



SMARTSCAN QUICK REFERENCE MOUNTING AND INSTALLATION GUIDE

Version 1.0

SAFETY INSTRUCTIONS



Refer to the Radiation Safety Manual and CD that came with your source holder.

Always refer to the safety instructions in this guide and the country specific installation standards. Follow the prevailing safety regulations and accident prevention rules of your company and country.

General

The SmartScan should not be used in temperatures less than -50 °C (-58 °F) or greater than 48 °C (118 °F).

Safety information for EX areas

- This equipment is suitable for use in the following environment:
- CSA Class I, Div 1, Groups C & D
- CSA Class I, Zone 1 Ex d IIB T3
- ATEX II 2G EEx d (ia) IIB T3

Special installation, maintenance, or operating instructions

If it is necessary to open the SmartScan, the following warning applies:

WARNING! EXPLOSION HAZARD – Substitution of components may impair suitability for use in hazardous locations.

WARNING! EXPLOSION HAZARD - Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

AVERTISSEMENT: - RISQUE D'EXPLOSION - AVANT DE DÉCONNECTER L'ÉQUIPEMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DÉSIGNÉ NON DANGEREUX.

WARNING! EXPLOSION HAZARD

If there is any damage to the SmartScan field enclosure, verify that the environment is in a non-hazardous condition before opening. Interaction between the positioning system and the enclosure can cause sparking.

Caution! Open circuits before removing cover. There is more than one live circuit. Refer to the system interconnect drawing. A seal shall be installed within 450 mm (1.48 ft) of the enclosure. Do not operate machine with grounding wire disconnected.

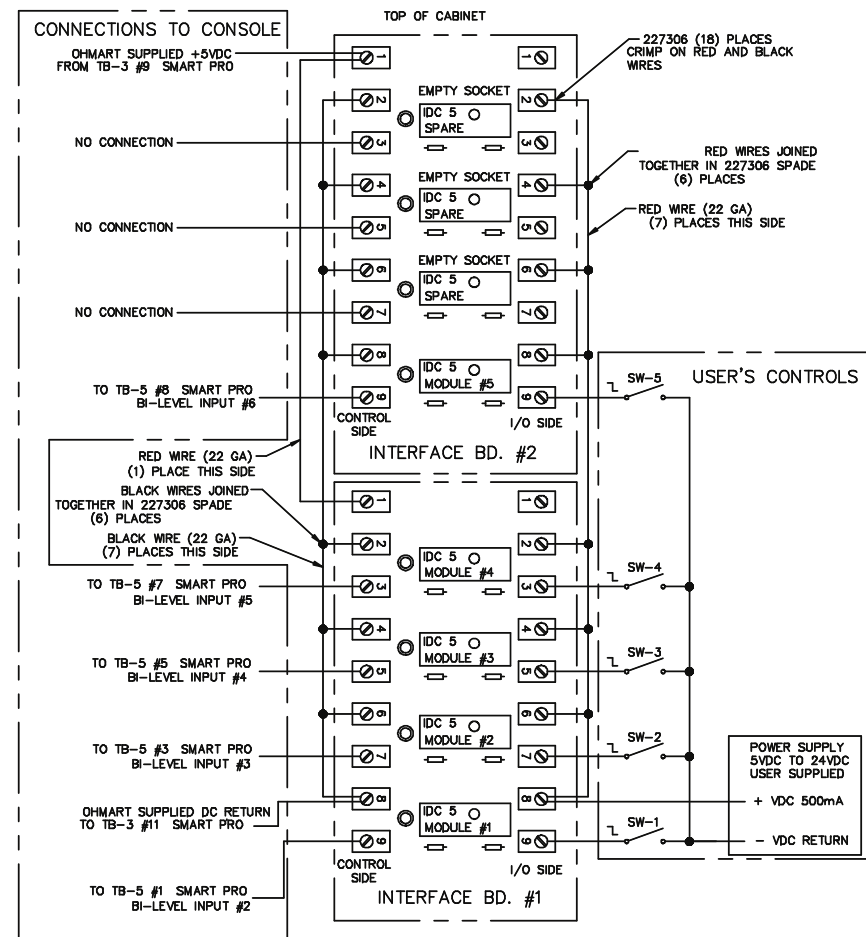
AVERTISSEMENT: - Ouvrir les circuits avant d'enlever le couvercle. Un scellement doit être installé à moins de 450 mm du boîtier. Ne pas mettre l'appareil en marche quand le conducteur de mise à la terre est débranché.

