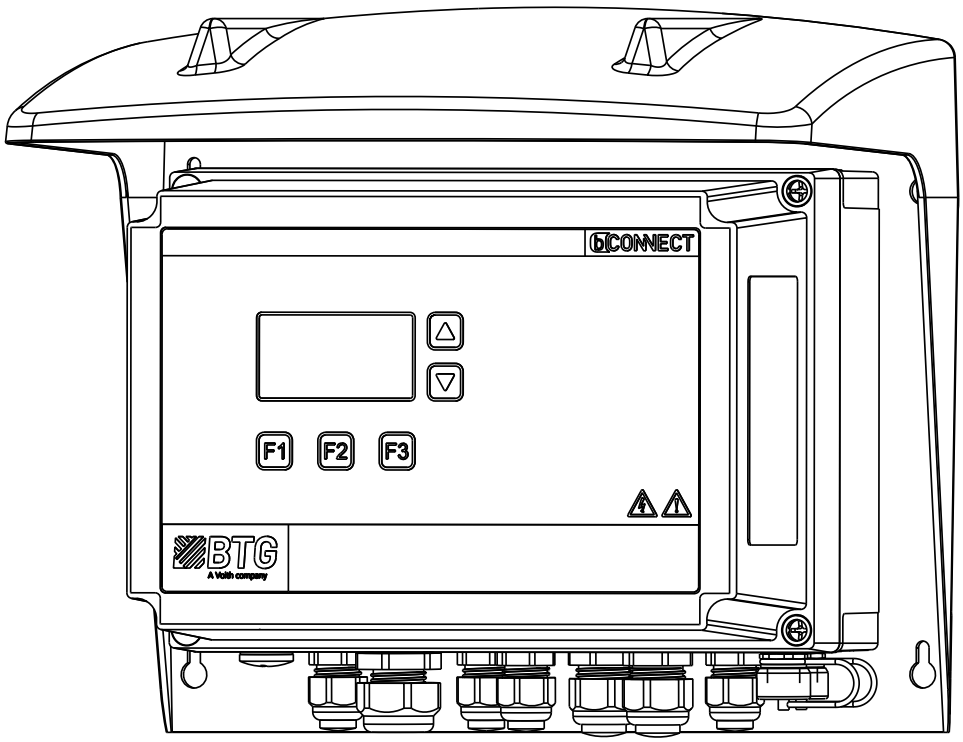
User Manual

CPM

Communication Platform



BTG
A Voith company

Original Instructions

BTG Instruments AB, 2020

Important Information

This user manual contains all necessary instructions for installation, maintenance, and basic service of the Communication Platform (CPM).

Safety instructions and regulations for installation and service are found in the BTG Safety Manual, M2076.

NOTE!
Always read the safety instructions before installation and service of the instrument!

NOTE!
If the CPM is used in a manner not specified by BTG the protection provided by the equipment may be impaired.

For operation instructions, see the CPM operation manual for the appropriate instrument. CPM operation manuals are available for the following instruments:

Instrument	CPM Operation manual
ACT-2500 MBT-2500 MEK-2500 MEK-3000	OM2003
DRT-5500	OM2005
TCR-25xx	OM2006
MBT-4500	OM2007
TCT-25x1 RET-25x2	OM2009
RET-55x3	OM2010
BT-5500	OM2011
BLT-5500	OM2012
SPK-5500	OM2013
DLT-5500	OM2014
RT-5500	OM2015
TCS-2531	OM2016
OCT-25x1	OM2017
SPM-5500	OM2018
SPC-5500	OM2019

Recycling

Recycle the instrument and all replaced parts according to local, first and foremost national, laws and regulations. Contact BTG to get detailed information on how to disassemble and recycle the instrument safely. BTG should have no liability for any error or damage of any kind due to disassembly or recycle work done.

the unit is not falling under the RoHS/WEEE CE-directives according to:

RoHS	According to Article 2 (4) and (4e) alt. (4d) and according to Article 3 (3) alt. (4), the unit shall not apply to RoHS.
WEEE	According to Article 2 (3b) and (4c; f), and according to Article 3 (1b) and (1c, I, II, III), the unit shall not apply to WEEE.

2 Product Introduction

2.1 Communication Platform CPM

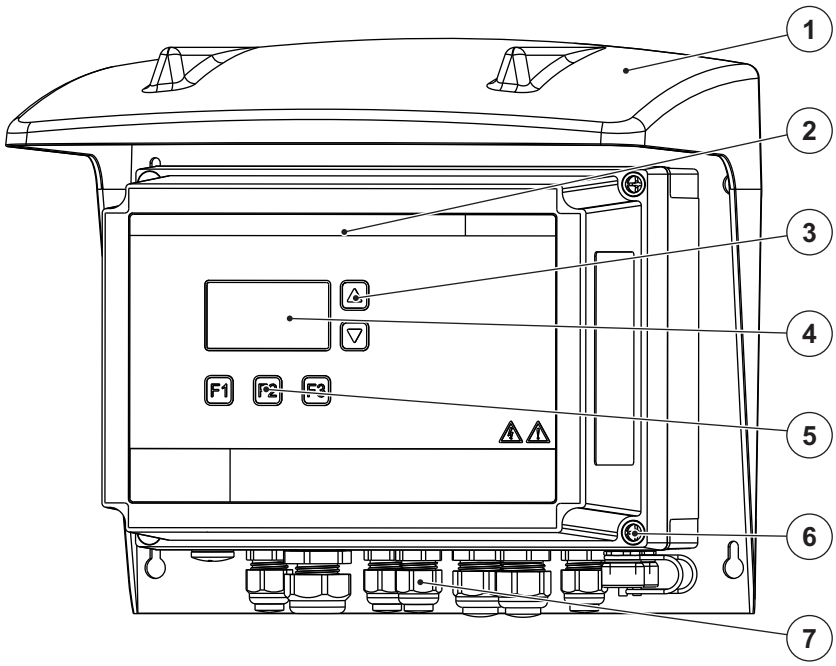
The CPM is delivered as a complete unit from BTG, normally in conjunction with an instrument.

The CPM has the following functions:

- Local display and console for full configuration and operation of the instrument
- Large illuminated display for easy reading
- Protected from splash and sun

Fig 1 CPM overview

1. Protective cover
2. Front cover
3. Scroll keys
4. LCD display with backlight
5. Function keys
6. Closing screw
7. Cable glands



2.1.1 Technical Data

General

Type
CPM Communication Platform.

Manufacturer
BTG, Säffle, Sweden.

Quality Assurance
Quality-assured in accordance with ISO 9001.

Product Safety
Fulfills all relevant CE-directive requirements, RCM requirements, and ETL listed.

Radio Approvals
US, Canada, EU, Japan, Australia, and New Zealand.

Emission / Immunity / Safety
FCC Part 15 Class B
EN 61010-1:2010
EN 61326-1:2013
EN 301489-1 V2.1.1
EN 301489-17 V3.1.1
EN 300328 V2.1.1
EN 300893 V1.8.1
UL 61010-1:2012 Ed.3 +R:29Apr2016
CSA C22.2#61010-1-12:2012 Ed.3+U1;U2

Function Specifications

HCM-8000

Hart communication module using HART® protocol.
Equipped with slot for SD memory card.

Analog output (AO1)
4 - 20 mA. Galvanic isolated. Current limited to min. 3.9 and max. 20.5 mA.
Loop load signal: Voltage supply/load 24 V DC
Active or passive output
Superimposed signal over 4 - 20 mA current loop according to standard HART® protocol.

Analog input (AI1)
4 - 20 mA 250 Ω input resistance

Digital input (DI1 - DI3)
Galvanic isolated
High-ohmic = logical 0
+24 V ≥ 12 mA = logical 1

Digital output (DO)
Galvanic isolated
Maximum 120 mA
Maximum 30 V DC

HCM-8010

Hart communication module using HART® protocol.
Equipped with slot for SD memory card.

Analog output (AO1- AO5)
4 - 20 mA. Galvanic isolated. Current limited to min. 3.9 and max. 20.5 mA.
Loop load signal: Voltage supply/load 24 V DC
Active output
Superimposed signal over 4 - 20 mA current loop according to standard HART® protocol.

Analog input (AI1 - AI4)
4 - 20 mA 250 Ω input resistance

Digital input (DI1 - DI4)
Galvanic isolated
High-ohmic = logical 0
+24 V ≥ 12 mA = logical 1

Digital output (DO1 - DO2)
Galvanic isolated
Maximum 120 mA
Maximum 30 V DC

Solenoid valve (SV1 - SV5)
Open drain output for solenoids
Maximum 500 mA
Maximum 30 V DC

FCM-80x0

Fieldbus communication module programmed for PROFIBUS.
Equipped with slot for SD memory card.

Output / Input signal
PROFIBUS (PA)

CCM-8200

Network Interfaces:

Wired Network Connectivity
Ethernet, 10/100 Mbit - RJ45.
Ethernet interface supporting up to 100baseTx.
IEC 11801:2002 CatV compliant M12 type D socket.
The interface supports Auto MDI-X (crossover).

Wireless Network Connectivity
Wi-Fi, Dual-band 802.11 a/b/g/n/ac 1x1

CPM User Interface

Illuminated display. Key pad for adjustment of instrument settings.

Support System Specifications

Supply Voltage
Power supply unit 100 - 240 V AC, 50-60 Hz.
AC input range: 90 - 264 V continuous operation.

Disconnecting Device
An external 2-pole switch close to the CPM is required. The switch must be approved in accordance with the IEC 60947-2 and IEC 60947-3 requirements.

Power Consumption
100 - 300 VA

Altitude
0 to 2000 m (0-6560ft) without any restrictions.
2000 to 6000 m (6560 to 20000ft) reduce output power or ambient temperature.
Altitude de-rating = 5 W / 1000 m or 5 °C / 1000 m.

Humidity
5 to 95% r.h (IEC 60068-2-30)

Over-voltage Category
Category III: IEC 62103, EN 50178, altitudes up to 2000 m
Category II: altitudes from 2000 m to 6000 m

Degree of Pollution
2: IEC 62103, EN 50178, not conductive

Physical Specifications

Materials

Casing:	Polycarbonate thermo plastic
Cable fittings:	Polyamide thermo plastic

Storage Temperature
Max. 80 °C (176 °F)
Min. -25 °C (-13 °F)

Operation Temperature
Max. 50 °C (122 °F)
Min. 0 °C (32 °F)

Degree of Protection
IP 65, comparable to NEMA 4x and better, the CPM is intended for use indoors.

Weight
CPM: 2 - 2.5 kg (4.4 - 5.5 lbs) depending on configuration

Cables
Power supply flexible cable: 0.3 - 2.5 mm^2 (AWG = 28-12)
Signalling cable: 0.2 - 2.5 mm^2 (AWG = 24-12)

Transmitter Cable
Standard length: 10 m [33 ft]

Cable Inlets
There are cable glands for signal cables (diameter 4-8 mm) and for power supply cable (diameter 4-12 mm) in the bottom of the CPM.

