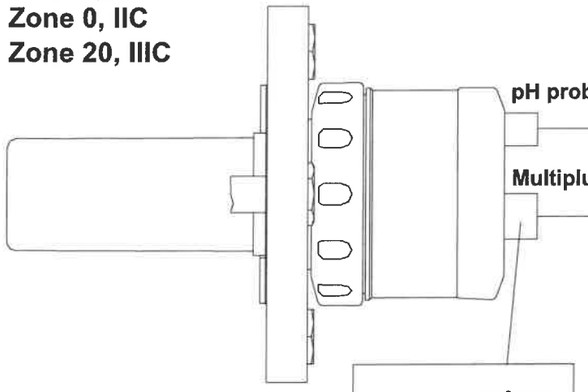
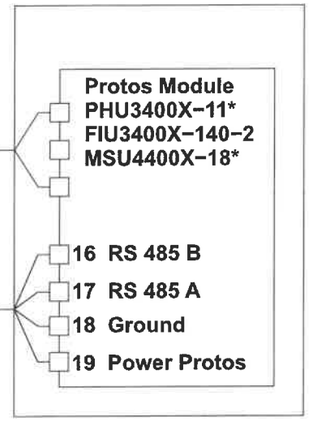
Hazardous Location
Class I,II,III Div 1
Zone 0, IIC
Zone 20, IIIC

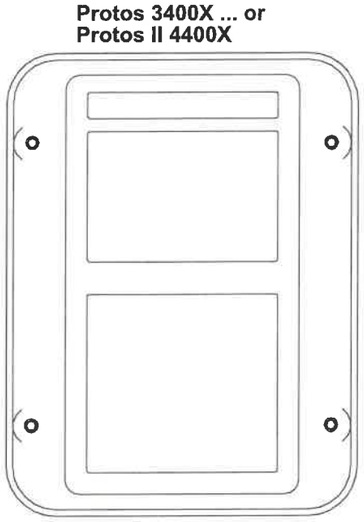


Retractable probe
e.g. Ceramat WA15*-X,
WA16*-X by Knick

Hazardous Location
Class I,II,III, Div 1
Zone 1, IIC
Zone 21, IIIC

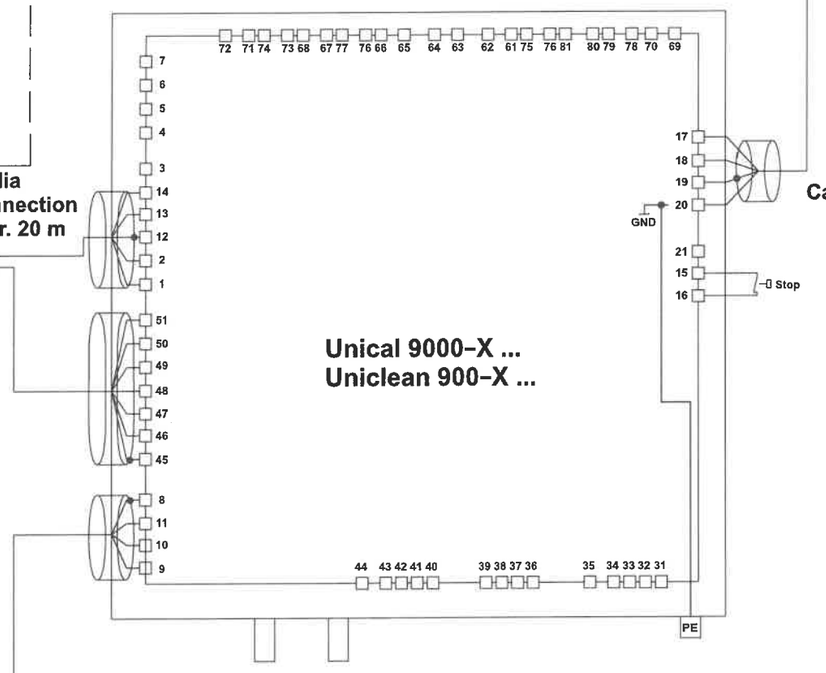
Non-Hazardous Location or Hazardous Location
Class I,II,III Div 2
Zone 1, IIC
Zone 21, IIIC





