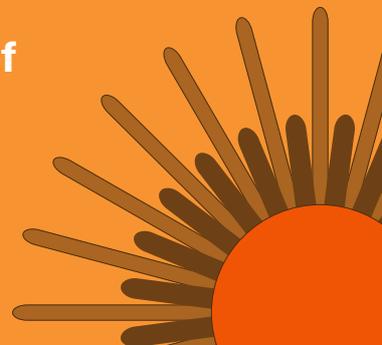


Process and Emission Monitoring

Product Portfolio



Continuous Emissions and Periodic Emissions Monitoring Systems. Protea has been at the forefront of emissions monitoring systems for 20 years, as both a manufacturer and a user of stack emissions equipment.



Fourier Transform Infrared (FTIR)

atmosFIRs Datasheet 19-6PD015

- * 19" Rack FTIR analyser
- * 4.2metre Sample Cell
- * Heated Cell up to 180°C
- * Integrated O₂ Sensor
- * ppm—mg/m³ levels
- * Adjustable Resolution 0.5, 1, 2, 4, 8 cm⁻¹
- * Application - CEMS / Process



Flame Ionization Detector (FID)



Datasheet 19-6PD050

- * 19" Rack FID analyser
- * Fuel H₂ or He/H₂ mix
- * Inbuilt Catalyst
- * Built in Eductor @ 190°C
- * Units mgC/m³, ppm C1 / C3
- * Automatic - Heating to operating temp. - Ignition of the flame - Adjustment of pressures
- * Application - CEMS / Process



atmosFIRi Datasheet 19-6PD011

- * 19" Rack FTIR analyser
- * 0.15metre Cell
- * Heated Cell up to 180°C
- * ppm—mg/m³ levels
- * Adjustable Resolution 0.5, 1, 2, 4, 8 cm⁻¹
- * Application - Process



atmosFIRw Datasheet 19-6PD012

- * Wall Mounted FTIR analyser
- * 4.2metre Sample Cell
- * Heated Cell 40°C / 60°C
- * Touchscreen controller
- * ppm—mg/m³ levels
- * Adjustable Resolution 0.5, 1, 2, 4, 8 cm⁻¹
- * Application - Work Place Monitoring - Ambient Monitoring



atmosFIRt Datasheet 19-6PD013

- * Portable FTIR analyser
- * 4.2metre Heated Cell
- * Heated Cell up to 180°C
- * Integrated O₂ Sensor
- * Can monitor 100's of Gases
- * Application - Mobile Stack Testing - Mobile Process - Testing Research - Workplace monitoring



atmosFIRair Datasheet 19-6PD019

- * Portable FTIR analyser
- * 4.2metre Heated Cell 40°C / 60°C
- * Integrated O₂ Sensor
- * ppb levels
- * 100's of Gases with Single Unit
- * Embedded PC and pump
- * Controlled via Android App
- * Application - Ambient air pollution - Emergency response - Analytical e.g. GHG testing



In-Situ Multi Gas Analysers

Protea P2000 Datasheet 19-6PD080

- * In-Situ IR Analyser
- * Multi Gas Photometer
- * Probe Temperature up to 350°C
- * Integrated O₂ Sensor (Option)
- * ppm—mg/m³ levels
- * Automatic Zero / Span
- * Monitors up to 7 Gases
- * Application - CEMS / Process



Protea P5000 Datasheet 19-6PD090

- * In-Situ UV Spectrophotometer
- * Multi Gas
- * Probe Temperature up to 350°C
- * In-Situ Folded Sample Cell 60mm—1000mm
- * Integrated O₂ Sensor (Option)
- * Automatic Zero / Span
- * ppm—mg/m³ levels
- * Application - CEMS / Process



Protea P2000D Datasheet 19-6PD088

- * In-Situ IR / UV Analyser
- * Multi Gas Photometer
- * Probe Temperature up to 350°C
- * Integrated O₂ Sensor (Option)
- * ppm—mg/m³ levels
- * Automatic Zero / Span
- * Monitors up to 8 Gases
- * Application - CEMS / Process