2.1.2 Dimensions

Fig 2 Dimensions

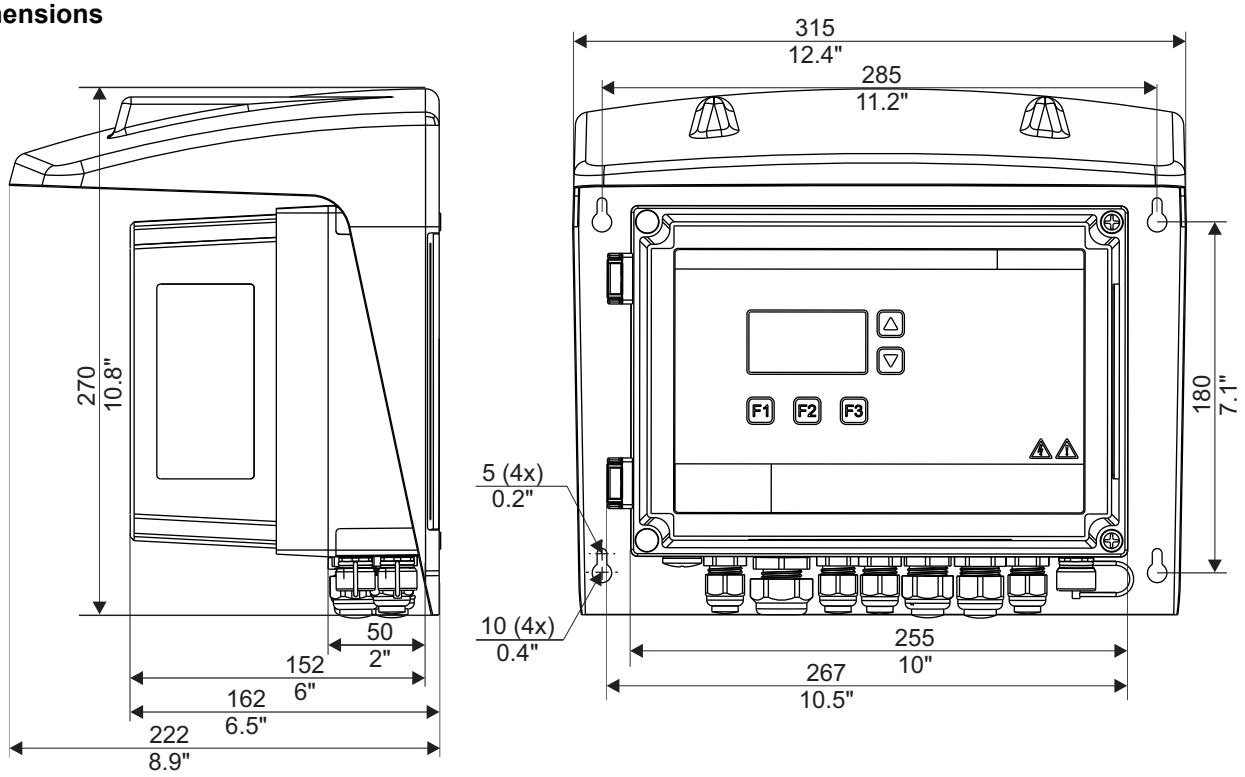
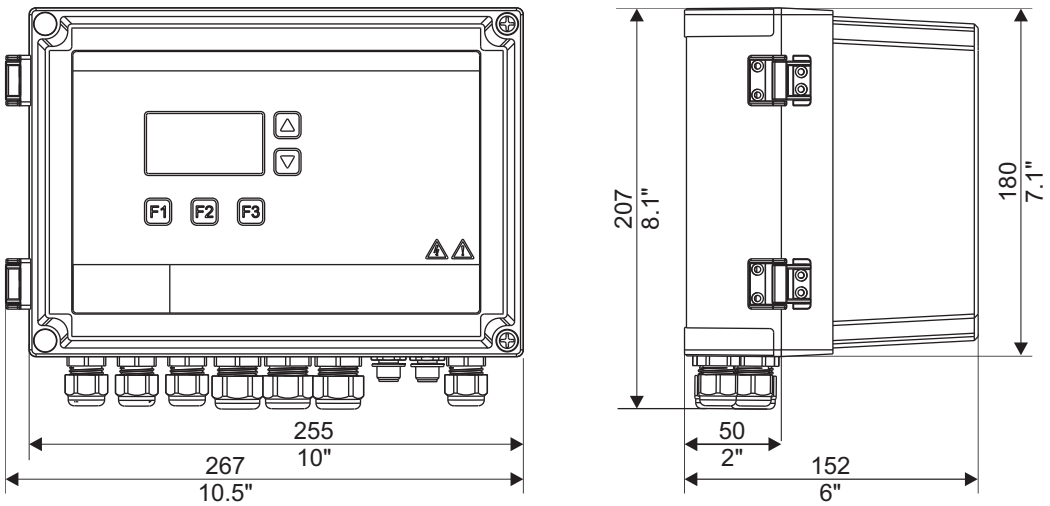
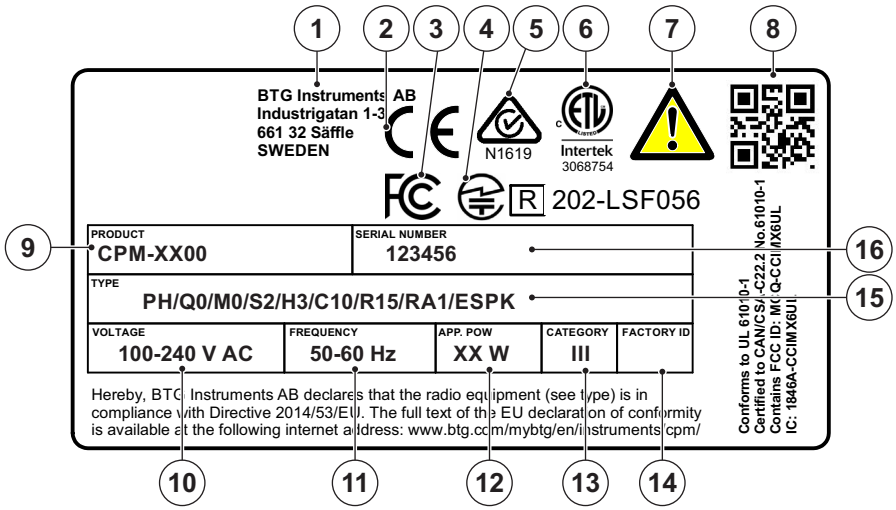


Fig 3 Dimensions



2.1.3 Type Plate Explanations

Fig 4 Type plate



1. **Manufacturer**
2. **CE-marking**

   The CPM is approved in accordance with CE directives.

3. **FCC Declaration of Conformity**

   Certifies that the electromagnetic interference from the device is under limits approved by the Federal Communications Commission.

4. **Radio label marking**

   R: 202-LSF056

5. **C-TIC marking**

   The CPM is approved in accordance with Australian C-TIC N1619 directives.

6. **ETL-marking**

   The CPM is approved by ETL.

7. **Warning sign**

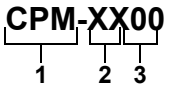
   The CPM is designed for industrial use. Installation, handling and service must only be carried out by trained and authorized personnel and in accordance with relevant standards. Read the manual for detailed information and pay particular attention to the warning signs!

8. **QR code**

   QR code to scan for more information about the CPM on the site: www.btg.com/mybtg/en/instruments/cpm.

9. Product

The instrument model is specified according to the code system explained below:



1	Product Group
CPM	Communication platform
2	**Power type**
13	50 W Power supply
14	240 W Power supply
15	80 W Power supply
3	**Input/Output Unit**
00	**If field 4 = PH:** HCM-8000
	If field 4 = PP: FCM-8000
10	**If field 4 = PH:** HCM-8010
	If field 4 = PP: FCM-8010

10. Voltage

100-240 V AC to power supply.

11. Frequency

The CPM operates at both 50 and 60 Hz.

12. Apparent power

Maximum power consumption (W).

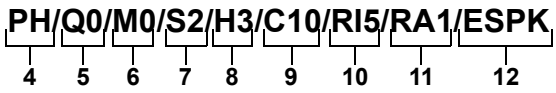
13. Installation category

In accordance with CE-Directive. Fixed installation. Resistant to transients.

14. Factory identification

15. Type specification

The instrument variant is specified according to the code system explained below:



4	Communication Protocol
PH	Analog 4-20 mA with HART® (HCM-80x0)
PP	Profibus PA (FCM-80x0)
PF	Foundation Fieldbus supplied with FCI-1000
5	**Sensor Control Module**
Q0	No module
Q1	Sensor control module SCM-8000
6	**Sensor Control Module**
M0	No module
M1	Communication module CCM-8200
7	**Serial Connector**
S0	No serial connector
S1	One serial connector
S2	Two serial connectors
8	**Housing**
H1	Standard housing with protecting cover
H2	Standard housing without protecting cover
H3	Large housing with protecting cover
H4	Large housing without protecting cover
9	**Sensor cable**
	Blank = no sensor cable
Cxx	xx = 0.5, 5, 10, 20, 30, 40, or 50 meters (10 m [32.8 ft])
CxxHF	HF = Halogen free
10	**Interlock relay**
	Blank = no relay
RI1	Interlock interface relay 12 V DC

RI2	Interlock interface relay 24 V AC/DC
RI3	Interlock interface relay 48 V DC
RI4	Interlock interface relay 60 V DC
RI5	Interlock interface relay 120 V AC/ 110 V DC
RI6	Interlock interface relay 230 V AC/ 220 V DC
11	**Alarm relay**
	Blank = no alarm relay
RA1	Alarm relay max 230 V AC/ 220 V DC
12	**Extended information**
	Blank = no information
ESEC	Configured as secondary CPM
ESPK	Only for SPK-5500
ESPM	Only for SPM-5500

16. Serial number

BTG internal product identification number.

2.1.4 CE-Declaration

When using the units in combinations other than those tested for, BTG can not guarantee CE-directive conformity.

The units in combination with customer-installed external devices may conform with EMC and safety requirements when properly installed and CE-marked equipment is used.

The system operator is responsible for CE-directive conformity. Conformity must be verified by inspection.

EU Declaration of Conformity (DoC)

MODEL NUMBER: CPM-1300, CPM-1310, CPM-1400, CPM-1410, CPM-1510

BTG INSTRUMENTS AB
P.O. Box 602
661 29 Säffle
SWEDEN

This declaration of conformity is issued under the sole responsibility of the manufacturer.

The object of the declaration described above is in conformity with the relevant Union harmonization legislation:

2014/53/EU Radio Equipment Directive, RED

The following harmonized standards and technical specifications have been applied:

LVD	EN 61010-1:2010
EMC	EN 61326-1:2013 EN 301489-1 V2.1.1 EN 301489-17 V3.1.1
Spectrum	EN 300328 V2.1.1 EN 300893 V1.8.1

Technical Compliance File Held by:
BTG Instruments AB
P.O. Box 602
SE-661 29 SÄFFLE, SWEDEN

Authorized Signature:

Date:2020-05-06

Name: Björn Fahlin

Position: Director of Operations

2.1.5 Supplier's Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Unique Identifier: CPM-1300, CPM-1310, CPM-1400, CPM-1410, CPM-1510

Responsible Party - U.S. Contact Information

BTG Americas Inc.

