

PH meter

Parameter	Requirement	Criticality	a	Score	Criticality x Score	b	Score	Criticality x Score	c	Score	Criticality x Score
Image	N/A										
Local distributor	Available		Mettler Toledo Indonesia			Mettler Toledo Indonesia			Metrohm Indonesia		
Brand	N/A		Mettler Toledo			Mettler Toledo			Metrohm		
Type	N/A		SevenDirect SD20			Ninefocus NF2000			913 pH meter		
Indent time	N/A		6-8 weeks			6-8 weeks			8-12 weeks		
Price (Before tax, based on Quotation)	N/A		IDR 67.686.000			IDR 164.679.000			IDR 78.094.250		
Placement	Benchtop	3	Benchtop	1	3	Benchtop	1	3	Benchtop	1	3
Dimension	NMT 250 x 250 x 100 mm	1	195 x 205 x 65	1	1	195 x 178 x 331 mm	1	1	208 x 34 x 92 mm	1	1
Weight	NMT 5 kg	1	850 g	1	1	1.504 g	1	1	400 g	1	1
Parameter	pH, temperature	3	Ph,temperature	1	3	pH, Temperature	1	3	pH, temperature	1	3
Channel	Single	1	Single	1	1	4 channel (with additional module)	1	1	Single	1	1
Measurement range (pH)	0-14	3	0-14	1	3	0-14	1	3	0-14	1	3
Measurement range (temperature)	0 - 100 C	3	0-100 C	1	3	0-100 C	1	3	0 - 100 C	1	3
Resolution (pH)	At least 0.01	3	0.1 - 0.001	1	3	0.1 - 0.001	1	3	0.001	1	3
Accuracy (pH)	NMT 0.02	3	0.002	1	3	0.002	1	3	0.003	1	3
Calibration point	2 point or more	3	Up to 5 points	1	2	up to 5	1	2	2 point or more	1	2
Temperature range	0 °C – 100 °C	2	-30 to 130 C	1	2	-30 - 130 C	1	2	0 °C – 100 °C	1	2
Operational control	Via touch screen display	2	Via touch screen display	1	2	Via Touch screen display	1	2	Via touch screen display	1	2
Report data file	Uneditable (e.g., pdf)	2	CSV, PDF	0	0	CSV, PDF	0	0	csv, pdf	0	0
Memory capacity	NLT 1000 measurement	2	2000 standard measurements	1	2	3000 result set	1	2	10000 measured values	1	2
Alarm	Available	1	Available	1	1	Available	1	1	Available	1	1
Data Transfer	Printer	2	Printer, USB, Software Easy direct	1	2	Printer, USB, Software and Network	1	2	Printer	1	2
User level	At least 2 level user with password	3	2 level user	1	3	10 Group user, user account 200	1	3	User management (2 level)	1	3
Password protection	Yes	3	Yes	1	3	Yes	1	3	Yes	1	3
21 CFR part 11 compliance	Comply	3	Not comply, just tt data to software easy direct	0	0	Comply with additional software LABX	1	3	No	0	0
Printer	Included, dot matrix	3	Included, dot matrix	1	3	Included, dot matrix	1	3	Included, dot matrix	1	3
Qualification and Calibration	Calibration, IQ, OQ	3	Included	1	3	Included	1	3	Calibration, IQ, OQ	1	3
CSV	Included	2	Not available	0	0	Not available	0	0	Not available	0	0
Total Score			44			47			44		
Remark			Harga yang dicantumkan di tabel mencakup harga instrumen, jasa kalibrasi, IQ, OQ, reference standar (4,7,9), dan printer dot matrix			Harga yang dicantumkan di tabel mencakup harga instrumen, jasa kalibrasi, IQ, OQ, reference standar (4,7,9), dan printer dot matrix. Harga belum termasuk software LABX jika ingin comply dengan 21 CFR part 11			Harga yang dicantumkan di tabel mencakup harga instrumen, jasa kalibrasi, IQ, OQ, reference standar (4,7,9), dan printer dot matrix		
Conclusion:	Ketiga model memenuhi kebutuhan standar untuk pH meter, ketiganya tidak comply untuk data file yang ditransfer karena CSV merupakan file yang dapat diedit. Hal tersebut masih bisa dikondisikan dengan SOP internal karena terdapat juga pilihan file PDF. Untuk NF2000 lebih unggul karena dapat diupgrade jika ke depannya ada kebutuhan (tidak perlu beli unit baru hanya tinggal tambah sensor) dan dengan tambahan software Labx dapat memenuhi kebutuhan untuk comply 21 CFR part 11, namun harganya terputus cukup jauh sehingga dari sisi user model SevenDirect SD20 sudah cukup baik dengan harga yang paling terjangkau dan indent paling singkat. Untuk 21 CFR part 11 akan dicover dengan SOP internal										

Dibuat oleh,

Disetujui oleh,

Diny Lucyane

Dyah Arum M.

