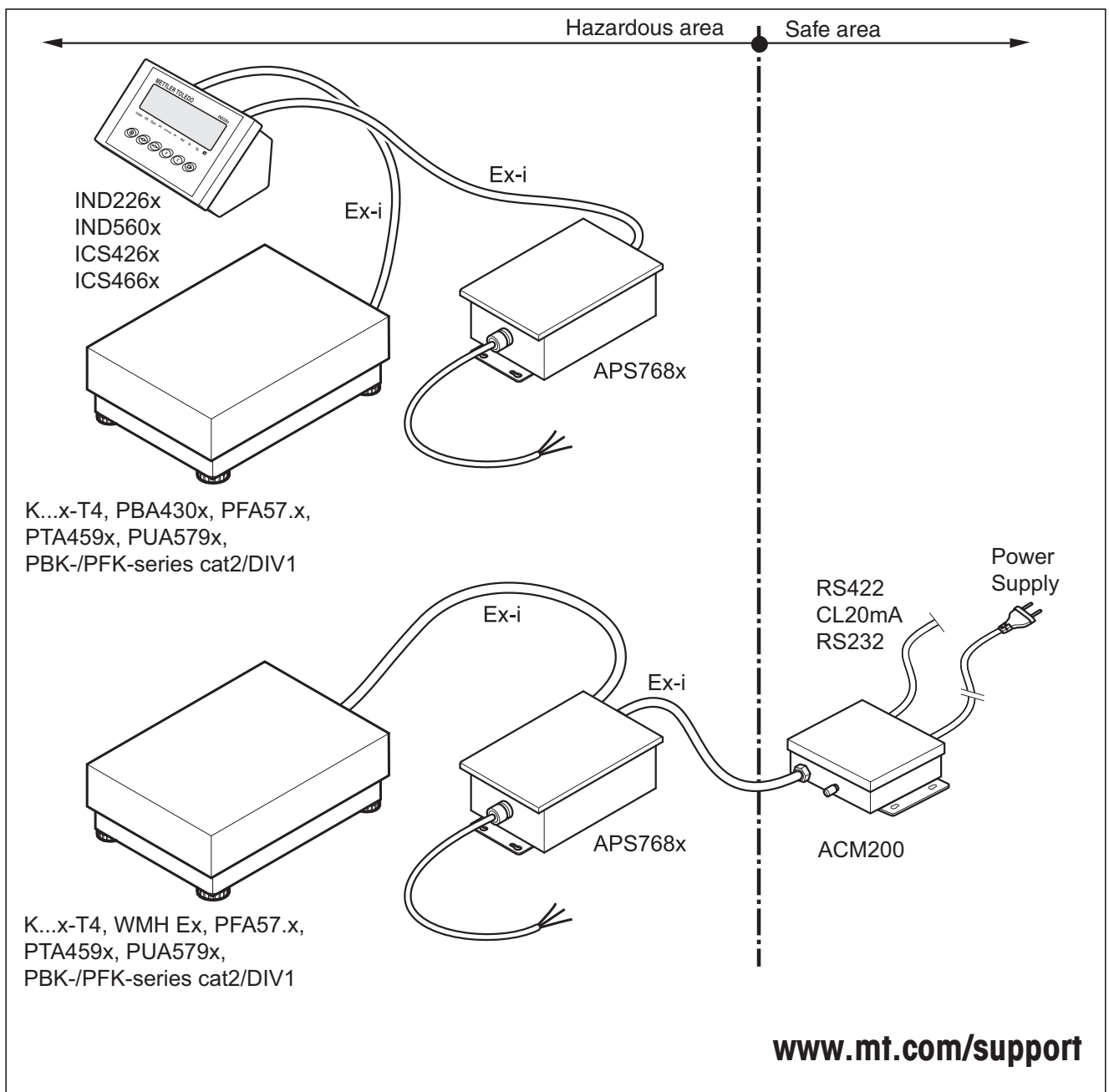


# Guide for installers

## METTLER TOLEDO MultiRange Explosion-proof weighing system with APS768x power supply unit

**METTLER TOLEDO**



# METTLER TOLEDO Service

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use according to these instructions and regular calibration and maintenance by our factory-trained service team ensure dependable and accurate operation, protecting your investment. Contact us about a service agreement tailored to your needs and budget.

We invite you to register your product at [www.mt.com/productregistration](http://www.mt.com/productregistration) so we can contact you about enhancements, updates and important notifications concerning your product.

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# 1 Safety precautions



The explosion-proof APS768x-230V power supply unit is approved for operation in Zone 1 and Zone 21 hazardous areas.

The explosion-proof APS768x-120V power supply unit is approved for operation in hazardous areas of Class I, II, III; Division 1; Groups A–G.

Special care must be taken when using weighing systems with the APS768x power supply unit in hazardous areas. The code of practice is oriented to the "Safe Distribution" concept drawn up by METTLER TOLEDO.

- Competence**
- ▲ The weighing system may only be installed, maintained and repaired by authorised METTLER TOLEDO service personnel.
  - ▲ The mains supply may only be installed by a specialist authorised by the owner-operator.
- Ex approval**
- ▲ No modifications may be made to the device and no repair work may be performed on the modules. Any weighing platforms or system modules that are used must comply with the specifications. Non-compliant equipment jeopardises the intrinsic safety of the system, cancels the Ex approval and renders any warranty or product liability claims null and void.
  - ▲ The safety of the weighing system is only guaranteed when the weighing system is operated, installed and maintained in accordance with the respective instructions.
  - ▲ Also comply with the following:
    - the instructions for the system modules,
    - the relevant national regulations and standards,
    - the applicable statutory requirements for electrical equipment installed in hazardous areas in the respective country,
    - all instructions related to safety issued by the owner.
  - ▲ The explosion-proof weighing system must be checked to ensure compliance with the safety requirements before being put into service for the first time, following any service work and at least every 3 years.
- Operation**
- ▲ Prevent the build-up of static electricity. Always wear suitable working clothes when operating or performing service work in a hazardous area.
  - ▲ Do not use protective covers with the devices.
  - ▲ Prevent damage to the system components.

- Installation**
- ▲ Only install or perform maintenance work on the weighing system in the hazardous area if the following conditions are fulfilled:
    - the intrinsically safe characteristic values and zone approval of the individual components are in accord with one another,
    - the owner has issued a permit ("spark permit" or "fire permit"),
    - the area has been rendered safe and the owner's safety co-ordinator has confirmed that there is no danger,
    - the necessary tools and any required protective clothing are provided (danger of the build-up of static electricity).
  - ▲ The certification papers (certificates, manufacturer's declarations) must be present.
  - ▲ Lay cabling securely so that it does not move and effectively protect it against damage.
  - ▲ Only route cables into the housing of the system modules via the suitable gland and ensure proper seating of the seals.
  - ▲ Use only genuine METTLER TOLEDO accessories and cable assemblies with this product. Use of unauthorized or counterfeit accessories or cable assemblies may result in voided warranty, improper or erroneous operation or damage to property (including the unit) and personal injury.

## 2 System overview

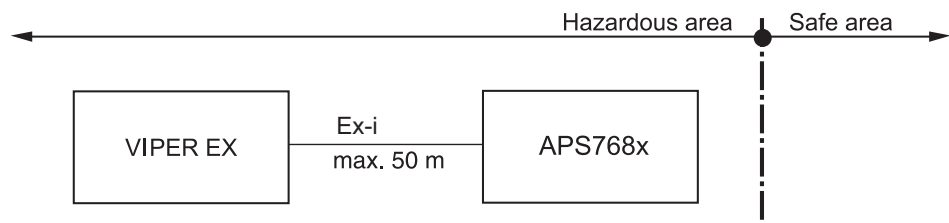
### 2.1 Configurations

The following represents 7 example configurations of a weighing system with the APS768x power supply unit.

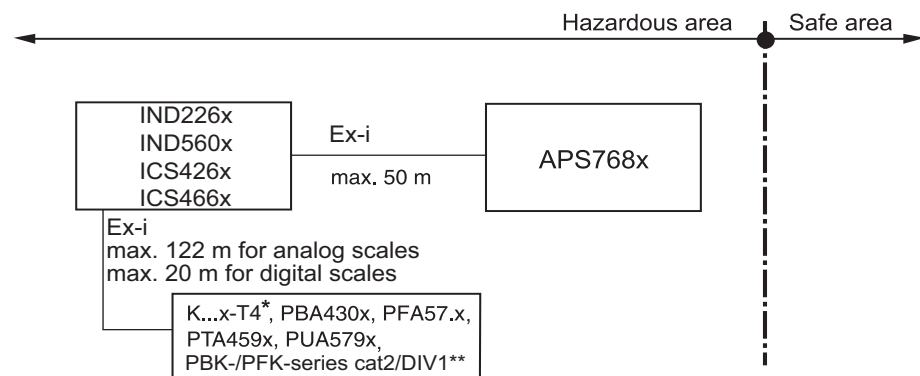
#### Note

Some components are not available in all countries.

#### 2.1.1 APS768x and VIPER EX compact scale



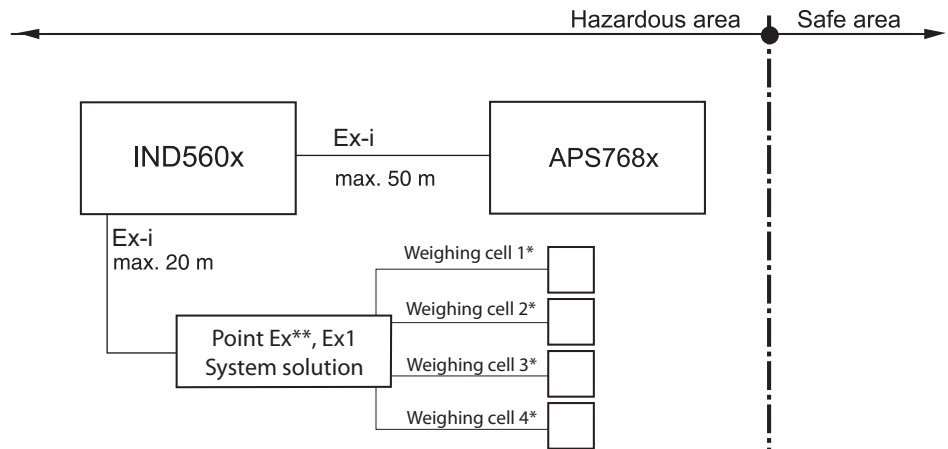
#### 2.1.2 APS768x, IND226x, IND560x, ICS426x, ICS466x weighing terminal and K...x-T4, PBK-/PFK-series cat2/DIV1, PBA430x, PFA57.x, PTA459x or PUA579x weighing platform



\* K...x-T4 only in combination with IND560x/IDNet or ICS466x

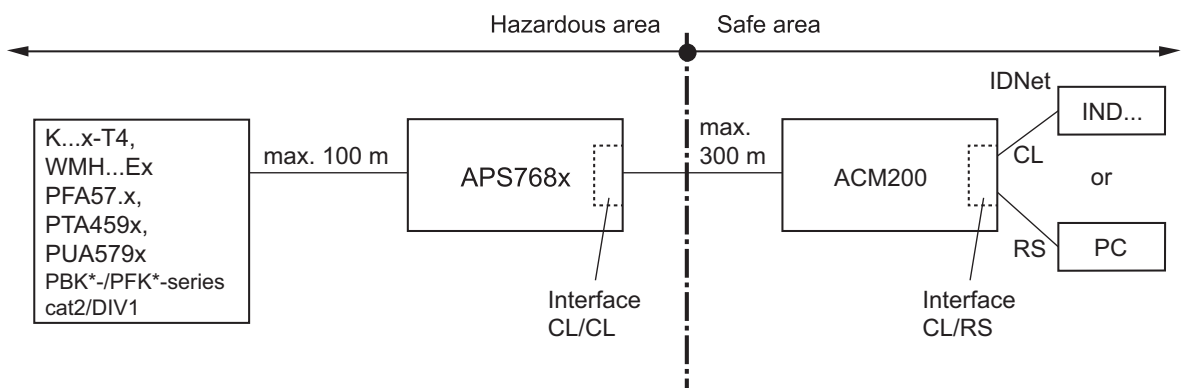
\*\* PBK-/PFK-series cat2/DIV1 only in combination with IND560x, ICS426x or ICS466x weighing terminals with SICSpro digital scale interface.

**2.1.3 APS768x, IND560x weighing terminal and Point Ex/Ex1 system solution**



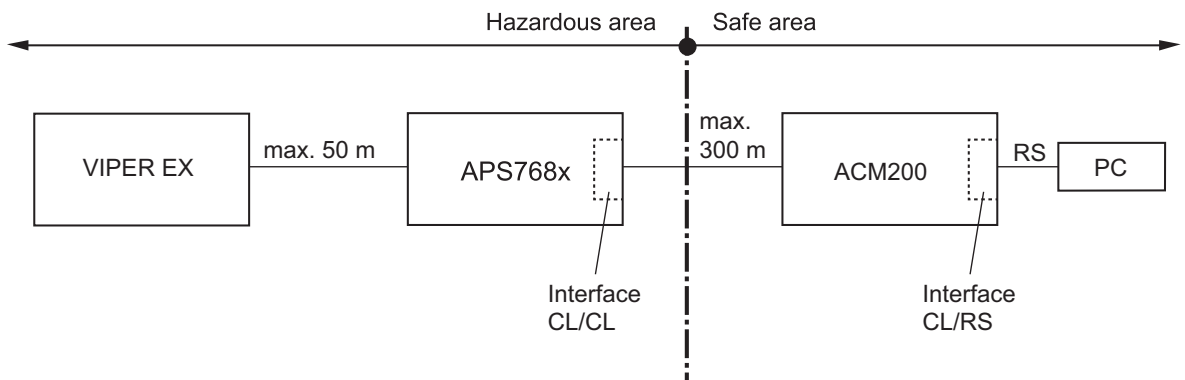
- \* Minimum system impedance of 87 Ω  
The weighing cells must be approved for the hazardous area. The intrinsically safe characteristic values must be in agreement with those of the Point Ex system solution.
- \*\* Only in combination with IND560x/IDNet

**2.1.4 APS768x, weighing platform K...x-T4, PBK-/PFK-series cat2/DIV1, WMH...Ex, PFA57.x, PTA459x, PUA579x**

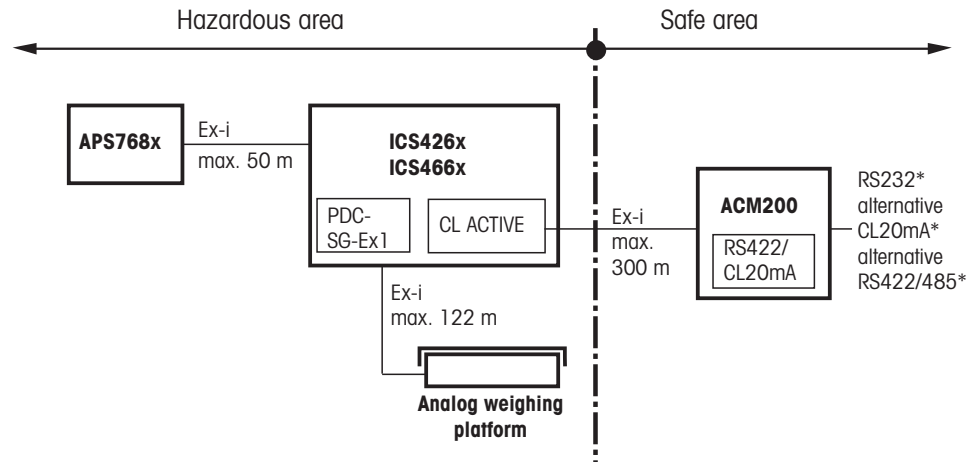


- \* M12 Ex-i plug / open wires cable 20 m

**2.1.5 APS768x, compact scale VIPER EX and data interface ACM200**

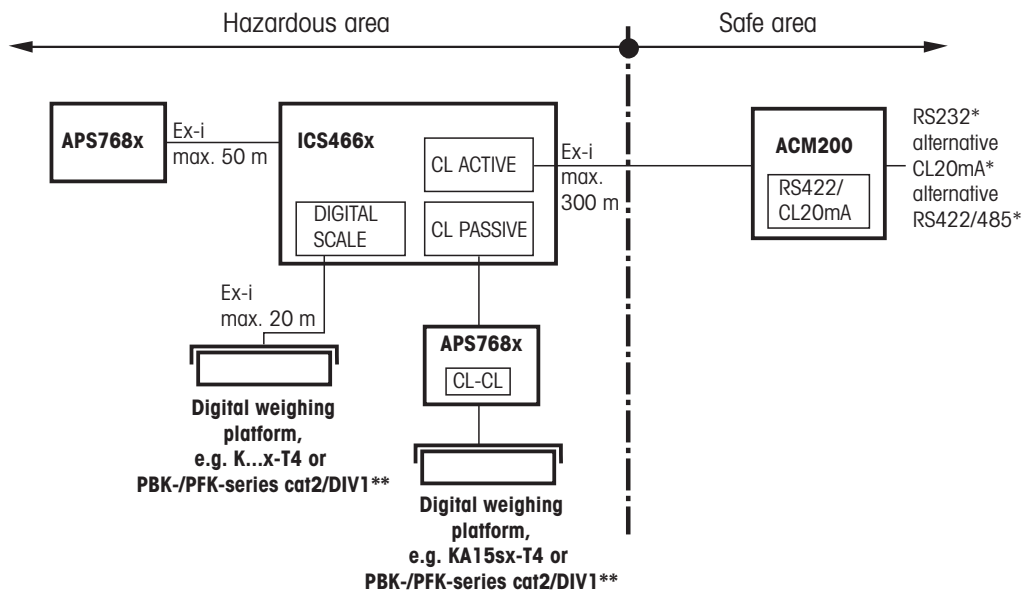


**2.1.6 APS768x, weighing terminal ICS426x, ICS466x and data interface ACM200**



\* Only one hardware interface available, CL20mA and RS422/485 only with module ACM200-CL/RS422

**2.1.7 Configuration with two digital weighing platforms in the hazardous area**



\* Only one hardware interface available, CL20mA and RS422/485 only with module ACM200-CL/RS422

\*\* The weighing terminal has to support a SICSpro interface.



