Table 1 of §1065.205–Recommended performance specifications for measurement instruments

Measurement Instrument	Measured quantity symbol	Complete System Rise time ($t_{10\text{-}90}$) and Fall time ($t_{90\text{-}10}$)[a]	Recording update frequency	Accuracy[b]	Repeatability[b]	Noise[b]
Engine speed transducer	f_n	1 s	1 Hz means	2 % of pt. or 0.5 % of max.	1 % of pt. or 0.25 % of max.	0.05 % of max
Engine torque transducer	T	1 s	1 Hz means	2 % of pt. or 1 % of max.	1 % of pt. or 0.5 % of max	0.05 % of max.
Electrical work (active-power meter)	W	1 s	1 Hz means	2 % of pt. or 0.5 % of max.	1 % of pt. or 0.25 % of max.	0.05 % of max
General pressure transducer (not a part of another instrument)	p	5 s	1 Hz	2 % of pt. or 1.0 % of max.	1 % of pt. or 0.5 % of max.	0.1 % of max
Atmospheric pressure meter used for PM-stabilization and balance environments	p_{atmos}	50 s	5 times per hour	50 Pa	25 Pa	5 Pa
General purpose atmospheric pressure meter	p_{atmos}	50 s	5 times per hour	250 Pa	100Pa	50 Pa
Temperature sensor for PM-stabilization and balance environments	T	50 s	0.1 Hz	0.25 K	0.1 K	0.1 K
Other temperature sensor (not a part of another instrument)	T	10 s	0.5 Hz	0.4 % of pt. K or 0.2 % of max. K	0.2 % of pt. K or 0.1 % of max. K	0.1 % of max
Dewpoint sensor for intake air, PM-stabilization and balance environments	T_{dew}	50 s	0.1 Hz	0.25 K	0.1 K	0.02 K
Other dewpoint sensor	T_{dew}	50 s	0.1 Hz	1 K	0.5 K	0.1 K
Fuel flow meter[c] (Fuel totalizer)	$\dot{m}$	5 s (N/A)	1 Hz (N/A)	2 % of pt. or 1.5 % of max.	1 % of pt. or 0.75 % of max.	0.5 % of max.
Total diluted exhaust meter (CVS)[c] (With heat exchanger before meter)	$\dot{n}$	1 s (5 s)	1 Hz means (1 Hz)	2 % of pt. or 1.5 % of max.	1 % of pt. or 0.75 % of max.	1 % of max.
Dilution air, inlet air, exhaust, and sample flow meters[c]	$\dot{n}$	1 s	1 Hz means of 5 Hz samples	2.5 % of pt. or 1.5 % of max.	1.25 % of pt. or 0.75 % of max.	1 % of max.
Continuous gas analyzer	x	5 s	1 Hz	2 % of pt. or 2 % of meas.	1 % of pt. or 1 % of meas.	1 % of max.
Batch gas analyzer	x	N/A	N/A	2 % of pt. or 2 % of meas.	1 % of pt. or 1 % of meas.	1 % of max.
Gravimetric PM balance	m_{PM}	N/A	N/A	See §1065.790	0.5 µg	N/A
Inertial PM balance	m_{PM}	5 s	1 Hz	2 % of pt. or 2 % of meas.	1 % of pt. or 1 % of meas.	0.2 % of max.

[a] The performance specifications identified in the table apply separately for rise time and fall time.
[b] Accuracy, repeatability, and noise are all determined with the same collected data, as described in §1065.305, and based on absolute values. "pt." refers to the overall flow-weighted mean value expected at the standard; "max." refers to the peak value expected at the standard over any test interval, not the maximum of the instrument's range; "meas" refers to the actual flow-weighted mean measured over any test interval.
[c] The procedure for accuracy, repeatability and noise measurement described in §1065.305 may be modified for flow meters to allow noise to be measured at the lowest calibrated value instead of zero flow rate.