

## technical specification

The Q-MACS Process is a portable monitoring system for on line measurements of industrial processes. It is based on the Q-MACS Basic and features a three channel setup to improve the signal-to-noise ratio and to achieve long-term stability. This open path system uses infrared absorption spectroscopy to measure absolute molecular concentrations. The optical coupling to the measurement's region can also be provided by an optical fibre.



### general

description	three path infrared spectrometer with IR-light source
sensitivity	down to ppb range [1]
time resolution	down to milliseconds
size	710 mm x 1375 mm x 440 mm
weight	137 kg

### components

parts	<ul style="list-style-type: none"> <li>▪ optical board</li> <li>▪ light guide cable coupling (on request)</li> <li>▪ industrial PC with acquisition hardware</li> <li>▪ electronic supply system</li> <li>▪ water cooling system</li> </ul>
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### parameter

power	<ul style="list-style-type: none"> <li>▪ 230 V, max. 2 A (switch-on current 6 A)</li> <li>▪ 115 V, max. 4 A (switch-on current 12 A)</li> </ul>
working range	+5 °C to +40 °C

### QCL

tuning method	<ul style="list-style-type: none"> <li>▪ inter pulse mode (laser sweep mode)</li> <li>▪ intra pulse mode (single pulse mode)</li> </ul>
pulse width	8 ns* ... 256 ns** * depends on the QCL and QCL-voltage used ** longer pulses on request
pulse frequency	up to 1 MHz
QCL temperature range	-35 °C to +40 °C
QCL	tested and installed

[1] depends on species, temperature and pressure