Instruments (USA)

5085 Avalon Ridge parkway

Suite 100

Norcross GA 30071

www.btg.com

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

3 Installation Instructions

3.1 Communication Platform CPM

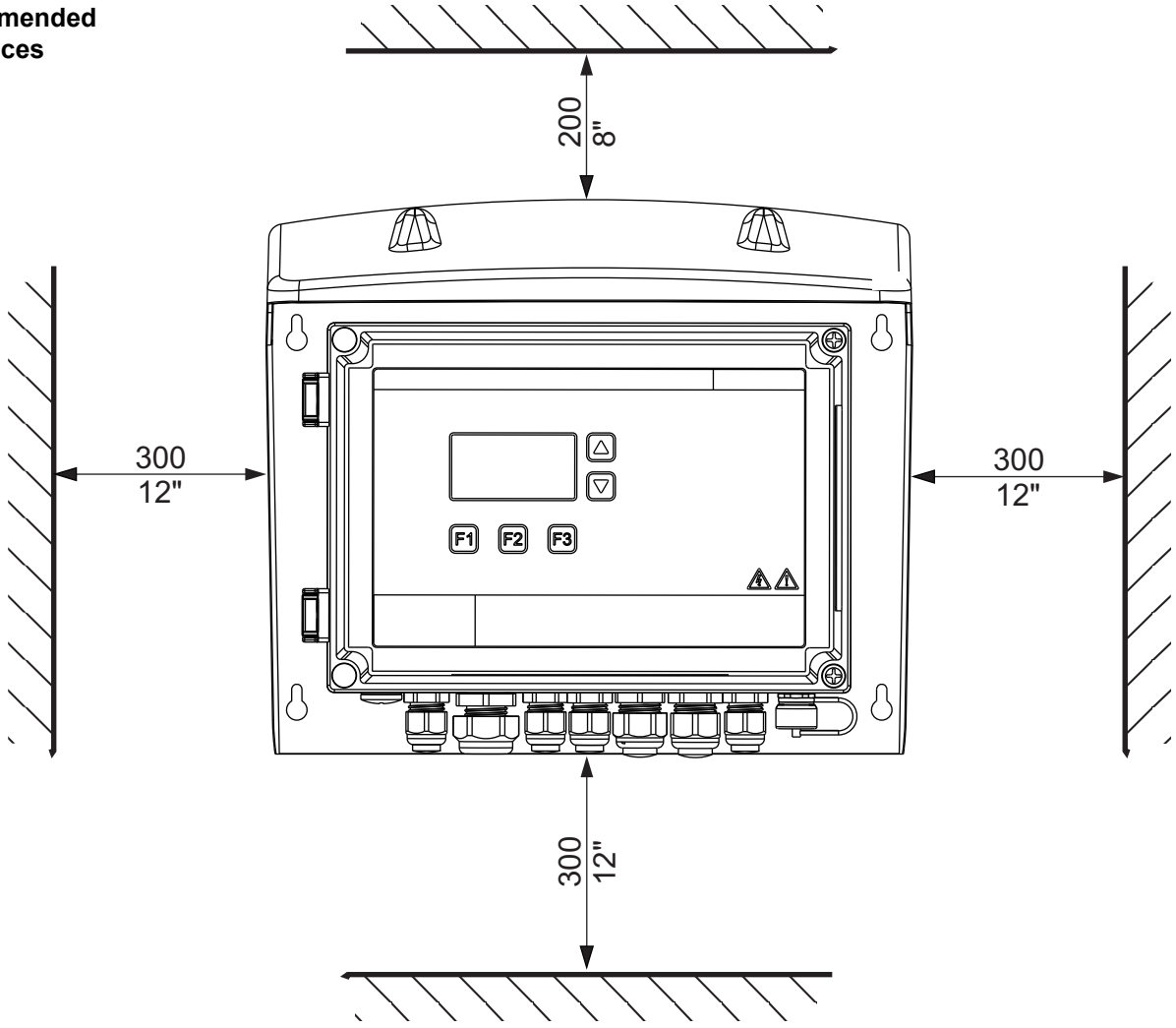
3.1.1 Mounting Instructions

Tools required:
Screwdriver Drilling machine

NOTE!
The CPM must be installed in an easily accessible position.

Mount the CPM in the selected location by fastening the protective cover to a flat surface. Use four suitable screws. See figure 5 for recommended clearances.

Fig 5 Recommended clearances



3.1.2 Cabling Instructions

NOTE!
BTG recommends that separate cables be used for analog and digital signals. Multi conductor cables can be used.

NOTE!
Unused cable glands must be sealed in order to fulfill the IP 65 requirement.

3.1.3 Connection Instructions

All electrical connections are made inside the CPM.

To access the terminal blocks, loosen the two screws on the right side of the front cover and open the CPM.

NOTE!
Secure all cables with cable ties to avoid short circuit.

3.1.3.1 AC Connection to Power Supply Unit

A specific instruction manual for the power supply unit can be found inside the CPM box.

NOTE!
Before installation, ensure that all power to the system has been turned off. Cable connections must be made by authorized personnel.

NOTE!
Overcurrent protection is included in the power supply unit.

NOTE!
An external 2-pole switch close to the CPM is required as shown below (Not delivered from BTG).
The switch should be marked "Disconnecting device".

1. Insert the power supply cable through the cable gland.
2. Connect the AC cable (100 - 240 V AC, 50-60 Hz) to the power supply unit as shown below.

Fig 6 Connection of AC cable

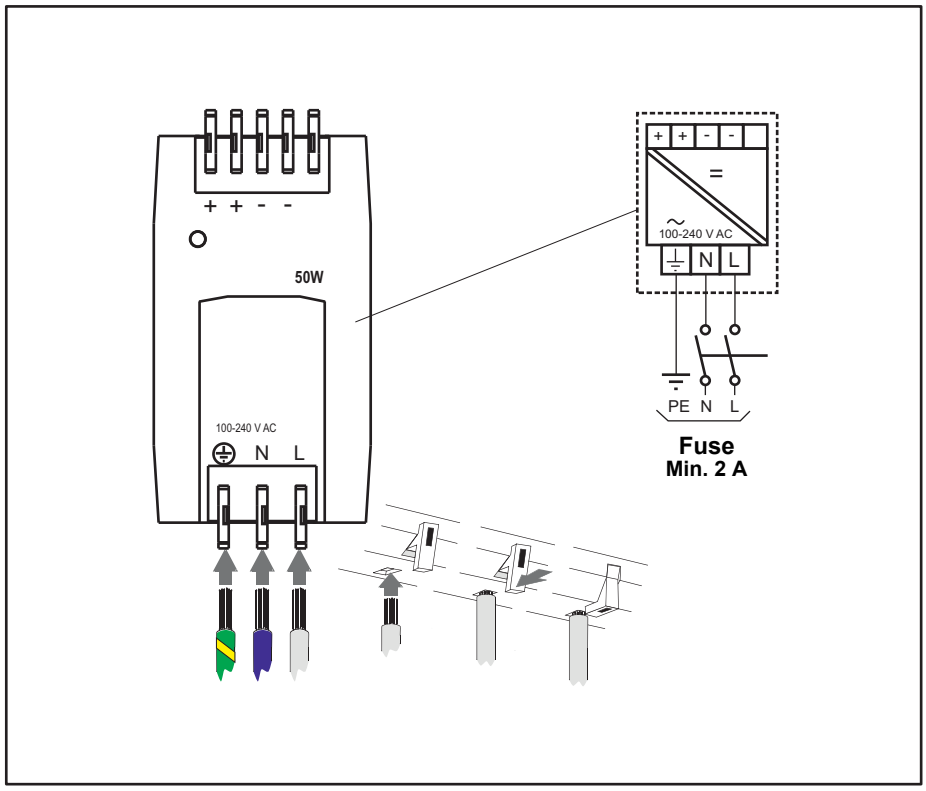


Fig 7 Connection of AC cable

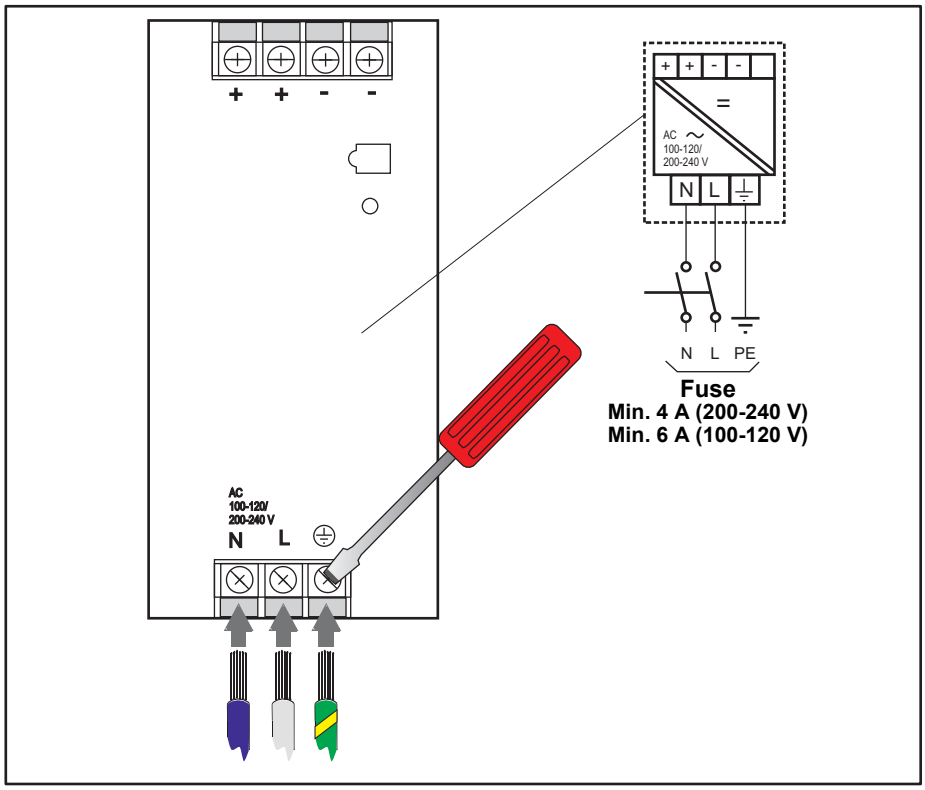
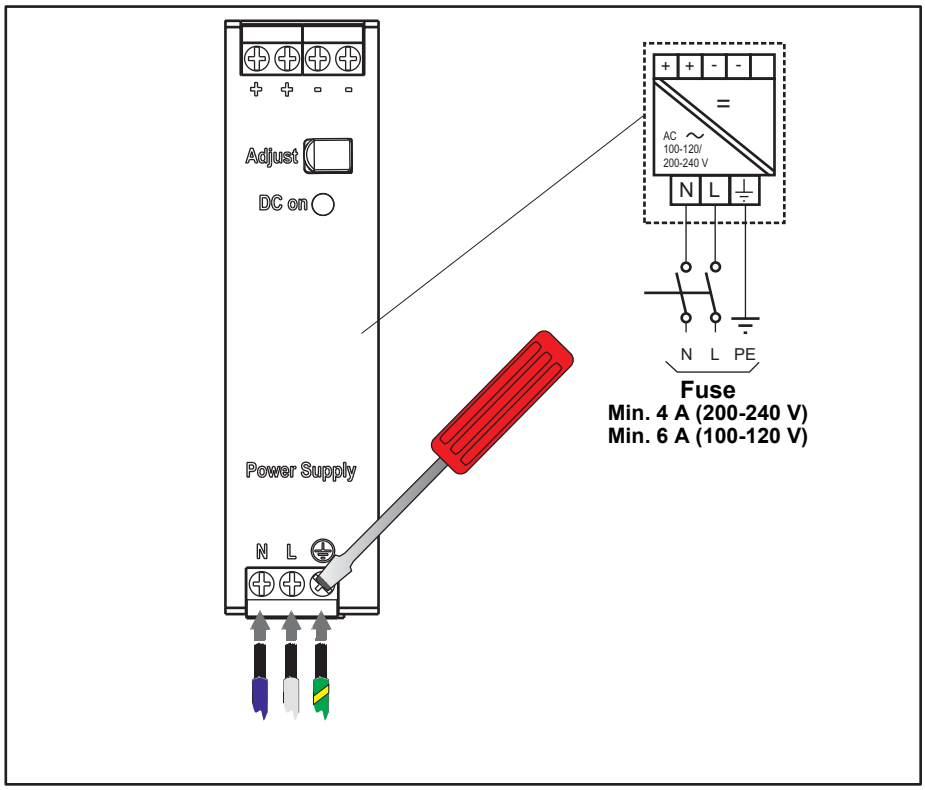


Fig 8 Connection of AC cable



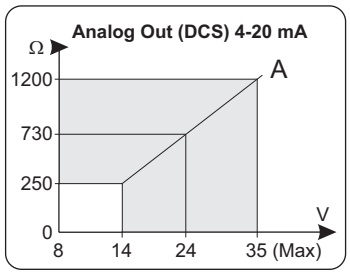
3.1.3.2 HCM Connections

The Hart communication module (HCM-80xx) is using HART® protocol.