## 2.2 Description of the components

### APS768x-230V power supply unit

Type of protection (EN, IECEx) II 2G Ex eb mb [ib] IIC T4 Gb  
 II 2D Ex tb IIIC [ib] IP66 T70°C Db  
 BVS 10 ATEX E081 IECEx BVS 10.0054

### APS768x-120V power supply unit

Type of protection ( $cFM_{US}$ ) Class I, II, III; Division 1; Group A, B, C, D, E, F, G / T4  
 $T_a = 40\text{ °C}$

### VIPER EX compact scale

See VIPER EX operating instructions.

### IND226x / IND560x / ICS426x / ICS466x weighing terminal

See IND226x / IND560x / ICS426x / ICS466x operating instructions/guide for installers.

### K...x-T4, PBK-/PFK-series cat2/DIV1, PBA430x, PFA57.x, PTA459x, PUA579x, WMH...Ex weighing platforms

See corresponding operating instructions/installation information.

### Point Ex system solution

See Point Ex guide for installers.

### Ex1 system solution

See Ex1 guide for installers.

#### Note

Some components are not available in all countries.

## 3 Installation



### EXPLOSION HAZARD

Installation of the explosion-proof weighing system must be carried out in accordance with the control drawing at the end of this Guide for installers.

### 3.1 Setting up system modules

#### 3.1.1 Setting up the VIPER EX compact scale

See VIPER EX operating instructions.

#### 3.1.2 Setting up the IND226x / IND560x / ICS426x / ICS466x weighing terminal

See IND226x / IND560x / ICS426x / ICS466x Guide for installers.

#### 3.1.3 Setting up the K...x-T4, PBK-/PFK-series cat2/DIV1, PBA430x, PFA57.x, PTA459x, PUA579x or WMH...Ex weighing platform

See corresponding operating instructions and installation information.

#### 3.1.4 Setting up the Point Ex system solution

See Point Ex Guide for installers.

#### 3.1.5 Setting up the APS768x-230V

##### Fixed installation

1. Select a suitable location:
  - max. of 2 m from the power socket-outlet,
  - sufficient air circulation for cooling,
  - flat horizontal or vertical surface.
2. Use 4 screws M5 or M6 to screw the lower housing section via the attachment lugs to the foundation. For hole pattern refer to the dimensional drawing.

##### Mobile installation

- Depending on the operating specifications, use a power cable that is more mechanically rugged than the cable mounted at the factory.



### EXPLOSION HAZARD

Explosion hazard if not sufficiently dustproof!

- If the APS768x power supply unit is used in dust explosion hazard areas ensure that the degree of protection IP6x is ensured.  
In this respect ensure the correct position of the seals and the maximum tightening torque of the screwed connection.
- During every maintenance interval check the respective tightening torque and tighten if necessary.

<b>Screw</b>	M4 x 0.7	M6 x 1	M16 x 1.5	M25 x 1.5
<b>Max. tightening torque</b>	1.2 Nm	2.0 Nm	2.0 Nm	3.0 Nm

**3.1.6 Setting up APS768x-120V**

1. Select an appropriate location:
  - a flat horizontal or vertical surface,
  - sufficient air circulation for cooling.
2. Remove the lid of the enclosure and the screw on top of the explosion proof cylinder.
3. Install the conduit to the 1/2" NPT pipe thread and pull the mains cable leads (line and neutral) up to the connector block inside the cylinder. The cable ends must be stripped bare to a length of 8 mm (3/8").
4. Use a screwdriver (inserted in the adjacent small hole) for opening the cage clamp mechanism in the connector block, then insert the mains cable leads (live: opposite wire black, neutral: opposite wire white).
5. If a ground wire is used in addition to Line and neutral, this can be inserted in the third compartment of the connector block (opposite wire green/yellow). Proceed as above.
6. Insert the top screw of the cylinder and fix the securing lever. Then mount the lid to the enclosure.



**EXPLOSION HAZARD**

Explosion hazard if not sufficiently dustproof!

- If the APS768x power supply unit is used in dust explosion hazard areas ensure that the degree of protection IP6x is ensured. In this respect ensure the correct position of the seals and the maximum tightening torque of the screwed connection.
- During every maintenance interval check the respective tightening torque and tighten if necessary.

<b>Screw</b>	M4 x 0.7	M6 x 1	M16 x 1.5	M25 x 1.5
<b>Max. tightening torque</b>	1.2 Nm 10.6 lbf·in	2.0 Nm 17.7 lbf·in	2.0 Nm 17.7 lbf·in	3.0 Nm 26.5 lbf·in

**3.1.7 Connecting the power supply unit**

The Ex-i connecting cable is packed unbound in the box. Depending on the system or configuration the terminal assignment may differ.

- Connect the power supply unit to the weighing terminal or compact scale in accordance with the control drawing.

### 3.2 Equipotential bonding

Equipotential bonding must be installed by an electrician authorised by the owner. METTLER TOLEDO Service only has a monitoring and consulting function here.

- Connect equipotential bonding (PA) of all devices (APS768x, weighing terminal, weighing platform, compact scale) in accordance with the control drawing and the country-specific regulations and standards. In the process it must be ensured that
- all device housings are connected to the same potential via the PA connections,
  - no circulating current flows via the cable shielding for intrinsically safe circuits,
  - the neutral point for equipotential bonding is as close to the weighing system as possible.

### 3.3 Connecting power supply



#### EXPLOSION HAZARD

The mains connection must be made by an electrician authorised by the owner in accordance with the control drawing and country-specific regulations.

#### Notes

- The APS768x power supply unit has no device of its own for mains disconnection. This must be provided by the owner.
- The power supply may only be connected to a mains circuit in which the short-circuit current does not exceed 35 A.

## 4 Fabricating cables

If necessary, the power and Ex-i cables can be fabricated in accordance with the requirements of the customer.



### EXPLOSION HAZARD

- Before opening the APS768x, ensure that non-intrinsically safe circuits are not energised.
- If the APS768x power supply unit is used in dust explosion hazard areas ensure that the degree of protection IP6x is ensured.

### 4.1 Fabricating power cable (APS768x-230V)

When fabricating the power cable, the following requirements must be adhered to:

- Maximum cable length in accordance with the specification of the owner
- Cable quality: 3 x 1 mm<sup>2</sup>, additional qualities in accordance with the specification of the owner
- Maximum outside cable diameter: 5.0 – 8.0 mm

#### Procedure

1. Strip 40 mm of cable sheathing from the APS768x-230V and the mains connection, as required. The free end of the grounding cable must be long enough so that the grounding connection would be the last one to rip away in the event of tensile strain.
2. Remove the old cable from the APS768x-230V and pull the new cable through the cable gland. Ensure the IP protection type through proper installation.
3. Crimp a 6.3 x 0.8 mm receptacle onto the grounding cable on the APS768x-230V; provide the other cable leads with end ferrules.
4. Connect the cable, tighten cable gland according to the manufacturer's specifications and screw on strain relief.

## 4.2 Fabricating connection cables



### EXPLOSION HAZARD

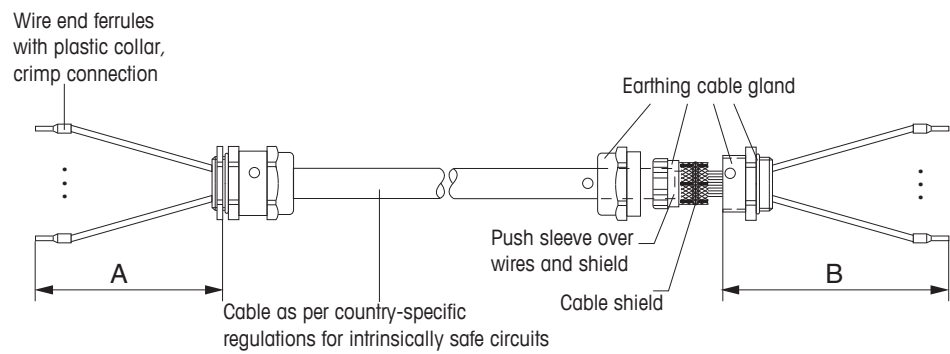
- Before opening the APS768x, ensure that non-intrinsically safe circuits are not energised.
- If the APS768x power supply unit is used in dust explosion hazard areas ensure that the degree of protection IP6x is ensured.

Customer-specific connection cables for intrinsically safe circuits must be fabricated as follows:

	Cable	Dim. A	Dim. B (APS768x)	Max. length
<b>VIPER EX – APS768x</b>	4x2x0.5 mm <sup>2</sup> + 1x0.5 mm <sup>2</sup>	240 mm	80 mm	50 m
<b>IND226x / IND560x / ICS4_6x – APS768x</b>	4x2x0.5 mm <sup>2</sup> + 1x0.5 mm <sup>2</sup>	240 mm	80 mm	50 m
<b>IND560x / ICS466x – APS768x – Barcode</b>	2x2x0.5 mm <sup>2</sup>	240 mm	50 mm	10 m
<b>ACM200 – APS768x</b>	2x2x0.5 mm <sup>2</sup>	50 mm	80 mm	300 m

	Cable	Dim. A	Dim. B (IND...x/ APS768x))	Max. length
<b>Weighing platform / Point Ex System solution – IND226x / IND560x</b>	3x2x0.75 mm <sup>2</sup>	80 mm	215 mm	20 m
<b>Weighing platform / Point Ex System solution – APS768x</b>	3x2x0.75 mm <sup>2</sup>	80 mm	80 mm	100 m

- For customer-specific connection cables M12 Ex-i plug / open wires used with PBK-/PFK-series cat2/DIV1, see the corresponding installation information.



1. Cut cable to length and strip cable ends according to dimension A/B, see table above.
2. Shorten shield on both sides to 10 mm.
3. Strip wire ends.
4. Crimp wire end ferrules onto wire ends with a crimping tool.
5. Push second rear section of earthing cable gland onto cable.
6. On both sides: Push sleeve over wires and shield. Fold over cable shield.
7. Push on front section of cable gland and screw onto rear section.

## 5 Connecting a barcode reader

### 5.1 Barcode wiring option

A barcode reader, for example ELB SK200 (SC20-MTA1), can be connected to the IND560x weighing terminal via an intrinsically safe RS232 data interface.

The Barcode wiring option of the APS768x power supply unit is used to supply the barcode reader and consists of the following components:

- APS768x
- Barcode wiring option: 10 m Ex-i cable (2 x 2 x 0.5 mm<sup>2</sup>), pre-assembled

A suitable approved barcode reader does not form part of the scope of delivery from METTLER TOLEDO and has to be ordered separately.

### 5.2 Mounting



#### EXPLOSION HAZARD

- Before opening the APS768x, ensure that non-intrinsically safe circuits are not energised.
- RxD of the barcode reader may not be connected in the hazardous area. At the barcode reader ELB SK200 this conductor has a shrink-on sleeve.

1. Connect the 4-conductor Ex-i cable of the barcode wiring option to the COM1 of the IND560x in accordance with the control drawing 22006397 as of Version C.
2. If applicable, apply a shrink-on sleeve to the RxD of the barcode reader, if it is not supplied in this state from the factory.
3. Pull the barcode reader cable into the APS768x and mount it with the cable gland.
4. Connect the TxD of the barcode reader via a terminal part with the RxD of the IND560x (prewired).
5. Connect the remaining conductors of the barcode reader cable at the connector K3 to U5 and GND in accordance with the control drawing 22006397 as of Version C.

#### Barcode reader cable ELB SK200

<b>Colour</b>	yellow	brown	white	green
<b>Signal</b>	RxD	+5 V DC	GND	TxD
<b>Version</b>	Shrink-on sleeve	3 cm stripped, with wire end ferrules		



## 6 Installing a CL/CL interface

Digital (IDNet or SICSpro) weighing platforms or compact scales VIPER EX can be connected via the optional CL/CL interface module of the APS768x to the communication module ACM200 in the safe area.

Communication with operating terminals or computer systems is effected in the ACM200 either via an RS232, CL20mA or RS422/485 hardware data interface.



### EXPLOSION HAZARD

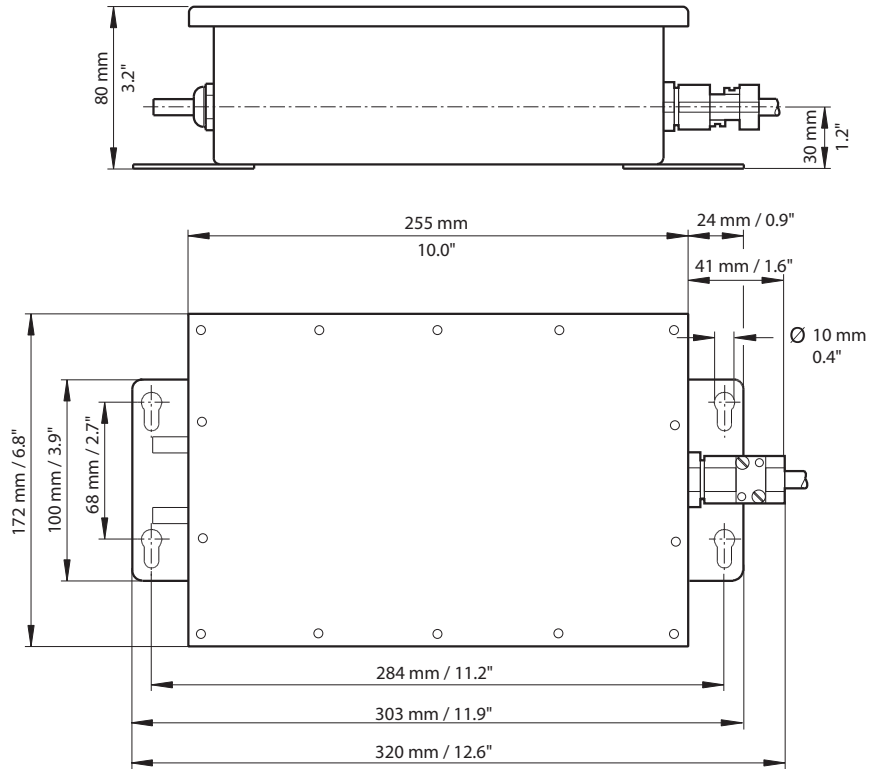
→ Before opening the APS768x ensure that non-intrinsically safe circuits are not energised.