Cable length < 140 m

Media
Connection
appr. 20 m



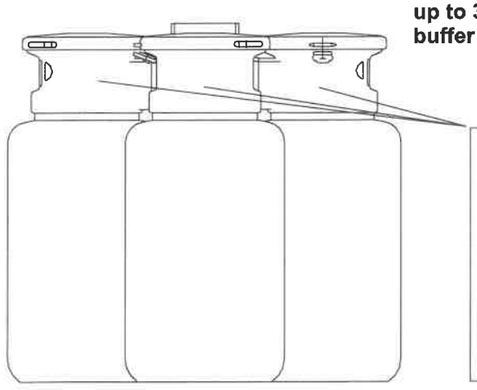
Unical 9000-X ...
Uniclean 900-X ...

appr. 1 m

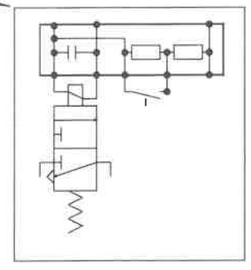
1 2 3 4 5 6 M

Cable length < 100 m

8 11 10 9



Media Adapter,
up to 3 Metering Pumps for
buffer solution, cleaning agent



Service Switch
207.006-000

Installation Notes for Hazardous Locations

1. The Intrinsic Safety Entity concept allows the interconnection of NRTL approvedintrinsically safe devices with entity parameters not specifically examined in combination as a systems when:
Uo or Voc or Vt ≤ Vmax, Io or Isc or It ≤ Imax. Po ≤ Pi. Ca or Co ≥ Σ Ci + Σ Ccable.
For inductance use either La or Lo ≥ Σ Li + Σ Lcable or Le/Re ≤ (La/Ra or Lo/Ro) and Li/Ri ≤ (La/Ra or Lo/Ro).

2. Installation shall be in accordance with ANSI/ISA RP12.06.01, "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National or Canadian Electrical Code as applicable.

3. Control equipment connected to the associated apparatus must not use or generate more than 250 V.

4. Changes to this control drawing must be authorised by FM Approvals.

5. Only NRTL certified cable glands conforming to UL2225 shall be used. Observe the installation requirements of the manufactuer.

6. The intrinsically safe (Division 1) or nonincendive field wiring (Division 2) apparatus/sensors connecting to the Unical/Uniclean must be NRTL Approved or be a simple apparatus.

Nr.	Änderungen	Datum	Bearb.	Freigabe
0	New creation of this drawing	29.11.2022	Hein	

	Datum	Name
Bearbeitet	29.11.2022	Hein
Geprüft	29.11.2022	ack
Freigabe	29.11.2022	rr

Schutzvermerk nach ISO16016 beachten.

