

Instructions for filling in:

The procurement participant fills in the blank green fields as follows:

All empty green fields must be filled.

In cells C9, C30, C51 and C 60, indicate the name and type designation of the offered device, in column C "Offered parameters" indicate the offered parameters for each item, and for items where parameters do not need to be filled in, indicate YES/NO that the product meets the given functionality(s).

Goods_1	Battery tester unit 1	Offered parameters
Item of technical specification	Technical specification / minimum requirements of the Contracting Authority	Name and type: LBTS 5V-50A-24CH Cell tester
1	min. of 24 individual testing channels	24 channels have been offered
2	functionality of charging and discharging battery cells	Yes
3	functionality of measurement data collection (voltage, current, capacity, energy, temperature, time)	Yes
4	maximal charging voltage: min 5 V per channel	Yes
5	minimum discharging voltage: max 1 V	Yes. The offered voltage range is 0 to 5V
6	maximal charging and discharging current: min. 50 A per channel	Yes. 50A
7	minimum charging and discharging current: max 0.75 A per channel	Yes. Current range is 0 to 50A
8	possibility to connect channels in parallel to achieve minimum of 200 A per combined channels	Yes. All channels can be put in parallel to reach and exceed 200A
9	accuracy of current measurement: max. $\pm 0.1\%$ of full scale	Yes. $\pm 0.02\%$
10	accuracy of voltage measurement: max. $\pm 0.1\%$ of full scale	Yes. $\pm 0.02\%$
11	resolution of voltage measurement: min. 15-bit	Yes. 24-bit
12	resolution of current measurement: min. 15-bit	Yes. 24-bit
13	measurement sampling frequency: min. 10 Hz	1000Hz
14	minimum test step time: max. 100 ms	Yes
15	min. of 24 temperature sensors, each with a cable length of at least 8 m	Yes. 32 temperature sensors are included. 10 long cables are included
16	cables required for simultaneous operation of all the channels, each cable with a length of at least 8 m, ended with a cable/ring lug	Yes. 10m long cables are included
17	capability to simultaneously operate all the channels at their maximum current and voltage ratings	Yes.
18	battery tester hardware enclosed in a cabinet or a rack with dimensions in the deployed state smaller than height 2600 mm, width 900 mm, depth 1150 mm	Yes. The dimensions are 1803mm height, 635mm width and 1143mm depth
19	power input of max. 25 kVA (AC power)	16kVA
20	energy regeneration (recuperation): YES/NO	No
Goods_2	Battery tester unit 2	Name and type: LBTS 5V-10A-64CH Cell tester
21	min. of 60 individual testing channels	64 channels
22	functionality of charging and discharging battery cells	Yes
23	functionality of measurement data collection (voltage, current, capacity, energy, temperature, time)	Yes
24	maximal charging voltage: min 5 V per channel	Yes
25	minimum discharging voltage: max 1 V	Yes. Voltage range is 0 to 5V
26	maximal charging and discharging current: min. 6 A per channel	10A
27	minimum charging and discharging current: max 0.06 A per channel	0A. The current range is 0 to 10A
28	possibility to connect at least four channels in parallel to achieve minimum of 40 A per combined channels	Yes. All channels can be put in parallel to reach and even exceed 40A
29	accuracy of current measurement: max. $\pm 0.06\%$ of full scale	Yes. $\pm 0.02\%$
30	accuracy of voltage measurement: max. $\pm 0.05\%$ of full scale	Yes. $\pm 0.02\%$
31	resolution of voltage measurement: min. 15-bit	24-bit
32	resolution of current measurement: min. 15-bit	24-bit
33	measurement sampling frequency: min. 10 Hz	1000Hz
34	minimum test step time: max. 100 ms	Yes
35	min. of 60 temperature sensors, each with a cable length of at least 8 m	64 temperature sensors are included
36	cables required for simultaneous operation of all the channels, each cable with a length of at least 8 m	Yes. 10m long cables are included
37	capability to simultaneously operate all the channels at their maximum current and voltage ratings	Yes
38	battery tester hardware enclosed in a cabinet or a rack with dimensions in the deployed state smaller than height 2600 mm, width 900 mm, depth 1150 mm	Yes. The dimensions are 1803mm height, 635mm width and 1143mm depth
39	power input of max. 14 kVA (AC power)	8,49kVA
40	energy regeneration (recuperation): YES/NO	No
Goods_3	Electrochemical impedance spectroscopy (EIS) measurement unit	Name and type: Gamry EIS 5000E
41	working frequency with the range of min. 50 mHz - 10 kHz	Yes. Up to 100kHz
42	impedance working range of min. 0.1 m Ω - 100 m Ω	Yes
43	voltage with the range of min. 1 V - 5 V	Yes. $\pm 6V$
44	current range at least +/- 1 A (or higher)	Yes. $\pm 5A$
45	the accuracy of absolute impedance (magnitude) of 1% or better, and the accuracy of argument impedance (phase) of 1° or better for the measured impedance in the range of min. 1 m Ω - 100 m Ω and frequency range of min. 10 mHz - 100 Hz	Yes
46	All EIS channels must be coupled to the testing channels of battery tester units, i.e., some of the channels at tester unit 1 and/or some of the channels at tester unit 2 can be used together with the EIS measurement in an integrated manner as per 51-1 and 53-3. The individual EIS channels can be split to the respective tester units (e.g., 1 EIS measurement channel for the unit 1 and 2 EIS measurement channels for the unit 2). Thus, some of the EIS channels must be usable with tester unit channels in the current range of tester unit 1 (up to 50 A), and some of the EIS channels must be usable with tester unit channels in the current range of tester unit 2 (up to 6 A).	Yes
47	to support at least 8 simultaneously connected battery cells to EIS capable measuring channels (it can be multiplexed)	Yes
48	at least 3 simultaneously active EIS measurements at the same time (i.e., 3 active EIS measurement channels)	Yes
Goods_4	Control system	Name and type: MITS Pro
49	control computer: YES/NO	Yes
50	all the necessary cables and other accessories for connecting a control computer with all the provided units	Yes
51	Control software	Yes
51-1	software to provide automatic control of measurements (to perform tests (charging, discharging, and pause steps) according to defined scripts) performed by the battery testers	Yes
52-2	data collection of battery testers' temperature sensors (84 minimum) integrated into the control software	Yes
53-3	control and data collection of EIS measurement unit - integrated within the control software (one SW for EIS and battery units)	Yes
54-4	a built-in function or a capability to extend the functionality of the control software, allowing it to control the temperature set points of Memmert (specifically ICP260+, IPP55+, and IPP260+ existing at the customer's site) and Weiss (WT3 600/70 existing at the customer's site) temperature chambers from within the battery test scripts	Yes
55	control software installation and configuration at the control computer.	Yes