CAUTION! Do not operate the machine with the grounding wire disconnected.



WARNING! The SmartScan contains high voltage components (110VAC and 230VAC). Do not operate this system with an open enclosure. Turn off all power and wait a minimum of 10 minutes before opening the closure(s) or performing any maintenance on the system.

Optional DCS interface

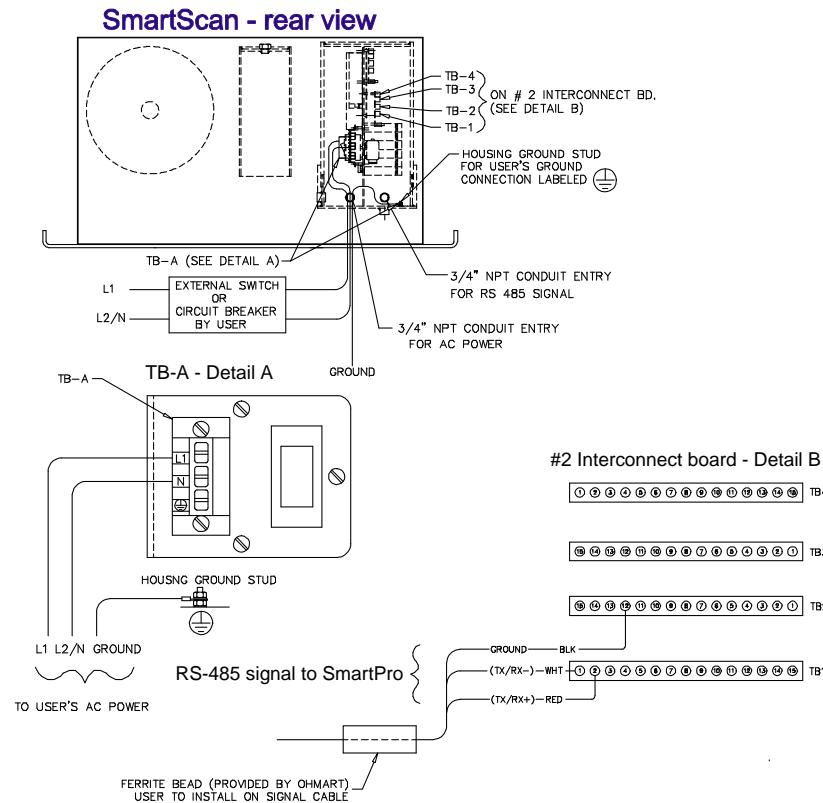


For information concerning the optional DCS cabinet and bi-level inputs, contact VEGA Field Service Engineering at 513-272-0131.

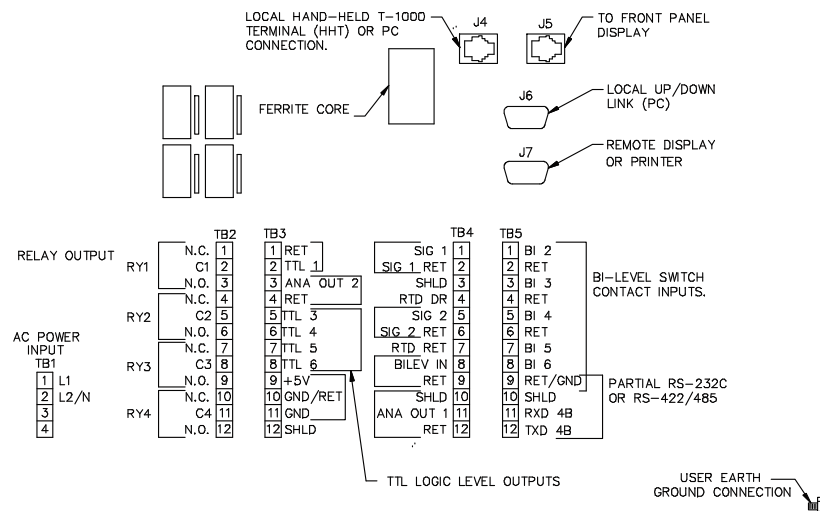
VEGA Customer Service information

To request field service within the United States and Canada, call 513-272-0131. Customers outside of the United States and Canada should contact their local VEGA representative for parts and service.