1. Loosen the screws of the APS768x housing cover and remove the cover.
2. Realise the connection cable to the weighing platform and communication module via the two M16 holes. Ensure the correct position of the flat packings when doing so.
3. Screw the APS768x-CL/CL interface mode to the two securing bolts.
4. Carry out the wiring of the two connecting cables and of the 2-wire supplementary cable of the CL/CL interface in accordance with the connection diagram 22006397 as of Version E.
  - When connecting a VIPER EX check the wiring of the compact scale and if necessary correct at the terminal block.
  - In the configuration with a K...x-T4 or PBK-/PFK-series cat2/DIV1 weighing platform shorten the wires of the connecting cable on the side of the APS768x to approx. 80 mm. The individual wires may only be connected to the CL/CL PCB with correctly crimped wire end ferrules.
5. Close the housing cover. Ensure proper seating of the seal when doing so.
6. Tighten the cover screws. Take the max. permissible tightening torque into account when doing so, see page 10 resp. page 11.

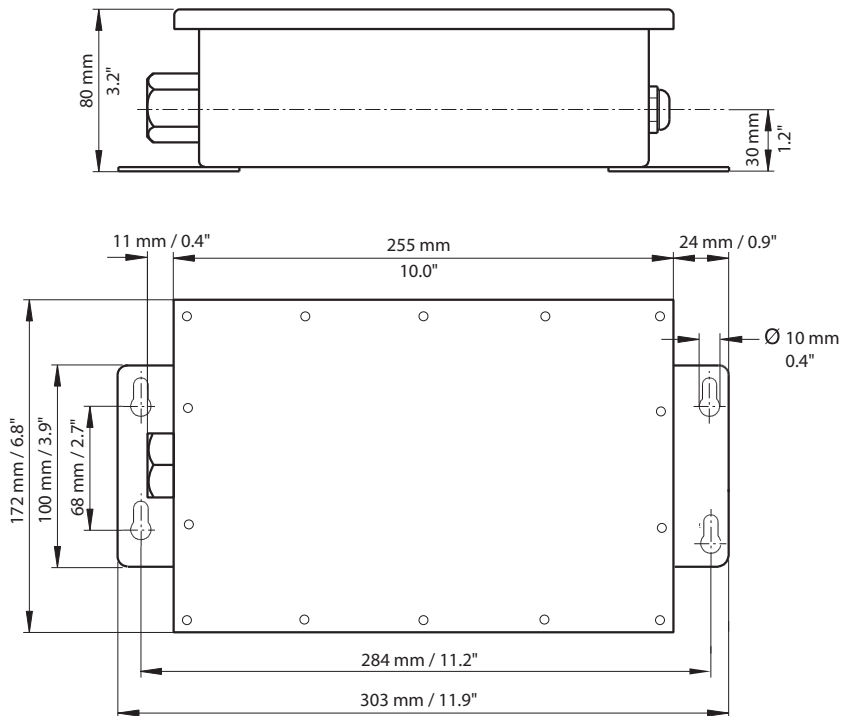
## 7 Technical data

Mains connection	APS768x-230V: 230 V +10 % / -15 %, 50/60 Hz, 0.160 A, $U_m \leq 253$ V APS768x-120V: 120 V +10 % / -15 %, 50/60 Hz, 0.250 A, $U_m \leq 253$ V
Cable for mains connection	APS768x-230V: 1.9 m; H 05 RN APS768x-120V: Explosion proof conduit system required
Ex-i connection cable	From the factory 5 m long cable enclosed, intrinsically safe connection, on both sides cable gland M16x1.5 pre-assembled. If required longer cable possible, see Section 4.2.
IP protection type	IP66
Temperature range	-10 °C to +40 °C
Relative humidity	20 % – 80 %, non-condensing
Degree of soiling	2
Max. application height	Up to 4000 m above sea level
Application location	Inside locations only
Installation category	II
Dimensions (L x W x H)	APS768x-230V: 303 x 172 x 80 mm (without connection parts) 320 x 172 x 80 mm (with connection parts) APS768x-120V: 320 x 172 x 80 mm
Weight (incl. cables)	APS768x-230V: 4.1 kg (net) APS768x-120V: 4.7 kg (net)

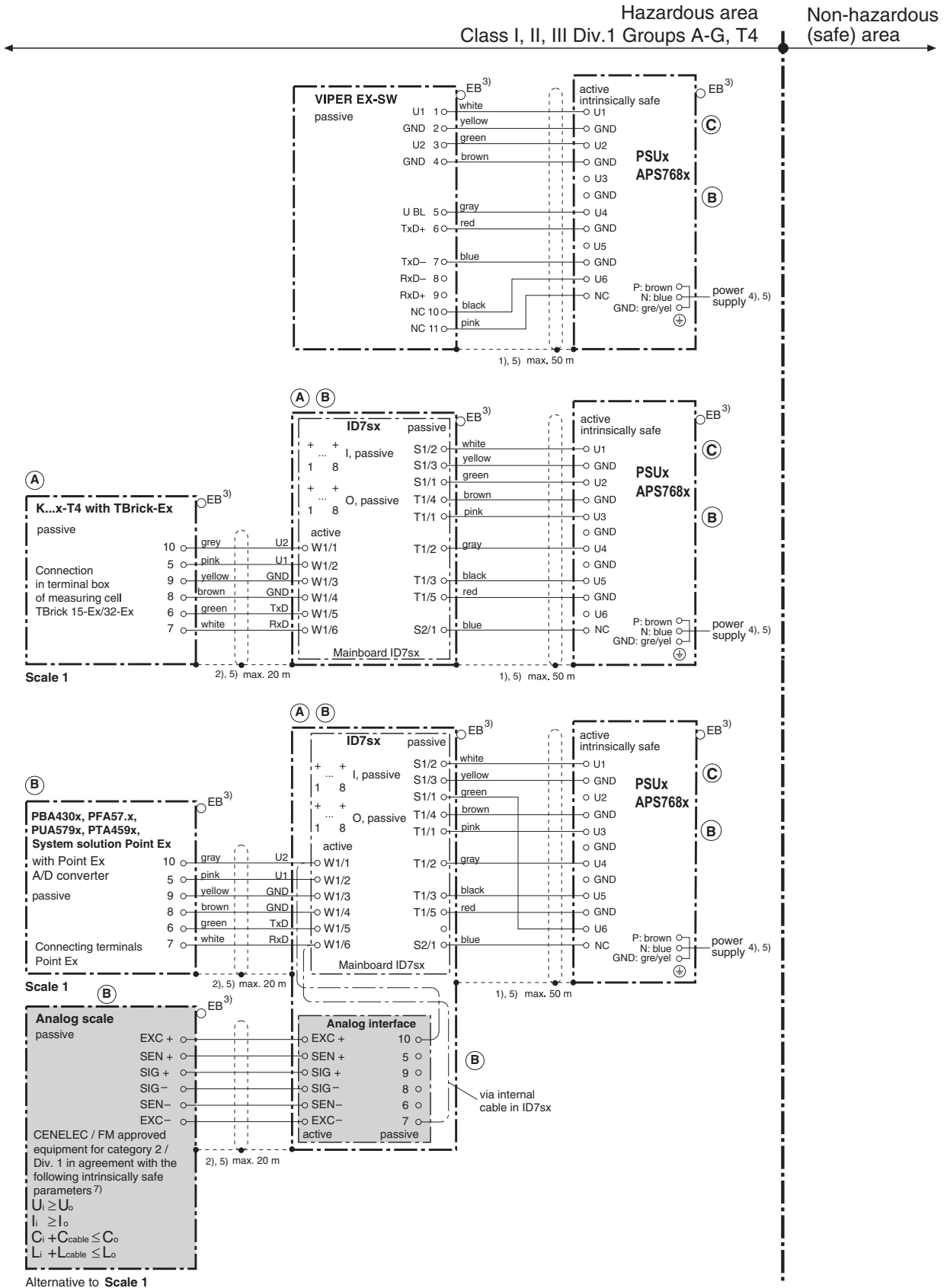
**Dimension drawing APS768x-230V**



**Dimension drawing APS768x-120V**



# 8 Control drawing



**ID7sx Intrinsically safe connection values**

Scale interfaces	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
U <sub>1</sub> (W./2)	8.7 V	92 mA	0.81 W	950 nF	0.2 mH
U <sub>2</sub> (W./1) (TBrick-Ex)	12.6 V	42 mA	0.53 W	350 nF	0.9 mH
U <sub>2</sub> (W./1) (Point-Ex)	12.6 V	92 mA	1.16 W	350 nF	0.4 mH
Output TxD (W./5)	10.5 V	30 mA	0.32 W	100 nF	0.1 mH
Output RxD (W./6)	10.5 V	30 mA	0.32 W	100 nF	0.1 mH

Analog interface	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
U <sub>Ex</sub>	8 V	250 mA	1.2 W	100 nF	0.3 mH

Input/Output	U <sub>i</sub>	I <sub>i</sub>	P <sub>i</sub>	C <sub>i</sub>	L <sub>i</sub>
Input	30 V	50 mA	0.375 W	10 nF	0.01 mH
Output	15 V	40 mA	0.150 W	10 nF	0.01 mH

**PSUx / APS768x Intrinsically safe connection values**

	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
U1	8.7 V	133 mA	1.15 W	1 μF	0.3 mH
U2	12.6 V	42 mA	0.53 W	0.4 μF	1 mH
U3	7.15 V	107 mA	0.77 W	1 μF	0.3 mH
U4	10.5 V	74 mA	0.78 W	0.6 μF	0.3 mH
U5	5.4 V	240 mA	1.30 W	1 μF	0.3 mH
U6	12.6 V	92 mA	1.16 W	0.5 μF	0.3 mH

7)

©

**CENELEC approval**

Cable in accordance with standards EN50039 and EN60079-14 for intrinsically safe circuits

- Cable lead-in via grounding cable gland
  - Cable according to Guide for installers ME-22021223
  - 1) Cable 4 x 2 x 0.5 mm<sup>2</sup> + 1 x 0.5 mm<sup>2</sup> shielded and paired
  - 2) Cable 3 x 2 x 0.75 mm<sup>2</sup> shielded and paired
  - 2a) Cable 2 x 2 x 0.5 mm<sup>2</sup> shielded and paired
  - 3) Connection of equipotential bonding (EB) in accordance with national regulations. It must be ensured that the housing of all units are at the same potential by means of EB connections. No compensating current may flow across the shield of the intrinsically safe cables.
  - 4) PSUx/APS768x power supply connection in accordance with national regulations, see model plate for line voltage and frequency, U<sub>m</sub> ≤ 253 V.
  - 5) Lay cabling securely so that it does not move and effectively protect it against damage.
  - 6) Via internal cables in APS768x
- Temperature range: -10 °C ... + 40 °C

**FM<sub>US</sub> approval**

USA: Installation shall be in accordance with ANSI/ISA RP 12.6.01  
Canada: Installation shall be in accordance with the Electric Code C2.R1

- Cable lead-in via grounding cable gland
- Cable according to Guide for installers ME-22021223
- 1) Cable 4 x 2 x 0.5 mm<sup>2</sup> + 1 x 0.5 mm<sup>2</sup> shielded and paired
- 2) Cable 3 x 2 x 0.75 mm<sup>2</sup> shielded and paired
- 2a) Cable 2 x 2 x 0.5 mm<sup>2</sup> shielded and paired
- 3) Connection of the potential bonding according to ANSI / NFPA 70, Article 56 and ANSI / IA  
It must be ensured that the housing of all units are at the same potential by means of EB connections. No compensating current may flow across the shield of the intrinsically safe cables.
- 4) PSUx/APS768x power supply connection in accordance with national regulations, see model plate for line voltage and frequency, U<sub>m</sub> ≤ 253 V.
- 5) Lay cabling securely so that it does not move and effectively protect it against damage.
- 6) Via internal cables in APS768x

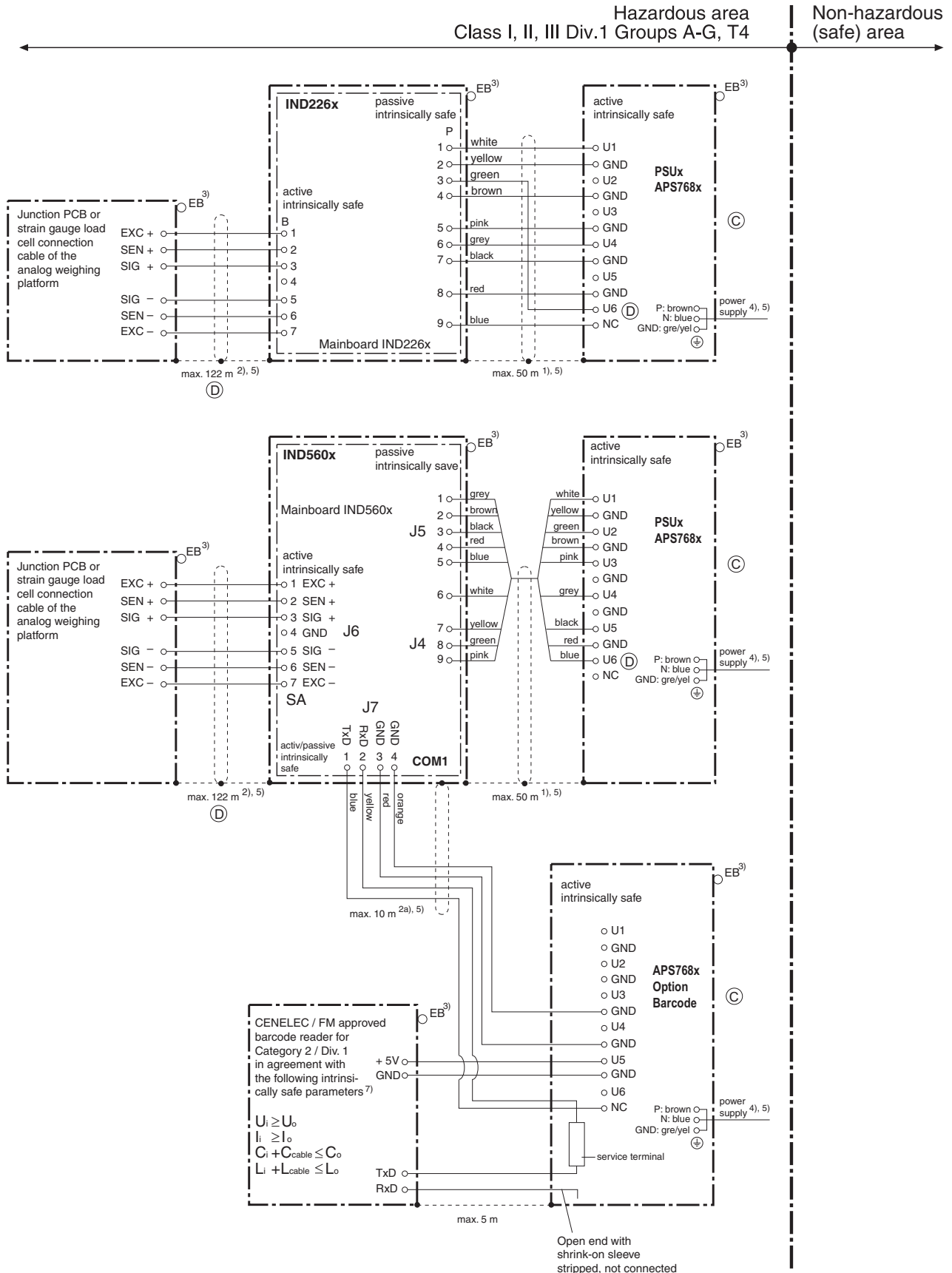
7)

