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# RAD-...-IFS IO-INTEGRATION

## Radioline - Wireless integration of I/O signals into PROFIBUS or PROFINET

Application note
106865_en_00

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## Description

This application note describes six different possibilities for how the I/O signals can be wirelessly integrated into PROFIBUS or PROFINET. For this you require the Radioline wireless modules for a 2400 MHz or 868 MHz wireless system and I/O extension modules:

| Designation | Description | Order No. | Link to item |
|---|---|---|---|
| RAD-2400-IFS<br>or<br>RAD-868-IFS | 2400 MHz wireless transceiver<br>or<br>868 MHz wireless transceiver | 2901541<br><br>2904909 | phoenixcontact.net/product/2901541<br><br>phoenixcontact.net/product/2904909 |
| **I/O extension modules** | | | |
| RAD-AI4-IFS | 4 analog current inputs | 2901537 | phoenixcontact.net/product/2901537 |
| RAD-PT100-4-IFS | 4 Pt 100 inputs | 2904035 | phoenixcontact.net/product/2904035 |
| RAD-AO4-IFS | 4 analog outputs | 2901538 | phoenixcontact.net/product/2901538 |
| RAD-DI4-IFS | 4 digital inputs | 2901535 | phoenixcontact.net/product/2901535 |
| RAD-DI8-IFS | 8 digital inputs or 2 pulse inputs | 2901539 | phoenixcontact.net/product/2901539 |
| RAD-DOR4-IFS | 4 digital relay outputs | 2901536 | phoenixcontact.net/product/2901536 |
| RAD-DO8-IFS | 8 digital transistor outputs | 2902811 | phoenixcontact.net/product/2902811 |
| RAD-DAIO6-IFS | 1 analog input/output,<br>2 digital wide-range inputs/outputs | 2901533 | phoenixcontact.net/product/2901533 |
| **Cable** | | | |
| RAD-CABLE-USB | USB data cable | 2903447 | phoenixcontact.net/product/2903447 |

**WARNING:**
This application note does **not** replace the device-specific documents.
Please follow the safety notes in the associated package slips and data sheets.

Make sure you always use the latest documentation.
It can be downloaded at phoenixcontact.net/products.

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# 1 I/O integration into PROFIBUS

## 1.1 PROFIBUS terminal block IB IL PB MA-PAC

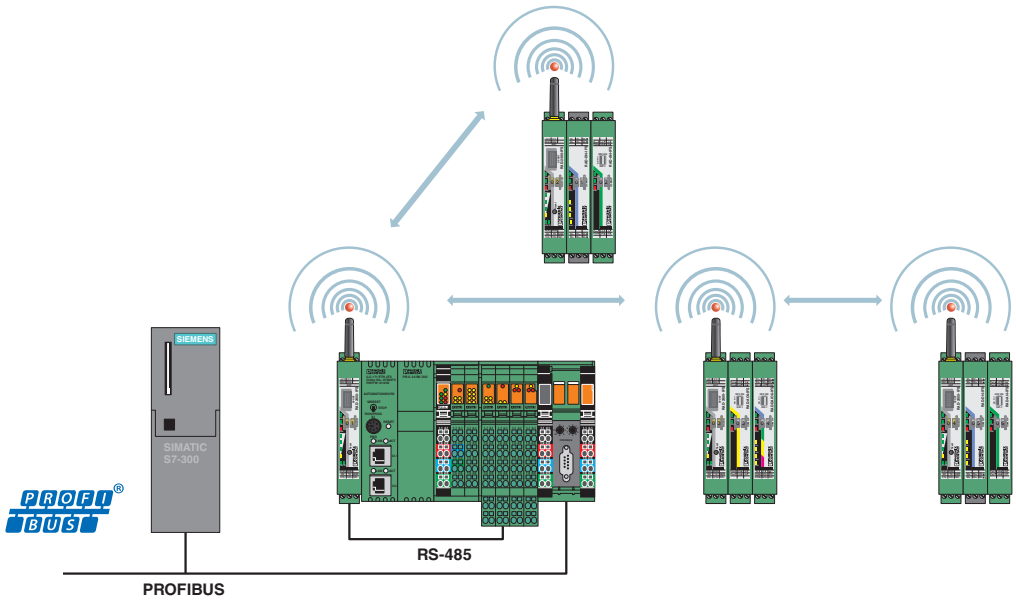


Figure 1 PROFIBUS terminal block IB IL PB MA-PAC

– Process data width: 48 words IN/OUT

For this sample installation you need:

| Designation | Description | Order No. | Link to item |
|---|---|---|---|
| RAD-2400-IFS<br>or<br>RAD-868-IFS | 2400 MHz wireless transceiver<br>or<br>868 MHz wireless transceiver | 2901541<br><br>2904909 | phoenixcontact.net/product/2901541<br><br>phoenixcontact.net/product/2904909 |
| RAD-...-IFS | I/O extension modules, digital or analog inputs and outputs, depending on the application | - | - |
| ILC 171 ETH 2TX | Small-scale controller with two Ethernet ports | 2700975 | phoenixcontact.net/product/2700975 |
| IB IL RS 485/422-PRO-PAC | Inline RS-485/-422 function terminal | 2863627 | phoenixcontact.net/product/2863627 |
| IB IL PB MA-PAC | Inline PROFIBUS terminal block | 2700630 | phoenixcontact.net/product/2700630 |
| PC WORX EXPRESS | Free programming environment for modular small-scale controllers | 2988670 | phoenixcontact.net/product/2988670 |
| RESY-DATA-A LIC + Radioline function blocks | License for Remote Systems (ReSy) | 2876847 | phoenixcontact.net/product/2876847 |
| Siemens CPU 315-2DP | Central processing unit with MPI | - | - |



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## 1.2 Siemens CP 343-1 communications processor

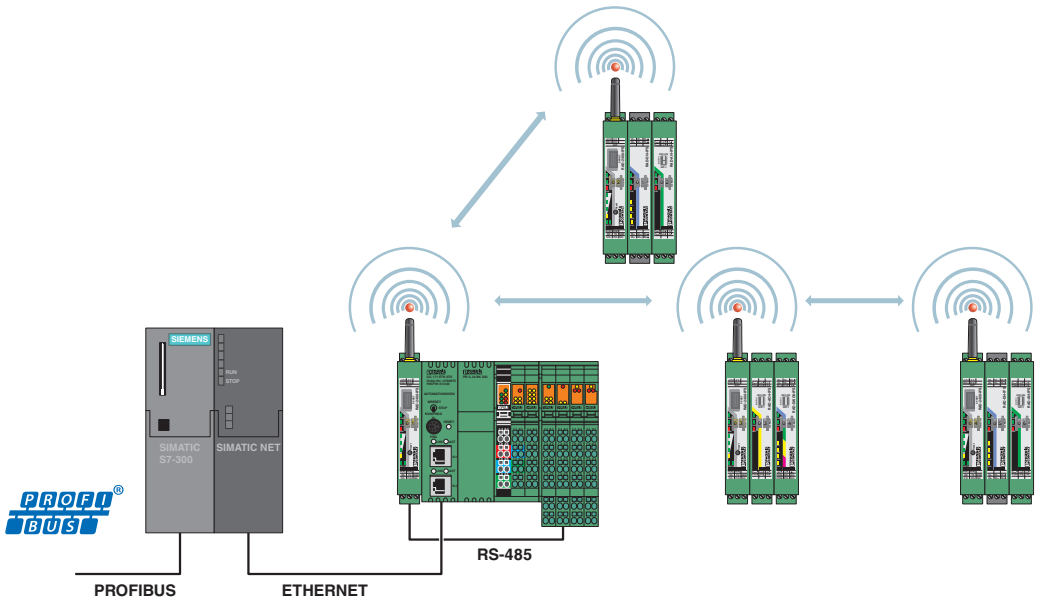


Figure 2 Siemens CP 343-1 communications processor

For this sample installation you need:

| Designation | Description | Order No. | Link to item |
|---|---|---|---|
| RAD-2400-IFS<br>or<br>RAD-868-IFS | 2400 MHz wireless transceiver<br>or<br>868 MHz wireless transceiver | 2901541<br><br>2904909 | phoenixcontact.net/product/2901541<br><br>phoenixcontact.net/product/2904909 |
| RAD-...-IFS | I/O extension modules, digital or analog inputs and outputs, depending on the application | - | - |
| ILC 171 ETH 2TX | Small-scale controller with two Ethernet ports | 2700975 | phoenixcontact.net/product/2700975 |
| IB IL RS 485/422-PRO-PAC | Inline RS-485/-422 function terminal | 2863627 | phoenixcontact.net/product/2863627 |
| PC WORX EXPRESS | Free programming environment for modular small-scale controllers | 2988670 | phoenixcontact.net/product/2988670 |
| RESY-DATA-A LIC + Radioline function blocks | License for Remote Systems (ReSy) | 2876847 | phoenixcontact.net/product/2876847 |
| Siemens CPU 315-2DP | Central processing unit with MPI | - | - |
| Siemens CP 343-1 + Siemens COM library | Communications processor | - | - |



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## 1.3 Integrated Ethernet interface

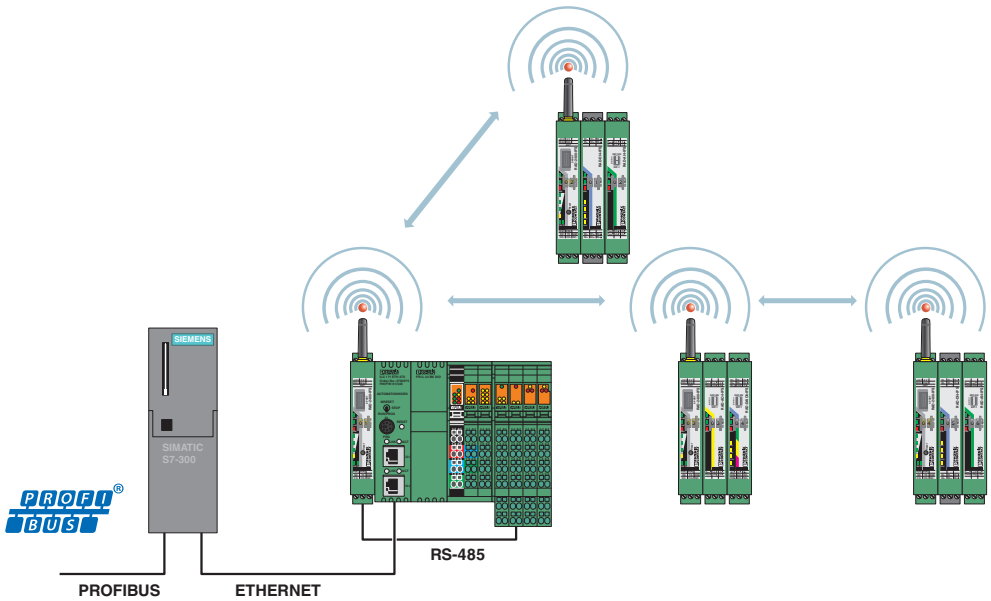


Figure 3 Integrated Ethernet interface

For this sample installation you need:

| Designation | Description | Order No. | Link to item |
|---|---|---|---|
| RAD-2400-IFS<br>or<br>RAD-868-IFS | 2400 MHz wireless transceiver<br>or<br>868 MHz wireless transceiver | 2901541<br><br>2904909 | phoenixcontact.net/product/2901541<br><br>phoenixcontact.net/product/2904909 |
| RAD-...-IFS | I/O extension modules, digital or analog inputs and outputs, depending on the application | - | - |
| ILC 171 ETH 2TX | Small-scale controller with two Ethernet ports | 2700975 | phoenixcontact.net/product/2700975 |
| IB IL RS 485/422-PRO-PAC | Inline RS-485/-422 function terminal | 2863627 | phoenixcontact.net/product/2863627 |
| PC WORX EXPRESS | Free programming environment for modular small-scale controllers | 2988670 | phoenixcontact.net/product/2988670 |
| RESY-DATA-A LIC + Radioline function blocks | License for Remote Systems (ReSy) | 2876847 | phoenixcontact.net/product/2876847 |
| Siemens CPU S7-300 + Siemens COM library | Central processing unit with integrated Ethernet interface | - | - |



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## 1.4 Modbus/RTU with Siemens CP 341