Multi Gas Process Analysers

Datasheet 19-6PD120

- * Process IR Analyser
- * Multi Gas Photometer
- * External Folded Beam Cell
- * High Pressure Options
- * Cell Temperature up to 250°C
- * Cell Path length 1mm to 100mm
- * %—ppm—mg/m³ levels
- * Automatic Zero / Span
- * Monitors up to 7 Gases
- * Hazardous Area Option ATEX /IECEx
- * Application - Process



Tunable Diode Laser (TDL)

Solus Datasheet 19-6PD020

- * 19" Rack or Portable Case
- * NH₃ or HCl, plus H₂O + O₂
- * Response times <3sec
- * Sample Cell Volume 15ml
- * Sample Cell Temperature 190°C
- * Built-in sampling system
- * Integrated O₂ sensor; PC ; eductor control
- * Application - CEMS / Process
 - HN₃ Slip
 - HCl After Scrubber



Solus Multipoint Datasheet 19-6PD021

- * 19" Rack or Portable Case
- * NH₃ or CH₄
- * 10-way sampling manifold
- * Programmable sequencing
- * Response times <3sec
- * Sample Cell Volume 15ml
- * Internal pump and embedded PC
- * Application - Livestock Monitoring
 - Ambient Air Testing
 - Process Monitoring
 - Ventilation Control



UV Spectrophotometer

atmosUVr Datasheet 19-6PD087

- * 19" Rack UV Spectrophotometer
- * 1.2metre Sample Cell
- * Heated Cell up to 180°C
- * Integrated O₂ Sensor
- * ppm—mg/m³ levels
- * Sample System Control
- * Application - CEMS / Process



atmosUVi Datasheet 19-6PD087

- * 19" Rack UV Spectrophotometer
- * Integrated HMI
- * I/O Analogue & MODBUS
- * 1.2metre Sample Cell
- * Heated Cell up to 180°C
- * Integrated O₂ Sensor
- * ppm—mg/m³ levels
- * Sample System Control
- * Application - CEMS / Process



atmosUVt Datasheet 19-6PD087

- * Portable UV Spectrophotometer
- * Integrated HMI
- * I/O Analogue & MODBUS
- * 1.2metre Sample Cell
- * Heated Cell up to 180°C
- * Integrated O₂ Sensor
- * ppm—mg/m³ levels
- * Sample System Control
- * Application - CEMS / Process



IR Photometers

atmosIRr Datasheet 19-6PD086

- * 19" Rack IR analyser
- * 4.2metre Sample Cell
- * Heated Cell up to 180°C
- * Integrated O₂ Sensor
- * ppm—mg/m³ levels
- * Sample System Control
- * Application - CEMS / Process



atmosIRi Datasheet 19-6PD086

- * 19" Rack IR analyser
- * Intergrated HMI
- * 4.2metre Sample Cell
- * Heated Cell up to 180°C
- * Integrated O₂ Sensor
- * I/O Analogue & MODBUS
- * ppm—mg/m³ levels
- * Application - CEMS / Process
- * Sample System Control



atmosIRt Datasheet 19-6PD086

- * Portable IR analyser
- * Intergrated HMI
- * 4.2metre Sample Cell
- * Heated Cell up to 180°C
- * Integrated O₂ Sensor
- * ppm—mg/m³ levels
- * Application - CEMS / Process
- * Sample System Control



Mass Spectrometer

ProMass Datasheet 19-6PD030

- * 19" Rack FID analyser
- * Quadrupole Mass Spectrometer
- * Latest Vacuum Pumping Technology
- * Response time millisecond
- * Detects almost any gas
- * Ranges 0-100amu, 0-200amu, 0-300amu
- * Corrosion Resistance Inlets
- * Advanced chemometrics for multi-gas quantification
- * Application
 - Hydrogen fuel analysis
 - Ambient Air Monitoring
 - Breath analysis
 - Gas Blending



ProMasst Datasheet 19-6PD021

- * Compact, Robust Portable Case
- * Quadrupole Mass Spectrometer
- * Latest Vacuum Pumping Technology
- * Response time millisecond
- * Detects almost any gas
- * Ranges 0-100amu, 0-200amu, 0-300amu
- * Corrosion Resistance Inlets
- * Chemometrics Multi-gas Quantification
- * Application
 - Leak Testing
 - Ambient Air Measurements
 - Syngas Analysis – H₂, N₂, CO₂, CO, CH₄, H₂S
 - BTEX quantification