	CENELEC / IEC	FM / ISA
Maximum output voltage	U <sub>o</sub>	V <sub>oc</sub>
Maximum output current	I <sub>o</sub>	I <sub>sc</sub>
Maximum output power	P <sub>o</sub>	P <sub>o</sub>
Maximum external capacitance	C <sub>o</sub>	C <sub>a</sub>
Maximum external inductance	L <sub>o</sub>	L <sub>a</sub>
Maximum input voltage	U <sub>i</sub>	V <sub>max</sub>
Maximum input current	I <sub>i</sub>	I <sub>max</sub>
Maximum input power	P <sub>i</sub>	P <sub>i</sub>
Maximum internal capacitance	C <sub>i</sub>	C <sub>i</sub>
Maximum internal inductance	L <sub>i</sub>	L <sub>i</sub>

Temperature range: -10 °C ... + 40 °C

G	/	15/10	Schultz
F	140091	14/03	Schultz
E	/	11/09	Schultz
D	/	11/03	Schultz
C	/	10/04	Schultz
B	/	08/05	Schultz
A	/	05/03	Schultz

			Date	Name	Scale	Designation
Edi- tion	Revision	Date	Prep.	05/02		
			Check.	05/02	Grandjean	
Replaces:						Sheet 1/5
						Code
METTLER TOLEDO			Mettler-Toledo GmbH Ch-8606 Nänikon			22006397



**PSUx / APS768x Intrinsically safe connection values**

	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
U1	8.7 V	133 mA	1.15 W	1 µF	0.3 mH
U2	12.6 V	42 mA	0.53 W	0.4 µF	1 mH
U3	7.15 V	107 mA	0.77 W	1 µF	0.3 mH
U4	10.5 V	74 mA	0.78 W	0.6 µF	0.3 mH
U5	5.4 V	240 mA	1.30 W	1 µF	0.3 mH
U6	12.6 V	92 mA	1.16 W	0.5 µF	0.3 mH

7)

©

**CENELEC approval**

Cable in accordance with standards EN50039 and EN60079-14 for intrinsically safe circuits

- Cable lead-in via grounding cable gland
- Cable according to Guide for installers ME-22021223
- 1) Cable 4 x 2 x 0.5 mm<sup>2</sup> + 1 x 0.5 mm<sup>2</sup> shielded and paired
- 2) Cable 3 x 2 x 0.75 mm<sup>2</sup> shielded and paired
- 2a) Cable 2 x 2 x 0.5 mm<sup>2</sup> shielded and paired
- 3) Connection of equipotential bonding (EB) in accordance with national regulations. It must be ensured that the housing of all units are at the same potential by means of EB connections. No compensating current may flow across the shield of the intrinsically safe cables.
- 4) PSUx/APS768x power supply connection in accordance with national regulations, see model plate for line voltage and frequency, U<sub>m</sub> ≤ 253 V.
- 5) Lay cabling securely so that it does not move and effectively protect it against damage.
- 6) Via internal cables in APS768x

Temperature range: -10 °C ... + 40 °C

**cFM<sub>US</sub> approval**

USA: Installation shall be in accordance with ANSI/ISA RP 12.6.01  
Canada: Installation shall be in accordance with the Electrical Code C2.R1

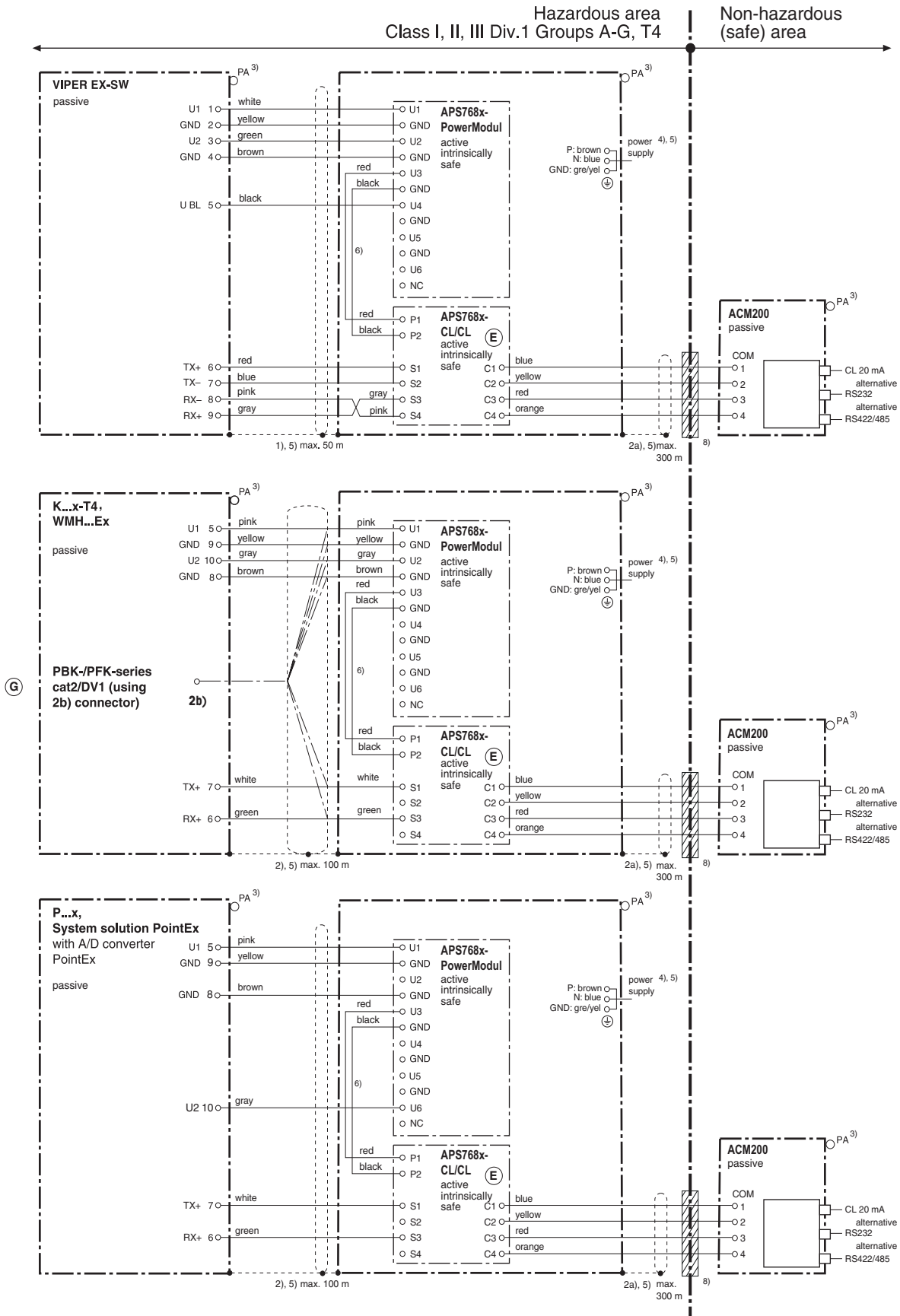
- Cable lead-in via grounding cable gland
- Cable according to Guide for installers ME-22021223
- 1) Cable 4 x 2 x 0.5 mm<sup>2</sup> + 1 x 0.5 mm<sup>2</sup> shielded and paired
- 2) Cable 3 x 2 x 0.75 mm<sup>2</sup> shielded and paired
- 2a) Cable 2 x 2 x 0.5 mm<sup>2</sup> shielded and paired
- 3) Connection of the potential bonding according to ANSI / NFPA 70, Article 56 and ANSI / IA  
It must be ensured that the housing of all units are at the same potential by means of EB connections. No compensating current may flow across the shield of the intrinsically safe cables.
- 4) PSUx/APS768x power supply connection in accordance with national regulations, see model plate for line voltage and frequency, U<sub>m</sub> ≤ 253 V.
- 5) Lay cabling securely so that it does not move and effectively protect it against damage.
- 6) Via internal cables in APS768x

	CENELEC / IEC	FM / ISA
Maximum output voltage	U <sub>o</sub>	V <sub>oc</sub>
Maximum output current	I <sub>o</sub>	I <sub>sc</sub>
Maximum output power	P <sub>o</sub>	P <sub>0</sub>
Maximum external capacitance	C <sub>o</sub>	C <sub>a</sub>
Maximum external inductance	L <sub>o</sub>	L <sub>a</sub>
Maximum input voltage	U <sub>i</sub>	V <sub>max</sub>
Maximum input current	I <sub>i</sub>	I <sub>max</sub>
Maximum input power	P <sub>i</sub>	P <sub>i</sub>
Maximum internal capacitance	C <sub>i</sub>	C <sub>i</sub>
Maximum internal inductance	L <sub>i</sub>	L <sub>i</sub>

Temperature range: -10 °C ... + 40 °C

G	/	15/10	Schultz
F	140091	14/03	Schultz
E	/	11/09	Schultz
D	/	11/03	Schultz
C	/	10/04	Schultz
B	/	08/05	Schultz

				Date	Name	Scale	Designation	
Edi- tion	Revision	Date	Name	Prep.	05/02			Grandjean
Replaces:				Check.	05/02	Grandjean		
/							Code	
METTLER TOLEDO				Mettler-Toledo GmbH Ch-8606 Nänikon			22006397	





**PSUx / APS768x Intrinsically safe connection values**

	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
U1	8.7 V	133 mA	1.15 W	1 μF	0.3 mH
U2	12.6 V	42 mA	0.53 W	0.4 μF	1 mH
U3	7.15 V	107 mA	0.77 W	1 μF	0.3 mH
U4	10.5 V	74 mA	0.78 W	0.6 μF	0.3 mH
U5	5.4 V	240 mA	1.30 W	1 μF	0.3 mH
U6	12.6 V	92 mA	1.16 W	0.5 μF	0.3 mH

**APS768x-CL/CL Intrinsically safe connection values**

	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
Scale Interface S1 – S4	7.15 V	24 mA	43 mW	0.2 μF	0.2 mH
Communication Interface C1 – C4	7.15 V	107 mA	270 mW	0.3 μF	0.6 mH

**CENELEC approval**

Cable in accordance with standards EN50039 and EN60079-14 for intrinsically safe circuits

- Cable lead-in via grounding cable gland
- Cable according to Guide for installers ME-22021223
- 1) Cable 4 x 2 x 0.5 mm<sup>2</sup>+ 1 x 0.5 mm<sup>2</sup> shielded and paired
- 2) Cable 3 x 2 x 0.75 mm<sup>2</sup> shielded and paired
- 2a) Cable 2 x 2 x 0.5 mm<sup>2</sup> shielded and paired
- 2b) METTLER TOLEDO M12 Ex-i connector / open wires 3 x 2 x 0.25 mm<sup>2</sup> shielded and paired
- 3) Connection of equipotential bonding (EB) in accordance with national regulations. It must be ensured that the housing of all units are at the same potential by means of EB connections. No compensating current may flow across the shield of the intrinsically safe cables.
- 4) PSUx/APS768x power supply connection in accordance with national regulations, see model plate for line voltage and frequency, U<sub>m</sub> ≤ 253V..
- 5) Lay cabling securely so that it does not move and effectively protect it against damage.
- 6) Via internal cables in APS768x
- 8) Cable seal between differently rated areas, as per country specific regulations

Temperature range: -10 °C ... + 40 °C

**c<sub>FM</sub> approval**

USA: Installation shall be in accordance with ANSI/ISA RP 12.6.01  
Canada: Installation shall be in accordance with the Electrical Code C2.R1

- Cable lead-in via grounding cable gland
- Cable according to Guide for installers ME-22021223
- 1) Cable 4 x 2 x 0.5 mm<sup>2</sup>+ 1 x 0.5 mm<sup>2</sup> shielded and paired
- 2) Cable 3 x 2 x 0.75 mm<sup>2</sup> shielded and paired
- 2a) Cable 2 x 2 x 0.5 mm<sup>2</sup> shielded and paired
- 2b) METTLER TOLEDO M12 Ex-i connector / open wires 3 x 2 x 0.25 mm<sup>2</sup> shielded and paired
- 3) Connection of the potential bonding according to ANSI / NFPA 70, Article 56 and ANSI / IA  
It must be ensured that the housing of all units are at the same potential by means of EB connections. No compensating current may flow across the shield of the intrinsically safe cables.
- 4) PSUx/APS768x power supply connection in accordance with national regulations, see model plate for line voltage and frequency, U<sub>m</sub> ≤ 253 V.
- 5) Lay cabling securely so that it does not move and effectively protect it against damage.
- 6) Via internal cables in APS768x

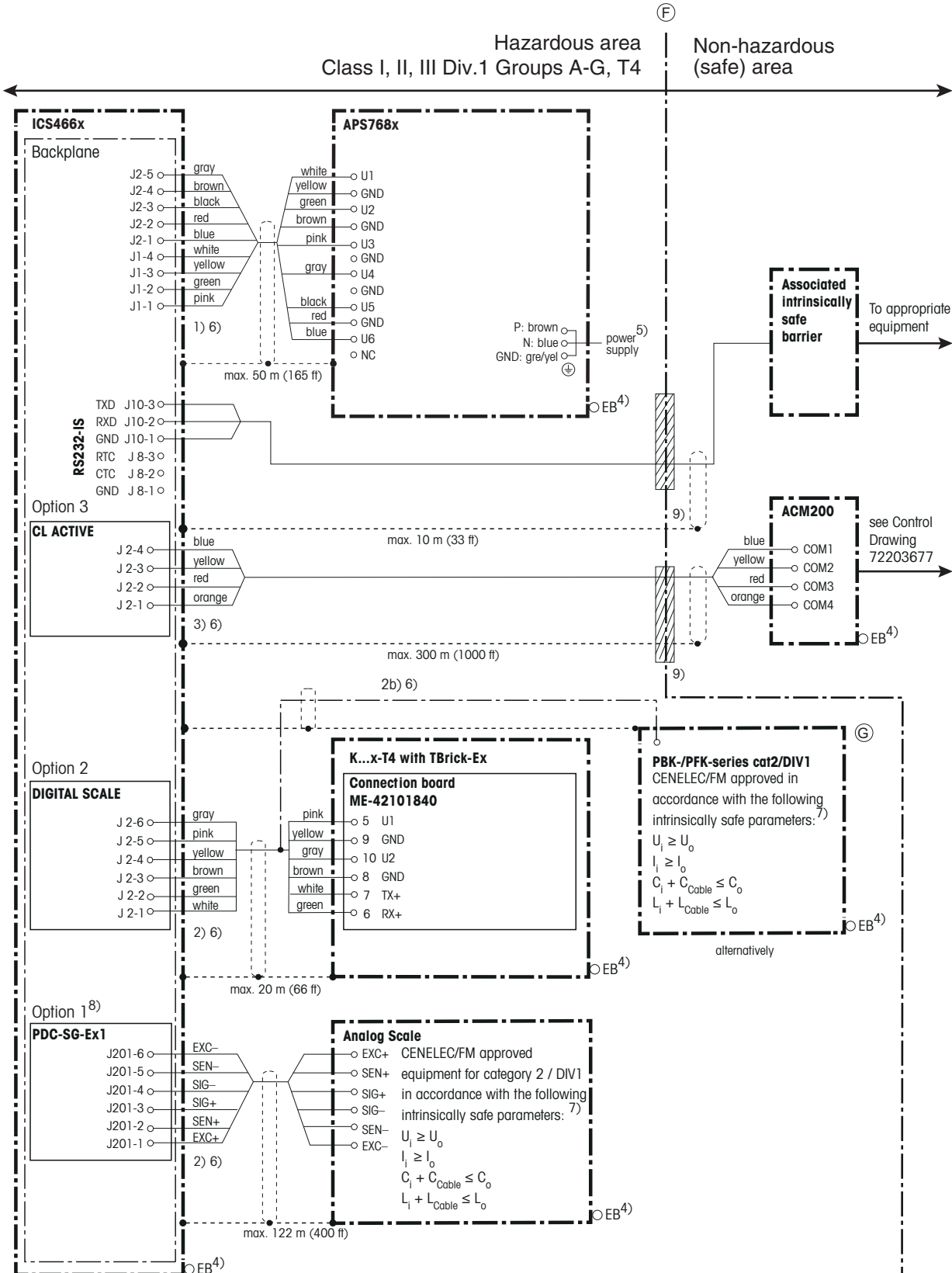
	CENELEC / IEC	FM / ISA
Maximum output voltage	U <sub>o</sub>	V <sub>oc</sub>
Maximum output current	I <sub>o</sub>	I <sub>sc</sub>
Maximum output power	P <sub>o</sub>	P <sub>o</sub>
Maximum external capacitance	C <sub>o</sub>	C <sub>a</sub>
Maximum external inductance	L <sub>o</sub>	L <sub>a</sub>
Maximum input voltage	U <sub>i</sub>	V <sub>max</sub>
Maximum input current	I <sub>i</sub>	I <sub>max</sub>
Maximum input power	P <sub>i</sub>	P <sub>i</sub>
Maximum internal capacitance	C <sub>i</sub>	C <sub>i</sub>
Maximum internal inductance	L <sub>i</sub>	L <sub>i</sub>