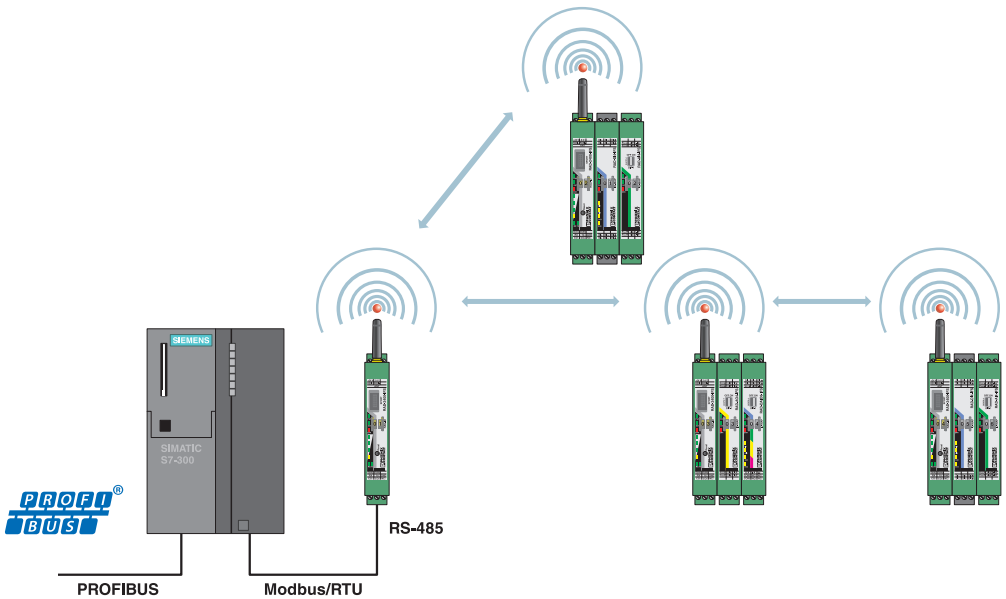


Figure 4 Modbus/RTU with Siemens CP 341

For this sample installation you need:

| Designation | Description | Order No. | Link to item |
|---|---|---|---|
| RAD-2400-IFS<br>or<br>RAD-868-IFS | 2400 MHz wireless transceiver<br>or<br>868 MHz wireless transceiver | 2901541<br><br>2904909 | phoenixcontact.net/product/2901541<br><br>phoenixcontact.net/product/2904909 |
| RAD-...-IFS | I/O extension modules, digital or analog inputs and outputs, depending on the application | - | - |
| Siemens CPU 315-2DP | Central processing unit with MPI | - | - |
| Siemens CP 341 | Communications processor | - | - |



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## 1.5 Modbus/RTU with PROFIBUS gateway

