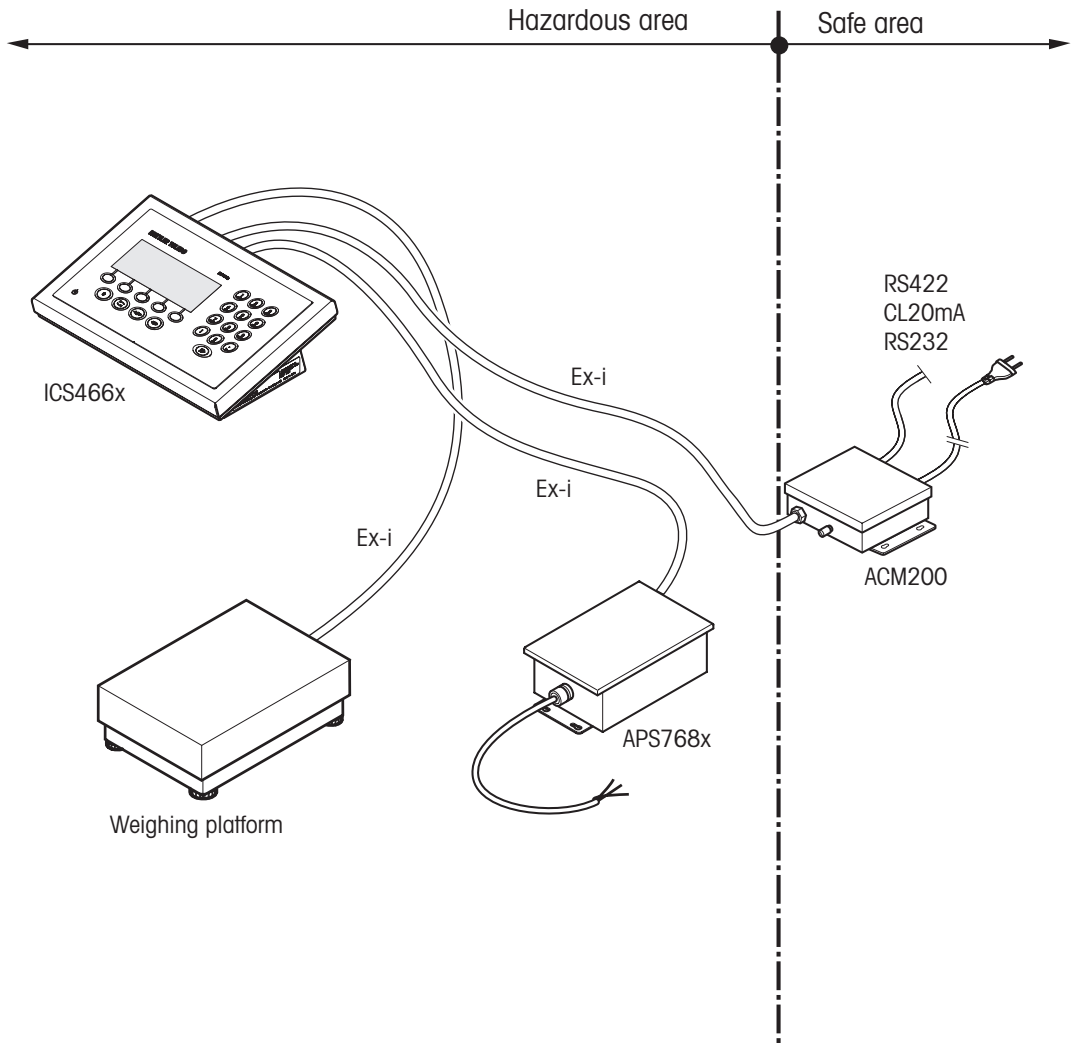
Guide for Installers

ICS466x

Explosion proof weighing terminal



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 to protect 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

so we can contact you about enhancements, updates and important notifications concerning your METTLER TOLEDO product.

Contents

1 Safety instructions

The ICS466x weighing terminal is approved for operation in Zone 1 and 21 hazardous areas as well as for Division 1 areas.
If the ICS466x weighing terminal is used in hazardous areas, special care must be taken. 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 authorized METTLER TOLEDO service personnel.
- ▲ The mains supply may only be installed by a specialist authorized by the owner-operator.

Ex approval

- ▲ No modifications may be made to the terminal and no repair work may be performed on the modules. Any weighing platform or system modules that are used must comply with the specifications contained in the installation instructions. Non-compliant equipment jeopardizes 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 regulations and standards in the respective country,
  - the statutory requirement for electrical equipment installed in hazardous areas in the respective country,
  - all instructions related to safety issued by the owner.
- ▲ The explosion-protected weighing system must be checked to ensure compliance with the requirements for safety before being put into service for the first time, following any service work and every 3 years, at least.

Operation

- ▲ Prevent the build-up of static electricity.
  - Always wear suitable working clothes when operating or performing service work in a hazardous area.
  - Only use the weighing terminal when electrostatic processes leading to propagating brush discharges are impossible.
- ▲ Do not use protective coverings for the devices.
- ▲ Protect the keyboard membrane against ultraviolet radiation.
- ▲ Avoid damage to the system components.

Installation

- ▲ Only install or perform maintenance work on the weighing system in the hazardous areas if the following conditions are fulfilled:
  - the intrinsically safe characteristic values and zone approval of the individual components are in accordance 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 approved earthing cable glands and ensure proper seating of the seals.

2 System overview

2.1 Typical configurations

A weighing system with the ICS466x weighing terminal can be operated either with one of the following power supply units:

APS768x-120 V Power supply unit in a hazardous area, US version, 120 VAC, 50/60 Hz

APS768x-230 V Power supply unit in a hazardous area, EU version, 230 VAC, 50 Hz

Either an analog or a digital weighing platform can be connected to the ICS466x weighing terminal.
In addition, a communication box can be connected in the safe area, e.g. an ACM200.

