



- Operation of 16 Ethernet-APL or PROFIBUS PA field devices (PA proxy, only for 9740/12-16-40)
- All spurs intrinsically safe "ia" (2-WISE) with port profile A or A+B (only for 9740/12-16-00)
- Operation with 100BASE-TX (Zones 1, 2) and optionally 100BASE-FX (Zone 2)
- Redundant auxiliary power supply and extensive integrated diagnostics
- Installation in Zone 1

MY R. STAHL 9740B



The Series 9740 Ethernet-APL field switches are intended for the connection of intrinsically safe "2-WISE" field devices to higher-level 4-wire Ethernet networks, and supply the devices with intrinsically safe power. The field switches can be installed in Zone 1. The integrated diagnostics functions of the Ethernet-APL field switches make commissioning or troubleshooting far easier and faster.

Technical Data

Explosion Protection

| | |
|---------------------------------|---|
| Application range (zones) | 1, 2 |
| Ex interface zone | 0, 1, 2, 20, 21, 22 |
| IECEX gas certificate | in preparation |
| IECEX gas explosion protection | Ex eb ia q [ia Ga] IIC T4 Gb |
| IECEX dust certificate | in preparation |
| IECEX dust explosion protection | [Ex ia Da] IIIC |
| ATEX gas certificate | in preparation |
| ATEX gas explosion protection | II 2 (1) G Ex eb ia q [ia Ga] IIC T4 Gb |
| ATEX dust certificate | in preparation |
| ATEX dust explosion protection | II (1) D [Ex ia Da] IIIC |
| Notes | Certificates in preparation |

Safety Data

| | |
|--|--|
| Max. voltage U_o | 17.5 V |
| Max. current I_o (Ex ia) | 380 mA |
| Max. power P_o (Ex ia) | 1.67 W |
| Max. permissible external capacity C_o for IIC | 0.25 μ F |
| Max. permissible external inductance L_o for IIC | 0.15 mH |
| Max. ext. capac. C_o (IIB/IIIC) | 1.5 μ F |
| Max. ext. induc. L_o (IIB/IIIC) | 0.5 mH |
| Internal inductance L_i (coil) | negligible |
| Internal capacitance C_i (coil) | negligible |
| AC rated insulation voltage U_m | 60 V |
| Intrinsic safety concept | 2-WISE (CLC IEC/TS 60079-47) FISCO (EN 60079-11, -25) |

Network technology

Ethernet-APL field switch Zone 1 installation

Trunk 3TX spurs 16 ia 16APA

9740/12-16-40 Art. No. 304746



Electrical Data

| | |
|--------------------------------|---|
| Interface 1 version | 100BASE-TX |
| Transfer rate interface 1 | 10/100 MBit/s |
| Number of ports interface 1 | 3 (XT1, XT2, XT3) |
| Connection type interface 1 | Plug. spr.-cl. term. 5-pin BK Plugg. screw terminal 5-pin BK |
| Cable shield earthing inter. 1 | direct |
| Link network 1 LED | "XT1" LED, yellow |
| Link network 2 LED | "XT2" LED, yellow |
| Link network 3 LED | "XT3" LED, yellow |

Auxiliary Power

| | |
|---------------------------------|---|
| Auxiliary power nominal voltage | 24 V DC, 48 V DC |
| Auxiliary power voltage range | 19.2 ... 57.6 V DC |
| Auxiliary power 1 LED | "PWR1" LED, green |
| Auxiliary power 2 LED | "PWR2" LED, green |
| Max. current consumpt. 24 V DC | 0.95 A |
| Max. current consumpt. 48 V DC | 0.5 A |
| Max. power consumption 24 V DC | 22.8 W |
| Max. power consumption 48 V DC | 22.8 W |
| Max. power dissipation at 24 V | 13 W |
| Max. power dissipation 48 V | 13 W |
| Auxiliary power connection | 2 (PWR1, PWR2) |
| Auxil. power connection type | Plug. spr.-cl. term. 4-pin BK Plugg. screw terminal 4-pin BK |
| Con. cr.-sc. rgd min. aux. pwr | 0.5 mm ² |
| Con. cr.-sc. rgd max. aux. pwr | 2.5 mm ² |
| Con. cr.-sc. flx min. aux. pwr | 0.5 mm ² |
| Con. cr.-sc. flx max. aux. pwr | 2.5 mm ² |