- 8) Cable seal between differently rated areas, as per country specific regulations

Temperature range: -10 °C ... + 40 °C

G	/	15/10	Schultz
F	140091	14/03	Schultz
E	/	11/09	Schultz
D	/	11/03	Schultz
C	/	10/04	Schultz
B	/	08/05	Schultz

Edi- tion	Revision	Date	Name	Prep.	Date	Name	Scale	Designation	
				05/02	05/02	Grandjean		Control drawing PSUx APS768x	
				05/02	05/02	Grandjean			
Replaces:								Code 22006397	
/									
METTLER TOLEDO				Mettler-Toledo GmbH Ch-8606 Nänikon					



**Intrinsically safe connection values**

<b>APS768x</b>	<b>U<sub>o</sub> [V]</b>	<b>I<sub>o</sub> [mA]</b>	<b>P<sub>o</sub> [W]</b>	<b>C<sub>o</sub> [μF]</b>	<b>L<sub>o</sub> [mH]</b>
<b>U1</b>	8.7	133	1.15	1	0.3
<b>U2</b>	12.6	42	0.53	0.4	1
<b>U3</b>	7.15	107	0.77	1	0.3
<b>U4</b>	10.5	74	0.78	0.6	0.3
<b>U5</b>	5.4	240	1.30	1	0.3
<b>U6</b>	12.6	92	1.16	0.5	0.3
<b>PDC-SG-Ex1</b>	<b>U<sub>o</sub> [V]</b>	<b>I<sub>o</sub> [mA]</b>	<b>P<sub>o</sub> [W]</b>	<b>C<sub>o</sub> [μF]</b>	<b>L<sub>o</sub> [mH]</b>
<b>J201</b>	5.36	107	0.574	0.2	0.3
<b>DIGITAL SCALE</b>	<b>U<sub>o</sub> [V]</b>	<b>I<sub>o</sub> [mA]</b>	<b>P<sub>o</sub> [W]</b>	<b>C<sub>o</sub> [μF]</b>	<b>L<sub>o</sub> [mH]</b>
<b>J2.6 / J3.3</b>	12.6	42	0.53	*	
<b>J2.5 / J3.6</b>	8.7	133	1.16	**	
<b>J2.2 / J3.2</b>	5.36	30	0.040	0.1	0.1
<b>J2.1 / J3.1</b>	5.36	30	0.040	0.1	0.1
<b>APS768x-CL/CL</b>	<b>U<sub>o</sub> [V]</b>	<b>I<sub>o</sub> [mA]</b>	<b>P<sub>o</sub> [mW]</b>	<b>C<sub>o</sub> [μF]</b>	<b>L<sub>o</sub> [mH]</b>
<b>Scale interface S1-S4</b>	7.15	24	43	0.2	0.2
<b>Communication interface C1-C4</b>	7.15	107	270	0.3	0.6
<b>RS232-IS</b>	<b>U<sub>o</sub> [V]</b>	<b>I<sub>o</sub> [mA]</b>	<b>P<sub>o</sub> [mW]</b>	<b>C<sub>o</sub> [μF]</b>	<b>L<sub>o</sub> [mH]</b>
<b>J8.3</b>	±5.36	±18.1	24.2	0.1	0.1
<b>J10.3</b>	±5.36	±18.1	24.2	0.1	0.1
<b>CL ACTIVE</b>	<b>U<sub>o</sub> [V]</b>	<b>I<sub>o</sub> [mA]</b>	<b>P<sub>o</sub> [mW]</b>	<b>C<sub>o</sub> [μF]</b>	<b>L<sub>o</sub> [mH]</b>
<b>J2</b>	5.36	74	397	0.6	0.4
<b>CL PASSIVE</b>	<b>U<sub>i</sub> [V]</b>	<b>I<sub>i</sub> [mA]</b>	<b>P<sub>i</sub> [mW]</b>	<b>C<sub>i</sub> [μF]</b>	<b>L<sub>i</sub> [mH]</b>
<b>J4</b>	10	300	500	0.11	negligible

7)

\* Depending on the power supply connected to J1-2 on the backplane and cable (length) between power supply and terminal  
 \*\* Depending on the power supply connected to J1-4 on the backplane and cable (length) between power supply and terminal

**CENELEC approval**

Cables in accordance with standards EN50039 and EN60079-14 for intrinsically safe circuits.

**cFM<sub>us</sub> approval**

**USA:** Installation shall be in accordance with ANSI/ISA RP 12.6.01.

**Canada:** Installation shall be in accordance with the Electrical Code C2.R1.

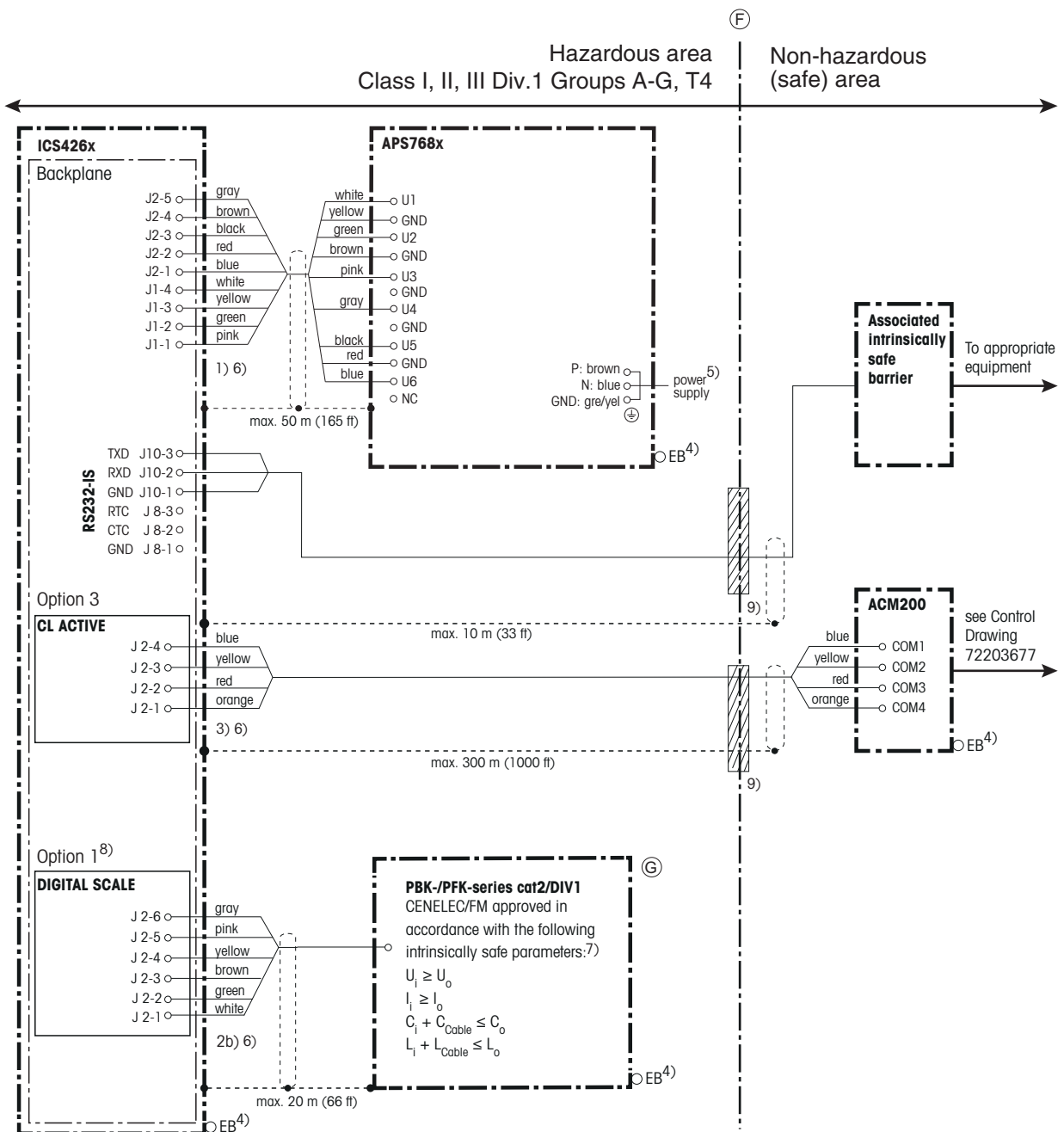
**For all approvals**

- Cable lead-in via grounding cable gland
  - Cable according to Guide for Installers ME-22021223
  - Temperature range: -10 °C ... +40 °C
- 1) Cable 4 x 2 x 0.5 mm<sup>2</sup> + 1 x 0.5 mm<sup>2</sup> shielded and paired
  - 2) Cable 3 x 2 x 0.75 mm<sup>2</sup> shielded and paired
  - 3) Cable 4 x 0.5 mm<sup>2</sup> shielded and paired
  - 4) Connection of equipotential bonding (EB) in accordance with national regulations. It must be ensured that the housing of all units are at the same potential by means of EB connections. No compensation current may flow across the shield of the intrinsically safe cables.
  - 5) APS768x power supply connection in accordance with national regulations, see model plate for line voltage and frequency. U<sub>m</sub> ≤ 253 V.
  - 6) Lay cabling securely so that it does not move and effectively protect it against damage.
  - 8) The use of Option 1 (Scale 1) is mandatory, either PDC-SG-EX1 or Digital scale. For a second scale, refer to the Control drawing ICS466x (22026630).
  - 9) Cable seal between differently rated areas, as per country specific regulations.

	CENELEC / IEC	FM / ISA
<b>Maximum output voltage</b>	U <sub>o</sub>	V <sub>oc</sub>
<b>Maximum output current</b>	I <sub>o</sub>	I <sub>sc</sub>
<b>Maximum output power</b>	P <sub>o</sub>	P <sub>o</sub>
<b>Maximum external capacitance</b>	C <sub>o</sub>	C <sub>a</sub>
<b>Maximum external inductance</b>	L <sub>o</sub>	L <sub>a</sub>
<b>Maximum input voltage</b>	U <sub>i</sub>	V <sub>max</sub>
<b>Maximum input current</b>	I <sub>i</sub>	I <sub>max</sub>
<b>Maximum input power</b>	P <sub>i</sub>	P <sub>i</sub>
<b>Maximum internal capacitance</b>	C <sub>i</sub>	C <sub>i</sub>
<b>Maximum internal inductance</b>	L <sub>i</sub>	L <sub>i</sub>

G	/	15/10	Schultz
F	140091	14/03	Schultz
E	/	11/09	Schultz
D	/	11/03	Schultz
C	/	10/04	Schultz
B	/	08/05	Schultz

A	/	05/03	Schultz		Date	Name	Scale	Designation	
Edi- tion	Revision	Date	Name	Prep.	05/02	Grandjean		Control drawing PSUx APS768x	
				Check.	05/02	Grandjean			
Replaces:								Sheet 4/5	
METTLER TOLEDO				Mettler-Toledo GmbH Ch-8606 Nänikon				Code	22006397



**Intrinsically safe connection values**

APS768x	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [W]	C <sub>0</sub> [μF]	L <sub>0</sub> [mH]
<b>U1</b>	8.7	133	1.15	1	0.3
<b>U2</b>	12.6	42	0.53	0.4	1
<b>U3</b>	7.15	107	0.77	1	0.3
<b>U4</b>	10.5	74	0.78	0.6	0.3
<b>U5</b>	5.4	240	1.30	1	0.3
<b>U6</b>	12.6	92	1.16	0.5	0.3
PDC-SG-Ex1	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [W]	C <sub>0</sub> [μF]	L <sub>0</sub> [mH]
<b>J201</b>	5.36	107	0.574	0.2	0.3
DIGITAL SCALE	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [W]	C <sub>0</sub> [μF]	L <sub>0</sub> [mH]
<b>J2.6 / J3.3</b>	12.6	42	0.53	*	
<b>J2.5 / J3.6</b>	8.7	133	1.16	**	
<b>J2.2 / J3.2</b>	5.36	30	0.040	0.1	0.1
<b>J2.1 / J3.1</b>	5.36	30	0.040	0.1	0.1
APS768x-CL/CL	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [mW]	C <sub>0</sub> [μF]	L <sub>0</sub> [mH]
<b>Scale interface S1-S4</b>	7.15	24	43	0.2	0.2
<b>Communication interface C1-C4</b>	7.15	107	270	0.3	0.6
RS232-IS	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [mW]	C <sub>0</sub> [μF]	L <sub>0</sub> [mH]
<b>J8.3</b>	±5.36	±18.1	24.2	0.1	0.1
<b>J10.3</b>	±5.36	±18.1	24.2	0.1	0.1
CL ACTIVE	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [mW]	C <sub>0</sub> [μF]	L <sub>0</sub> [mH]
<b>J2</b>	5.36	74	397	0.6	0.4
CL PASSIVE	U <sub>1</sub> [V]	I <sub>1</sub> [mA]	P <sub>1</sub> [mW]	C <sub>1</sub> [μF]	L <sub>1</sub> [mH]
<b>J4</b>	10	300	500	0.11	negligible

\* Depending on the power supply connected to J1-2 on the backplane and cable (length) between power supply and terminal  
 \*\* Depending on the power supply connected to J1-4 on the backplane and cable (length) between power supply and terminal

**CENELEC approval**

Cables in accordance with standards EN50039 and EN60079-14 for intrinsically safe circuits.

**cFM<sub>us</sub> approval**

**USA:** Installation shall be in accordance with ANSI/ISA RP 12.6.01.

**Canada:** Installation shall be in accordance with the Electrical Code C2.R1.

**For all approvals**

- Cable lead-in via grounding cable gland
  - Cable according to Guide for Installers ME-22021223
  - Temperature range: -10 °C ... +40 °C
- 1) Cable 4 x 2 x 0.5 mm<sup>2</sup> + 1 x 0.5 mm<sup>2</sup> shielded and paired
  - 2) Cable 3 x 2 x 0.75 mm<sup>2</sup> shielded and paired
  - 3) Cable 4 x 0.5 mm<sup>2</sup> shielded and paired
  - 4) Connection of equipotential bonding (EB) in accordance with national regulations. It must be ensured that the housing of all units are at the same potential by means of EB connections. No compensation current may flow across the shield of the intrinsically safe cables.
  - 5) APS768x power supply connection in accordance with national regulations, see model plate for line voltage and frequency. U<sub>m</sub> ≤ 253 V.
  - 6) Lay cabling securely so that it does not move and effectively protect it against damage.
  - 8) The use of Option 1 (Scale 1) is mandatory, either PDC-SG-EX1 or Digital scale. For a second scale, refer to the Control drawing ICS466x (22026630).
  - 9) Cable seal between differently rated areas, as per country specific regulations.