The following components are necessary for the connection of peripheral devices:

ACM200 Interface converter for the safe area, e.g. for connection of a PC in the safe area
Wide range power supply unit 100 – 240 V AC, 50/60 Hz or 24 V DC

ICS466x digital scale interface Active intrinsically safe scale interface for connection of digital weighing platforms, e.g. K…x-T4

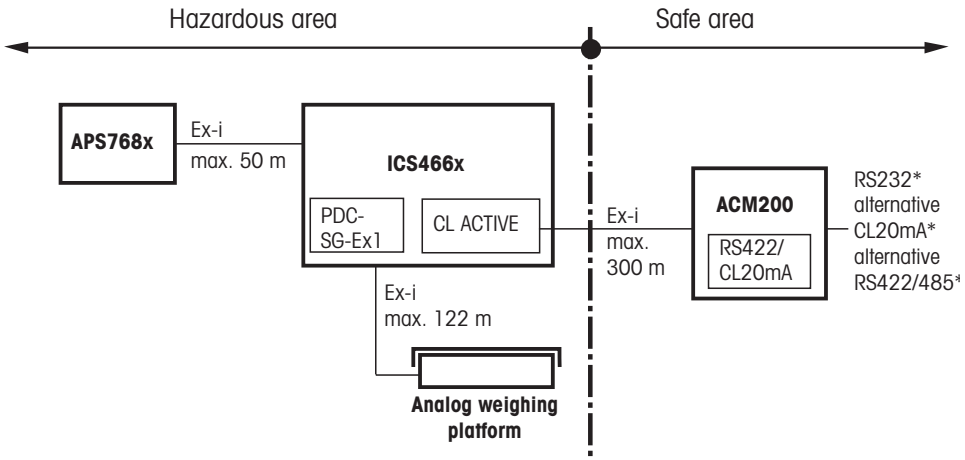
PDC-SG-Ex1 Active intrinsically safe A/D converter, installed in the ICS466x weighing terminal, to connect analog weighing platforms in the hazardous area

ICS466x active CL interface Optional active intrinsically safe data interface, to allow communication with the safe area, e.g. via ACM200.

ICS466x passive CL interface Optional passive intrinsically safe data interface, to connect a second intrinsically safe digital scale interface. The second scale has to be powered externally by a second APS768x.

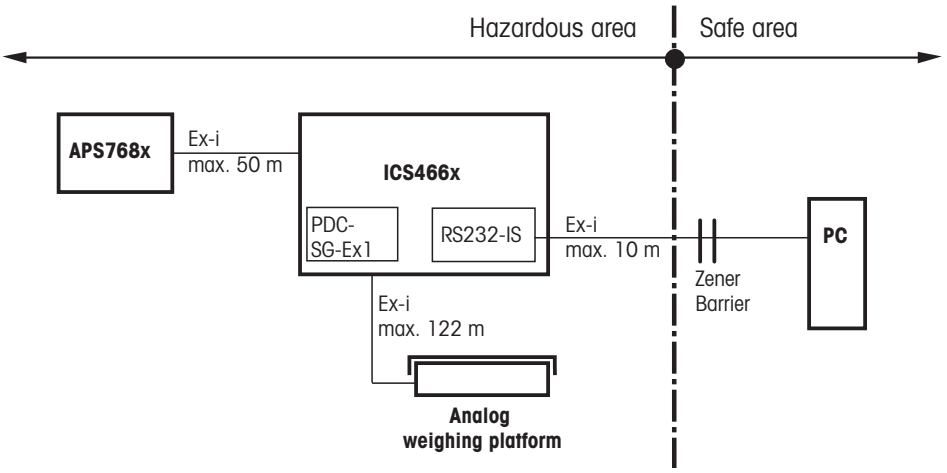
ICS466x RS232-IS Intrinsically safe communication interface, located on the ICS466x backplane, to connect an intrinsically safe peripheral device, e.g. barcode reader, or via IS barrier to peripheral equipment. Peripheral devices must be powered externally.

2.1.1 Configuration with interface converter ACM200 in the safe area

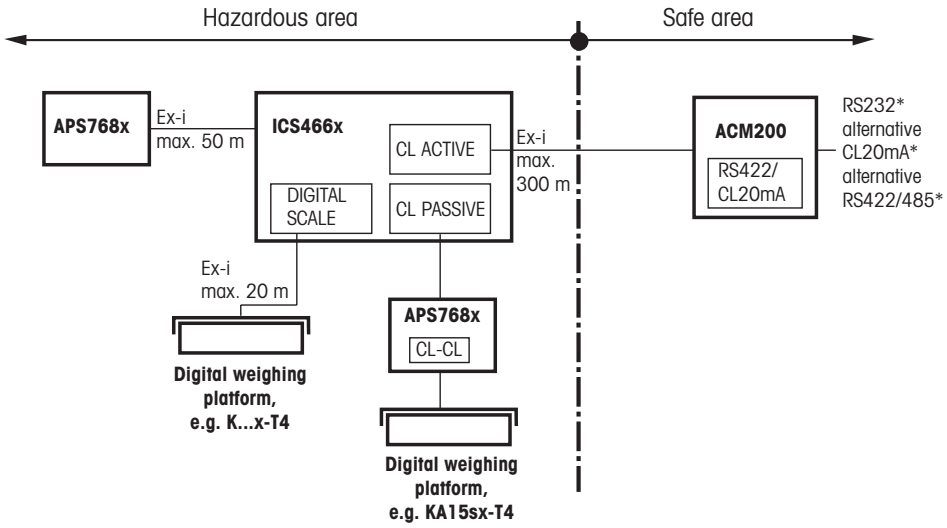


* only one hardware interface available,
CL20mA and RS422/485 only with module ACM200-CL/RS422