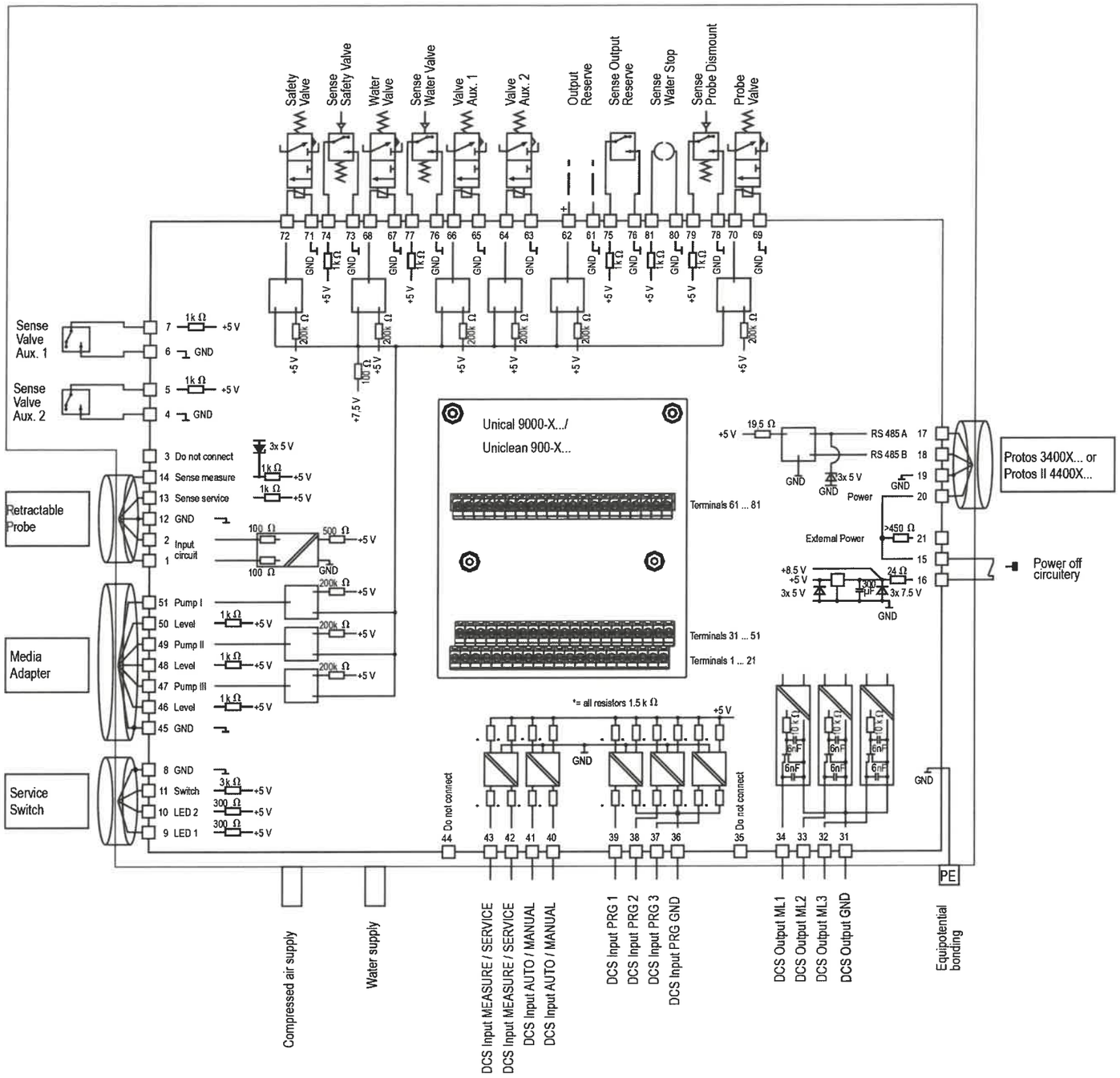
Knick
Elektronische Messgeräte GmbH & Co. KG

Zulassung cFMus FM22US0076
FM22CA0056

Benennung
Control drawing
Unical 9000-X... / Uniclean 900-X...

Zeichnungsnummer
207.001-066

Blatt
2a



FM22US0076
FM22CA0056

Ambient temperature range -20°C to 50°C
IS, Class I,II,III, Div 1, Groups ABCDEFG, T4
Class I, Zone 1, AEx ia [ia Ga] IIC T4 Gb (US)
Class I, Zone 1, Ex ia [ia Ga] IIC T4 Gb (CA)
NI, Class I, Div 2, ABCD, T4
NI, Class II,III, Div 2, FG
nonincendive fieldwiring
Zone 21, AEx ia[ia Da] IIIC T130°C Db (US)
Zone 21, Ex ia[ia Da] IIIC T130°C Db (CA)