NOTE!
Before installation, ensure that all power to the system has been turned off. Cable connections must be made by authorized personnel.

NOTE!
Figure 9 shows resistance as a function of supply voltage. The grey area is accepted. The resistance is the sum of cable- and power source- resistance in the current loop. The HART® communication requires a minimum resistance of 250 Ω.

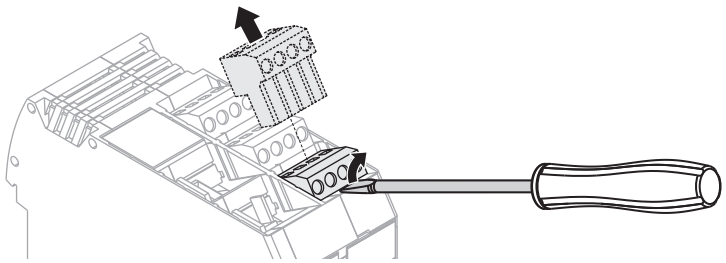
Fig 9 Analog Out 4-20 mA



1. Insert the signal cable through the cable gland.
2. Connect the cable to the HCM as shown on the following page.

NOTE!
The connection blocks can be released from the connection module for easier access, as shown in figure 10 below.

Fig 10 Releasing the connection blocks



3. Connect the shield to the upper connection point on the shield filter module (SFM-8000).

CAUTION!
The cable shield must always be connected to the upper connection point on the shield filter module, and kept separated from the transmitter cable shield.

HCM-8000 Connections

NOTE!
The functions of the connections for each instrument type can be found in the connection tables for HCM-8000 in the appendix of this manual

Fig 11 HART Communication Module HCM-8000

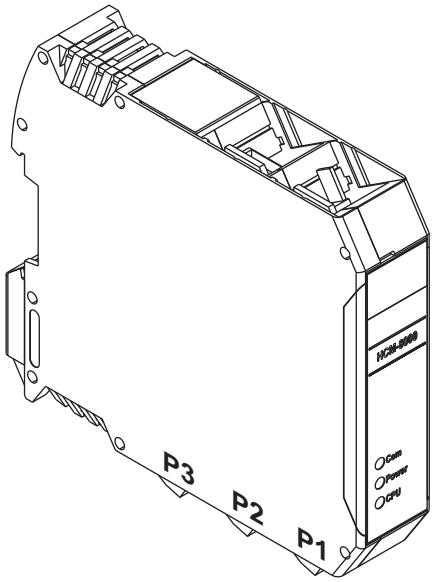
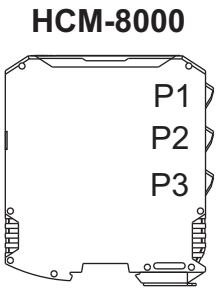


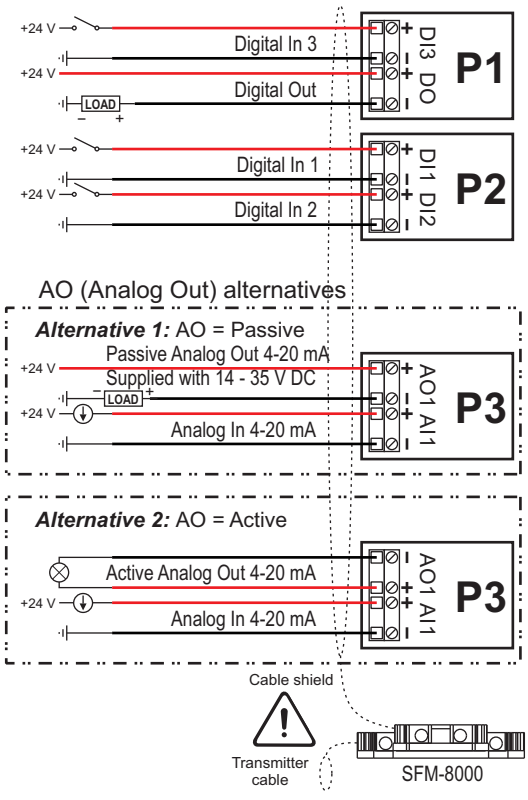
Fig 12 Connection of HCM-8000 cable



CAUTION!
The cable shield must always be connected to the upper connection point on the shield filter module, and kept separated from the transmitter cable shield.

NOTE!
Note the polarity for Passive or Active Analog Out (AO).

If the analog output signal (4-20 mA) is passive, an external source of current must be used (14-35 V DC)



HCM-8010 Connections

NOTE!
The functions of the connections for each instrument type can be found in the connection tables for HCM-8010 in the appendix of this manual

Fig 13 HART Communication Module HCM-8010

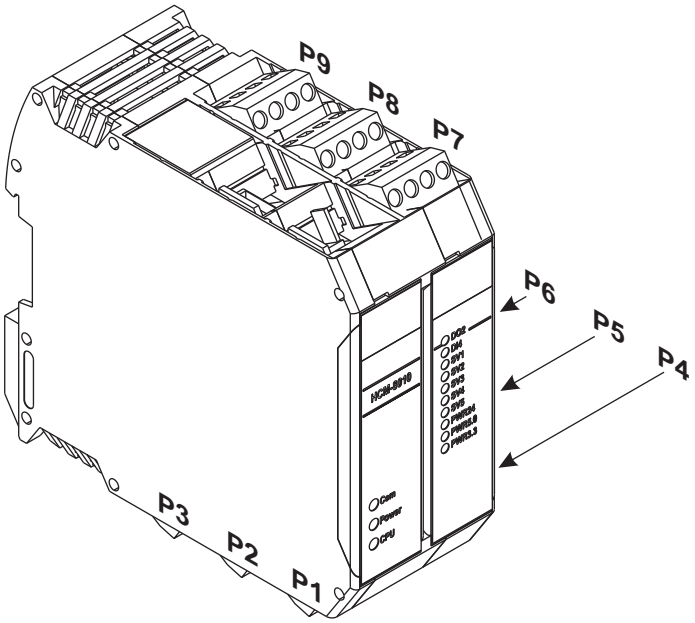
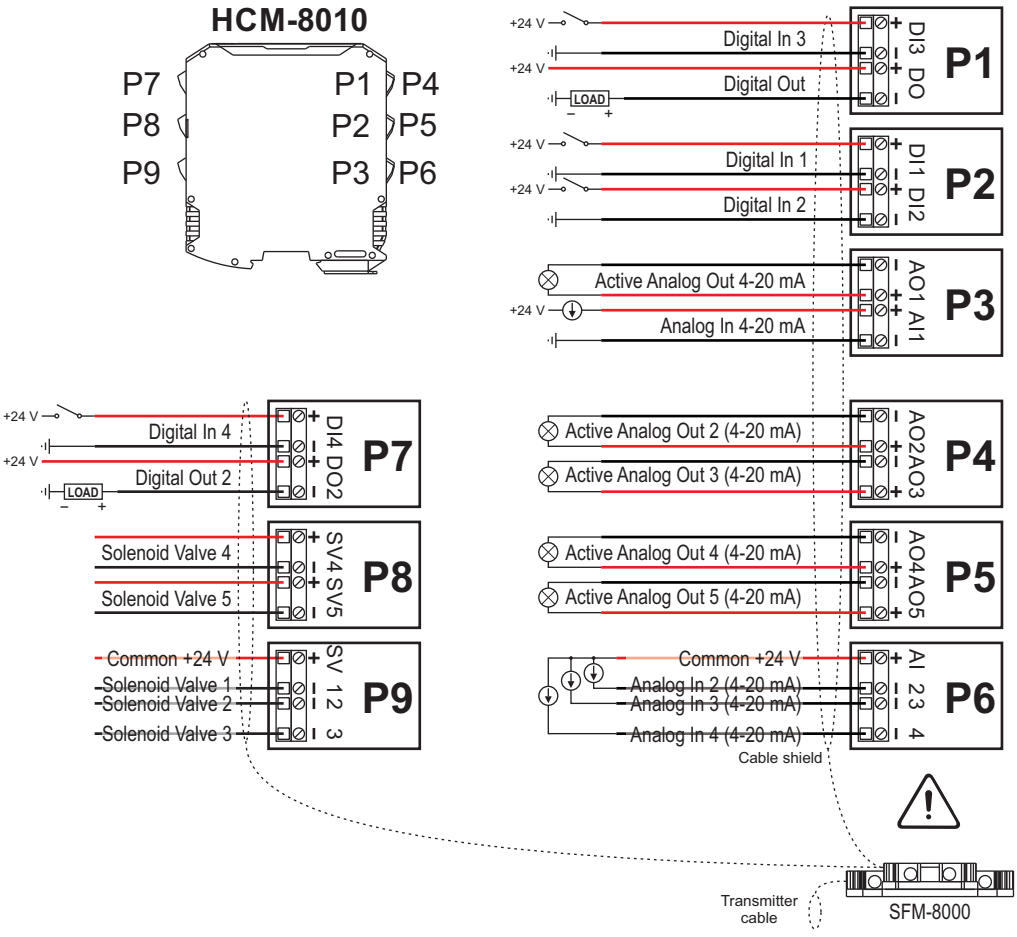
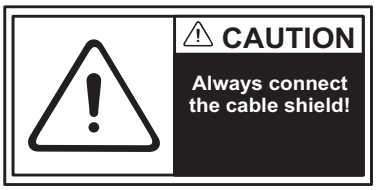


Fig 14 Connection of HCM-8010 cables



NOTE!
For HCM-8010, only active analog output is available.



CAUTION!
The cable shield must always be connected to the upper connection point on the shield filter module, and kept separated from the transmitter cable shield.

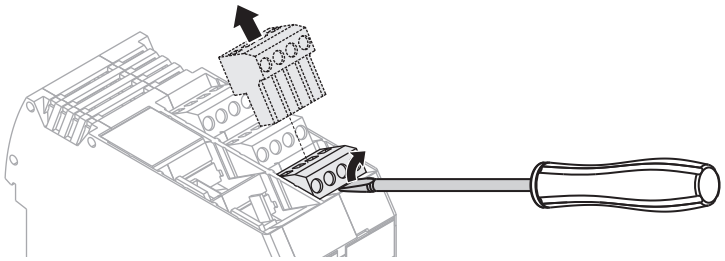
3.1.3.3 FCM Connections

NOTE!
Before installation, ensure that all power to the system has been turned off. Cable connections must be made by authorized personnel.

1. Insert the signal cables through the cable glands.
2. Connect the cables to the FCM-80 as shown on the following page.

NOTE!
The connection blocks can be released from the connection module for easier access, as shown in figure 15 below.

Fig 15 Releasing the connection blocks



3. Connect the shield to the upper connection point on the shield filter module.

CAUTION!
The cable shield must always be connected to the upper connection point on the shield filter module, and kept separated from the transmitter cable shield.