2.1.2 Configuration with PC in the safe area



2.1.3 Configuration with two digital weighing platforms in the hazardous area



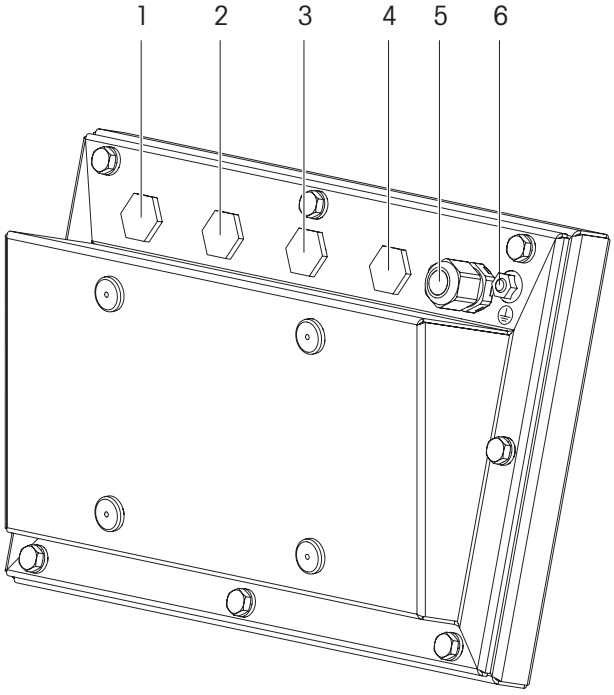
* only one hardware interface available,
CL20mA and RS422/485 only with module ACM200-CL/RS422

2.2 Description of components

2.2.1 Approvals

ICS466x	Ignition protection type	EN/IECEx	II 2G Ex ib IIC T4 Gb, –10 °C … +40 °C II 2D Ex ib IIIC T60°C Db IP65
		$_{C}FM_{US}$	IS Class I, II, III; Division 1; Group A, B, C, D, E, F, G; T4; Ta = 40 °C AEx ib IIC T4; IP65; Type 4
Power supply unit APS768x	See APS768x Guide for Installers		
Analog weighing platforms	See Operating Instructions / Installation Information of the weighing platforms		
Interface converter ACM200	Ignition protection type	EN/IECEx	II (2)G [Ex ib Gb] IIC II (2)D [Ex ib Db] IIIC
		$_{C}FM_{US}$	AIS Class I, II, III; Division 1; Group A, B, C, D, E, F, G

2.2.2 Connections



1 Power supply unit APS768x
2 Intrinsically safe RS232 interface
3 Communication interface
4 Second (digital) weighing platform
5 Weighing platform (analog or digital)
6 Equipotential bonding terminal (EB)

Note

On connections (1) to (4) blind plugs are mounted at the factory.

When connecting METTLER TOLEDO devices, M16x1.5 cable glands are provided with the devices.

The cable gland on connection (5) is provided for connecting a third-party analog weighing platform.

3 Installation

EXPLOSION HAZARD
The explosion-protected weighing system may only be installed according to this Guide for Installers and the Control Drawing 22026630 on Pages 16 to 19.

3.1 Setting up system modules

3.1.1 Setting up the ICS466x weighing terminal

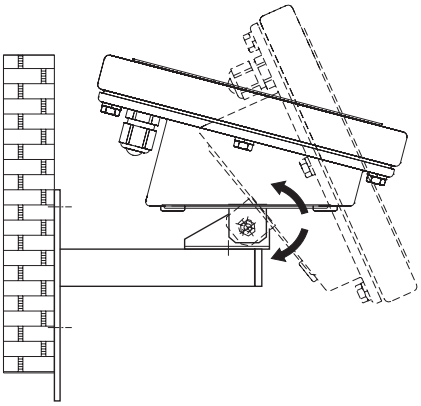
➜ Select a suitable installation site.

Bench stand or floor stand mounting

➜ Place weighing terminal onto the bench or floor stand and mount with 4 screws.

Wall mounting

➜ The ICS466x weighing terminal can be mounted to a wall using the wall bracket (accessory).



Setting up the power supply unit

➜ Set up the power supply unit in accordance with the corresponding instructions.

Setting up the weighing platform

➜ Set up the weighing platform in accordance with the corresponding Operating and Installation Instructions.

Setting up the ACM200

➜ Set up the interface converter ACM200 in the safe area in accordance with the corresponding instructions.

3.2 Connecting devices

CAUTION

- The clamping section of the earthing cable gland must correspond to the outer diameter of the weighing platform cable to be connected.
- Use the supplied flexible tubes to protect the individual wires of the weighing platform cable on the inside of the ICS466x.

Connect the devices in the following order:

1. Connect the weighing platform to the weighing terminal ICS466x.
2. Connect the power supply unit APS768x to the weighing terminal ICS466x.
3. Connect the interface converter ACM200, if present, to the weighing terminal ICS466x.
4. Install the equipotential bonding, see section 3.3 on page 12.
5. Connect power supply, see section 3.4 on page 12.

3.2.1 Preparatory work

Connection of the devices is generally carried out with the accompanying standard cables. Cables of other lengths can be used instead of the standard cables if they are customized in accordance with Chapter 4.1 or 4.2. This applies for the following connections:

- from the weighing platform to the weighing terminal,
- from the power supply unit APS768x to the weighing terminal,
- from the interface converter ACM200 to the weighing terminal.

3.2.2 General connection procedure

1. Open the device.
2. Pull the customized cable through the earthing cable gland. To do this
   - dismantle the earthing cable gland or remove the blind plug,
   - ensure the exact course of the cable and properly positioned seals,
   - tighten the earthing cable gland.
3. Connect the cable in the device according to the control drawing.
4. Close device.

3.2.3 Interface installation

For installing an interface board refer to the ICS466x Service Manual.

3.3 Installing the equipotential bonding

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

➜ Connect equipotential bonding (EB) of all devices (power supply unit, weighing terminal, interface converter and weighing platform) in accordance with the terminal diagram 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 EB terminals,
- 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.