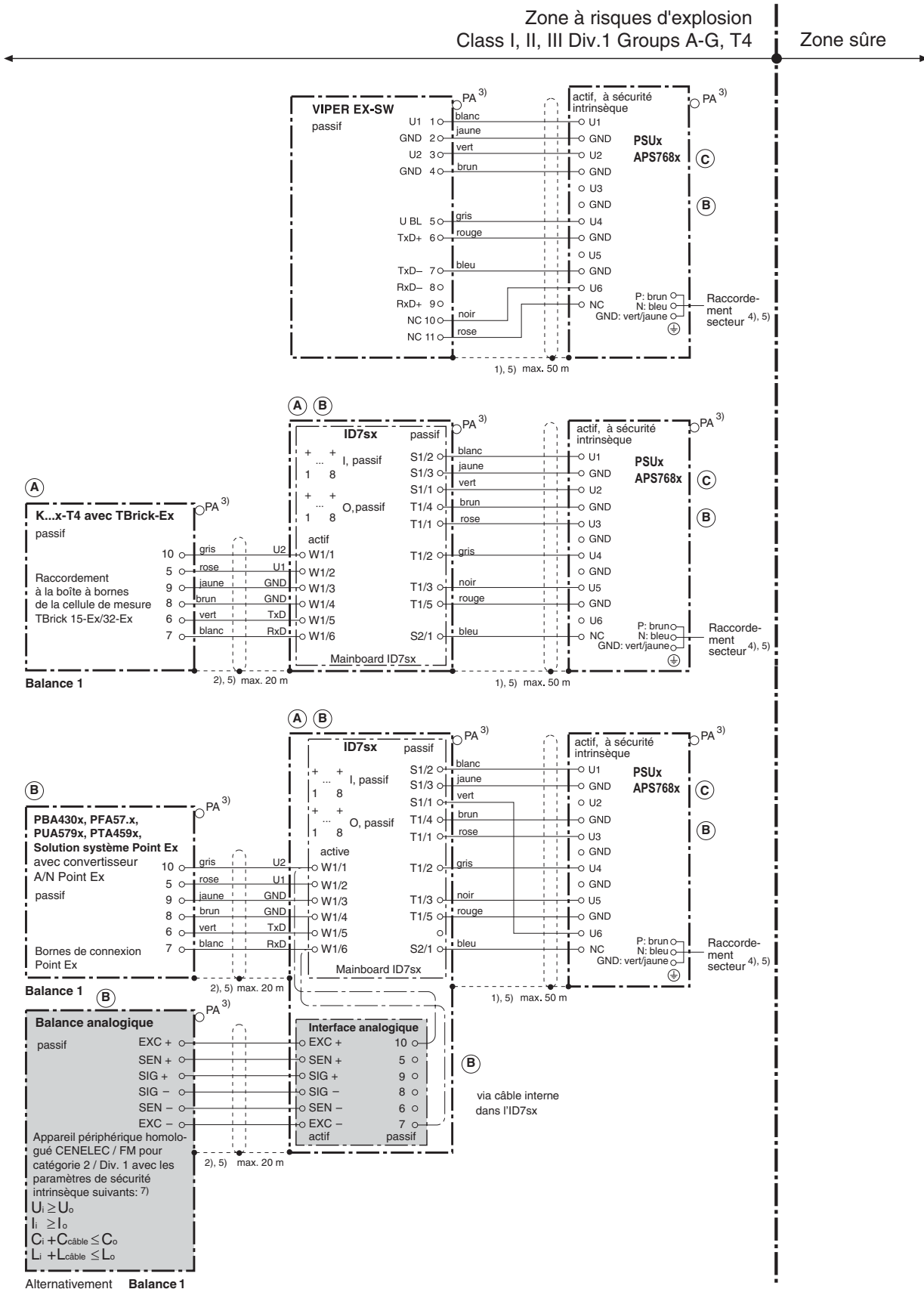
	CENELEC / IEC	FM / ISA
<b>Maximum output voltage</b>	U <sub>0</sub>	V <sub>oc</sub>
<b>Maximum output current</b>	I <sub>0</sub>	I <sub>sc</sub>
<b>Maximum output power</b>	P <sub>0</sub>	P <sub>0</sub>
<b>Maximum external capacitance</b>	C <sub>0</sub>	C <sub>a</sub>
<b>Maximum external inductance</b>	L <sub>0</sub>	L <sub>a</sub>
<b>Maximum input voltage</b>	U <sub>i</sub>	V <sub>max</sub>
<b>Maximum input current</b>	I <sub>i</sub>	I <sub>max</sub>
<b>Maximum input power</b>	P <sub>i</sub>	P <sub>i</sub>
<b>Maximum internal capacitance</b>	C <sub>i</sub>	C <sub>i</sub>
<b>Maximum internal inductance</b>	L <sub>i</sub>	L <sub>i</sub>

G	/	15/10	Schultz
F	140091	14/03	Schultz
E	/	11/09	Schultz
D	/	11/03	Schultz
C	/	10/04	Schultz
B	/	08/05	Schultz
A	/	05/03	Schultz

Edi-tion	Revision	Date	Name	Prep.	Date	Name	Scale	Designation	
				05/02	05/02	Grandjean		Control drawing PSUx Sheet 5/5 APS768x	
				05/02	05/02	Grandjean			
Replaces:									
METTLER TOLEDO				Mettler-Toledo GmbH Ch-8606 Nänikon				Code	22006397

Zone à risques d'explosion  
Class I, II, III Div.1 Groups A-G, T4

Zone sûre



**ID7sx – Données des sorties à sécurité intrinsèque**

Interfaces balances	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
U <sub>1</sub> (W./2)	8,7 V	92 mA	0,81 W	950 nF	0,2 mH
U <sub>2</sub> (W./1) (TBrick-Ex)	12,6 V	42 mA	0,53 W	350 nF	0,9 mH
U <sub>2</sub> (W./1) (Point-Ex)	12,6 V	92 mA	1,16 W	350 nF	0,4 mH
Output TxD (W./5)	10,5 V	30 mA	0,32 W	100 nF	0,1 mH
Output RxD (W./6)	10,5 V	30 mA	0,32 W	100 nF	0,1 mH

Interface analogique	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
U <sub>Ex</sub>	8 V	250 mA	1,2 W	100 nF	0,3 mH

Entrées/sorties	U <sub>i</sub>	I <sub>i</sub>	P <sub>i</sub>	C <sub>i</sub>	L <sub>i</sub>
Entrées	30 V	50 mA	0,375 W	10 nF	0,01 mH
Sorties	15 V	40 mA	0,150 W	10 nF	0,01 mH

**PSUx / APS768x –**

**Données des sorties à sécurité intrinsèque**

	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
U1	8,7 V	133 mA	1,15 W	1 µF	0,3 mH
U2	12,6 V	42 mA	0,53 W	0,4 µF	1 mH
U3	7,15 V	107 mA	0,77 W	1 µF	0,3 mH
U4	10,5 V	74 mA	0,78 W	0,6 µF	0,3 mH
U5	5,4 V	240 mA	1,30 W	1 µF	0,3 mH
U6	12,6 V	92 mA	1,16 W	0,5 µF	0,3 mH

**Homologation CENELEC**

Câble suivant EN50039 et EN60079-14 pour circuits de courant, sécurité intrinsèque

- entrée de câble via raccord vissé de câble de mise à la terre
- câble suivant Guide for installers ME-22021223
- 1) Câble 4 x 2 x 0,5 mm<sup>2</sup> + 1 x 0,5 mm<sup>2</sup> à paires torsadées blindé
- 2) Câble 3 x 2 x 0,75 mm<sup>2</sup> à paires torsadées blindé
- 2a) Câble 2 x 2 x 0,5 mm<sup>2</sup> à paires torsadées blindé
- 3) Raccordement d'équipotentialité (PA) suivant prescriptions spécifiques nationales. Il doit être assuré à l'aide des connexions PA que les boîtiers de tous les appareils sont au même potentiel. Aucun courant d'équilibrage ne peut circuler via le blindage du câble de sécurité intrinsèque.
- 4) Raccordement secteur du PSUx / APS768x suivant prescriptions nationales; tension de réseau et fréquence voir plaque signalétique, U<sub>m</sub> ≤ 253 V
- 5) Poser les câbles fixes et les protéger efficacement contre les détériorations.
- 6) Via câble interne dans l'APS768x

Plage de température: -10 °C ... + 40 °C

**Homologation c<sub>FM</sub>US**

USA: installation selon ANSI / ISA RP 12.601

Canada: installation selon Code Electrique C2 R1

- entrée de câble via raccord vissé de câble de mise à la terre

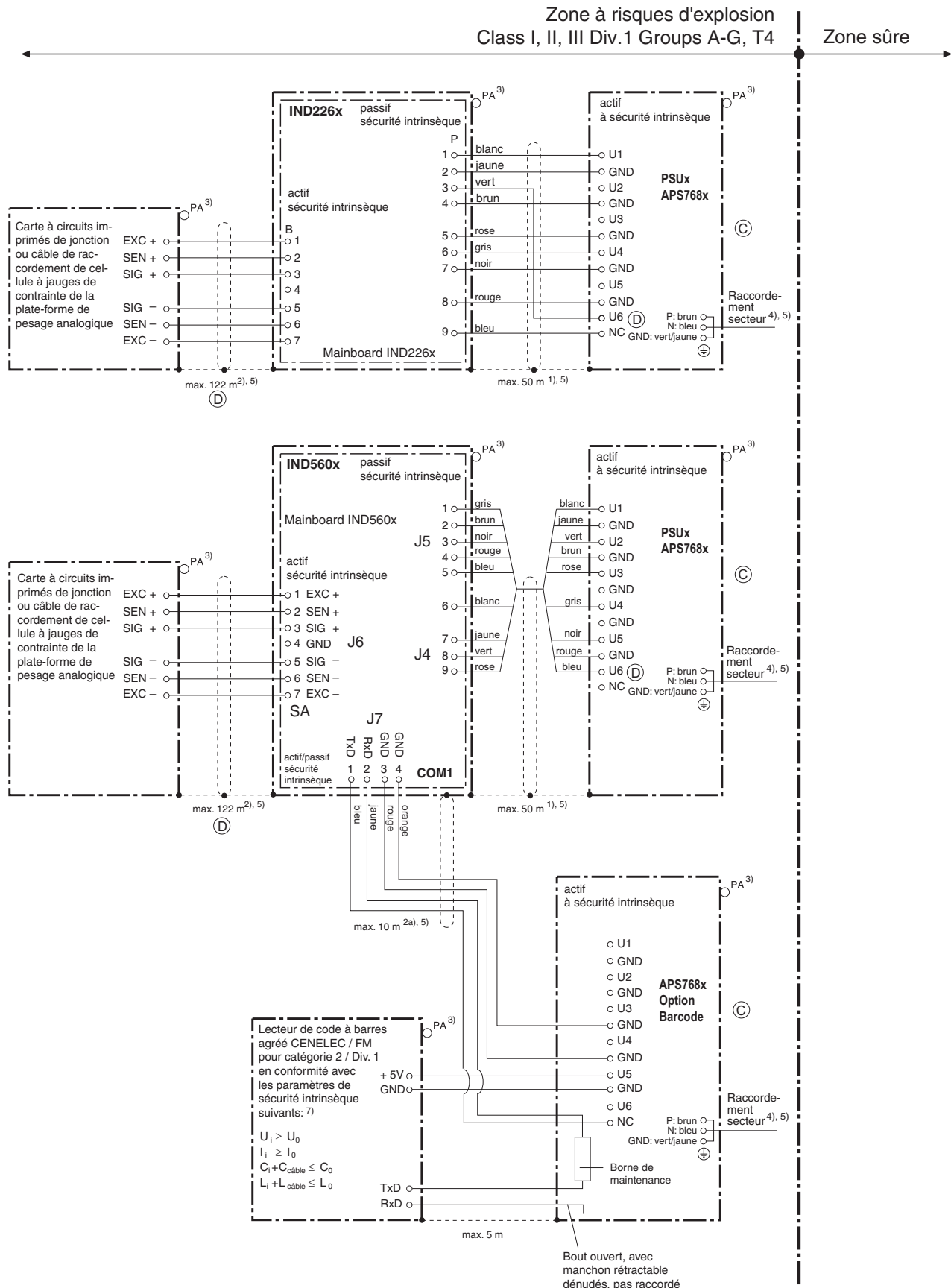
- câble suivant notice pour l'installateur ME-22021224
- 1) Câble 4 x 2 x 0,5 mm<sup>2</sup> + 1 x 0,5 mm<sup>2</sup> à paires torsadées blindé
- 2) Câble 3 x 2 x 0,75 mm<sup>2</sup> à paires torsadées blindé
- 2a) Câble 2 x 2 x 0,5 mm<sup>2</sup> à paires torsadées blindé
- 3) Raccordement d'équipotentialité (PA) selon ANSI / NFPA 70 Article 58 et ANSI / IA. Il doit être assuré à l'aide des connexions PA que les boîtiers de tous les appareils sont au même potentiel. Aucun courant d'équilibrage ne peut circuler via le blindage du câble de sécurité intrinsèque.
- 4) Raccordement secteur du PSUx / APS768x suivant prescriptions nationales; tension de réseau et fréquence voir plaque signalétique, U<sub>m</sub> ≤ 253 V
- 5) Poser les câbles fixes et les protéger efficacement contre les détériorations.
- 6) Via câble interne dans l'APS768x

	CENELEC / IEC	FM / ISA
Tension de sortie maximale	U <sub>o</sub>	V <sub>oc</sub>
Courant de sortie maximale	I <sub>o</sub>	I <sub>sc</sub>
Puissance de sortie maximale	P <sub>o</sub>	P <sub>o</sub>
Capacité externe maximale	C <sub>o</sub>	C <sub>a</sub>
Inductance externe maximale	L <sub>o</sub>	L <sub>a</sub>
Tension d'entrée maximale	U <sub>i</sub>	V <sub>max</sub>
Courant d'entrée maximale	I <sub>i</sub>	I <sub>max</sub>
Puissance d'entrée maximale	P <sub>i</sub>	P <sub>i</sub>
Capacité interne maximale	C <sub>i</sub>	C <sub>i</sub>
Inductance interne maximale	L <sub>i</sub>	L <sub>i</sub>

Plage de température: -10 °C ... + 40 °C

G	/	15/10	Schultz
F	140091	14/03	Schultz
E	/	11/09	Schultz
D	/	11/03	Schultz
C	/	10/04	Schultz
B	/	08/05	Schultz
A	/	05/03	Schultz

Edi-tion		Mod.		Date	Nom	Echelle	Désignation
				Auteur 05/02	Grandjean		Schéma de PSUx raccordement APS768x
				Vérifié 05/02	Grandjean		
Remplace:							
/							
METTLER TOLEDO				Mettler-Toledo GmbH Ch-8606 Nänikon		Code 22006397	





**PSUx / APS768x – Données des sorties à sécurité intrinsèque**

	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
U1	8,7 V	133 mA	1,15 W	1 µF	0,3 mH
U2	12,6 V	42 mA	0,53 W	0,4 µF	1 mH
U3	7,15 V	107 mA	0,77 W	1 µF	0,3 mH
U4	10,5 V	74 mA	0,78 W	0,6 µF	0,3 mH
U5	5,4 V	240 mA	1,30 W	1 µF	0,3 mH
U6	12,6 V	92 mA	1,16 W	0,5 µF	0,3 mH

7)

©

**Homologation CENELEC**

Câble suivant EN50039 et EN60079-14 pour circuits de courant, sécurité intrinsèque

- entrée de câble via raccord vissé de câble de mise à la terre  
- câble suivant Guide for installers ME-22021223

- 1) Câble 4 x 2 x 0,5 mm<sup>2</sup> + 1 x 0,5 mm<sup>2</sup> à paires torsadées blindé
- 2) Câble 3 x 2 x 0,75 mm<sup>2</sup> à paires torsadées blindé
- 2a) Câble 2 x 2 x 0,5 mm<sup>2</sup> à paires torsadées blindé
- 3) Raccordement d'équipotentialité (PA) suivant prescriptions spécifiques nationales. Il doit être assuré à l'aide des connexions PA que les boîtiers de tous les appareils sont au même potentiel. Aucun courant d'équilibrage ne peut circuler via le blindage du câble de sécurité intrinsèque.
- 4) Raccordement secteur du PSUx / APS768x suivant prescriptions nationales; tension de réseau et fréquence voir plaque signalétique, U<sub>m</sub> ≤ 253 V
- 5) Poser les câbles fixes et les protéger efficacement contre les détériorations.
- 6) Via câble interne dans l'APS768x