FCM-8000 Connections

NOTE!
The functions of the connections for each instrument type can be found in the connection tables for FCM-8000 in the appendix of this manual

Fig 16 Fieldbus Communication Module FCM-8000

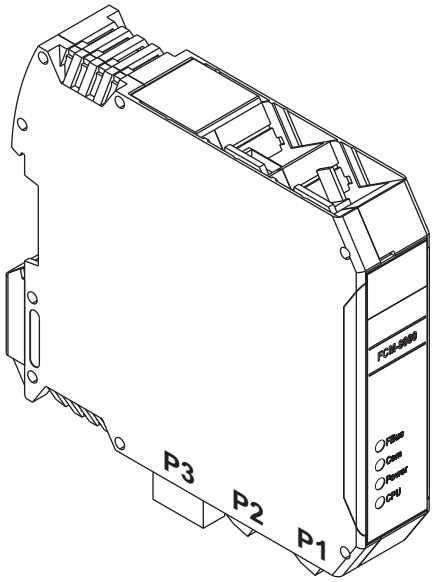
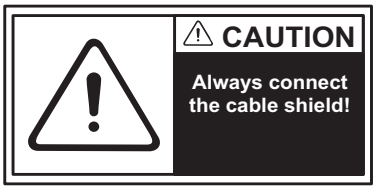
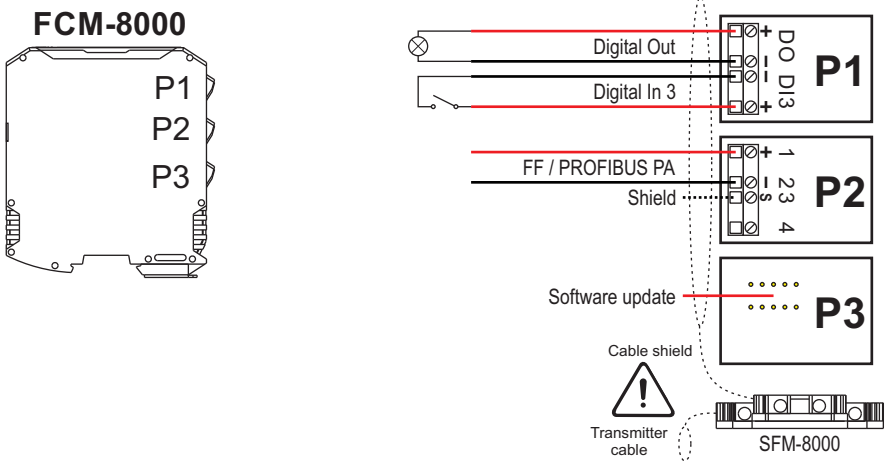


Fig 17 Connection of FCM-8000 cables



CAUTION!
The cable shield must always be connected to the upper connection point on the shield filter module, and kept separated from the transmitter cable shield.



FCM-8010 Connections

NOTE!
The functions of the connections for each instrument type can be found in the connection tables for FCM-8010 in the appendix of this manual

Fig 18 Fieldbus Communication Module FCM-8010

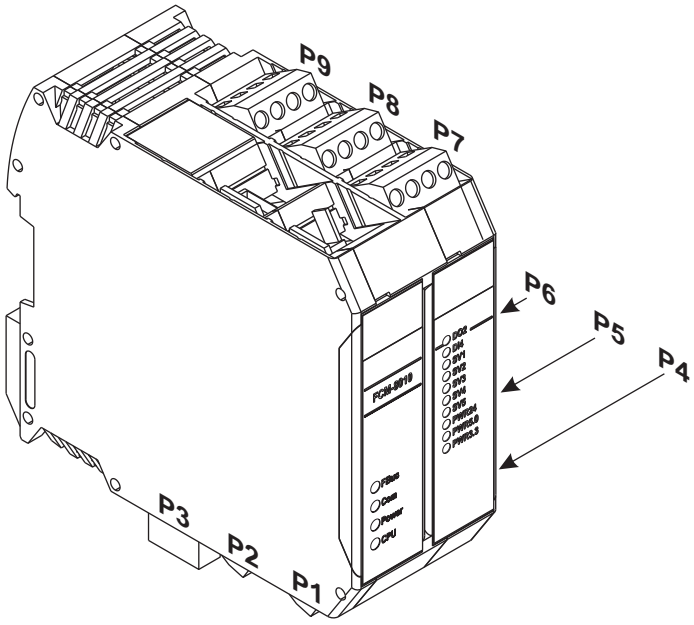
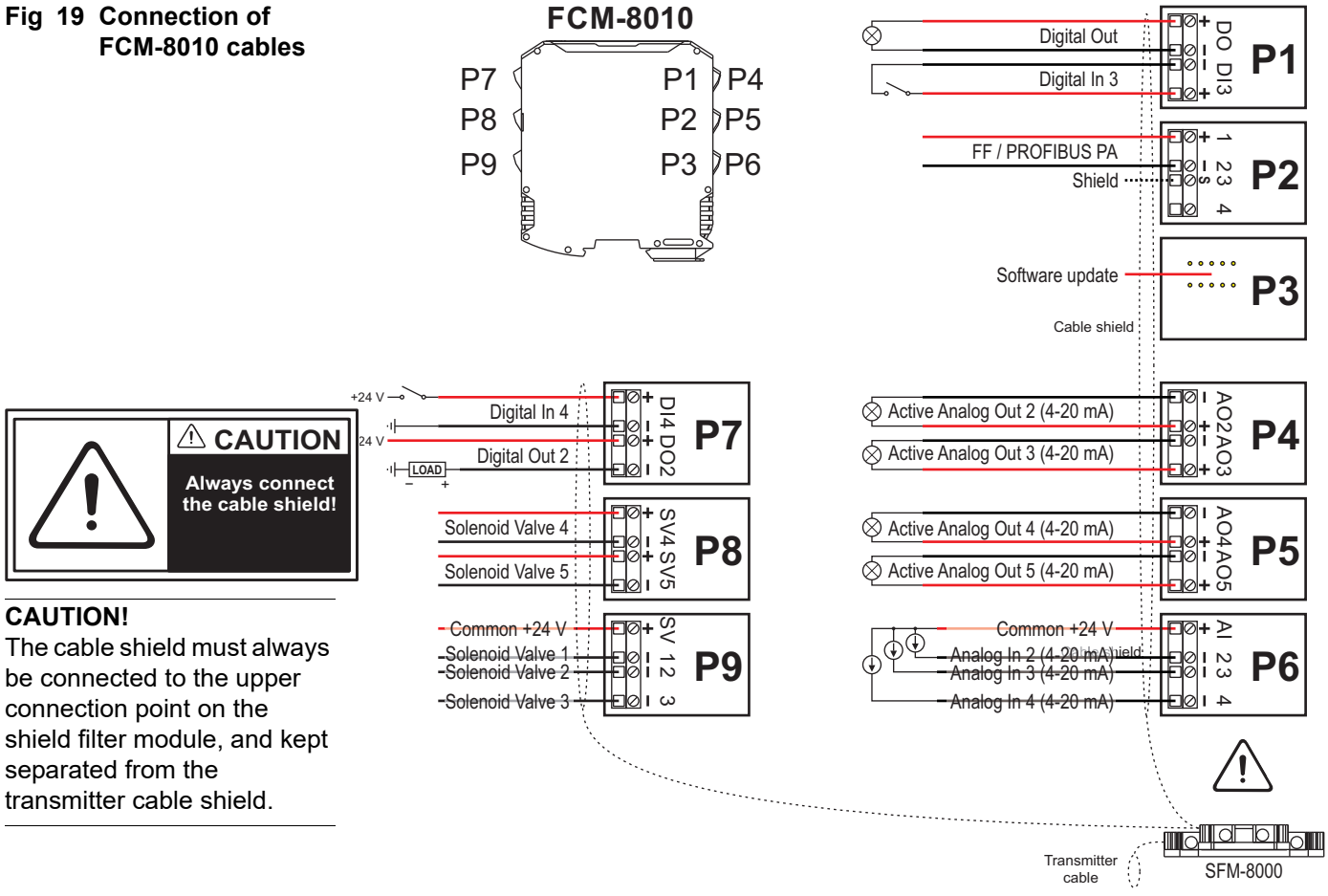


Fig 19 Connection of FCM-8010 cables



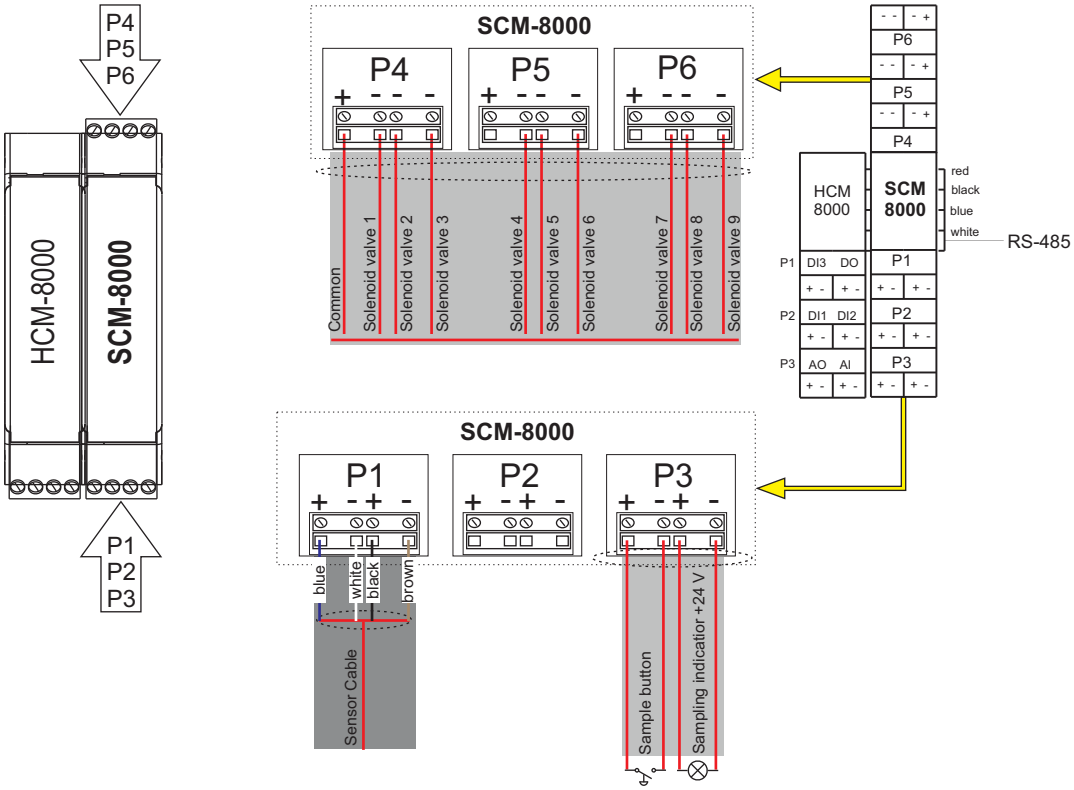
CAUTION
Always connect the cable shield!

CAUTION!
The cable shield must always be connected to the upper connection point on the shield filter module, and kept separated from the transmitter cable shield.

3.1.3.4 Sensor Control Module SCM-8000

NOTE!
Before installation, ensure that all power to the system has been turned off. Cable connections must be made by authorized personnel.

