FieldConnex DART Fieldbus
Switch to the future of fieldbus:
The intrinsically safe High-Power Trunk for your existing fieldbus instrumentation
Switch to the future of fieldbus

DART Fieldbus

The intrinsically safe High-Power Trunk
Dynamically detecting an ignition

Time to turn-off: 5…10 µs
A typical Spark – Electrical Behavior

Spark Duration

Initial Phase | Critical Phase
---|---

$U_s$ | $P_s$

$di/dt$ | $t$
A typical Spark – Extinguished by DART

- Spark Duration
- Initial Phase
- Critical Phase
- di/dt
- $I_s$
- $U_s$
- $P_s$
The Future of Fieldbus – Your Benefits

- One simple installation method for the entire segment
- High flexibility: Segment design with up to 1000 m trunk length
- Investment protection: Compatible to today’s intrinsically safe fieldbus instrumentation
- High availability through true power redundancy
- The safest fieldbus infrastructure ever

Intrinsically safe  
Ex ib IIC
The Intrinsically safe High-Power Trunk protected by DART®

Intrinsically safe spurs
Ex ib IIC

To DCS
DART Power Supply

Zone 1
DART Segment Protectors

Ex ib IIC
The Intrinsically safe High-Power Trunk

- One simple installation method for trunk and spurs
- Flexible design: Up to 1000 m trunk length
- Protection of investment: Compatible to today’s intrinsically safe fieldbus instrumentation
DART protects the trunk I.S. For Zone 1

DART Power Hub and DART Segment Protector:

- High-Power with redundancy
- With Advanced Diagnostics

=> Long trunk cable (typ. 550 m/max. 1000 m)

Intrinsically Safe Outputs

- For any existing standard field instrument
- High device count

=> Intrinsically Safe Ex ib – Gas Group IIC
DART Power Hub

- Redundant Power Supply with load sharing
- With Advanced Diagnostic Module
- DART-protected trunk connection
- Works as I.S. Barrier with three-way galvanic isolation of DCS, bulk power and fieldbus segment

Technical Data Trunk Output

<table>
<thead>
<tr>
<th></th>
<th>DART Power Hub</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated power</td>
<td>22 V / 360 mA</td>
</tr>
<tr>
<td>DCS supply</td>
<td>10.2 V / 40 mA</td>
</tr>
<tr>
<td>Cable distance, typ./max.</td>
<td>550 m / 1000 m</td>
</tr>
</tbody>
</table>
DART Segment Protector

- Connections for the field instrument
- Simple to install and wire
- Outputs intrinsically safe Ex ib IIC
- With short-circuit protection
- Live disconnect on trunk and spurs

<table>
<thead>
<tr>
<th>Technical Data</th>
<th>DART Segment Protector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spur Output</td>
<td></td>
</tr>
<tr>
<td>Rated power</td>
<td>min 10.5 V @ 34 mA</td>
</tr>
<tr>
<td>IS Power rating</td>
<td>24 V / 250 mA</td>
</tr>
<tr>
<td>Spur length up to</td>
<td>120 m</td>
</tr>
</tbody>
</table>
Validating Intrinsic Safety with DART

On the Trunk – As fast as easy

- Install one redundant DART Power Hub
- Use type 'A' fieldbus cable
- Use up to 1000 m trunk cable
- Install up to four DART Segment Protectors

Intrinsically safe Ex ib IIC
Easy to understand, easy to engineer

up to 1000 m

Type 'A'
## Technical Data for DART Fieldbus

<table>
<thead>
<tr>
<th>Technical Data</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trunk output power</td>
<td>typ. 22 V / 360 mA</td>
</tr>
<tr>
<td>Spur output power</td>
<td>Min 10.5 @ 34 mA</td>
</tr>
<tr>
<td>Impedance – Cable Type ‘A’</td>
<td>100 Ω</td>
</tr>
<tr>
<td>Trunk cable length, typ. / max.</td>
<td>550 m /1000 m</td>
</tr>
<tr>
<td>Overall cable length, max. (as per IEC 61158-2)</td>
<td>1900 m</td>
</tr>
<tr>
<td>Spur cable length, max. (as per IEC 61158-2)</td>
<td>120 m</td>
</tr>
</tbody>
</table>

The safest fieldbus infrastructure ever.
Certified ATEX and IECEx acc. to IEC 60079-11
## FieldConnex System Components

<table>
<thead>
<tr>
<th>Type Code</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KT-MB-FB-D-4R</td>
<td>DART Power Hub</td>
</tr>
<tr>
<td>KT-MB-FB-D-4R.GEN</td>
<td>DART Power Hub, generic also for SK3</td>
</tr>
<tr>
<td>KT-MB-FB-D-4R.YO</td>
<td>DART Power Hub for Yokogawa</td>
</tr>
<tr>
<td>KT-MB-GTB-D-2PS</td>
<td>DART Compact PROFIBUS Power Hub (SK3)</td>
</tr>
<tr>
<td>R3-SP-IBD12</td>
<td>DART Segment Protector, 12-channel</td>
</tr>
</tbody>
</table>

The safest fieldbus infrastructure ever.
Certified ATEX and IECEx acc. to IEC 60079-11
Validating Intrinsic Safety

As Fast as Easy
Validating Intrinsic Safety with DART

On the Trunk – As fast as easy

- Use only type 'A' fieldbus cable
- Ensure trunk cable length is max. 1000 m
- Use only DART Power Hub and DART Segment Protectors

That's All! – Easy to understand, easy to engineer.
A verification of the compliance with the permitted effective inductances and capacitances is not required for a cable length up to 120 m per spur.
Certification DART Segment Protector

R3-SP-IBD-N12

- Max. 4 apparatus per spur
  - 1 field device
  - 2 surge protectors
  - 1 handheld terminal

- Up to a max cable length per spur of 120 m there is NO NEED to verify the effective available inductance and capacitance
Availability of Devices (14/09/2010)

33 FF certified I.S. pressure transmitters
- 30 are certified in acc. with Entity <= DART Fieldbus Compatible
- 13 are certified in acc. with FISCO

30 FF certified I.S. flow transmitters
- 26 are certified in acc. with Entity <= DART Fieldbus Compatible
- 22 are certified in acc. with FISCO

22 FF certified I.S. temperature transmitters
- 22 are certified in acc. with Entity <= DART Fieldbus Compatible
- 3 are certified in acc. with FISCO

Practically All Devices Can Connect!
Advantages

- One simple installation method
- Flexible system design
- Protection of investment
- High availability for the plant life cycle

The safest fieldbus infrastructure ever.
Certified ATEX and IECEx acc. to IEC 60079-11