Plage de température: -10 °C ... + 40 °C

**Homologation c<sub>FM</sub>Us**

USA: installation selon ANSI / ISA RP 12.601

Canada: installation selon Code Electrique C2 R1

- entrée de câble via raccord vissé de câble de mise à la terre  
- câble suivant notice pour l'installateur ME-22021224

- 1) Câble 4 x 2 x 0,5 mm<sup>2</sup> + 1 x 0,5 mm<sup>2</sup> à paires torsadées blindé
- 2) Câble 3 x 2 x 0,75 mm<sup>2</sup> à paires torsadées blindé
- 2a) Câble 2 x 2 x 0,5 mm<sup>2</sup> à paires torsadées blindé
- 3) Raccordement d'équipotentialité (PA) selon ANSI / NFPA 70 Article 58 et ANSI / IA. Il doit être assuré à l'aide des connexions PA que les boîtiers de tous les appareils sont au même potentiel. Aucun courant d'équilibrage ne peut circuler via le blindage du câble de sécurité intrinsèque.
- 4) Raccordement secteur du PSUx / APS768x suivant prescriptions nationales; tension de réseau et fréquence voir plaque signalétique, U<sub>m</sub> ≤ 253 V
- 5) Poser les câbles fixes et les protéger efficacement contre les détériorations.
- 6) Via câble interne dans l'APS768x

7)

	CENELEC / IEC	FM / ISA
Tension de sortie maximale	U <sub>o</sub>	V <sub>oc</sub>
Courant de sortie maximale	I <sub>o</sub>	I <sub>sc</sub>
Puissance de sortie maximale	P <sub>o</sub>	P <sub>o</sub>
Capacité externe maximale	C <sub>o</sub>	C <sub>a</sub>
Inductance externe maximale	L <sub>o</sub>	L <sub>a</sub>
Tension d'entrée maximale	U <sub>i</sub>	V <sub>max</sub>
Courant d'entrée maximale	I <sub>i</sub>	I <sub>max</sub>
Puissance d'entrée maximale	P <sub>i</sub>	P <sub>i</sub>
Capacité interne maximale	C <sub>i</sub>	C <sub>i</sub>
Inductance interne maximale	L <sub>i</sub>	L <sub>i</sub>

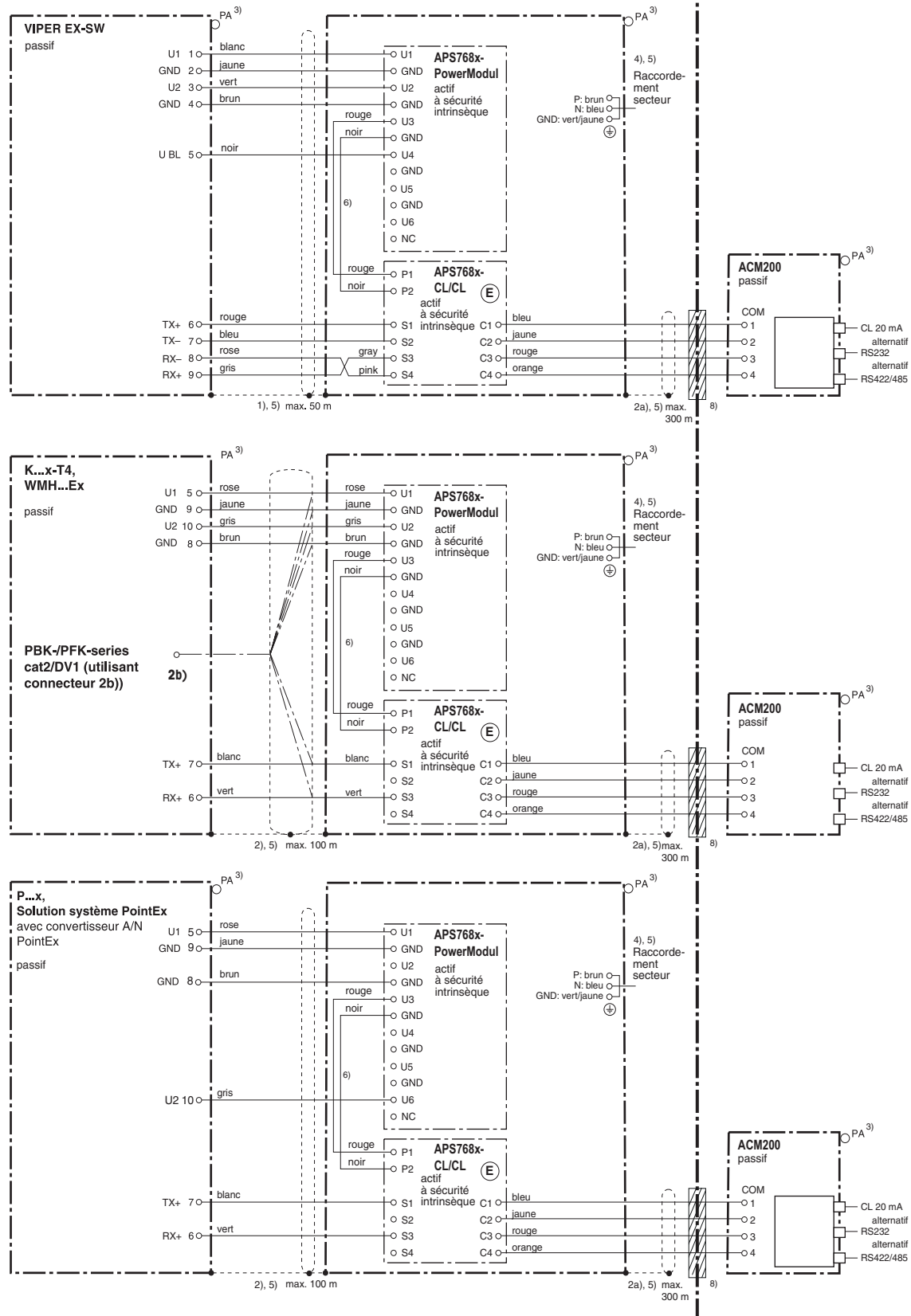
Plage de température: -10 °C ... + 40 °C

G	/	15/10	Schultz
F	140091	14/03	Schultz
E	/	11/09	Schultz
D	/	11/03	Schultz
C	/	10/04	Schultz
B	/	08/05	Schultz

A	/	05/03	Schultz	Date	Nom	Echelle	Désignation
Edi- tion	Mod.	Date	Nom	Auteur	05/02	Grandjean	Schéma de raccordement PSUx APS768x Feuille 2/5
				Vérifié	05/02	Grandjean	
Remplace:							
METTLER TOLEDO				Mettler-Toledo GmbH Ch-8606 Nänikon		Code 22006397	

Zone à risques d'explosion  
Class I, II, III Div.1 Groups A-G, T4

Zone sûre



**PSUx / APS768x – Données des sorties à sécurité intrinsèque**

	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
U1	8,7 V	133 mA	1,15 W	1 μF	0,3 mH
U2	12,6 V	42 mA	0,53 W	0,4 μF	1 mH
U3	7,15 V	107 mA	0,77 W	1 μF	0,3 mH
U4	10,5 V	74 mA	0,78 W	0,6 μF	0,3 mH
U5	5,4 V	240 mA	1,30 W	1 μF	0,3 mH
U6	12,6 V	92 mA	1,16 W	0,5 μF	0,3 mH

7)

Ⓒ

**APS768x-CL/CL – Données des sorties à sécurité intrinsèque** Ⓔ

	U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	L <sub>o</sub>
Scale Interface S1 – S4	7,15 V	24 mA	43 mW	0,2 μF	0,2 mH
Communication Interface C1 – C4	7,15 V	107 mA	270 mW	0,3 μF	0,6 mH

7)

**Homologation CENELEC**

Câble suivant EN50039 et EN60079-14 pour circuits de courant, sécurité intrinsèque

- entrée de câble via raccord vissé de câble de mise à la terre
- câble suivant Guide for installers ME-22021223

1) Câble 4 x 2 x 0,5 mm<sup>2</sup> + 1 x 0,5 mm<sup>2</sup> à paires torsadées blindé

2) Câble 3 x 2 x 0,75 mm<sup>2</sup> à paires torsadées blindé

2a) Câble 2 x 2 x 0,5 mm<sup>2</sup> à paires torsadées blindé

Ⓔ 2b) METTLER TOLEDO connecteur M12 Ex-i / à fils ouverts

3 x 2 x 0,25 mm<sup>2</sup> à paires torsadées blindé

3) Raccordement d'équipotentialité (PA) suivant prescriptions spécifiques nationales. Il doit être assuré à l'aide des connexions PA que les boîtiers de tous les appareils sont au même potentiel. Aucun courant d'équilibrage ne peut circuler via le blindage du câble de sécurité intrinsèque.

4) Raccordement secteur du PSUx / APS768x suivant prescriptions nationales; tension de réseau et fréquence voir plaque signalétique, U<sub>m</sub> ≤ 253 V

5) Poser les câbles fixes et les protéger efficacement contre les détériorations.

6) Via câble interne dans l'APS768x

8) Joint de câble entre zones de classifications différentes, selon les réglementations spécifiques au pays.

Plage de température: -10 °C ... + 40 °C

**Homologation c<sub>F</sub>M<sub>Us</sub>**

USA: installation selon ANSI / ISA RP 12.601

Canada: installation selon Code Electrique C2 R1

- entrée de câble via raccord vissé de câble de mise à la terre
- câble suivant notice pour l'installateur ME-22021224

1) Câble 4 x 2 x 0,5 mm<sup>2</sup> + 1 x 0,5 mm<sup>2</sup> à paires torsadées blindé

2) Câble 3 x 2 x 0,75 mm<sup>2</sup> à paires torsadées blindé

2a) Câble 2 x 2 x 0,5 mm<sup>2</sup> à paires torsadées blindé

Ⓔ 2b) METTLER TOLEDO connecteur M12 Ex-i / à fils ouverts

3 x 2 x 0,25 mm<sup>2</sup> à paires blindé

3) Raccordement d'équipotentialité (PA) selon ANSI / NFPA 70 Article 58 et ANSI / IA. Il doit être assuré à l'aide des connexions PA que les boîtiers de tous les appareils sont au même potentiel. Aucun courant d'équilibrage ne peut circuler via le blindage du câble de sécurité intrinsèque.

4) Raccordement secteur du PSUx / APS768x suivant prescriptions nationales; tension de réseau et fréquence voir plaque signalétique, U<sub>m</sub> ≤ 253 V

5) Poser les câbles fixes et les protéger efficacement contre les détériorations.

6) Via câble interne dans l'APS768x

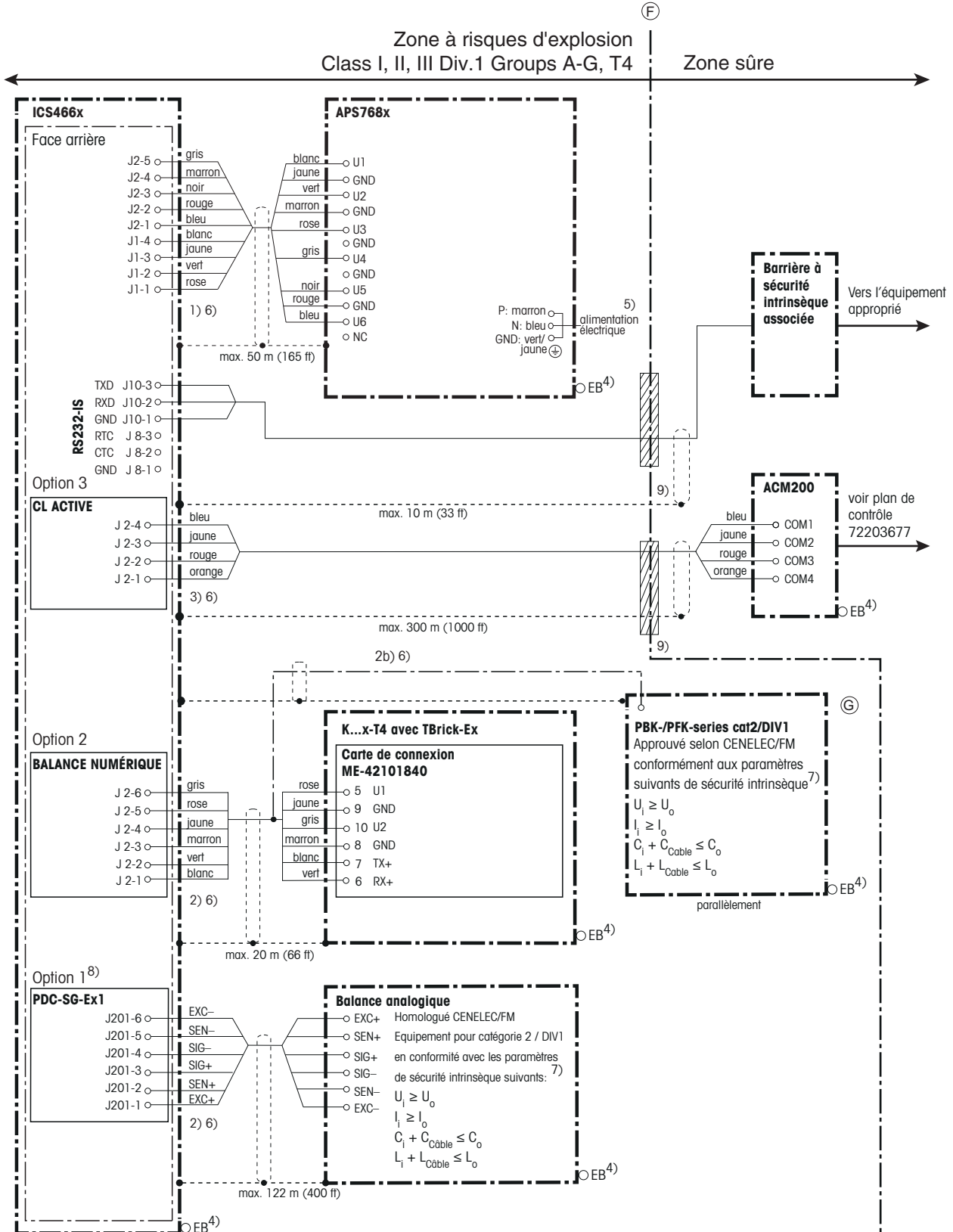
	CENELEC / IEC	FM / ISA
Tension de sortie maximale	U <sub>o</sub>	V <sub>oc</sub>
Courant de sortie maximale	I <sub>o</sub>	I <sub>sc</sub>
Puissance de sortie maximale	P <sub>o</sub>	P <sub>o</sub>
Capacité externe maximale	C <sub>o</sub>	C <sub>a</sub>
Inductance externe maximale	L <sub>o</sub>	L <sub>a</sub>
Tension d'entrée maximale	U <sub>i</sub>	V <sub>max</sub>
Courant d'entrée maximale	I <sub>i</sub>	I <sub>max</sub>
Puissance d'entrée maximale	P <sub>i</sub>	P <sub>i</sub>
Capacité interne maximale	C <sub>i</sub>	C <sub>i</sub>
Inductance interne maximale	L <sub>i</sub>	L <sub>i</sub>

8) Joint de câble entre zones de classifications différentes, selon les réglementations spécifiques au pays.

