

## EQUIPMENT INSTALLATION GUIDELINES

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Do NOT apply power prior to commissioning.  
All field cables must be terminated at all points prior to commissioning.

Technical Sheet  
ref C1144C 274D23C

### Standards

Follow the correct electrical installation procedure and legislation (IEEE Regs).  
The installation of GDS products must be carried out by suitably trained and qualified personnel who must be aware of the requirements of BSEN 60079 BSEN 50014 and IEC 61241 when dealing with zoned hazardous area equipment.

### Junction Boxes

DO check area classification for junction box suitability  
DO use boxes appropriate to the environment  
DO ensure correct IP rating for the environment  
DO use adequate sizes of field junction boxes  
DO allow for spare ways and future expansion  
DO mount field junction boxes at working height  
DO remember that water can't get OUT of weatherproof boxes once it is inside!  
DO employ a weather resistant tag to identify the equipment  
DO prevent water/product ingress through the cables/glands – enter box from side or bottom  
DO plug all unused ports with appropriate stoppers  
DO clean out the junction box after installation  
DON'T open boxes in high humidity, this is the start of corrosion

### Cables

DO check area classification for cable type  
DO ensure cable runs and distances to sensors are as recommended by the manufacturer of the equipment  
DO document and record all cable routes  
DO use the correct size and type of cable for the application – screened cable for instrumentation  
DO use standard cores where possible  
DO keep signal cables away from power cables  
DO ensure that loop resistance values are not excessive  
DO ensure that the cable is of suitable quality for its intended environment  
DO avoid major sources of electrical interference when planning cable runs, away from motors etc.  
DON'T exceed maximum cable parameters for IS systems  
DON'T run the cable over sharp edges or around overly tight bends  
DON'T overstress cable support cleats/ties

### Glanding

DO check area classification for gland type  
DO get it right first time. It is very difficult to correct it later  
DO use the right type of gland for the application  
DO leave generous service loops in the sensor cables  
DO fit a sealing washer if required for weatherproofing  
DO ensure that any RFI shield is properly isolated from safety earth metalwork and gland body  
DO ensure that the SWA earthing is continuous and vibration proof  
DO ensure that the cable sheath makes a weatherproof seal  
DO fully tighten all fittings  
DON'T use tape for weatherproofing  
DON'T hide bad workmanship under shrouds

### Terminations

DO terminate cables to the correct points to prevent damage to the system  
DO sleeve and terminate earth wires correctly  
DO remain consistent in the allocation of wire colours  
DO remember to attach cable and termination markers to aid maintenance  
DO ensure that cable insulation extends right up to the throat of the terminal  
DO ensure that there are no bare wires or wire strands  
DO use the correct tool for crimp connections  
DO pull test every one before termination  
DO use the correct width terminal screwdriver to avoid cracking terminal blocks  
DO ensure that terminal screws are adequately tight

## Earthing

- DO maintain separation of Safety, Instrument and IS Earths
- DO ensure that earth continuity is maintained through field junction boxes
- DO ensure that metallic outer enclosures are adequately earthed for safety
- DO allow for any IS Barriers in systems with earth fault monitoring

## RFI Screening

- DO use suitably screened instrument cable for sensor runs
- DO maintain separation of safety earths and screening
- DO connect screening as advised by equipment manufacturers - see document C1770
- DO ensure continuity through junction boxes/equipment housings

## Lightning

- DO keep instrument cables away from susceptible power and earth cables
- DO fit surge protectors in areas subject to severe electric storms

## Equipment

- DON'T power up until commissioning
- DO check area classification for equipment suitability
- DO ensure correct IP rating for the environment
- DO check power requirements
- DO power from a separate fused spur (AC)
- DO locate away from sources of heat
- DO mount gas sensors in accessible locations, **at the correct height for the gas type**
- DO note position of end of line addressable sensor
- DO where possible and unless otherwise advised mount at accessible working height for ease of commissioning and maintenance
- DO protect the equipment from paint/steam and other contaminants
- DO ensure easy access to the interior of the equipment
- DO mount in easy reach, audible distance of operating personnel
- DO protect from vibration
- DO employ a combination sun and rain shields in all outdoor locations
- DO power from a clean adequately rated AC/DC supply (no inverters fed from the same supply)
- DO run cable within equipment enclosure away from components and circuit boards
- DO keep cables within the equipment enclosure as short as possible
- DO keep operating manuals adjacent to the equipment
- DO ensure PCB's are not in contact with conductive surfaces when powered up
- DO ensure that electro-static precautions are taken when handling PCB's
- DO ensure PCB's are powered OFF when removing or installing

## Testing

- DO complete the cable installation testing BEFORE final termination at either end
- DO record the cable loop resistance values to aid troubleshooting later

## Documentation

- DO record cable routing and equipment/junction box locations
- DO track all changes by updating the system documentation
- DO keep records adjacent to the equipment

This document is for guidance only and may be modified at any time without prior notice.

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