3.4 Connecting power supply

EXPLOSION HAZARD

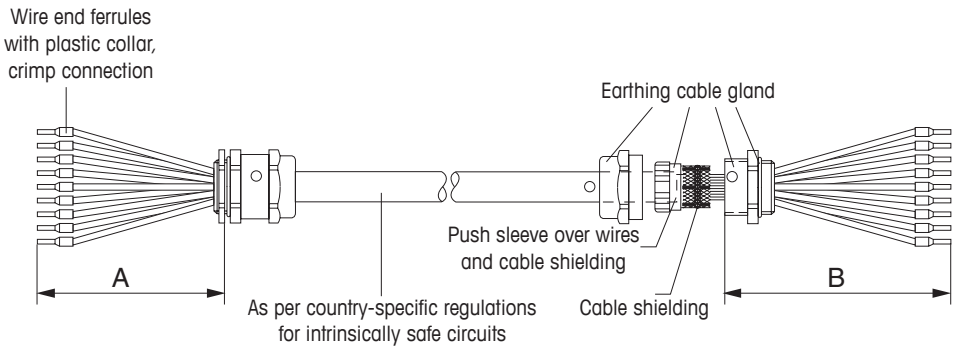
The mains connection of the power supply unit must be made by a professional electrician authorized by the owner and in accordance with the respective terminal diagram, the accompanying installation instructions as well as the country-specific regulations.

4 Optional work

4.1 Customizing connection cables: Weighing platform / APS768x

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

	ICS466x – APS768x	ICS466x – Weighing platform
Cable	4 x 2 x 0.5 mm^2 + 1 x 0.5 mm^2	3 x 2 x 0.75 mm^2
Dimension A (ICS466x)	80 mm (3,1")	80 mm (3,1")
Dimension B	215 mm (8.5")	215 mm (8.5")
Max. length	50 m (165 ft)	analog scale: 122 m (400 ft) digital scale: 20 m (66 ft)

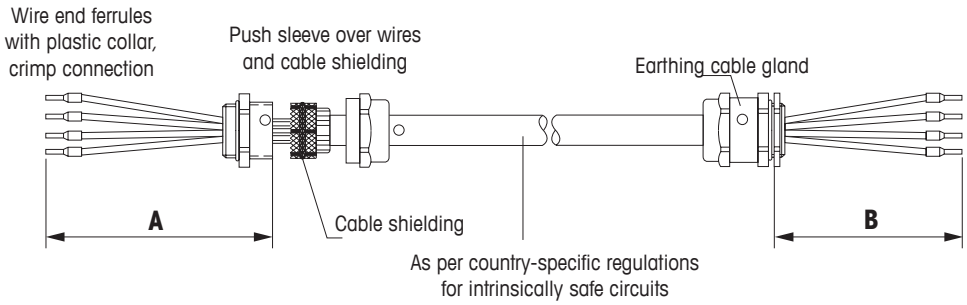


1. Cut cable to length and strip cable ends according to dimensions A/B.
2. Shorten cable shielding on both sides to 10 mm (0.4").
3. Strip wire ends.
4. Crimp wire end ferrules onto wire ends with a crimping tool.
5. Push second rear section of earthing cable gland onto cable.
6. Push sleeve over wires and cable shielding. Fold over cable shielding.
7. Push on front section of cable gland and screw onto rear section.

4.2 Customizing connection cables: interface converter ACM200

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

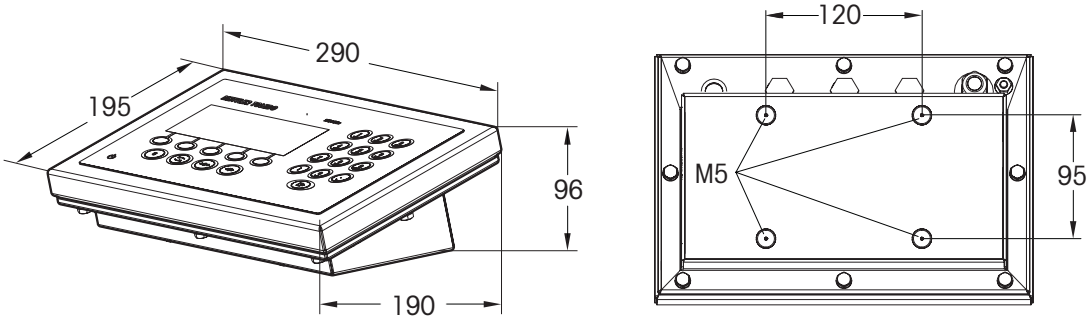
	ICS466x – ACM200
Cable	2 x 2 x 0.5 mm^2
Dimension A (ICS466x)	60 mm (2.4")
Dimension B	70 mm (2.8")
Max. length	300 m (1000 ft)



1. Cut cable to length and strip cable ends according to dimension A/B.
2. Shorten cable shielding on both sides to 10 mm (0.4").
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 the cable.
6. Apply the cable shielding only to the ICS466x end.
   To do so, push the sleeve over the wires and the cable shielding and fold over the cable shielding.
7. Push on front section of cable gland and screw onto rear section.

5 Technical data

5.1 Dimensional drawing



6 Disposal

In conformance with the European Directive 2002/96 EC on Waste Electrical and Electronic Equipment (WEEE), this device may not be disposed of with domestic waste. This also applies to countries outside the EU, according to their specific requirements.