Auxiliary external power supply (Terminal KL19, Terminal KL21)	Do not Connect Terminal 21. The using of Terminal 21 is not covered by FM approval
Auxiliary power supply (Terminal KL19, Terminal KL20)	only for connection to the certified Protos Module PHU 3400X-11* or Protos Module FIU 3400X-140-2 or Protos Module MSU 4400X-18*
Emergency shutdown circuit (Terminal KL15, Terminal KL16)	with Auxiliary power supply by an approved module Uo, Voc = 8.5 V Io, Isc = 456 mA Po = 883 mW
RS485 interface (Terminals KL17, KL18, KL19)	only for connection to the certified Protos Module PHU 3400X -11* or Protos Module FIU 3400X-140-2 or Protos module MSU4400X-18* or with the following maximum values: Ui/Uo = 5 V Ii/Io = 257 mA Ri = 19.5 Ω Ci = 0 nF Li = 0 mH Co = 3.5 µF Lo = 1.2 mH
DCS outputs ML1, ML2 and ML3 (Terminals KL31, KL32, KL33, KL34)	with the following maximum values per circuit: Ui {Vmax, Vt} = 30 V Ii {Imax, It} = 100 mA Pi = 800 mW Ci = 12 nF Li = 0 mH
DCS inputs PRG1, PRG2, PRG3 (Terminals KL36, KL37, KL38, KL39) A/M (Terminals KL40, KL41) M/S (Terminals KL42, KL43)	with the following maximum values per circuit: Ui {Vmax, Vt} = 30 V Ii {Imax, It} = no limit Pi = no limit Ri = 3 kΩ Ci = 0 µF Li = 0 mH Peak voltage value in case of voltage addition: 60 V. No current addition
Input circuit (Terminals KL1, KL2)	Entity Parameters Uo {Voc} = 5 V Io {Isc} = 8 mA Po = 10 mW Co = 5 µF Lo = 2 mH
Service switch circuit (Terminals KL8, KL9, KL10, KL11)	only for connection to the Service Switch, which is part of the Retractable Probe Control Unit Cable length < 100 m
Pump circuits (Terminals KL45, KL46, KL47, KL48, KL49, KL50, KL51)	only for connection to media adapter / metering pumps, which are part of the Retractable Probe Control Unit Cable length < 100 m
Probe circuits (KL12, KL13, KL14)	only for connection to process connections, which are part of the Retractable Probe Control Unit Cable length < 100 m
PE (external Terminal)	Equipotential bonding

The auxiliary power supply circuit, the emergency shutdown circuit, the interface RS485, the service switch circuit, the pump circuits and the probe circuits are connected with each other and to the potential equalization PE.

DCS outputs ML1, ML2 and ML3 are galvanically separated, only connected via Output GND
DCS inputs PRG1, PRG2 and PRG3 are galvanically separated, only connected via DCS Input PRG GND
DCS inputs PRG1, PRG2 and PRG3 are functionally galvanically separated from the DCS input A/M and from the DCS input M/S, but are connected from an intrinsic safety point of view.

The DCS outputs, the DCS inputs and the input circuit are infallibly galvanically separated from each other and from all other circuits up to a peak voltage of 60 V.

Terminals 61 ... 81 are covered by a grounded metal cover.

Nr.	Änderungen	Datum	Bearb.	Freigabe
0	New creation of this drawing	29.11.2022	Hein	PR

	Datum	Name
Bearbeitet	29.11.2022	Hein
Geprüft	29.11.2022	ack
Freigabe	29.11.2022	PR

Schutzvermerk nach ISO16016 beachten.

Knick > Elektronische Messgeräte GmbH & Co. KG

Zulassung cFMus FM22US0076 FM22CA0056

Benennung
Control drawing
Unical 9000-X... / Uniclean 900-X...

Zeichnungsnummer
207.001-066

Blatt
2b