Galvanic Isolation

| | |
|--------------------------------------|------------------------------|
| Test voltage for galvanic separation | Acc. to standard EN 60079-11 |
| Auxiliary power/spurs | ≥ 1500 V AC |
| Auxiliary power/100BASE-TX | ≥ 1500 V AC |
| Spurs/100BASE-TX | ≥ 1500 V AC |
| Between spurs | none |

Field Device Interface

| | |
|------------------------------------|--|
| Spurs version | Ethernet-APL (10BASE-T1L) PROFIBUS PA |
| Number of ports spurs | 16 |
| Characteristic spurs | 2-WISE power supply FISCO |
| Transfer rate spurs | 10 MBit/s voll duplex 31,25 kBit/s |
| Link spurs LED | S01 ... S16 LED, yellow |
| Power Class | A |
| Max. number of spurs power class A | 16 |
| Max. number of spurs power class B | 0 |
| Max. no. spurs PROFIBUS PA | 16 |

Network technology

Ethernet-APL field switch Zone 1 installation

Trunk 3TX spurs 16 ia 16APA

9740/12-16-40 Art. No. 304746



Field Device Interface

| | |
|--------------------------------|--|
| Open-circuit voltage pwr cl. A | 13.65 V |
| Opn-circ. vltge PROFIBUS PA Ua | 13 V |
| Output nom. cur. power class A | 55.56 mA |
| Output nom. curr. PROFIBUS PA | 40.00 mA |
| Output power power class A | 0.54 W |
| Output power PROFIBUS PA | 0.38 W |
| Cable shield earthing spurs | capacitive |
| Spurs connections | 16 |
| Spurs connection type | Plug. spr.-cl. term. 3-pin BU Plug. screw terminal 3-pin BU |
| Con. cr.-sec. flex. min. spurs | 0.50 mm ² |
| Con. cr.-sec. flex. max. spurs | 2.50 mm ² |
| Con. cross-sec. rgd min. spurs | 0.50 mm ² |
| Con. cross-sec. rgd max. spurs | 2.50 mm ² |

Device Specific Data

| | |
|---------------------------|--|
| Protocols 1 | PROFINET |
| Characteristic protocol 1 | Device, conformity class B |
| Availability protocol 1 | System redundancy S2, MRP |
| Functions protocol 1 | Dynamic reconfiguration Network load class I Pruning Rate limiter |
| Configuration protocol 1 | GSDML |
| Protocols 2 | EtherNet/IP |
| Characteristic protocol 2 | Adaptor |
| Availability protocol 2 | DLR |
| Functions protocol 2 | in progress |
| Configuration protocol 2 | EDS |
| User interface | Web server Display LEDs |
| Device integration | FDI OPC UA |
| Ethernet functions | SNMP DHCP |
| Security | HTTPS Password management Port lock |
| Real-time clock | Yes |

Diagnostics

| | |
|----------------------------|--------------------------------|
| Physical layer 10BASE-T1L | SNR TDR Shield unbalance |
| Physical layer PROFIBUS PA | Noise Jitter |
| Communication | Lost packets LLDP |

Diagnostics

| | |
|--------------------------------|--------------------------------|
| Ambient condition | Temperature, humidity |
| Diagnostics connections | 1 x Pt100, 2-wire (SPT) |
| Maintenance required LED | "M/S" LED, blue |
| Start-up process LED | "BOOT" LED, green |
| LED group error | "ERR" LED, red |
| Diagnostics connection type | Spring clamp terminal 2-pin BU |
| Con. cro.-sec. flex. min. dia. | 0.25 mm ² |
| Con. cro.-sec. flex. max. dia. | 1.5 mm ² |
| Cond. cro.-sec. rgd min. diag. | 0.25 mm ² |
| Cond. cro.-sec. rgd max. diag. | 1.5 mm ² |

