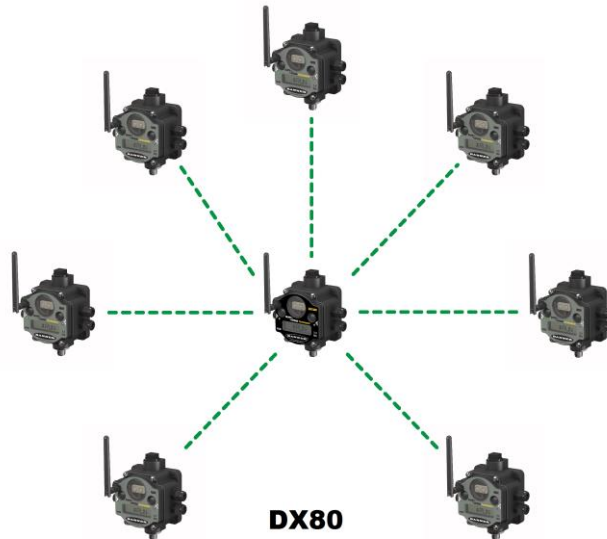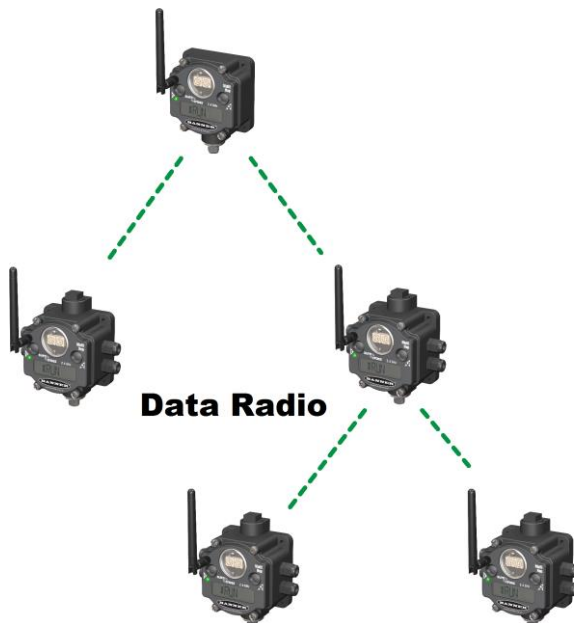# Wireless - 15-Points Plan

1. **What type of signals should be transmitted wirelessly?**

   a. **Sensor- / Actuator signals** => Continue reading from point 2.

   DX80

   b. **Bus protocols** => Continue reading from point 3.

   Data Radio

2. **Must the system be connected to a bus or a cloud?**
   If not, continue reading from point 4.
   - DX80G… Gateways feature a RS485 interface
   - DXM…B1R3.. Controller feature an Ethernet interface and optional Cloud connection

3. **Which bus connection is required or which protocol has to be transferred?**
   - DX80
     o DX80G… supports Modbus RTU
     o DXM… supports Modbus TCP, EtherNet/IP and Profinet
   - Data Radio
     o DX80DR../DX80SR../R70SR.. transmit Modbus RTU and other protocols via RS485
     o R70ER.. transmit Ethernet protocols Modbus TCP, EtherNet/IP and Profinet

4. **How many access points or devices are required?**
   - Each radio device offers a maximum amount of 12 IOs depending on model with a maximum of 4 analog inputs resp. outputs of different kind

5. **What protection class is required, IP20 or IP67? Is the available space limited?**
   - DX80…C variants do have protection class IP20
   - DX80..PB.. are circuit boards without housing only

6. **If desired, what type of IOs and how many of them must be transferred?**
   How does the IO-Linking look like? If necessary, a drawing similar to the picture below should be made. Otherwise, continue reading from point 8.
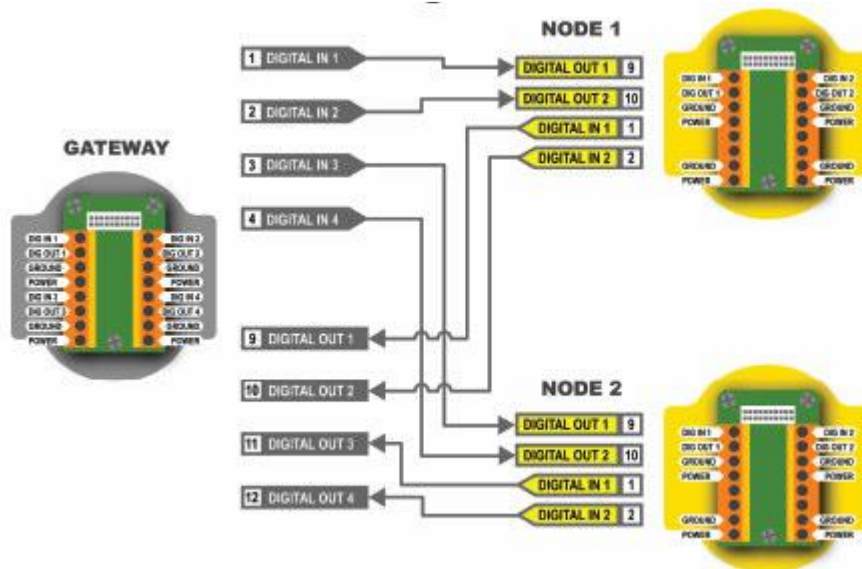
7. **What field devices are connected to the wireless components? How often must their signals be evaluated?**

8. **Can these wireless components be supplied with 10 ... 30 VDC or is it necessary to resort to a battery solution? Would a solar panel be an alternative?**
   - So called FlexPower devices can be supplied with either battery or line supply
   - External battery housings DX81 are available
   - Some devices (e. g. DX80..E) contain an internal battery

9. **Is an application in hazardous areas planned?**
   - DX80..C variants as well as DX80DR..-H are certified for hazardous area zones 2 and 22 and required an approved housing

10. What should the reaction speed of all IOs be?
- The system architecture allows a report rate of maximum 67ms. Packages needs to be re-transmitted depending on environment. Average report rate is 125ms
- Battery devices read analog data from sensors once each second maximum

11. Has a site survey already been carried out and if so, with what result? If not, how great are the distances to be bridged? Are there disturbing objects?

12. What is the required transmission interval to transmit the data wirelessly? In what time periods are they needed?

13. How many missed data packets will trigger a disconnection and how should the system and in particular the IOs behave in this case?

14. What are the consequences of a failure of the wireless system? What is the worst case expected?
- Each device features a determinism setting outputs on specific defined values in case of an error condition

15. What conditions regarding location and environment are to be expected? What accessories, e.g. assembly aids, are required?
- Antenna cables allow a more suitable positioning of the antenna
- If needed a surge supressor can be installed between antenna and device
- Antenna with higher gain compensate losses of cables and surpressors