Fig 20 Connection of SCM-8000

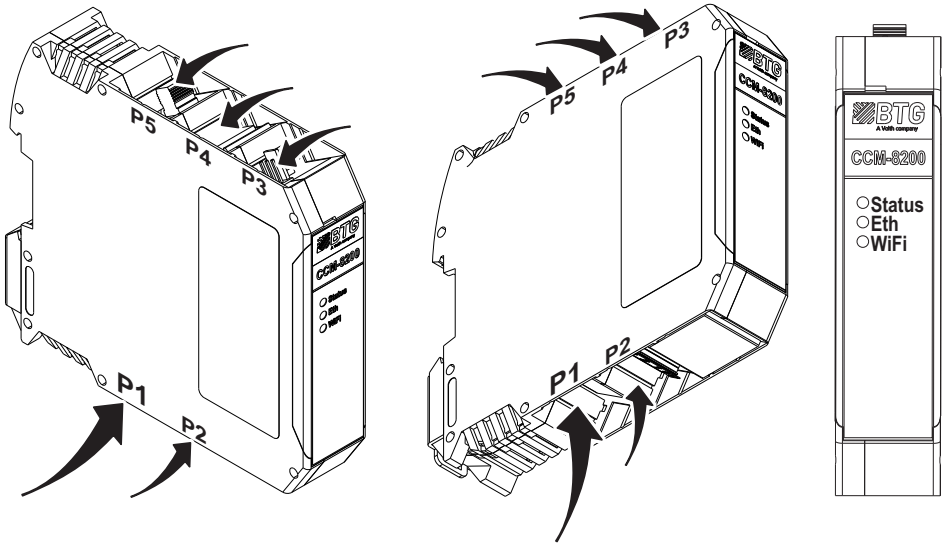


3.1.3.5 Communication Module CCM-8200

On CCM-8200 the ethernet interface RJ-45 connector is located at position 1. The USB connector P2 and the connectors P3 - P5 are for future options I

Fig 21 Communication Module CCM-8200

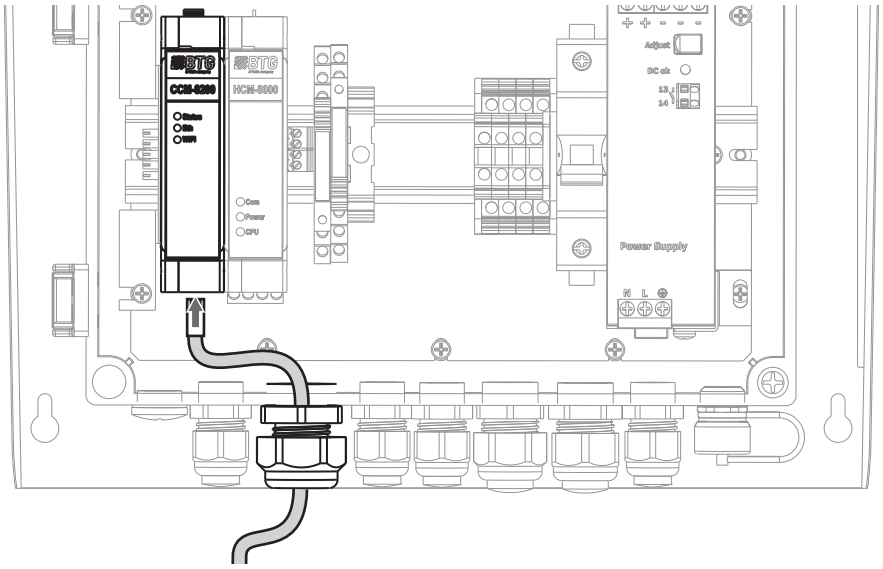
1. P1 RJ-45 connector
2. P2 USB connector (for future options)
3. P3 connector (for future options)
4. P4 connector (for future options)
5. P5 connector (for future options)



The status of the LEDs		
Status	On	Power is on
	Flashing	Instrument communication
Eth	On	Ethernet link has been established
	Flashing	Ethernet traffic
WiFi	On	Connected to WiFi access point

The ethernet cable to the CCM-8200 interface must go through the designated cable gland as shown below.

Fig 22 Ethernet cable to CCM-8200

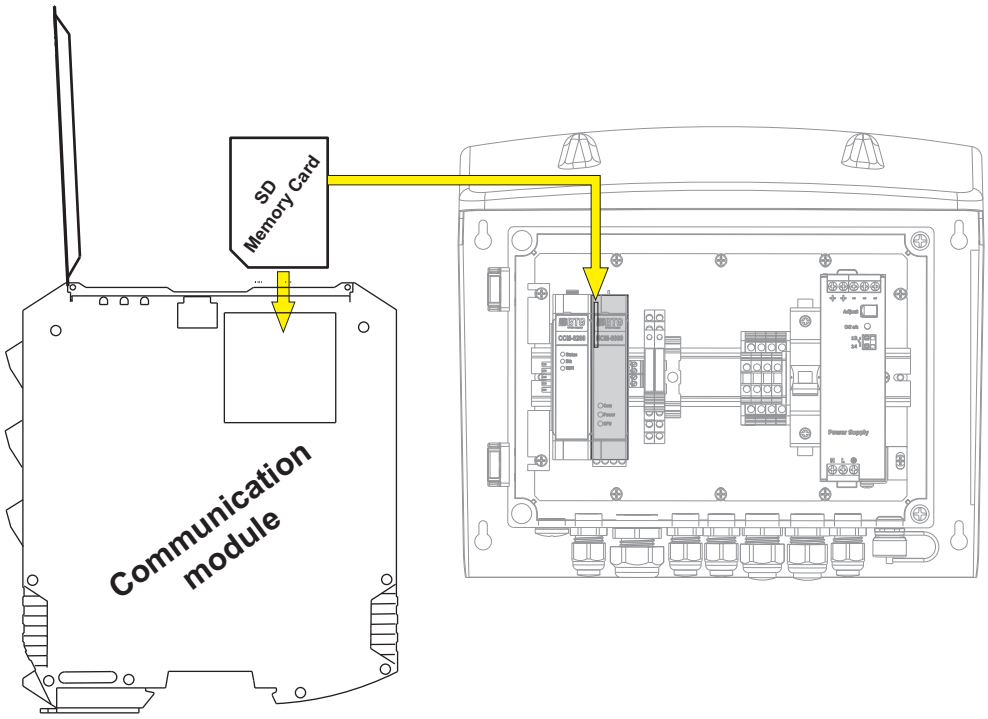


3.1.4 Backup Card

The HCM and FCM modules are equipped with a slot for a memory card of the type Secure Digital (SD).

All transmitter settings, transmitter data, and calibration data can be stored on a SD card. The SD card reader is located on the communication module card, and can be accessed by opening the front cover of the CPM (see figure 23).

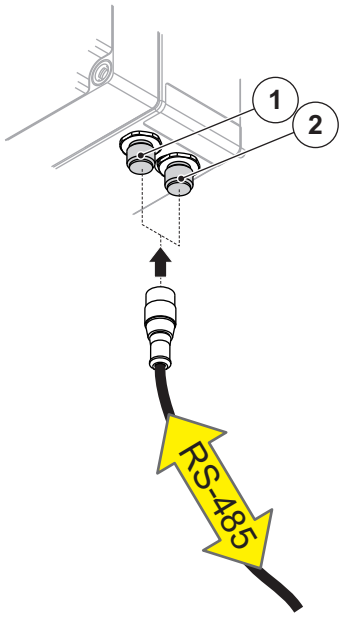
Fig 23 Location of SD card reader



3.1.5 RS-485 Connection

Fig 24 RS-485 connections

1. Software update and temporary communication
2. Primary communication; BTG Software



4 Service Instructions

4.1 Maintenance Routines

No regular maintenance is required for the CPM apart from keeping the unit clean and free from pulp.

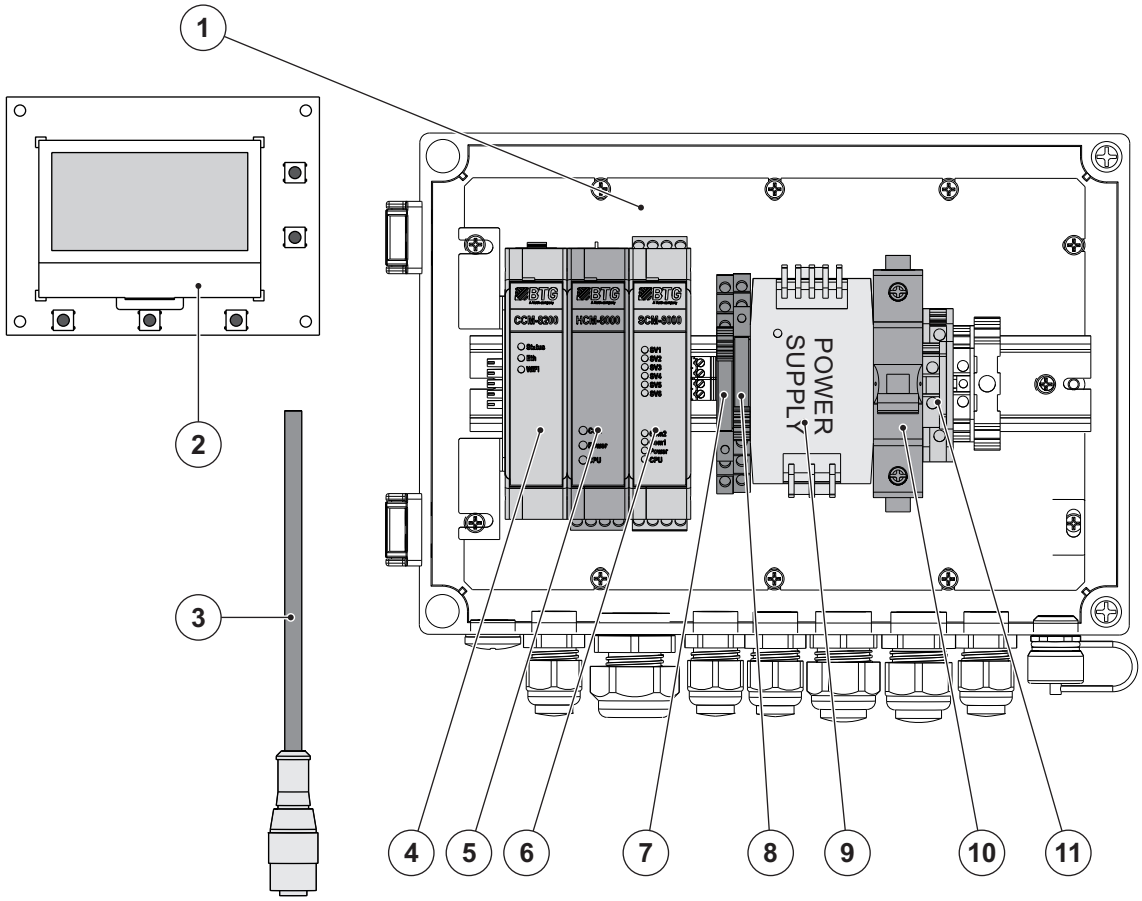
5 Parts List

5.1 CPM

Most CPM spare parts are delivered in kits. Each kit includes instructions.

5.1.1 CPM-1300 with HCM/FCM-8000 and SCM-8000

CPM for DRT-5500.

