1. **How many wired smart sensors can be connected?**
   a. Sixteen in total to a GX10/20 and four to an FX1006

2. **Does each SENCOM® sensor have a different address?**
   a. No, all SENCOM® sensors have Modbus address one. We have created a small program (SENCOM Tool) to easily change the address of the sensor when connected to a PC (via USB). We have also written and quick start guide that walks you through everything that is need to be done.

3. **How do I calibrate the SENCOM® sensor used with the SENSTATION?**
   a. This can be done with the SPS24 SENCOM® calibration software. Before the calibration, each sensor address needs to be changed back to address one. After the calibration the sensor can then be set back to the appropriate address with the SENCOM address software tool.

4. **How many sensors can be connected to one galvanic Isolation box (S8000)?**
   a. Four SENCOM® sensors can be connected to the S8000

5. **What is the IP rating of the Galvanic Isolation box (S8000)?**
   a. The Daqstation is IP54 and the S8000 is IP20. It is a DIN rail type box, so as an alternative it can be ordered with an IP66 box with a DINrail inside.

6. **Is a service engineer necessary to install this at the customer?**
   a. We aim to deliver a complete and easy to install package. This we do by preparing all the necessary files and instructions and let ELC upload and program the recorder and sensors.
7. **How to connect the Galvanic isolation box when more than four sensors are used?**
   a. Through Multidrop, please see below. Star or branch connection as shown in the following figures is strictly forbidden.

![Daisy chain of RS485 (hand in hand) (allowed connection)](image)

![Star connection of RS485 (prohibited connection)](image)

![Branch connection of RS485 (prohibited connection)](image)
8. **How about if a customer wants wireless?**
   a. Wireless is available in a couple different ways:
      i. The DAQ stations have wireless adapter available.
      ii. SENCOM sensor can be connected to Wireless adapter that communicates using ISA100.

9. **How to connect the sensors to the GX/FX**
   a. A SENCOM® Modbus Communication Quick Start Guide (TNA01503) has been created that includes all of the information a customer would need for using a SENCOM sensor without an analyzer. This document is available on the yokogawa.com downloads page. [http://www.yokogawa.com/us/technical-library/technical-information.htm](http://www.yokogawa.com/us/technical-library/technical-information.htm)

1. **The GX and FX do not have a 4-20 mA. If they customer needs this what can they do?**
   a. There are a few options available to the customer. They can either take the RS485signal from the recorder directly into the DCS and control from there, or they can connect to a blind controller such as an MW that will give a 4-20 MA output. A third option is to connect to a radio Dawn wireless accessory, R/115S-13, that will give them 8 analog outputs.

2. **How can the SENSTATION be ordered?**
   a. The SENCOM sensors, cables, calibration software, SPS24, and the galvanic Isolation box, S8000, will be orderable through the Analytical group.
b. The GX10/20 and the FX1006 will be available through the Netsol group. The customers can either program the units themselves or work through the system integration group in Newnan to program the FX or GX before it leave the Newnan factory.

3. **Will the solution be delivered pre-programmed?**
   a. Since all items are treated and individual components they will be treated as such; unless you work with the NETSOL group to have the instrument programmed before leaving the factory.

4. **How do I program the recorder? How is the customized display of the GX programmed?**
   a. SENCOM plug and play custom screen configuration can be loaded into the GX/FX recorder prior to shipment for a small charge. Detailed custom screen can be developed for an additional fee. Please consult NETSOL field marketing consultants for additional information.

5. **When is it economically interesting for my customer to buy SENSTATION?**
   a. At 3 loops is where the price points become a comparison match

6. **What can be the maximum distance between isolation box and recorder for the RS485 communication?**
   a. We use a standard RS485 serial interface for communication between recorder and isolation box. The maximum distance for this connection is 1200 m.
   b. Special RS485 cable with the impedance of 120Ω is required during high speed and long distance transmission
   c. Armored shielded twisted pair (STP) cables should be adopted in strong interference environment
   d. RS485 repeater or 485HUB is needed when there are more 30 devices in one RS485 data line or when the communication cable is longer than 500 meters
   e. It is better not to use CAT5 or CAT5E cables as 485 communication cables for the following reasons: without shielding layers, they cannot avoid common-mode interference; as single-core copper wires, they are easily to be broken; with a thin cable diameter (cross-sectional area of 0.2mm²), the transmission distance and the devices connected can be reduced.

7. **What are the specifications of cable between isolation box and recorder?**
a. We recommend a shielded cable (2 wires, 0.5mm²) (see table)

<table>
<thead>
<tr>
<th>Distance</th>
<th>Device number</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-400m</td>
<td>1-32</td>
<td>0.5mm²</td>
</tr>
<tr>
<td>400-800m</td>
<td>1-16</td>
<td>0.5mm²</td>
</tr>
<tr>
<td>400-800m</td>
<td>17-32</td>
<td>0.75mm²</td>
</tr>
<tr>
<td>800-1200m</td>
<td>1-8</td>
<td>0.5mm²</td>
</tr>
<tr>
<td>800-1200m</td>
<td>9-21</td>
<td>0.75mm²</td>
</tr>
<tr>
<td>800-1200m</td>
<td>22-32</td>
<td>1.0mm²</td>
</tr>
</tbody>
</table>

8. **What is the maximum length of the cable for SENCOM sensor?**
   a. The available cables are 20 m and (for now) as a special an extension cable is available of 30 m. The total maximum distance is 100 meters without repeater.

9. **Does SENCOM Sensor need to be taken to lab for calibration?**
   a. The sensors need to be calibrated with the SPS24 software. This can be done in the laboratory or any other convenient location.
   b. Prior to the calibration with the SPS24 software the **SENCOM Tool** software needs to be used to change the address of the sensor to no. 1. After the calibration the correct address needs to be uploaded again.