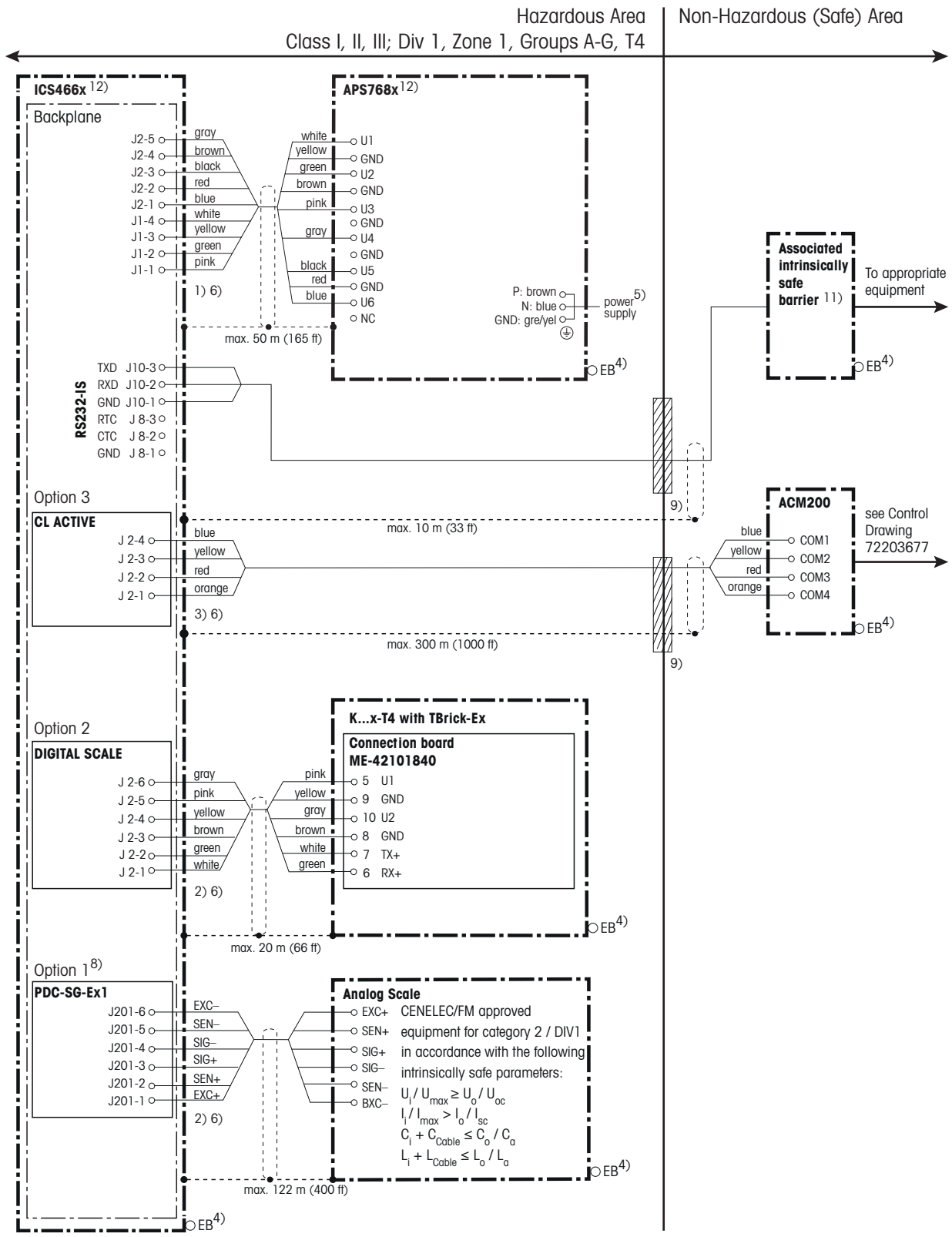
➜ Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

If you have any questions, please contact the responsible authority or the distributor from which you purchased this device.

Should this device be passed on to other parties (for private or professional use), the content of this regulation must also be related.

Thank you for your contribution to environmental protection.

7 Control Drawing



Intrinsically safe connection values

APS768x	U_o [V]	I_o [mA]	P_0 [W]	C_o [µF]	L_o [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_o [V]	I_o [mA]	P_0 [W]	C_o [µF]	L_o [mH]
J201	5.36	107	0.574	0.2	0.3
DIGITAL SCALE	U_o [V]	I_o [mA]	P_0 [W]	C_o [µF]	L_o [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_o [V]	I_o [mA]	P_0 [mW]	C_o [µF]	L_o [mH]
Scale interface S1–S4	7.15	24	43	0.2	0.2
Communication interface C1–C4	7.15	107	270	0.3	0.6
RS232-IS	U_o [V]	I_o [mA]	P_0 [mW]	C_o [µF]	L_o [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_o [V]	I_o [mA]	P_0 [mW]	C_o [µF]	L_o [mH]
J2	±5.36	74	397	0.6	0.4
CL PASSIVE	U_i [V]	I_i [mA]	P_i [mW]	C_i [µF]	L_i [mH]
J4	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