Quality Manager

Site Head

Note	Criticality		
	1	2	3
Compliance Score	1	2	3
	Meet specification	Medium	High
	0	1	2
	Not meet specification	Low	High

Conductivity meter

Parameter	Requirement	Criticality	a	Score	Criticality x Score	b	Score	Criticality x Score	c	Score	Criticality x Score
Image											
Local Distributor	Available		Mettler Toledo Indonesia			Mettler Toledo Indonesia			Metrohm Indonesia		
Brand	N/A		Mettler Toledo			Mettler Toledo			Metrohm		
Type	N/A		Seven Direct SD30			NineFocus NF3000			912 Conductometer Lab		
Indent Time	N/A		6-8 weeks			6-8 weeks			8-12 weeks		
Price (Before tax, based on Quotation)	N/A		IDR 81.348.000			IDR 146.924.000			IDR 77.710.750		
Placement	Benchmark	1	Benchmark	1	1	Benchmark	1	1	Benchmark	1	1
Parameter	Conductivity, temperature	3	Conductivity, temperature	1	3	Conductivity, temperature	1	3	Conductivity, temperature	1	3
Channel	Single	1	Single	1	1	Single, upgradeable up to 4	1	1	Single	1	1
Resolution (conductivity)	0.1 uS/cm	3	0.001 – 1	1	3	0.001 – 0.1	1	3	4 significant digits	1	3
Resolution (temperature)	0.1 C	2	0.1 C	1	2	0.1 C	1	2	0.1 C	1	2
Sensor	Compatible for pharma water measurement (high sensitivity in low range)	3	Yes, with Inlab 741-ISM conductivity/temperature sensor	1	3	Yes, with Inlab® 741 Pro-DES® sensor	1	3	No	0	0
Accuracy	NMT 1%	2	0.5%	1	2	0.5%	1	2	0.5%	1	2
Conductivity range	at least 0.1 – 10 uS/cm	3	0.001 uS/cm – 2000 mS/cm	1	3	0.001 uS/cm – 2000 mS/cm	1	3	0.1 uS - 500 mS	1	3
Temperature range	0-100 oC	1	-30 °C – 130 °C	1	1	-30 °C – 130 °C	1	1	-150 °C - +250 °C	1	1
Compliance	GLP	2	Comply	1	2	Comply	1	2	Comply	1	2
Security	At least 2 level user management	3	2 level user management	1	3	10 Group user, user account 200	1	3	2 user level	1	3
21 CFR part 11 compliance	Comply	2	Not comply	0	0	Comply	1	2	Not comply	0	0
Memory capacity	At least 1000 measurements	2	2000 standard measurements	1	2	3000 result sets	1	2	10000 measured values	1	2
Data Transfer	Printer USB stick	1	PC, printer, USB stick	1	1	PC, printer, USB stick	1	1	printer, USB	1	1
Display	Yes, touchscreen	2	Yes, touchscreen	1	2	Yes, touchscreen	1	2	Yes, touchscreen	1	2
Dimension	NMT 250 x 250 x 100 mm	1	195x205x65 mm	1	1	111 x 178 x 325 mm	1	1	208 x 92 x 34 mm	1	1
Weight	NMT 5 kg	1	850 g	1	1	1604 g	1	1	400 g	1	1
Temperature compensation feature	Shall be disabled/abled as per requirement	3	Yes	1	3	Yes	1	3	Yes	1	3
Printer	Included, dot matrix	2	Included, dot matrix	1	2	Included, dot matrix	1	2	Included, dot matrix	1	2
Qualification and Calibration	Calibration, IQ, OQ	3	Calibration, IQ, OQ	1	3	Calibration, IQ, OQ	1	3	Calibration, IQ, OQ	1	3
CSV	Included	2	Not available	0	0	Not available	0	0	Not available	0	0
Total Score			39			41			36		
Remark	Harga yang dicantumkan di tabel mencakup harga instrumen, jasa kalibrasi, IQ OQ, reference standar, dan printer dot matrix										
Conclusion:	Conductivitymeter dari brand metter toledo memiliki opsi sensor yang dikhususkan untuk low range conductivity sehingga cocok untuk sampel air pharma (spek 1.3 uS/cm). Di antara kedua brand metter, dengan harga yang lebih terjangkau dibandingkan NF3000. Untuk brand Metrohm kurang direkomendasikan user karena tidak memiliki sensor khusus untuk low range conductivity										
User merekomendasikan SD30 karena sudah cukup baik											

Dibuat oleh,

Disetujui oleh,

Diny Lucyane
Quality Manager

Dyah Arum M.
Site Head

Note	Criticality	3	High
		2	Medium
		1	Low
	Compliance Score	1	Meet specification
		0	Not meet specification