



TELEDYNE MONITOR LABS

A Teledyne Technologies Company

Teledyne Monitor Labs is a leading supplier of environmental monitoring instrumentation, systems and software.

INSTALLATION CHECKLIST **LASERHAWK 360**

Note: Macros *MUST* be enabled in order for document to function properly.

**** Your order cannot be scheduled for production until accurate information is provided for all fields marked with an asterisk.***

1. *CUSTOMER CONTACT INFORMATION (PLEASE FILL IN ALL INFORMATION)

| | | |
|----------------------------|---------|--------------------------|
| *Name: | | |
| Title: | | |
| *Company: | | |
| *Address (Plant Location): | | |
| *City: | *State: | |
| *Phone: | | |
| FAX: | | |
| Email: | | |
| *Stack Identification: | | Limited to 10 characters |

2. *MOUNTING FLANGE (SELECT ONE OF THE FOLLOWING)

| |
|---|
| <input type="radio"/> I will supply my own 4-inch flanges for the Standard Installation |
| <input type="radio"/> I wish to use something other than 4-inch flanges, described below: |
| |

3. *MOUNTING TUBE LENGTH (PORT)

The typical length of the mounting tube (port) is between 2 and 8 inches (5 to 20 cm) including the flanges and adapters. If the process to be measured is 500 °F (260 °C) or above, we recommend using a Mounting Tube length of 6 inches (15 cm).

| | | |
|--|------------------------------|--------------------------|
| | <input type="radio"/> Inches | <input type="radio"/> cm |
|--|------------------------------|--------------------------|

4. *STACK DIAMETER OR DUCT WIDTH AT INSTALLATION LOCATION

Small diameter stacks may require an optional **LIGHT TRAP**: a device that prevents laser energy reflecting off the far stack wall in the field of view of the Optical Head. A **LIGHT TRAP** is generally required only for stack diameters less than 6.5 feet (2 meters), but may be necessary at greater diameters based on mounting tube length, particulate mass range and other factors. In general, the minimum possible stack diameter even with a LIGHT TRAP is 2 feet (0.6 meters), but this minimum value increases as particulate mass range decreases (consult factory).

| | |
|--|---|
| | <input type="radio"/> Feet <input type="radio"/> Meters |
|--|---|

5. *TEMPERATURE OF PROCESS (PLEASE FILL IN ALL INFORMATION)

| | | |
|---------|--|---|
| Typical | | <input type="radio"/> degrees F <input type="radio"/> degrees C |
| Maximum | <input type="radio"/> Less than 500 deg F (260 C) <input type="radio"/> 501 to 1500 deg F (261 to 815 C) <input type="radio"/> > 1500 F (>815 C) *Consult Factory* | |

6. *PROCESS PRESSURE (SELECT ONE OF THE FOLLOWING)

| |
|--|
| <input type="radio"/> -15.0 to +5.0 in. H2O (-3.745 to +1.245 kPa) |
| <input type="radio"/> Other, Consult Factory |

7. *MOUNTING CLEARANCE (SELECT ONE OF THE FOLLOWING)

| |
|---|
| <input type="radio"/> The standard mounting is sufficient. |
| <input type="radio"/> I will use something other than the standard mounting clearance, described below: |
| |

8. DATA CABLE LENGTH (The Data Cable is supplied at an additional cost.)

| | | |
|---------------------|--|--|
| I wish to purchase: | | <input type="radio"/> Feet <input type="radio"/> Meters of Data Cable |
|---------------------|--|--|

9. *STACK POWER CIRCUIT REQUIREMENTS (SELECT ONE OF THE FOLLOWING)

| | |
|--|--|
| Optical Head | 85-245 VAC, 47-63Hz, Single Phase, 30 VA Maximum |
| <input type="radio"/> 115 Volts <input type="radio"/> 230 Volts | Choose a voltage that most accurately represents what will power the Optical Head after installation |
| Purge Blower# | 115/230 VAC, Single Phase, 414 VA Maximum |
| # | Does not apply to Instrument Air Purge Version |

10. *CORRECTION TO STANDARD CONDITIONS (SELECT ONE OF THE FOLLOWING)

Some sites may wish to correct the Particulate measurements to Standard Conditions by measuring the process temperature and pressure. The LaserHawk 360 can mathematically correct for temperature and pressure with an *OPTIONAL* Dual Analog Input Module.

| |
|--|
| <input type="radio"/> I do NOT want this option (Skip to Section 11) |
| <input type="radio"/> I do want this option (Please complete Sections 10.1, 10.2 & 10.3) |

10.1 *LOCATION OF THE DUAL ANALOG INPUT MODULE

| |
|---|
| <input type="radio"/> At the Stack or Duct location |
| <input type="radio"/> In the Control room |

10.2 *BAROMETRIC PRESSURE TRANSDUCER OPTIONS

In order to accurately scale the Barometric Pressure Transducer, we need to know the Elevation (above Sea Level) where the monitor will be located.

| | | |
|---|-------------------|------------------------------|
| Measurement Location on Stack (above mean sea level) | | <input type="radio"/> Feet |
| Control Room Location (above mean sea level) | | <input type="radio"/> Meters |
| <input type="radio"/> I do NOT want to use any Barometric Pressure Transducer. | | |
| <input type="radio"/> I do want to use a Barometric Pressure Transducer, and I wish to purchase the Pressure Sensor from TML. | | |
| <input type="radio"/> I do want to use a Barometric Pressure Transducer, and I will supply my own. Please indicate scaling below. | | |
| Output Type | Output Scaling | |
| | Value @ 1V or 4mA | Value @ 5V or 20mA |
| <input type="radio"/> Voltage | | |
| <input type="radio"/> Current | | |

