

**Application Survey for**

**MKS Process & Environmental Analysis Solutions**

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Please fill in as much as you can so we can determine the measurement feasibility with the optimal system configuration that will support your application as an FTIR or Precisive TFS analyzer.

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| **Customer Name:** | |
| **Company:** | |
| **Address:** | |
| **City:** | |
| **State / Zip:** | |
| **Country:** | |
| **Email:** | **Phone :** |
| **Date of this request:** | **MKS Contact:** |
| **IF DIFFERENT FROM ABOVE:** | |
| **End User:** | **Installation Country:** |

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| **1. Please describe your application or process?** |
| TYPE HERE  Examples:   * Vehicle or engine Combustion emission monitoring * Continuous emissions monitoring * Ethylene production (alkanes, alkynes, alkenes) * Natural gas metering (C1-C6) * Acid &/or sour gas monitoring, * LNG, LPG, Syngas, Biogas, CNG * Power generation (BTU, Methane Number, Wobbe Index) * Trace impurities in natural gas (i.e. moisture &/or sulfur). * Total BTU measurement (i.e. burner of furnace control) |

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| **2. What methods or instruments are currently used and why are they insufficient?** |
| TYPE HERE  Examples:   1. GC-TCD, GC-FID, FTIR, NDIR, TDL Residual Oxygen, etc. 2. Need to lower the cost of testing 3. Wants faster response with hydrocarbon speciation 4. In-line unattended monitoring is critical, etc. |

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| **3. Sample Conditions – Please provide the following information** | | | | |
| **Requested Information** | **Range** | | | **Additional Notes** |
| Sample temperature  oF or  oC | Minimum | Nominal | Maximum |  |
| Sample pressure at tap / sampling point:  ATM PSIG TORR | Minimum | Nominal | Maximum |  |
| If pressure > 20 psig can it be dropped to 20psig? | YES or  NO | | |  |
| Sample flow rate (in LPM) | Minimum | Nominal | Maximum |  |
| Desired plumbing interface for TFS Sensor (size & type of fittings) |  | | | |
| Other information? |  | | | |

FTIR Analyzer Related ONLY

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| **1. Do you have any previous experience with FTIR?** |
| **a.**  Yes  No  **b.** If yes, which manufacturer of FTIR? |

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| **2. FTIR Temperature:**  The MKS FTIRs are configured to run Hot and Wet gas streams however there is a limit on how high the gas stream temperature can be. |
| If temperature > 191oC can it be dropped to 191oC?  YES or  NO |

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| **3. FTIR Detector Options:**  MKS uses high sensitivity MCT detectors. For the broadest range of components Liquid N2 (LN2) is needed to cool the detector every 14-18 hours. For 24/7 use an external 5L dewar can be added to allow up to 3-5 days of unattended use. MKS also has thermal electrically (TE) cooled detectors (which do not need LN2, and run continuously) but they have a more limited list of components. |
| **a.** Can LN2 be used to cool the detector?  Yes  No |
| **b.** If YES, do you want to include the External 5L Dewar?  Yes  No |

Gas List

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| **Please list ALL of the gas component names, measurement ranges, accuracy requirements for each application. Please indicate if the compound is to be measured (YES in Measured column) or just in the background of the composition (NO in Measured column). List ALL the gases that will be present at high concentrations (possible interferents) even if you do not need to measure them (e.g., H2O, CO2, Air, Matrix Gas)** | | | | | | |
| **Component name** | **Component Concentration** | | | **Required Detection Limits** | **Accuracy / Repeatability** | **Measured**  **(Yes / No)** |
| **Min** | **Normal** | **Max** |
| *Example 1: CH4* | *0%* | *90%* | *100%* | *1%* | *+-1% absolute / <0.1% absolute* | Top of Form  [YesNo](http://support.office.microsoft.com/client/Insert-a-check-mark-symbol-09B3D8E6-CD92-423A-9F5E-7F813E7E4B9E?NS=EXCEL&Version=14#showFB)  Bottom of Form |
| *Example 2: NH3* | *0 ppm* | *300 ppm* | *1000 ppm* | *0.1 ppm* | *+-3% relative /*  *< 1% relative* | Top of Form  [YesNo](http://support.office.microsoft.com/client/Insert-a-check-mark-symbol-09B3D8E6-CD92-423A-9F5E-7F813E7E4B9E?NS=EXCEL&Version=14#showFB)  Bottom of Form |
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## Environmental

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| **1. Installation related questions:** | | | | |
| **Requested Information** | **Range or MKS Available Options** | | | **Additional Notes** |
| Ambient temperature oF or  oC | Minimum | Nominal | Maximum |  |
| Ambient humidity | %RH = \_\_\_ | | | |
| Where will the analyzer be housed? | TYPE HERE  Example: Climate controlled shelter, environmental shelter, open air, etc. | | | |
| Is the area Climate Controlled?  YES or  NO | TYPE HERE  If NO, any extreme conditions? (Humidity, vibration, direct sunlight, etc.) | | | |
| Analyzer voltage requirement | 120V / 60Hz  220V / 50Hz  220V / 60Hz  Other? \_\_\_\_\_\_\_\_\_\_\_  **TFS ONLY**   24DC | | | |
| Other information? |  | | | |

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| **2. Data acquisition and interface measurements** | | |
| **Requested Information** | **MKS Available Options** | **Additional Notes** |
| Desired measurement rate? | 5 Hz (200 msec)  1 HZ (1sec)  5 sec  30 sec  60 sec  Other (specify) \_\_\_\_\_\_\_\_ |  |
| Desired data OUTPUT interface and protocol (TFS ONLY) | Analog/Digital I/Os  OPC  MODBUS  OTHER |  |
| Desired data INPUT/OUTPUT interface and protocol (FTIR ONLY) | AK Protocol  Analog/Digital I/Os  OPC  Toolweb (free)  MODBUS |  |
| Other information? |  |  |

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| **3.** **Hazardous Area Classification:** |
| CSA Class1 Div1  CSA Class1 Div2  ATEX ZONE 1  ATEX ZONE 2  IECEx  TIIS  CE  OTHER?\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **4. Any special analytical or acceptance criteria needed (e.g. specific EPA, ASTM or DIN regulations).** |
| EPA 1065/1066  Euro 5, 6  TUV  MCERTS  Other?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **5.** **TFS ONLY Options:** |
| Portable (general purpose rated)  Rack mountable (4U general purpose rated)  SS316L low-carbon stainless steel enclosure  SS316L low-carbon stainless steel gas cell & wetted parts  Stream switching  Local HMI/display  Analog outputs  3 year total warranty package |

## OTHER REQUIREMENTS

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| **1. What is the timeframe for a solution or analyzer (i.e. now, 3 months, 6 months, 1+ year)** |
| Now  3 months  6 months  12+ months |

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| **2. Are there other requirements not covered in any section above?** |
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