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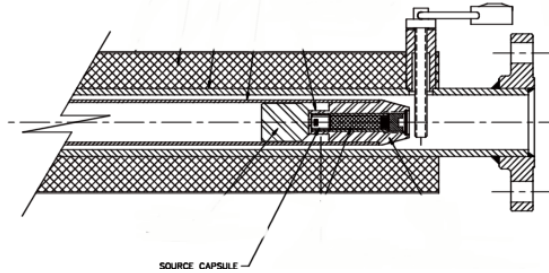


SmartPro Electronics Console



Unpacking the equipment

- Unpack the unit in a clean, dry area.
- Inspect the shipment for completeness by checking against the packing slip.
- Inspect the shipment for damage during shipment or storage. If damaged, file a claim against the carrier and report the damage in detail. Any claim on VEGA for shortages, errors in shipment, or other problems must be made within 30 days of receipt of the shipment.
- If you need to return the equipment, refer to the SmartScan Installation and Operation guide for information concerning returning equipment for repair.
- After you unpack the equipment, inspect the source holder in the shipment to assure that the source holder is locked.



Storing the equipment

- Store in a clean, dry area.
- Verify that the source holder is locked in the off position.
- Store in an area that has temperature-control between 10 °C ... 35 °C (50 °F ... 95 °F) and less than 50% relative humidity.

MOUNTING INSTRUCTIONS

- ✓ Use the detailed drawings that came with the SmartScan.
- ✓ Check the well integrity before the SmartScan ships from the factory. This enables you to test the well and resolve any problems before installation.

To check well integrity

1. Use the alignment test fixture before mounting the SmartScan on the well.
2. Tie a rope longer than the well length to the lifting eye.
3. Lower the alignment test fixture into the well until it meets resistance.
4. Mark the rope at the entry flange of the well to determine the stopping point.
5. Retrieve the test fixture and measure the length from the mark to the end of the fixture.
6. The measured length should equal the length of the well. If not, there is an obstruction stopping the test fixture. You must clear this obstruction before continuing.

Note: If using a gate valve, pass the well test tool through the valve to ensure that there is not an obstruction.

- ✓ Allow space for future maintenance.
- ✓ Do not remove the source holder lock.
- ✓ Only persons who have specific licenses or authorization from the country's regulatory agency can conduct these installations. The specifically licensed person must have a calibrated survey meter and be present at the site during the entire installation.
- ✓ Perform a radiation survey before moving the platform from the storage location. This ensures the platform is safe to transport.
- ✓ Remove the cover plate from the bottom of the circular flange of the platform before mounting the well.
- ✓ It is critical to align the platform so that the sensor assembly can move freely up and down the entire length of the well.

To mount the platform assembly

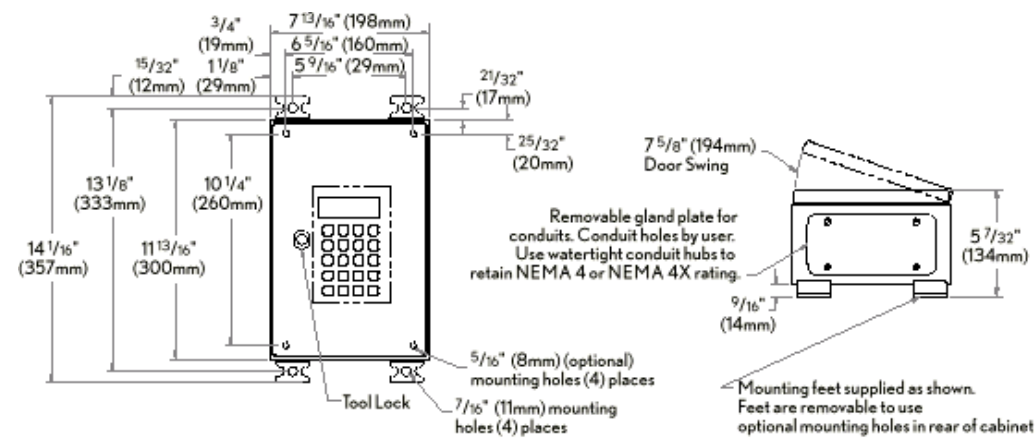
1. Use the 4 lifting holes at the side of the field enclosure base to lift the measuring assembly platform. The entire platform weighs from 386 to 499 kg (850 to 1,100 lbs).
2. Install the equipment according to the certified outline drawings.
3. Open the field enclosure once the platform assembly is securely in place.
4. Remove the clamp/bracket or packing that holds the sensor assembly in place.
Note: Do not discard the clamp/bracket. You will need it to secure the sensor assembly if the platform moves in the future.
5. Remove the cover of the electronics' enclosure and remove the packing material and wiring for the unit.
6. Fasten the door on the sensor platform box when the SmartScan is in use. This maintains the watertight seal.