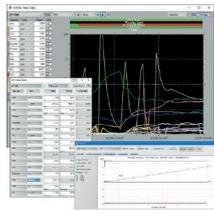
Emissions Reporting Software



atmosDAHS
Emissions Reporting

Datasheet 19-6PD201

- * In-Built Emissions Reporting Software Protea CEM
- * MCERTS Certified, EN 17255 Compliant
- * QAL 3 Management
- * US EPA Compliant
- * Configurable Reports Print Ready
- * Real-time Graphs and Charts
- * Unlimited Sensor Readings
- * Partial Averaging – Predictive Warning



- * Runs on the Protea Analyser Controllers
- * External Emissions Server Available



ProDAHS
Data. Reported.

Datasheet 19-6PD202

- * Flexible Data Reporting Software for Emissions Data
- * Unlimited sensor readings Emissions, Ambient Air, Meteorological and Process Data
- * Configurable Reports Print Ready
- * Real-time graphs and charts
- * US EPA Compliant
- * Runs on the Protea Analyser Controllers



atmosStation Datasheet 19-6PD021

- * Emission Reporting Server
- * Emissions, Ambient Air, Meteorological and Process Data
- * Runs atmosDAHS or ProDAHS Software
- * Ethernet / Serial / USB / Analog /Digital inputs
- * Wide range of protocols – Modbus/Profibus/OPC
- * Configurable reports ready for print
- * Span gas delivery to CEMs



Calibrators



atmosCAL
Gas Analyser Calibration

Datasheet 19-6PD044

- * Site and Laboratory models
- * Up to 8 gases, sequences dilution
- * Gas compensations; high/low flow
- * ISO 17025 calibration
- * Analyser logging via Modbus and AI
- * WiFi connection; calibration log file



atmosFieldCal

- * Humify and Dilute Calibration Gases
- * Sequences for Unattended Operation
- * ppb, ppm, mg/m³, %Vol units
- * Gas compensations
- * High or Low Flow Options
- * High Accuracy Low-Level Calibrations
- * Logging alongside Calibration Values



CEMS Control Units

PAS-Pro Software

- * Continuous operation of Process or Emissions Systems
- * FTIR, FID, TDL and MS
- * Controls Analyser and Sampling System
- * OPC, Modbus RTU /TCP/IP
- * Can be used with 3rd party analysers and control sampling systems



P-HMI Datasheet 19-6PD101

- * Analyser Control Unit
- * Supports up to Six In-Situ Analysers
- * I/O MODBUS 20 Analogue
- * Seal IP65 / NEMA 4X
- * O/S Windows 10©
- * Analyser Comms. MODBUS RS485
- * Manages Auto Zero & Calibration



- * Advanced System Diagnostics

P-PC Datasheet 19-6PD100

- * Analyser Control Unit
- * Supports up to Eight In-Situ Analysers
- * I/O MODBUS 20 Analogue
- * Seal IP65 / NEMA 4X
- * O/S Windows 10©
- * Analyser Comms. MODBUS RS485
- * Manages Auto Zero & Calibration



- * Long Term Data Logging
- * Advanced System Diagnostics

Spectral Analysis Software

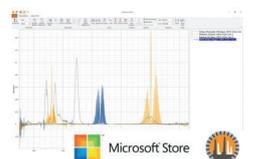
PAS Software

- * Laboratory or Mobile Stack Testing
- * Offline analysis tool for data analysis
- * Patented AIR-IQ Analysis Algorithm
- * Controls Analyser and Sampling System
- * Data output via standard protocols
- * Chemometric Modelling with FTIR / MS Data



Protea Spectrum Viewer

- * IR, UV and MS data analysis tool
- * Multi-format, multi-vendor
- * Spectra manipulation
- * Available via Windows Store



System Integration

- * Standard and Bespoke Systems
- * Full System Integration including Third Party Products
- * Hazardous Area Configuration
- * Multiple Stream Switching
- * Remote Access options
- * High Grade Industrial Computers