Plage de température: -10 °C ... + 40 °C

G	/	15/10	Schultz
F	140091	14/03	Schultz
E	/	11/09	Schultz
D	/	11/03	Schultz
C	/	10/04	Schultz
B	/	08/05	Schultz

Remplace:				Date	Nom	Echelle	Désignation
Edi-tion	Mod.	Date	Nom	Auteur 05/02	Grandjean		Schéma de raccordement PSUx APS768x Feuille 3/5
			Vérifié 05/02	Grandjean			
Mettler-Toledo GmbH Ch-8606 Nänikon						Code	22006397



Valeurs de connexion à sécurité intrinsèque

APS768x	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [W]	C <sub>0</sub> [µF]	L <sub>0</sub> [mH]
U1	8,7	133	1,15	1	0,3
U2	12,6	42	0,53	0,4	1
U3	7,15	107	0,77	1	0,3
U4	10,5	74	0,78	0,6	0,3
U5	5,4	240	1,30	1	0,3
U6	12,6	92	1,16	0,5	0,3
PDC-SG-Ex1	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [W]	C <sub>0</sub> [µF]	L <sub>0</sub> [mH]
J201	5,36	107	0,574	0,2	0,3
BALANCE NUMÉRIQUE	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [W]	C <sub>0</sub> [µF]	L <sub>0</sub> [mH]
J2.6 / J3.3	12,6	42	0,53	*	
J2.5 / J3.6	8,7	133	1,16	**	
J2.2 / J3.2	5,36	30	0,040	0,1	0,1
J2.1 / J3.1	5,36	30	0,040	0,1	0,1
APS768x-CL/CL	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [mW]	C <sub>0</sub> [µF]	L <sub>0</sub> [mH]
Interface de balance S1-S4	7,15	24	43	0,2	0,2
Interface de comm. C1-C4	7,15	107	270	0,3	0,6
RS232-IS	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [mW]	C <sub>0</sub> [µF]	L <sub>0</sub> [mH]
J8.3	±5,36	±18,1	24,2	0,1	0,1
J10.3	±5,36	±18,1	24,2	0,1	0,1
CL ACTIVE	U <sub>0</sub> [V]	I <sub>0</sub> [mA]	P <sub>0</sub> [mW]	C <sub>0</sub> [µF]	L <sub>0</sub> [mH]
J2	5,36	74	397	0,6	0,4
CL PASSIVE	U <sub>i</sub> [V]	I <sub>i</sub> [mA]	P <sub>i</sub> [mW]	C <sub>i</sub> [µF]	L <sub>i</sub> [mH]
J4	10	300	500	0,11	négligeable

7)

\* Dépend de l'alimentation connectée en J1-2 sur la face arrière et de la longueur de câble entre l'alimentation et le terminal  
 \*\* Dépend de l'alimentation connectée en J1-4 sur la face arrière et de la longueur de câble entre l'alimentation et le terminal

Homologation CENELEC

Câbles conformes aux normes EN50039 et EN60079-14 pour circuits à sécurité intrinsèque.

Homologation cFM<sub>US</sub>

USA: L'installation sera conforme aux normes ANSI/ISA RP 12.6.01.

Canada: L'installation sera conforme au Code électrique C2.R1.

Pour toutes les homologations

- Entrées de câbles via traversée de câble de mise à la terre
- Câble suivant Guide for installers ME-22021223
- Plage de température: -10 °C ... +40 °C

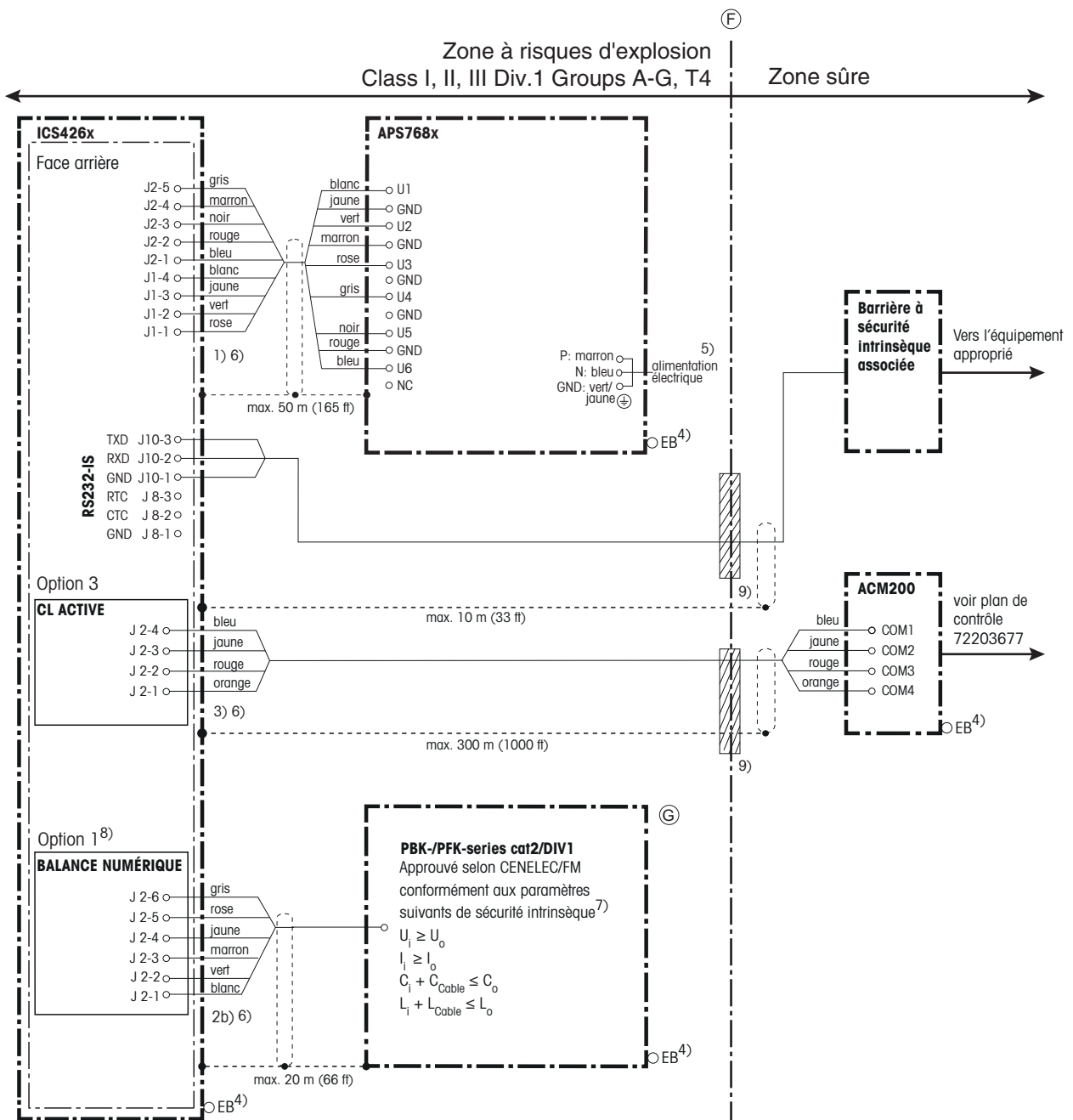
- 1) Câble 4 x 2 x 0,5 mm<sup>2</sup> + 1 x 0,5 mm<sup>2</sup> blindé et torsadé
- 2) Câble 3 x 2 x 0,75 mm<sup>2</sup> blindé et torsadé
- 2b) METTLER TOLEDO connecteur M12 Ex-1 / à fils ouverts 3 x 2 x 0,25 mm<sup>2</sup> à paires blindé
- 3) Câble 4 x 0,5 mm<sup>2</sup> blindé et torsadé
- 4) Connexion de liaison équipotentielle (EB) conforme aux réglementations nationales. Il doit être assuré que les boîtiers de toutes les unités sont au même potentiel au moyen de connexions EB. Aucun courant de compensation ne peut circuler à travers le blindage des câbles à sécurité intrinsèque.
- 5) Connexion d'alimentation APS768x conforme aux réglementations nationales, voir plaque signalétique pour la tension et la fréquence de la ligne secteur. U<sub>m</sub> ≤ 253 V
- 6) Réalisez le câblage de manière sûre, de telle sorte qu'il ne bouge pas et protégez-le efficacement contre les dommages. Via câbles internes dans l'APS768x.
- 8) L'utilisation de l'option 1 (balance 1) est obligatoire, soit PDC-SG-EX1 ou balance numérique. Pour une deuxième balance, voir Schéma de raccordement ICS466x (22026630).
- 9) Joint de câble entre zones de classifications différentes, selon les réglementations spécifiques au pays.

7)

	CENELEC / IEC	FM / ISA
Tension de sortie maximale	U <sub>0</sub>	V <sub>oc</sub>
Courant de sortie maximale	I <sub>0</sub>	I <sub>sc</sub>
Puissance de sortie maximale	P <sub>0</sub>	P <sub>0</sub>
Capacité externe maximale	C <sub>0</sub>	C <sub>a</sub>
Inductance externe maximale	L <sub>0</sub>	L <sub>a</sub>
Tension d'entrée maximale	U <sub>i</sub>	V <sub>max</sub>
Courant d'entrée maximale	I <sub>i</sub>	I <sub>max</sub>
Puissance d'entrée maximale	P <sub>i</sub>	P <sub>i</sub>
Capacité interne maximale	C <sub>i</sub>	C <sub>i</sub>
Inductance interne maximale	L <sub>i</sub>	L <sub>i</sub>

G	/	15/10	Schultz
F	140091	14/03	Schultz
E	/	11/09	Schultz
D	/	11/03	Schultz
C	/	10/04	Schultz
B	/	08/05	Schultz
A	/	05/03	Schultz

Edi- tion	Mod.	Date	Nom	Auteur	Date	Nom	Echelle	Désignation
				05/02	Grandjean			Schéma de raccordement PSUx APS768x
				Vérfifié 05/02	Grandjean			
Remplace:								Feuille 4/5
/								
Mettler-Toledo GmbH Ch-8606 Nänikon							Code	22006397



Valeurs de connexion à sécurité intrinsèque

APS768x	U <sub>o</sub> [V]	I <sub>o</sub> [mA]	P <sub>o</sub> [W]	C <sub>o</sub> [μF]	L <sub>o</sub> [mH]
<b>U1</b>	8,7	133	1,15	1	0,3
<b>U2</b>	12,6	42	0,53	0,4	1
<b>U3</b>	7,15	107	0,77	1	0,3
<b>U4</b>	10,5	74	0,78	0,6	0,3
<b>U5</b>	5,4	240	1,30	1	0,3
<b>U6</b>	12,6	92	1,16	0,5	0,3
PDC-SG-Ex1	U <sub>o</sub> [V]	I <sub>o</sub> [mA]	P <sub>o</sub> [W]	C <sub>o</sub> [μF]	L <sub>o</sub> [mH]
<b>J201</b>	5,36	107	0,574	0,2	0,3
BALANCE NUMÉRIQUE	U <sub>o</sub> [V]	I <sub>o</sub> [mA]	P <sub>o</sub> [W]	C <sub>o</sub> [μF]	L <sub>o</sub> [mH]
<b>J2.6 / J3.3</b>	12,6	42	0,53	*	
<b>J2.5 / J3.6</b>	8,7	133	1,16	**	
<b>J2.2 / J3.2</b>	5,36	30	0,040	0,1	0,1
<b>J2.1 / J3.1</b>	5,36	30	0,040	0,1	0,1
APS768x-CL/CL	U <sub>o</sub> [V]	I <sub>o</sub> [mA]	P <sub>o</sub> [mW]	C <sub>o</sub> [μF]	L <sub>o</sub> [mH]
<b>Interface de balance S1-S4</b>	7,15	24	43	0,2	0,2
<b>Interface de comm. C1-C4</b>	7,15	107	270	0,3	0,6
RS232-IS	U <sub>o</sub> [V]	I <sub>o</sub> [mA]	P <sub>o</sub> [mW]	C <sub>o</sub> [μF]	L <sub>o</sub> [mH]
<b>J8.3</b>	±5,36	±18,1	24,2	0,1	0,1
<b>J10.3</b>	±5,36	±18,1	24,2	0,1	0,1
CL ACTIVE	U <sub>o</sub> [V]	I <sub>o</sub> [mA]	P <sub>o</sub> [mW]	C <sub>o</sub> [μF]	L <sub>o</sub> [mH]
<b>J2</b>	5,36	74	397	0,6	0,4
CL PASSIVE	U <sub>i</sub> [V]	I <sub>i</sub> [mA]	P <sub>i</sub> [mW]	C <sub>i</sub> [μF]	L <sub>i</sub> [mH]
<b>J4</b>	10	300	500	0,11	négligeable

7)

\* Dépend de l'alimentation connectée en J1-2 sur la face arrière et de la longueur de câble entre l'alimentation et le terminal  
 \*\* Dépend de l'alimentation connectée en J1-4 sur la face arrière et de la longueur de câble entre l'alimentation et le terminal

Homologation CENELEC

Câbles conformes aux normes EN50039 et EN60079-14 pour circuits à sécurité intrinsèque.

Homologation cFM<sub>US</sub>

USA: L'installation sera conforme aux normes ANSI/ISA RP 12.6.01.

Canada: L'installation sera conforme au Code électrique C2.R1.

Pour toutes les homologations

- Entrées de câbles via traversée de câble de mise à la terre
- Câble suivant Guide for installers ME-22021223
- Plage de température: -10 °C ... +40 °C

- 1) Câble 4 x 2 x 0,5 mm<sup>2</sup> + 1 x 0,5 mm<sup>2</sup> blindé et torsadé
- 2) Câble 3 x 2 x 0,75 mm<sup>2</sup> blindé et torsadé
- 2b) METTLER TOLEDO connecteur M12 Ex-i / à fils ouverts 3 x 2 x 0,25 mm<sup>2</sup> à paires blindé
- 3) Câble 4 x 0,5 mm<sup>2</sup> blindé et torsadé
- 4) Connexion de liaison équipotentielle (EB) conforme aux réglementations nationales. Il doit être assuré que les boîtiers de toutes les unités sont au même potentiel au moyen de connexions EB. Aucun courant de compensation ne peut circuler à travers le blindage des câbles à sécurité intrinsèque.
- 5) Connexion d'alimentation APS768x conforme aux réglementations nationales, voir plaque signalétique pour la tension et la fréquence de la ligne secteur. U<sub>m</sub> ≤ 253 V
- 6) Réalisez le câblage de manière sûre, de telle sorte qu'il ne bouge pas et protégez-le efficacement contre les dommages. Via câbles internes dans l'APS768x.
- 8) L'utilisation de l'option 1 (balance 1) est obligatoire, soit PDC-SG-EX1 ou balance numérique. Pour une deuxième balance, voir Schéma de raccordement ICS466x (22026630).
- 9) Joint de câble entre zones de classifications différentes, selon les réglementations spécifiques au pays.

	CENELEC / IEC	FM / ISA
<b>Tension de sortie maximale</b>	U <sub>o</sub>	V <sub>oc</sub>
<b>Courant de sortie maximale</b>	I <sub>o</sub>	I <sub>sc</sub>
<b>Puissance de sortie maximale</b>	P <sub>o</sub>	P <sub>o</sub>
<b>Capacité externe maximale</b>	C <sub>o</sub>	C <sub>a</sub>
<b>Inductance externe maximale</b>	L <sub>o</sub>	L <sub>a</sub>
<b>Tension d'entrée maximale</b>	U <sub>i</sub>	V <sub>max</sub>
<b>Courant d'entrée maximale</b>	I <sub>i</sub>	I <sub>max</sub>
<b>Puissance d'entrée maximale</b>	P <sub>i</sub>	P <sub>i</sub>
<b>Capacité interne maximale</b>	C <sub>i</sub>	C <sub>i</sub>
<b>Inductance interne maximale</b>	L <sub>i</sub>	L <sub>i</sub>

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G	/	15/10	Schultz						
F	140091	14/03	Schultz						
E	/	11/09	Schultz						
D	/	11/03	Schultz						
C	/	10/04	Schultz						
B	/	08/05	Schultz						
A	/	05/03	Schultz						
Edi- tion	Mod.	Date	Nom	Auteur	05/02	Grandjean	Echelle	Date	Nom
				Vérfifié	05/02	Grandjean			
Remplace:									
				Schéma de raccordement PSUx APS768x					
				Feuille 5/5					
				Code					
METTLER TOLEDO				Mettler-Toledo GmbH Ch-8606 Nänikon					
				22006397					



**22021223F**

Subject to technical changes © Mettler-Toledo (Albstadt) GmbH 17/04 Printed in Germany 22021223F

**Mettler-Toledo (Albstadt) GmbH**

D-72458 Albstadt

Tel. ++49-7431-14 0

Fax ++49-7431-14 232

Internet: <http://www.mt.com>