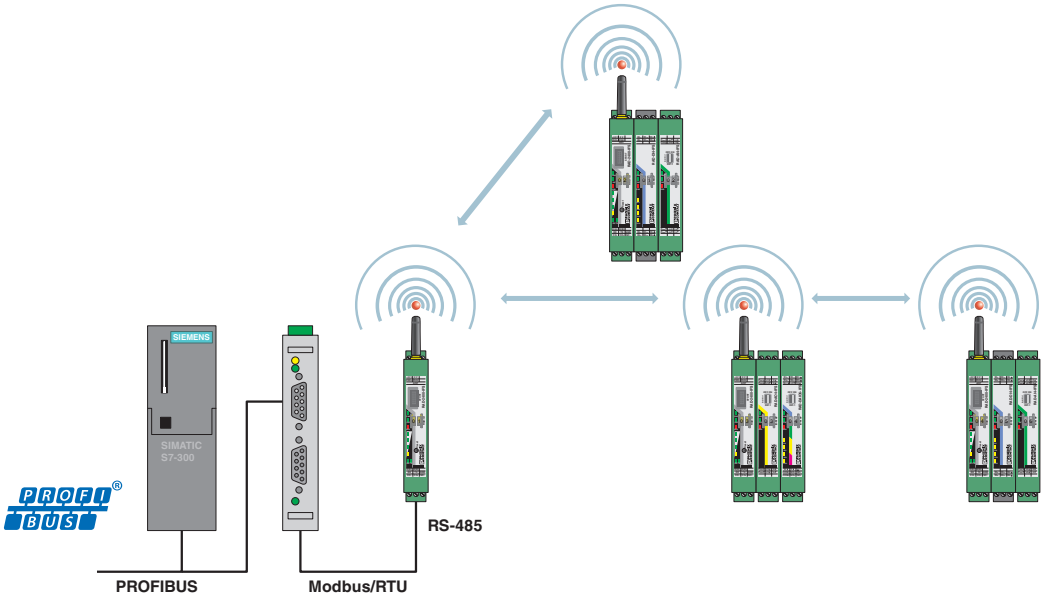


Figure 5 Modbus/RTU with PROFIBUS gateway

For this sample installation you need:

| Designation | Description | Order No. | Link to item |
|---|---|---|---|
| RAD-2400-IFS<br>or<br>RAD-868-IFS | 2400 MHz wireless transceiver<br>or<br>868 MHz wireless transceiver | 2901541<br><br>2904909 | phoenixcontact.net/product/2901541<br><br>phoenixcontact.net/product/2904909 |
| RAD-...-IFS | I/O extension modules, digital or analog inputs and outputs, depending on the application | - | - |
| HD67561 (ADFweb) | Gateway, PROFIBUS slave/Modbus master | - | - |
| Siemens CPU 315-2DP | Central processing unit with MPI | - | - |



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## 2 I/O integration into PROFINET

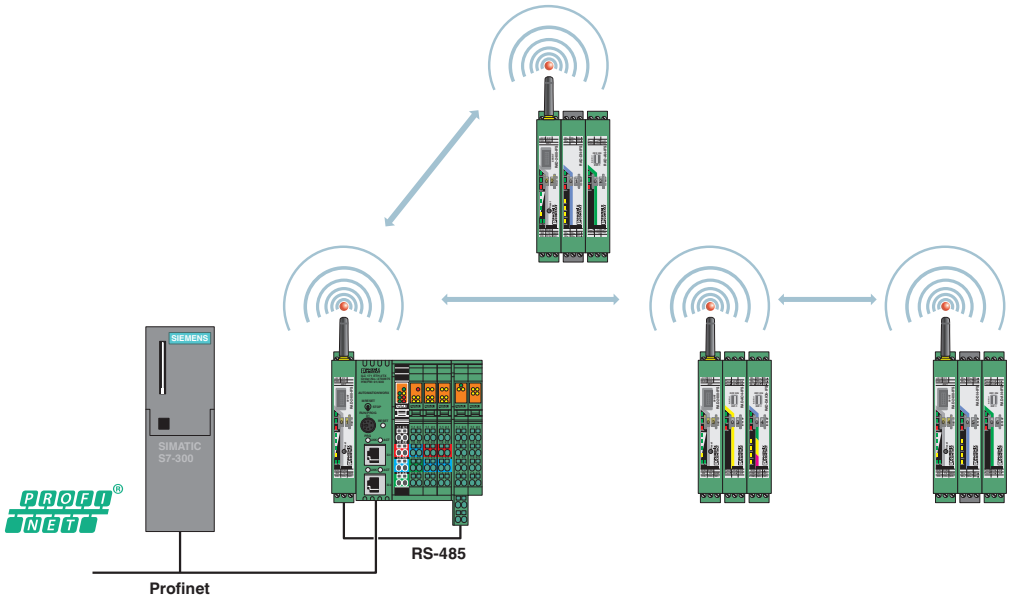


Figure 6 I/O integration into PROFINET

For this sample installation you need:

| Designation | Description | Order No. | Link to item |
|---|---|---|---|
| RAD-2400-IFS<br>or<br>RAD-868-IFS | 2400 MHz wireless transceiver<br>or<br>868 MHz wireless transceiver | 2901541<br><br>2904909 | phoenixcontact.net/product/2901541<br><br>phoenixcontact.net/product/2904909 |
| RAD-...-IFS | I/O extension modules, digital or analog inputs and outputs, depending on the application | - | - |
| ILC 171 ETH 2TX | Small-scale controller with two Ethernet ports | 2700975 | phoenixcontact.net/product/2700975 |
| IB IL RS 485/422-PRO-PAC | Inline RS-485/-422 function terminal | 2863627 | phoenixcontact.net/product/2863627 |
| PC WORX EXPRESS | Free programming environment for modular small-scale controllers | 2988670 | phoenixcontact.net/product/2988670 |
| RESY-DATA-A LIC + Radioline function blocks | License for Remote Systems (ReSy) | 2876847 | phoenixcontact.net/product/2876847 |
| Siemens CPU 315-2PN/DP | Central processing unit | - | - |