✓ The SmartPro electronics console is usually mounted in the control room. To prolong the life of the components, mount the SmartPro in an area that has a clean, non-corrosive environment and is above freezing.

✓ Ensure that the equipment has enough room to open the door and is easily accessible.

To mount the SmartPro electronics console

1. Drill 4 holes into the wall for mounting.
2. Refer to the certified outline drawing for dimensions.



✓ Conduit runs must be continuous and protected so that moisture condensation does not drip into any of the housings or junction boxes.

✓ Use sealant in the conduit, or arrange the runs so that they are below the entries to the housings and use weep holes where permitted.

✓ Use a conduit seal-off in the proximity of the housing when the location is in a hazardous area. Local code determines this distance.

✓ If you use only one conduit hub, plug the other conduit hub to prevent the entry of dirt and moisture.
Note: All cable glands or hubs must be EExd rated.

Note: Contact VEGA Field Service for information specific to the dual-well model S-3922.

WIRING THE EQUIPMENT

✓ **Note:** The equipment warranty is void if there is any damage to the SmartScan due to incorrect wiring that has not been checked by an VEGA Field Service Engineer.

✓ The power supply must be continuous, clean, and transient-free. UPS type is best.

To install wiring for the measuring assembly platform

1. Open the front door and remove the top and side covers on the SmartScan.
2. Unscrew the electronics housing cover and remove it through the top opening.
3. Fasten the 3/4\" con-
4. Strip the power supply wires back approximately 1/4\".
5. Attach the ring lug to the end of the ground wire and attach to the housing ground stud.
6. Connect input wire by inserting into spring terminals.
7. Connect the two AC power supply wires at TB-A. Pin L (or H) is for the hot wire. Pin L2 (or N) is for the neutral wire. The ground wire from the power cable connects to the ground stud.
8. Remove the pluggable terminal blocks TB1 and TB2 from interconnect board #2. The signal wires go through these pluggable terminal blocks.
9. Strip wires back approximately 1/4\".
10. Connect the wires by placing them into the square opening on the underneath side of the terminal block and tighten the screw on the front.
11. Connect the red and white output lines at pins 1 and 2 on TB-1.
12. Connect the black ground wire at pin 12 on TB-2.
13. Replace the pluggable terminal blocks.
14. Run wire through the conduit to the control room electronics.
15. Check the wiring thoroughly.

Note: If in a hazardous area, verify that the area is in a non-hazardous condition before turning on the power or using a hand-held terminal.

16. Turn on the AC power.
17. Verify that the SmartScan is operating properly by viewing the following:
 - ✓ On the sensor control board, the small red LED #10 inside the field electronics housing is flashing
 - ✓ On the sensor control board, LED #6 and #7 flash together to indicate the correct establishment of the link to the SmartPro
 - ✓ Red LED on the power supply is lit
 - ✓ Yellow or green LEDs on the barrier are lit
 - ✓ If any of these indicators are off, the SmartScan is either improperly connected or not operating properly. Contact VEGA Field Service if this situation occurs.

18. Replace the electronics housing cover.
19. Replace the measuring assembly platform top and side cover and close the front cover.

Note: If you are using a gate valve, do not close the valve until the sensor assembly is in the storage position. Closing the valve before the sensor assembly is in the storage positions will cut the cable/tape and drop the sensor assembly to the bottom of the well. If this happens, an authorized, radiation protected individual must retrieve the sensor assembly.

To install wiring for the SmartPro

1. Open the cover on the SmartPro.
2. Pull the power supply wires through the conduit and into the housing.
3. Connect the power supply wires at TB1. Hot wire to Pin 1 (L1 or H), Neutral wire to Pin 2 (L2 or N), Ground wire to Pin 3. Shield wire to Pin 4 (SHD).

To connect the SmartPro to the DCS

For density analog:

1. Pull the signal wires through conduit and into housing.
2. Connect signal wires at TB4 11 and 12 RET Analog signal 10 shield.

For position analog:

1. Pull the signal wires through conduit and into housing.
2. Connect signal wires TB3 3 and 4 RET Analog signal 12 shield.

Note: Do not use the conduit that carries the signal cable to and from the control room for any other equipment.