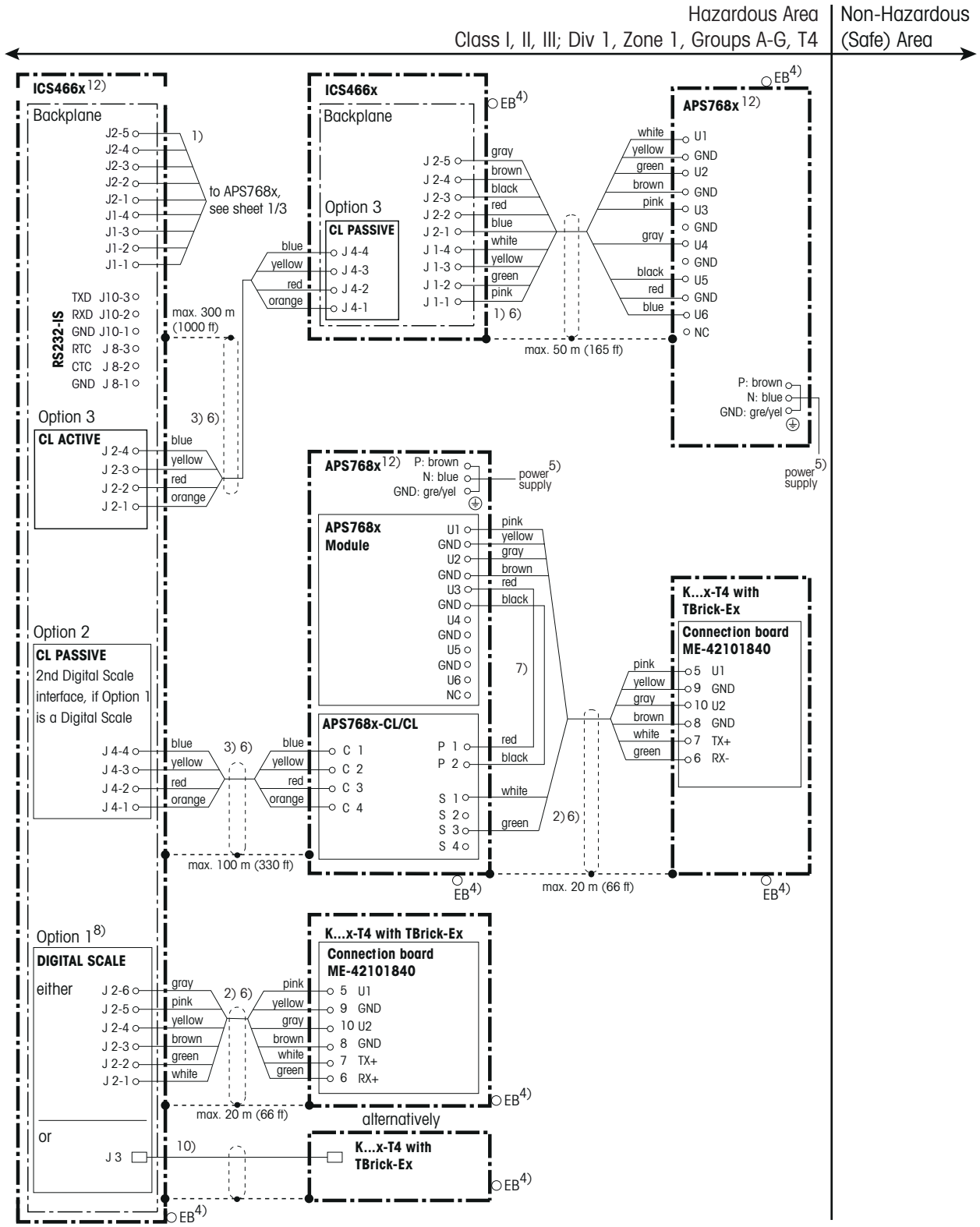
CENELEC approval
Cables in accordance with standards EN50039 and EN60079-14 for intrinsically safe circuits.

$_C$FM$_{US}$ 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-22026623
- Temperature range: –10 °C ... +40 °C

1) Cable 4 x 2 x 0.5 mm^2 + 1 x 0.5 mm^2 shielded and paired
2) Cable 6 x 0.5 mm^2 shielded and paired
3) Cable 4 x 0.5 mm^2 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. $U_m \leq 250$ V.
6) Lay cabling securely so that it does not move and effectively protect it against damage.
7) Via internal cables in APS768x.
8) The use of Option 1 (Scale 1) is mandatory, either PDC-SG-EX1 or Digital scale. For a second scale, the combinations as shown on Sheet 1 to Sheet 2 are available.
9) Cable seal between differently rated areas, as per country specific regulations.
10) Internal cable for a compact scale.
11) FM approved for US installations and suitably certified for Canada for Canadian installations.
12) Also certified according to NEC505: AEx ib IIC T4; AEx em [ib] IIC T4

A	/	25.09.2013	Varga		Date	Name	Scale	Designation
Edition	Revision	Date	Name	Prep.	06.05.2013	Varga		Control Drawing ICS466x
				Check	06.05.2013	Lebherz		
Replaces: /								Sheet 1/3
METTLER TOLEDO			Mettler-Toledo (Albstadt) GmbH D-72458 Albstadt					Code 22026630


Hazardous Area
Class I, II, III; Div 1, Zone 1, Groups A-G, T4
Non-Hazardous (Safe) Area
ICS466x 12)
Backplane
J2-5
J2-4
J2-3
J2-2
J2-1
J1-4
J1-3
J1-2
J1-1
1)
to APS768x, see sheet 1/3
TXD J10-3
RXD J10-2
GND J10-1
RTC J 8-3
CTC J 8-2
GND J 8-1
RS232-IS
max. 300 m (1000 ft)
ICS466x
Backplane
EB 4)
Option 3
CL PASSIVE
J 4-4
J 4-3
J 4-2
J 4-1
blue
yellow
red
orange
J 2-5
J 2-4
J 2-3
J 2-2
J 2-1
J 1-4
J 1-3
J 1-2
J 1-1
gray
brown
black
red
blue
white
yellow
green
pink
1) 6)
max. 50 m (165 ft)
APS768x 12)
EB 4)
white
yellow
green
brown
pink
gray
black
red
blue
U1
GND
U2
GND
U3
GND
U4
GND
U5
GND
U6
NC
P: brown
N: blue
GND: gre/yel
power supply 5)
Option 3
CL ACTIVE
J 2-4
J 2-3
J 2-2
J 2-1
3) 6)
APS768x 12)
P: brown
N: blue
GND: gre/yel
power supply 5)
APS768x Module
U1
GND
U2
GND
U3
GND
U4
GND
U5
GND
U6
NC
pink
yellow
gray
brown
red
black
7)
K...x-T4 with TBrick-Ex
Connection board ME-42101840
5 U1
9 GND
10 U2
8 GND
7 TX+
6 RX-
Option 2
CL PASSIVE
2nd Digital Scale interface, if Option 1 is a Digital Scale
J 4-4
J 4-3
J 4-2
J 4-1
blue
yellow
red
orange
3) 6)
APS768x-CL/CL
C 1
C 2
C 3
C 4
P 1
P 2
S 1
S 2
S 3
S 4
red
black
white
green
2) 6)
max. 100 m (330 ft)
max. 20 m (66 ft)
EB 4)
Option 1 8)
DIGITAL SCALE
either
J 2-6
J 2-5
J 2-4
J 2-3
J 2-2
J 2-1
gray
pink
yellow
brown
green
white
2) 6)
K...x-T4 with TBrick-Ex
Connection board ME-42101840
5 U1
9 GND
10 U2
8 GND
7 TX+
6 RX+
max. 20 m (66 ft)
alternatively
or
J 3
10)
K...x-T4 with TBrick-Ex
EB 4)