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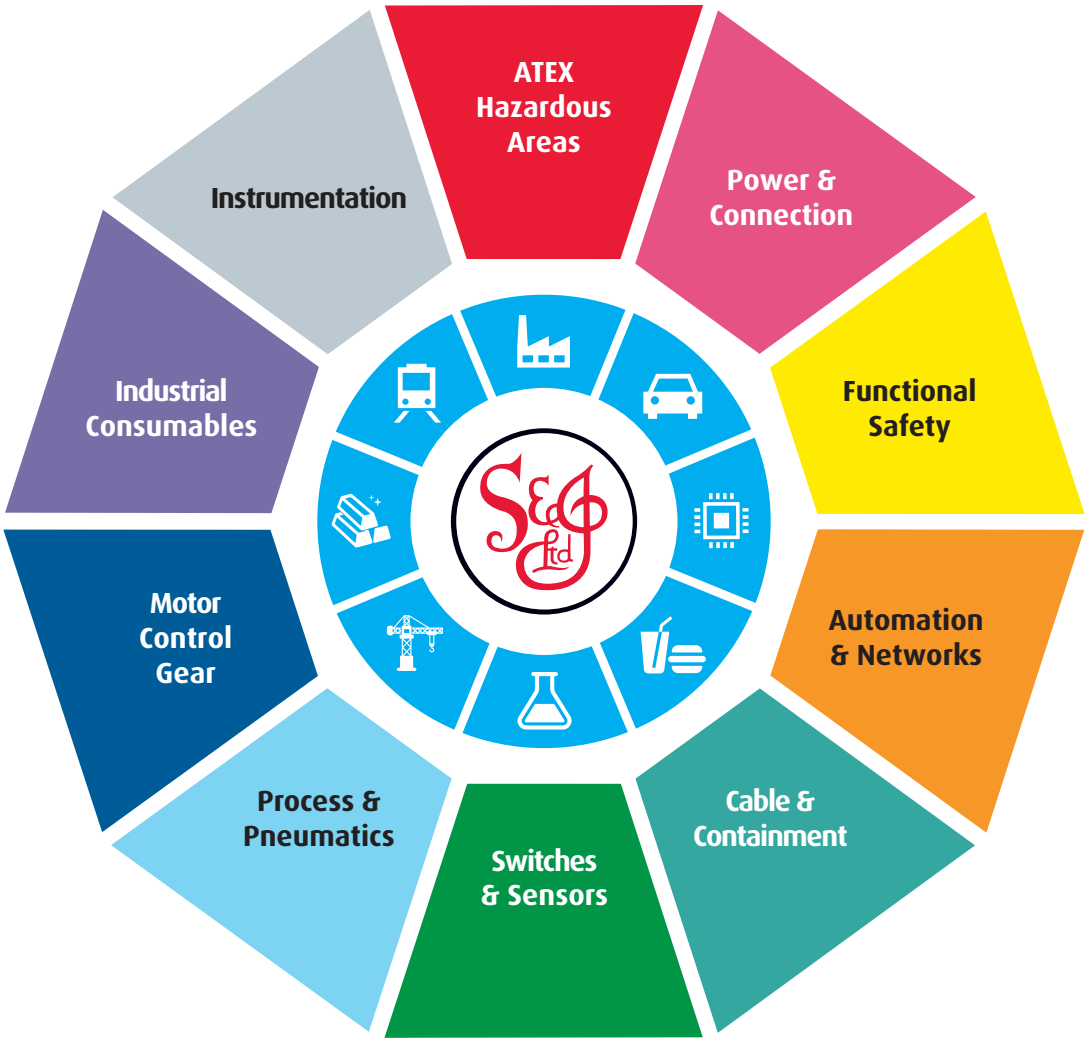


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