Display

| | |
|-------------------------|---|
| Display resolution | 256 x 64 pixels |
| Display | OLED WH/BK |
| Display size in inches | 2.00 |
| Display operation | 4 operating keys, capacitive |
| Retrievable information | Device data Ethernet diagnostics Physical layer diagnostics |
| Device reset | Operating keys |

Ambient Conditions

| | |
|--------------------------------|----------------------------|
| Ambient temperature | -40 °C ... +70 °C |
| Storage temperature | -40 °C ... +80 °C |
| Max. operating altitude | < 2000 m |
| Max. relative humidity | 95% (without condensation) |
| Degr. of pollution (IEC 60664) | 1 2 |

Mechanical Data

| | |
|---------------------------------------|-------------------------------|
| Degree of protection (IP) (IEC 60529) | IP30 |
| Fire resistance (UL 94) | V0 |
| Pollutant class | corr. to G3 (ISA-71-04-2013) |
| Enclosure material | Aluminium, painted |
| Dimensions (L x W x H) | 260,000 x 292,000 x 52,600 mm |
| Length | 260 mm |
| Width | 292 mm |
| Height | 52.6 mm |
| Weight | 5.8 kg |
| Weight | 12.79 lb |

Mounting / Installation

| | |
|------------------------------------|------------------------|
| Mounting type | On mounting plate |
| Mounting orientation | Horizontal Vertical |
| Min. rigid conductor cross section | 0.5 mm ² |
| Max. rigid conductor cross section | 2.5 mm ² |
| Min. flex conductor cross section | 0.5 mm ² |
| Max. flex conductor cross section | 2.5 mm ² |

Network technology

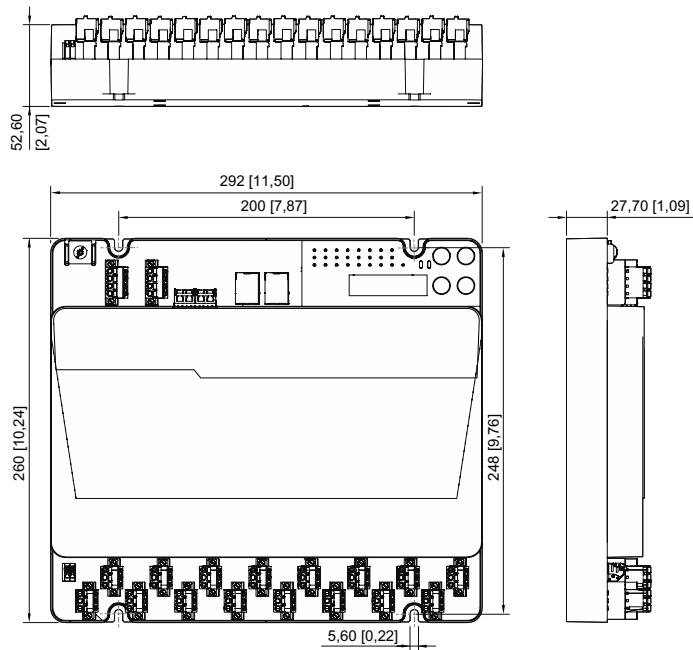
Ethernet-APL field switch Zone 1 installation

Trunk 3TX spurs 16 ia 16APA

9740/12-16-40 Art. No. 304746



Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



Accessories

Terminal set

Art. No.

Terminal set for 9740/12
Version: Screw terminals
Contents: 16 x 3-pin, blue; 2 x 4-pin, black; 3 x 5-pin, black

305678

Terminal set for 9740/12
Version: Spring clamp terminals
Contents: 16 x 3-pin, blue; 2 x 4-pin, black; 3 x 5-pin, black

305679

We reserve the right to make alterations to the technical data, dimensions, weights, designs and products available without notice. The illustrations cannot be considered binding.