Intrinsically safe connection values

APS768x	U_o [V]	I_o [mA]	P_0 [W]	C_o [µF]	L_o [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_o [V]	I_o [mA]	P_0 [W]	C_o [µF]	L_o [mH]
J201	5.36	107	0.574	0.2	0.3
DIGITAL SCALE	U_o [V]	I_o [mA]	P_0 [W]	C_o [µF]	L_o [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_o [V]	I_o [mA]	P_0 [mW]	C_o [µF]	L_o [mH]
Scale interface S1–S4	7.15	24	43	0.2	0.2
Communication interface C1–C4	7.15	107	270	0.3	0.6
RS232-IS	U_o [V]	I_o [mA]	P_0 [mW]	C_o [µF]	L_o [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_o [V]	I_o [mA]	P_0 [mW]	C_o [µF]	L_o [mH]
J2	±5.36	74	397	0.6	0.4
CL PASSIVE	U_i [V]	I_i [mA]	P_i [mW]	C_i [µF]	L_i [mH]
J4	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.

$_C$FM$_{US}$ approval

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

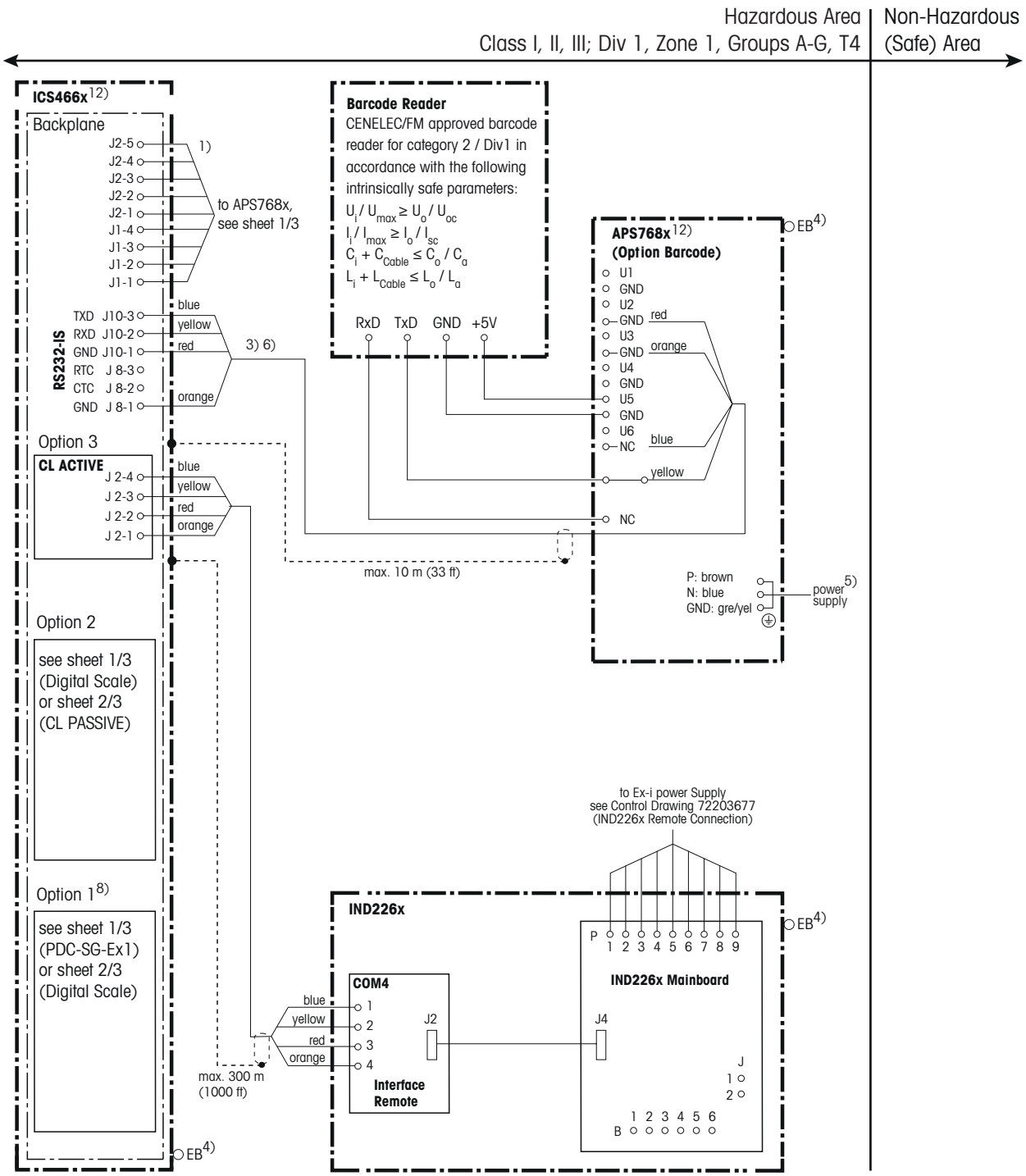
Canada: Installation shall be in accordance with the Electrical Code C2.R1.