10.3 *EXTERNAL TEMPERATURE OPTIONS

| <input type="radio"/> I do NOT want to use the External Temperature Option. | | |
|---|-------------------|--------------------|
| <input type="radio"/> I do want to use the External Temperature Option, and I wish to purchase the Temperature Sensor from TML. | | |
| <input type="radio"/> I do want to use the External Temperature Option, and I will supply my own. Please indicate the type and scaling below. | | |
| Output Type | Output Scaling | |
| | Value @ 1V or 4mA | Value @ 5V or 20mA |
| <input type="radio"/> Voltage | | |
| <input type="radio"/> Current | | |
| <input type="radio"/> 1000 ohm RTD | | |
| <input type="radio"/> 100 ohm RTD | | |

11. *MAXIMUM PARTICULATE LIMIT (PLEASE FILL IN ALL INFORMATION)

If another type of unit is used for the emission limit, please specify in the space provided.

| | | | |
|---|--|-------|----------------------|
| Emission Limit | | Units | <input type="text"/> |
| If Other Emission Limit Units, Please Specify | | | |

12. *FULL SCALE DETERMINATION (PLEASE FILL IN ALL INFORMATION)

In order to properly set the sensitivity and full scale of the LaserHawk 360 we need to know some details about the process to be measured. If the process includes a particulate control device, what type is it? If so, will the monitor be located before or after the control device? If multiple control devices exist, or the existing control device is not listed, please specify within the space provided below.

What measurement units are desired? Typical units are: mg/Am³, mg/Nm³, grains/Aft³, grains/Nft³, grains/DRY Sft³, lbs/mmbtu. NOTE: "A" is for actual or uncorrected while "N" is for normalized or corrected for temperature and pressure.

| | | | | | |
|--|--|-------------------------------------|--|---------------------|----------------------|
| Particulate Control Device | <input type="text"/> | If Other Control Device(s) | | | |
| Monitor will be located BEFORE or AFTER control device | <input type="radio"/> No Control Device <input type="radio"/> Before Device <input type="radio"/> After Device | | | | |
| Typical Barometric Pressure | | Units | <input type="radio"/> in. Hg <input type="radio"/> mm Hg | | |
| Requested Full Scale | | Units | <input type="text"/> | Other: | |
| If the requested full scale units are lbs/mmbtu or in DRY units please complete the following: | | | | | |
| Fuel Type or Fuel Constant | <input type="text"/> | Constant (scf/10 ⁶ Btu): | <input type="text"/> | If Known, Constant: | <input type="text"/> |
| Typical CO ₂ (%) | | | | | |
| Specify if CO ₂ is Wet or Dry | <input type="radio"/> Wet <input type="radio"/> Dry | | | | |
| Typical Moisture (%) | | | | | |

13. USE AUTO CAL SEQUENCE? (SELECT ONE OF THE FOLLOWING)

| |
|---------------------------|
| <input type="radio"/> Yes |
| <input type="radio"/> No |

14. *SYSTEM CONFIGURATION (SELECT ONE OF THE FOLLOWING)

| |
|--|
| <input type="radio"/> Direct Interface (Complete Section 14.1 only) |
| <input type="radio"/> Enhanced Remote Panel (Complete Section 14.2 only) |

14.1 *DIRECT INTERFACE CONFIGURATION

If you selected the **Direct Interface Configuration**, fill out the following:

| | | |
|-------------------|--|--|
| Output Units: | <input type="radio"/> Backscatter Energy | <input type="radio"/> Particulate Mass |
| Current Outputs: | <input type="radio"/> 4 to 20 mA | <input type="radio"/> 0 to 20 mA |
| Relay Output #1: | | |
| Relay Output #2: | | |
| Digital Input #1: | | |
| Digital Input #2: | | |

This is the end of the **Direct Interface Configuration**.

14.2 *ENHANCED REMOTE PANEL CONFIGURATION

Only if you selected the ***Enhanced Remote Panel Configuration***, fill out this page:

| | | |
|-------------------|--|--|
| Output Units: | <input type="radio"/> Backscatter Energy | <input type="radio"/> Particulate Mass |
| Current Outputs: | <input type="radio"/> 4 to 20 mA | <input type="radio"/> 0 to 20 mA |
| Analog Output #1: | | |
| Analog Output #2: | | |
| Analog Output #3: | | |
| Analog Output #4: | | |

| |
|-----------|
| Relay K1: |
| Relay K2: |
| Relay K3: |
| Relay K4: |
| Relay K5: |
| Relay K6: |
| Relay K7: |
| Relay K8: |

Ethernet Module Setup:

| | |
|--|--|
| <input type="radio"/> Use a Dynamic IP address | |
| <input type="radio"/> Use a Static IP address, if yes please supply the information below: | |
| Static IP address | |
| Subnet Mask | |
| Default Gateway | |

Enhanced Remote Panel Power Circuit Requirements:

| | |
|--|--|
| 85-245 VAC, 47-63Hz, Single Phase, 30 VA Maximum | |
| <input type="radio"/> 115 VAC Power Cord | <input type="radio"/> 230 VAC Power Cord |

This is the end of the ***Enhanced Remote Panel Configuration***.