e.	Isolation (field side and logic side)	Minimum 1000 V DC for 1 min	
f.	Isolation resistance	Minimum 100 M Ω	
g.	Switching delay	Max. 10 ms	
vi. Enclosure / Panel Box			
Sr.no.	Parameter	IPR Specifications	Vendor's Specifications
a.	Material	MS / Aluminium with colour coating	
b.	Mounting arrangement	Wall mount	
c.	Enclosed units	Control Unit which consist PLC, Driver unit, I/O modules, Power supply etc. (Refer block diagram No. 3)	

4. Stepper motor

Sr.no.	Parameter	Specifications	Vendor's Specifications
a.	Input voltage	\geq 24VDC	

b.	Torque	≥ 13.55 N-cm	
c.	Direction	Both (forward -reverse)	
d.	Encoder	Yes	
e.	Decoder	Yes	
f.	Input and signal Cable length	At least 25 meter (For Input supply cable) At least 25 meter (For signal cable)	
g.	Quantity	2 Nos.	

5. Stepper Motor Driver

Sr.no.	Parameter	Specifications	Vendor's Specifications
a.	Line supply	230 ± 10% V, 50Hz	
b.	Motor Control voltage	≥ 24 VDC	
c.	Maximum current (A)	≥ 4A	
d.	Protection	Earth fault protection, output short-circuit protection, overvoltage	
e.	Degree of protection	IP 20	
f.	Digital inputs/outputs	10inputs - NPN/PNP; 6outputs - NPN	
g.	Analog outputs	2 Analog outputs, output voltage range +/- 10V, 10bits	
h.	Communication	USB/Modbus	
i.	Speed control input	External Analog input or internal set point	
j.	Torque control input	External Analog input or internal set point	

1. Others

Sr.no.	Parameter	IPR Requirement	Vendor's response
a.	Wiring assembly and Installation	As per the Block diagram (PART-B) mentioned in the specifications	Yes/No
b.	General Requirement of programming	As mentioned in the PART-C & PART-D of the specifications	Yes/No

c.	Scope of work	As mentioned in the PART-E of the specifications	Yes/No
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	Yes	
	Yes	
	At least 15 meter fiber patch cable At least 15 meter fiber patch cable signal cable	

Bidder's Sign with Official Stamp

Vendor's specifications	Specifications	Parameter
	100 ± 10% V RMS	a. Line supply
	5.24 VDC	b. Motor Control voltage
	5.4A	c. Maximum current (A)
	Earth fault protection output short-circuit protection, overvoltage	d. Protection
	IP 20	e. Degree of protection
	10Analog - NPN/NIP 4Analog - NPN	f. Digital inputs/outputs
	3 Analog output, output voltage range 0V-10V	g. Analog outputs
	10bits USB-Modbus	h. Communication
	External Analog input or digital set point	i. Speed control input
	External Analog input or digital set point	j. Torque control input

S.No.	Parameter	IIR Requirement	Vendor's response
a.	Writing assembly and Installation	As per the block diagram (PART-D) mentioned in the specifications	Yes/No
b.	General Requirement of programming	As mentioned in the PART- C or PART-D of the specifications	Yes/No