For all approvals

- Cable lead-in via grounding cable gland
- Cable according to Guide for Installers ME-22026623
- Temperature range: –10 °C ... +40 °C

1) Cable 4 x 2 x 0.5 mm^2 + 1 x 0.5 mm^2 shielded and paired
2) Cable 6 x 0.5 mm^2 shielded and paired
3) Cable 4 x 0.5 mm^2 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. $U_m \leq 250$ V.
6) Lay cabling securely so that it does not move and effectively protect it against damage.
7) Via internal cables in APS768x.
8) The use of Option 1 (Scale 1) is mandatory, either PDC-SG-EX1 or Digital scale. For a second scale, the combinations as shown on Sheet 1 to Sheet 2 are available.
9) Cable seal between differently rated areas, as per country specific regulations.
10) Internal cable for a compact scale.
11) FM approved for US installations and suitably certified for Canada for Canadian installations.
12) Also certified according to NEC505: AEx ib IIC T4; AEx em [ib] IIC T4

A	/	25.09.2013	Varga		Date	Name	Scale	Designation
Edition	Revision	Date	Name	Prep.	06.05.2013	Varga		Control Drawing ICS466x
				Check	06.05.2013	Lebherz		
Replaces: /								Sheet 2/3
METTLER TOLEDO			Mettler-Toledo (Albstadt) GmbH D-72458 Albstadt					Code 22026630


Hazardous Area
Class I, II, III; Div 1, Zone 1, Groups A-G, T4
Non-Hazardous
(Safe) Area
ICS466x 12)
Backplane
J2-5
J2-4
J2-3
J2-2
J2-1
J1-4
J1-3
J1-2
J1-1
1)
to APS768x,
see sheet 1/3
RS232-IS
TXD J10-3
RXD J10-2
GND J10-1
RTC J 8-3
CTC J 8-2
GND J 8-1
blue
yellow
red
orange
3) 6)
Option 3
CL ACTIVE
J 2-4
J 2-3
J 2-2
J 2-1
Option 2
see sheet 1/3
(Digital Scale)
or sheet 2/3
(CL PASSIVE)
Option 1 8)
see sheet 1/3
(PDC-SG-Ex1)
or sheet 2/3
(Digital Scale)
EB 4)
Barcode Reader
CENELEC/FM approved barcode
reader for category 2 / Div1 in
accordance with the following
intrinsically safe parameters:
$U_i / U_{max} \geq U_o / U_{oc}$
$I_i / I_{max} \geq I_o / I_{sc}$
$C_i + C_{Cable} \leq C_o / C_a$
$L_i + L_{Cable} \leq L_o / L_a$
RxD TxD GND +5V
APS768x 12)
(Option Barcode)
U1
GND
U2
GND
U3
GND
U4
GND
U5
GND
U6
NC
red
orange
blue
yellow
NC
EB 4)
max. 10 m (33 ft)
P: brown
N: blue
GND: gre/yel
power
supply
5)
to Ex-i power Supply
see Control Drawing 72203677
(IND226x Remote Connection)
IND226x
COM4
1
2
3
4
J2
Interface
Remote
blue
yellow
red
orange
max. 300 m
(1000 ft)
P
1 2 3 4 5 6 7 8 9
IND226x Mainboard
J4
J
1
2
1 2 3 4 5 6
B

Intrinsically safe connection values

APS768x	U_o [V]	I_o [mA]	P_0 [W]	C_o [µF]	L_o [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_o [V]	I_o [mA]	P_0 [W]	C_o [µF]	L_o [mH]
J201	5.36	107	0.574	0.2	0.3
DIGITAL SCALE	U_o [V]	I_o [mA]	P_0 [W]	C_o [µF]	L_o [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_o [V]	I_o [mA]	P_0 [mW]	C_o [µF]	L_o [mH]
Scale interface S1–S4	7.15	24	43	0.2	0.2
Communication interface C1–C4	7.15	107	270	0.3	0.6
RS232-IS	U_o [V]	I_o [mA]	P_0 [mW]	C_o [µF]	L_o [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_o [V]	I_o [mA]	P_0 [mW]	C_o [µF]	L_o [mH]
J2	±5.36	74	397	0.6	0.4
CL PASSIVE	U_i [V]	I_i [mA]	P_i [mW]	C_i [µF]	L_i [mH]
J4	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.

$_C$FM$_{US}$ 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-22026623
- Temperature range: –10 °C ... +40 °C

1) Cable 4 x 2 x 0.5 mm^2 + 1 x 0.5 mm^2 shielded and paired
2) Cable 6 x 0.5 mm^2 shielded and paired
3) Cable 4 x 0.5 mm^2 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. $U_m \leq 250$ V.
6) Lay cabling securely so that it does not move and effectively protect it against damage.
7) Via internal cables in APS768x.
8) The use of Option 1 (Scale 1) is mandatory, either PDC-SG-EX1 or Digital scale. For a second scale, the combinations as shown on Sheet 1 to Sheet 2 are available.
9) Cable seal between differently rated areas, as per country specific regulations.
10) Internal cable for a compact scale.
11) FM approved for US installations and suitably certified for Canada for Canadian installations.
12) Also certified according to NEC505: AEx ib IIC T4; AEx em [ib] IIC T4

A	/	25.09.2013	Varga		Date	Name	Scale	Designation
Edition	Revision	Date	Name	Prep.	06.05.2013	Varga		Control Drawing ICS466x
				Check	06.05.2013	Lebherz		
Replaces: /								Sheet 3/3
METTLER TOLEDO			Mettler-Toledo (Albstadt) GmbH D-72458 Albstadt					Code 22026630

METTLER TOLEDO Service

To protect your METTLER TOLEDO product's future:
METTLER TOLEDO Service assures the quality, measuring accuracy and preservation of value of all METTLER TOLEDO products for years to come.

Please send for full details about our attractive terms of service.
Thank you.

www.mt.com/service
For more information

Mettler-Toledo (Albstadt) GmbH
D-72458 Albstadt
Tel. +49 7431-14 0
Fax +49 7431-14 232

Order number 22026623B

* 2 2 0 2 6 6 2 3 B *