



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
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Detailed Technical Specifications for Ultra Micro Weighing Balance:

Specifications	<u>Mettler Toledo XPR2U</u>
Capacity	2.1g
Readability	0.0001mg
Repeatability	0.00015 mg
Linearity Deviation	0.001mg
Eccentricity (test load)	0.0015 mg (1 g)
Sensitivity offset (test weight)	0.010 mg (2 g)
Weighing Pan	17 mm Diameter
Draft Shield	Balance should be provided with Glass Draft Shield with Motorized drive
Status indicator Light	Balance should have Light indication for various status of balance like Ok, calibration overdue, leveling error and other such warnings.
Display	Balance should have two display. One should be Capacitive TFT touch screen. Another display should have buttons for basic operation such as zero, tare and to open weighing chamber. One display should be connected to balance with cable another should be mounted on to balance for easy operation
Temperature Control of Weighing Chamber	Balance weighing cell chamber should be equipped with temperature control Mechanism to control temperature of weighing cell chamber by removing heat generated by electronics.
Hands free Operation	Sensors should be provided for hands free operation for auto draft shield opening and closing

User Management	Balance should allow to define user and users groups. User Management such as setting password, user rights, user groups rights should be allowed to configure.
Internal Adjustment	Time and Temperature based automatic internal adjustment
Level Adjustment Guide	Balance should provide level warning in case of out of level and should not allow user to add result, if balance is not levelled. On screen Graphical level bubble should be provided for leveling
Assured Weighing Quality	Balance should be configurable to set reminder for calibration and calibration of test weight. It should be possible to block the balance if balance is not calibrated.
Multiple Unit display	Weight value should be visible in two different units on balance display. Eg. Gram and mg
Static charge elimination	Balance should be supplied with antistatic kit including stand and electrode. Antistatic kit should be able to connect directly with balance with USB connection.
Filter paper pan	Balance should be supplied with specially designed pans for weighing ~47 mm and ~70 mm diameter size filter papers.
Standard weights	E2 class Standard weights of 100mg and 2g should be provided along with calibration certificate

Software	<ul style="list-style-type: none"> • Balance should be supplied with licensed PC based Software which can be configured and customizable with method for various applications. It will not allow user to deviate from any step of SOP for all weighing applications. • Software should allow user to enter process parameters such as filter paper number, site, air volume, site temperature and pressure & Sample details etc. on balance display. • Software should perform all mathematical operations and provide final result in $\mu\text{g}/\text{m}^3$ • Entire data should be transferred real time to PC and stored in PC and will not allow any modification, changes or deletion of any data. • User management should be available in PC based software and there should be provision to synchronize / integration with Microsoft Windows Domain account • Software should be capable of generating csv, txt etc. file with data which can be further analyzed. • Software should be capable to interface barcode scanner and barcode printer • Software should be possible to validate for 21 CFR Part 11 compliance. • Software should be saving real time details of all activities and should not allow any modifications. • Software should allow to archive, publish weighing data for more than 10 years. • Software should be capable to generate combined report of collected data. Eg. Monthly report, quarterly report etc.
Operation	<p>Weighing balance, filter pans, antistatic kit, standard weights, calibration certificate and software should be of same make.</p>
Warranty	<p>01 Year</p>