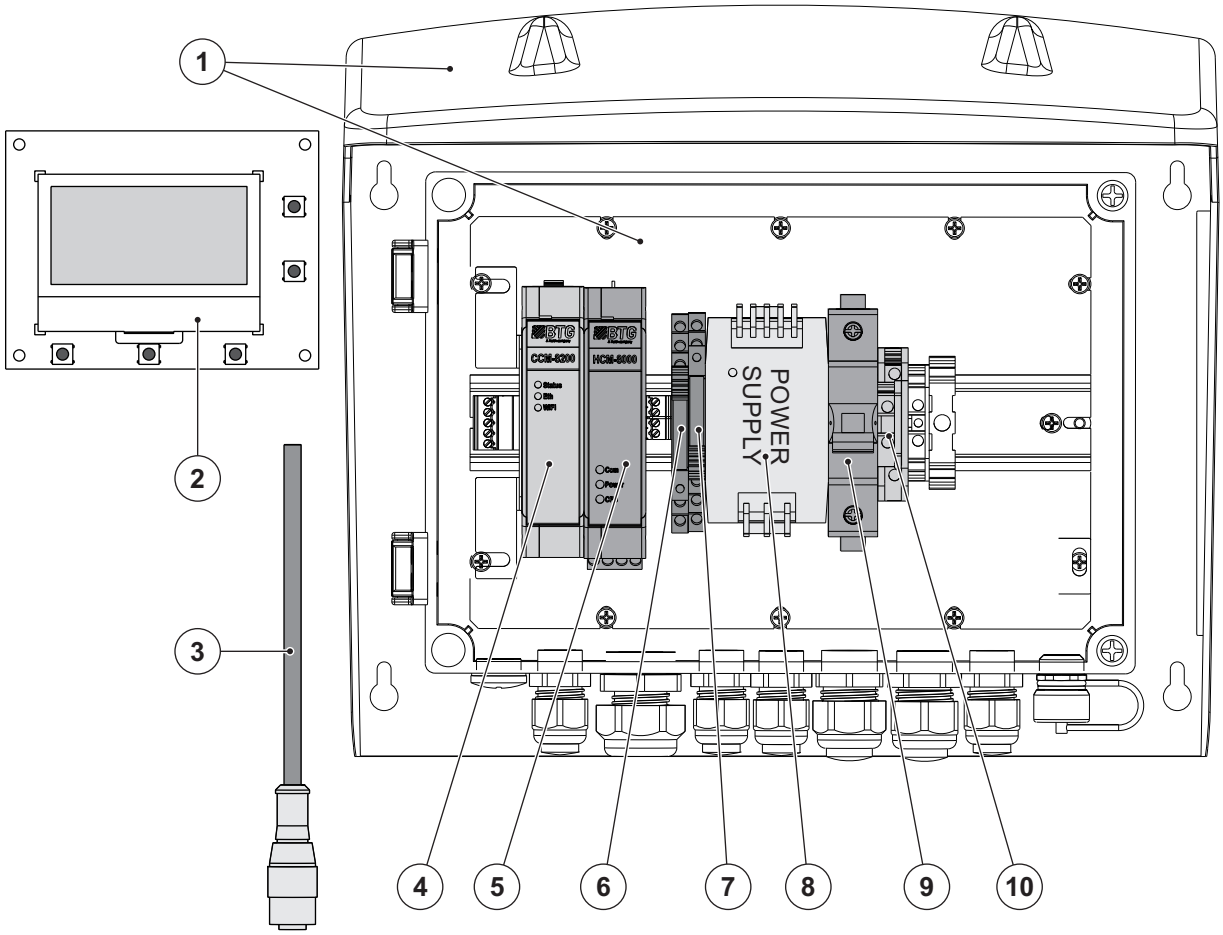


Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
1		1	Console kit large	PB2000196	Without electronics Including: Display holder, Front tape, Attachments
2		1	Display card kit	PB0011049	Including: Cable

Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
3		1	Transmitter cable kit	PB0011023	Standard 10 m (other length on request)
4		1	CCM-8200 kit	PB2000197	Cloud communication module Including: Bottom socket 5 pin
5		1	HCM-8000 kit	PB0011015	Hart communication module Including: Bottom socket, Contact for transmitter (5 pin)
			FCM-8000 kit	PB0011551	Fieldbus communication module, programmed for PROFIBUS (PA) Including: Bottom socket, Contact for transmitter (5 pin).
6		1	SCM-8000 Kit	KB0021782	Sensor control module Including: Bottom socket 5 pin
7		1	Alarm relay Kit	PA0174573	
8		1	Interlock relay Kit	PA0119867	
9		1	50/60 W power supply kit	HB0011031	Including: Cable, Contact (2 pin)
10		1	24 V Switch	P46033965	
11		1	SFM-8000 kit	PB0011056	Shield filter module kit
12		1	Communication cable RS-485	HA0112953	USB (not in figure)
13		1	RS485 service connector 1	PA0150151	(not in figure)
14		1	RS485 service connector 2	FB0102780	(not in figure)
15		1	SD card Industrial	P00X20418	Memory card for back-up (not in figure)

5.1.2 CPM-1300 with HCM/FCM-8000

CPM for ACT-2500, MBT-2500, MBT-4500, MEK-2500, TCS-2500, TCR-2501, TCR-2511, TCT-2501, TCT-2511, TCT-2531.

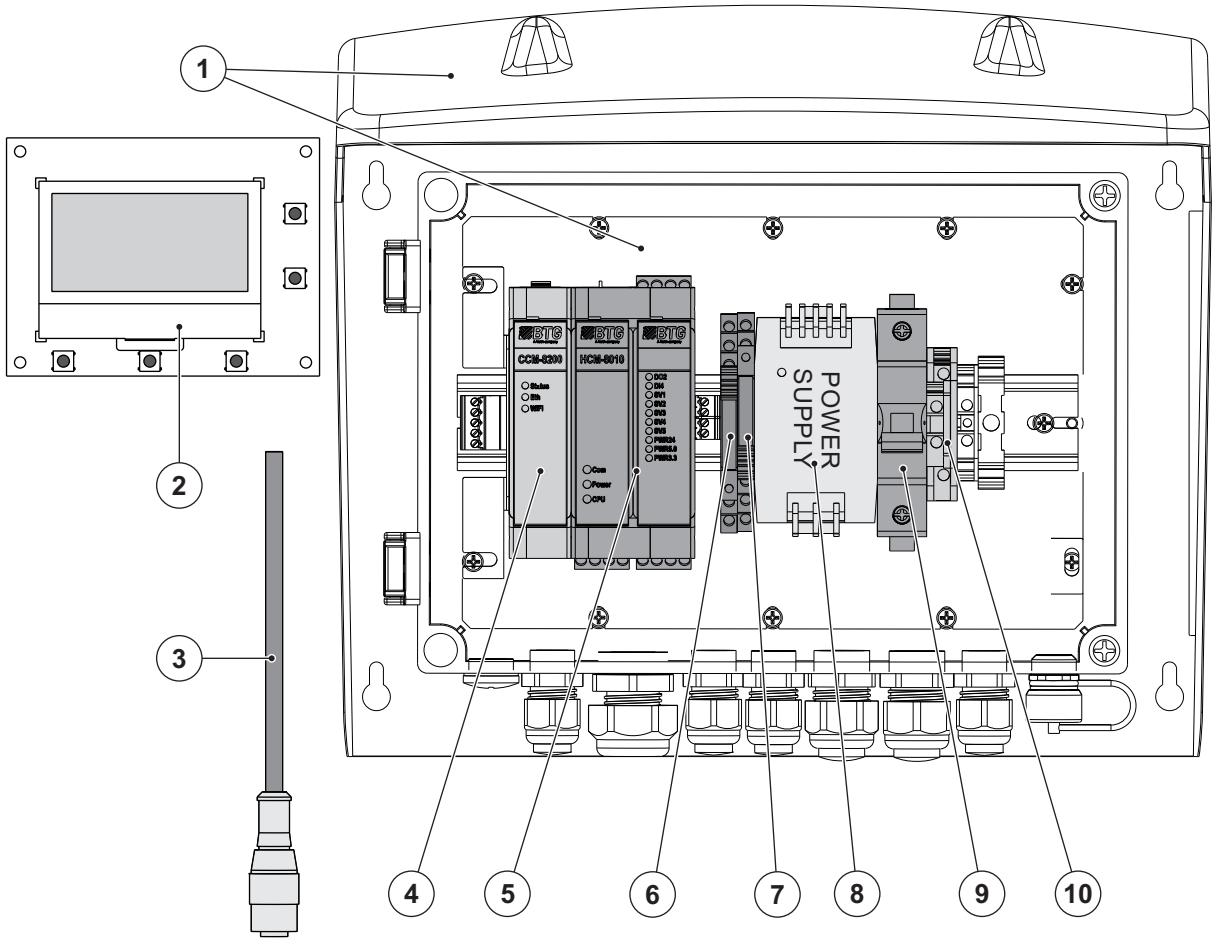


Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
1		1	Console kit large	PB2000196	Without electronics Including: Protective cover, Display holder, Front tape, Attachments
2		1	Display card kit	PB0011049	Including: Cable
3		1	Transmitter cable kit	PB0011023	Standard 10 m (other length on request)
4		1	CCM-8200 kit	PB2000197	Cloud communication module Including: Bottom socket 5 pin

Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
5		1	HCM-8000 kit	PB0011015	Hart communication module Including: Bottom socket, Contact for transmitter (5 pin)
			FCM-8000 kit	PB0011551	Fieldbus communication module, programmed for PROFIBUS (PA) Including: Bottom socket, Contact for transmitter (5 pin).
6		1	Alarm relay Kit	PA0174573	
7		1	Interlock relay Kit	PA0119867	
8		1	50/60 W power supply kit	HB0011031	Including: Cable, Contact (2 pin)
9		1	24 V Switch	P46033965	
10		1	SFM-8000 kit	PB0011056	Shield filter module kit
11		1	Communication cable RS-485	HA0112953	USB (not in figure)
12		1	RS485 service connector 1	PA0150151	(not in figure)
13		1	RS485 service connector 2	FB0102780	(not in figure)
14		1	SD card Industrial	P00X20418	Memory card for back-up (not in figure)

5.1.3 CPM-1300 with HCM/FCM-8010

CPM for DLT-5500, RET-2502, RET-2512, TCR-2502, TCR-2512, RET-5503, RET-5533, BT-55x0, BLT-55x0.

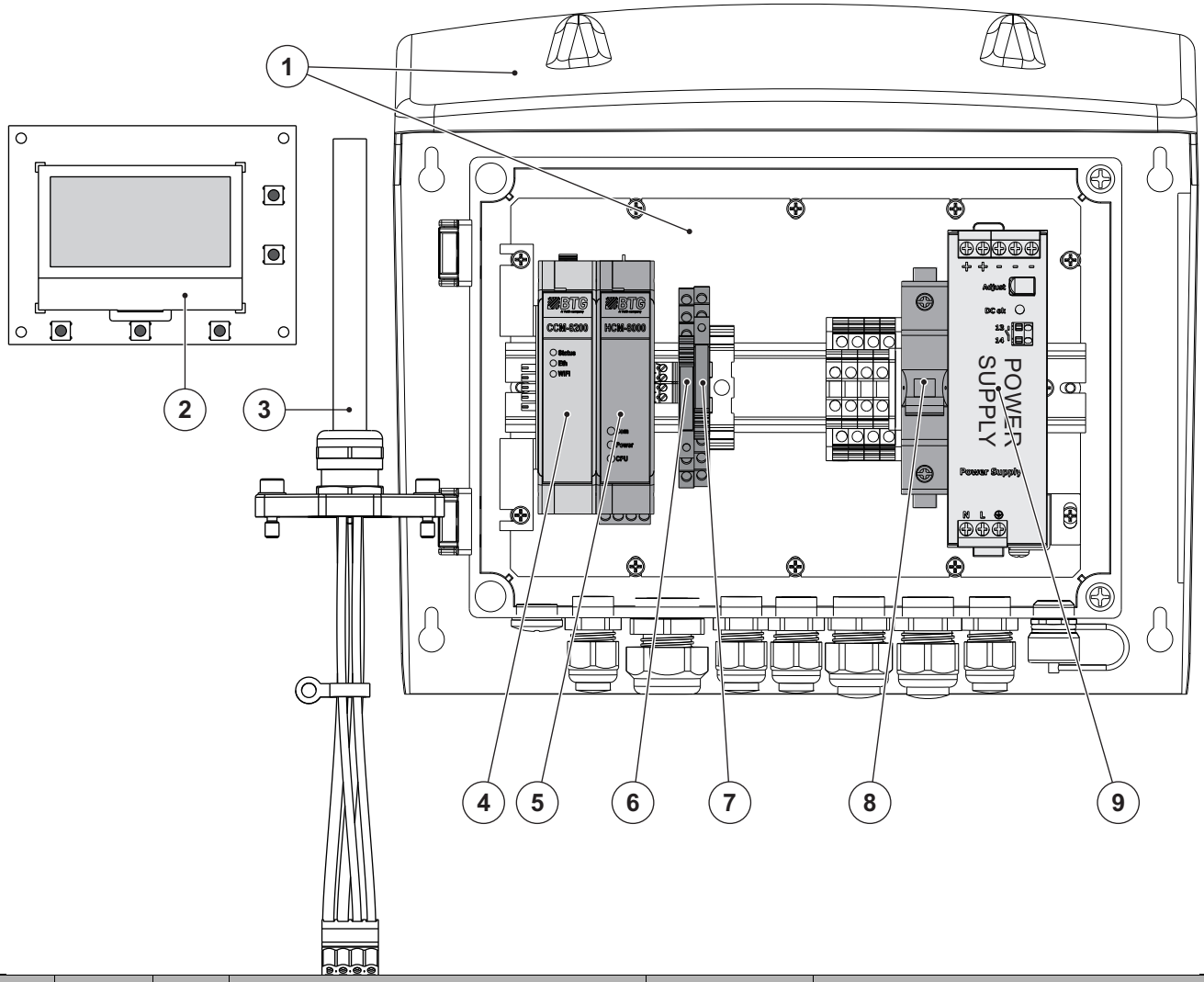


Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
1		1	Console kit large	PB2000196	Without electronics Including: Protective cover, Display holder, Front tape, Attachments
2		1	Display card kit	PB0011049	Including: Cable
3		1	Transmitter cable kit	PB0011023	Standard 10 m (other length on request)
4		1	CCM-8200 kit	PB2000197	Cloud communication module Including: Bottom socket 5 pin

Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
5		1	HCM-8010 kit	PB0021774	Hart communication module with 8010 card for extended in- and outputs. Including Bottom sockets 5 pin x2
			FCM-8010 kit	PA0113415	Fieldbus communication module, programmed for PROFIBUS (PA) for extended in- and outputs
6		1	Interlock relay Kit	PA0119867	
7		1	Alarm relay Kit	PA0174573	
8		1	50/60 W power supply kit	HB0011031	Including: Cable, Contact (2 pin)
9		1	24 V Switch	P46033965	
10		1	SFM-8000 kit	PB0011056	Shield filter module kit
11		1	Communication cable RS-485	HA0112953	USB (not in figure)
12		1	RS485 service connector 1	PA0150151	(not in figure)
13		1	RS485 service connector 2	FB0102780	(not in figure)
14		1	SD card Industrial	P00X20418	Memory card for back-up (not in figure)

5.1.4 CPM-1400 with HCM/FCM-8000

CPM for MEK-3000.

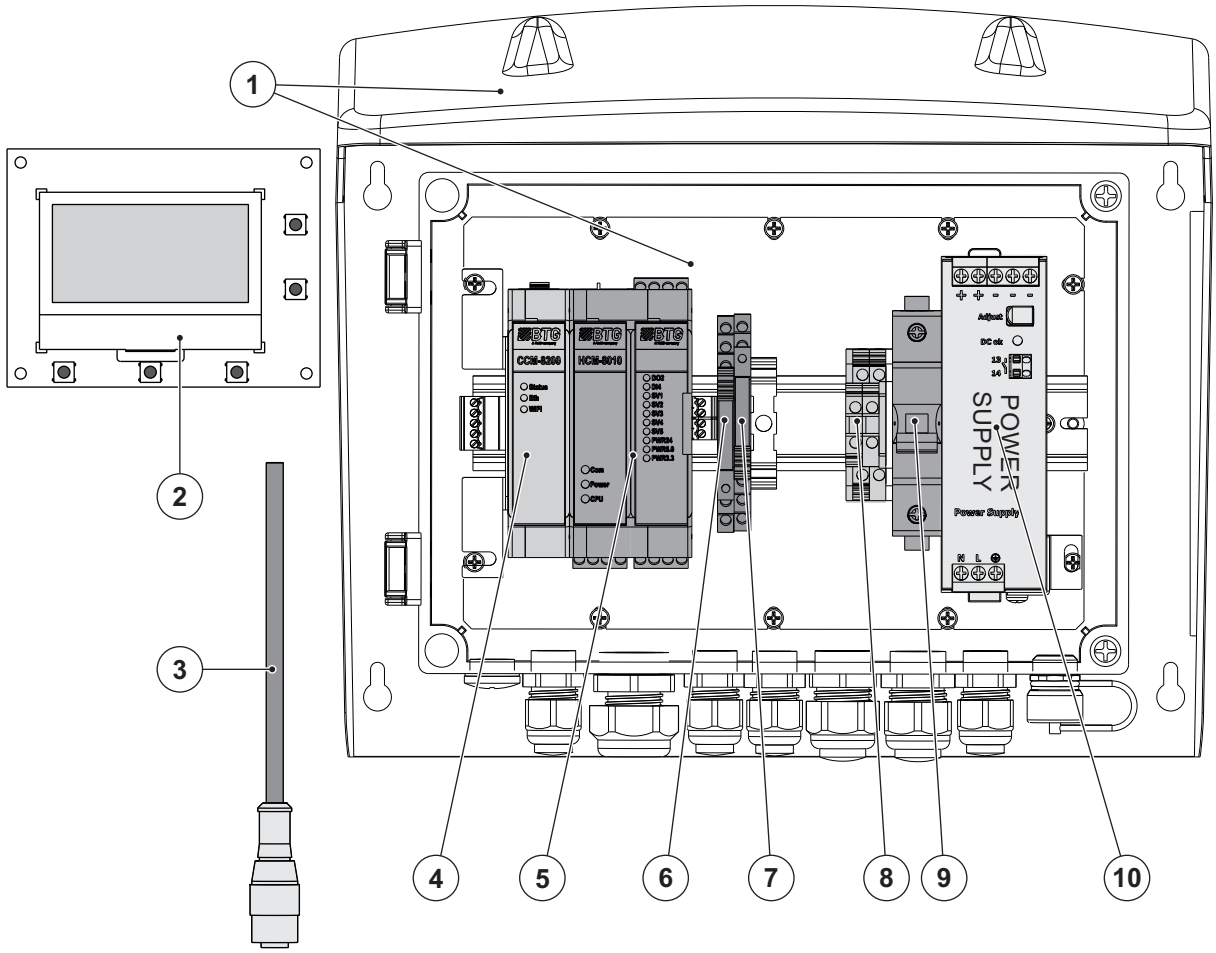


Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
1		1	Console kit large	PB2000196	Without electronics Including: Protective cover, Display holder, Front tape, Attachments
2		1	Display card kit	PB0011049	Including: Cable
3		1	Sensor cable compl. CPM-1400	PA0171090	10 m (Standard)
				PB0106112	20 m
4		1	CCM-8200 kit	PB2000197	Cloud communication module Including: Bottom socket 5 pin

Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
5		1	HCM-8000 kit	PB0011015	Hart communication module Including: Bottom socket, Contact for transmitter (5 pin)
			FCM-8000 kit	PB0011551	Fieldbus communication module, programmed for PROFIBUS (PA) Including: Bottom socket, Contact for transmitter (5 pin).
6		1	Interlock relay Kit	PA0119867	
7		1	Alarm relay Kit	PA0174573	
8		1	24 V Switch	P46033965	
9		1	240 W power supply kit	PB0021741	
10		1	Communication cable RS-485	HA0112953	USB (not in figure)
11		1	RS485 service connector 1	PA0150151	(not in figure)
12		1	RS485 service connector 2	FB0102780	(not in figure)
13		1	SD card Industrial	P00X20418	Memory card for back-up (not in figure)

5.1.5 CPM-1410 with HCM/FCM-8010

For SPC-5500.

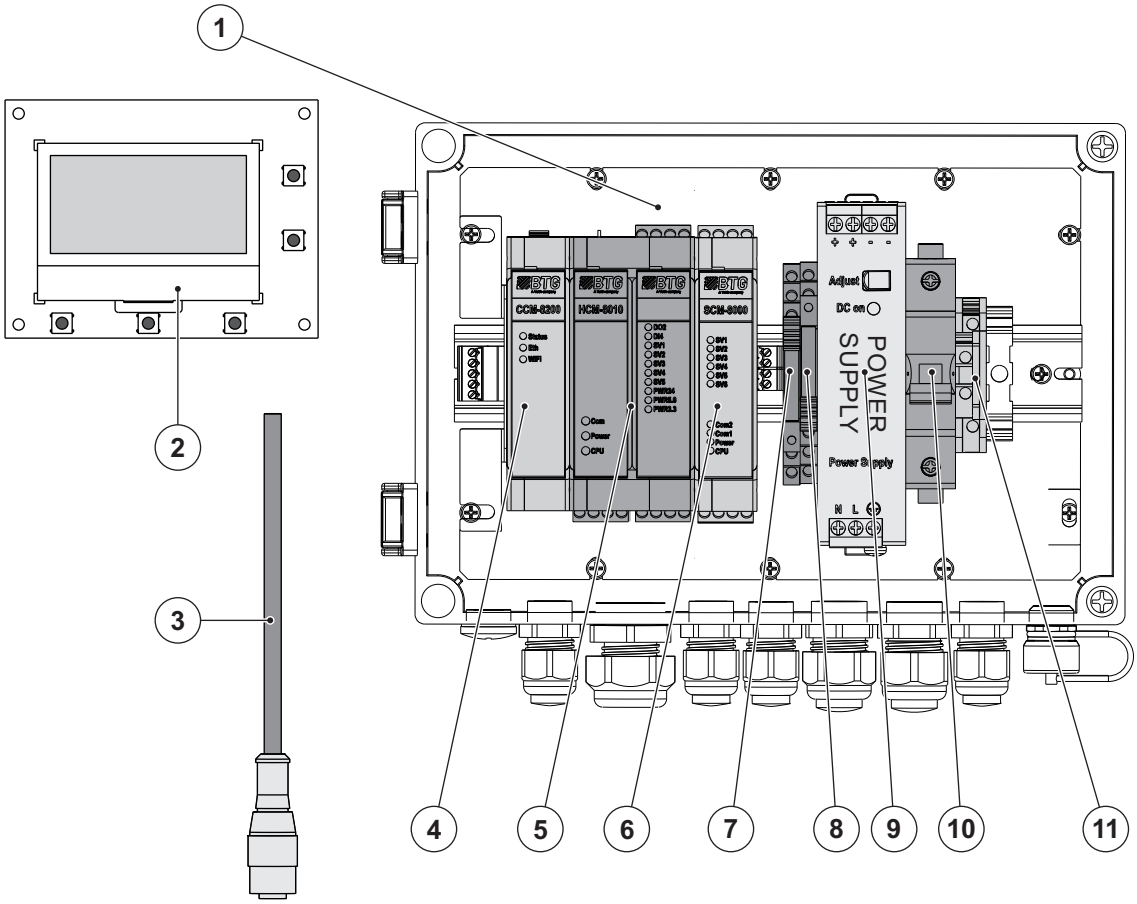


Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
1		1	Console kit large	PB2000196	Without electronics Including: Display holder, Front tape, Attachments
2		1	Display card kit	PB0011049	Including: Cable
3		1	Transmitter cable	PA2001471	Standard 5 m
4		1	CCM-8200 kit	PB2000197	Cloud communication module Including: Bottom socket 5 pin
5		1	HCM-8010 kit	PB0021774	Hart communication module with 8010 card for extended in- and outputs. Including Bottom sockets 5 pin x2
			FCM-8010 kit	PA0113415	Fieldbus communication module, programmed for PROFIBUS (PA) for extended in- and outputs
6		1	Interlock relay Kit	PA0119867	

Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
7		1	Alarm relay Kit	PA0174573	
8		1	SFM-8000 kit	PB0011056	Shield filter module kit
9		1	24 V Switch	P46033965	
10		1	240 W power supply kit	PB0021741	
11		1	Communication cable RS-485	HA0112953	USB (not in figure)
12		1	RS485 service connector 1	PA0150151	(not in figure)
13		1	RS485 service connector 2	FB0102780	(not in figure)
14		1	SD card Industrial	P00X20418	Memory card for back-up (not in figure)

5.1.6 CPM-1510 with HCM/FCM-8010 and SCM-8000

For SPK-5500.

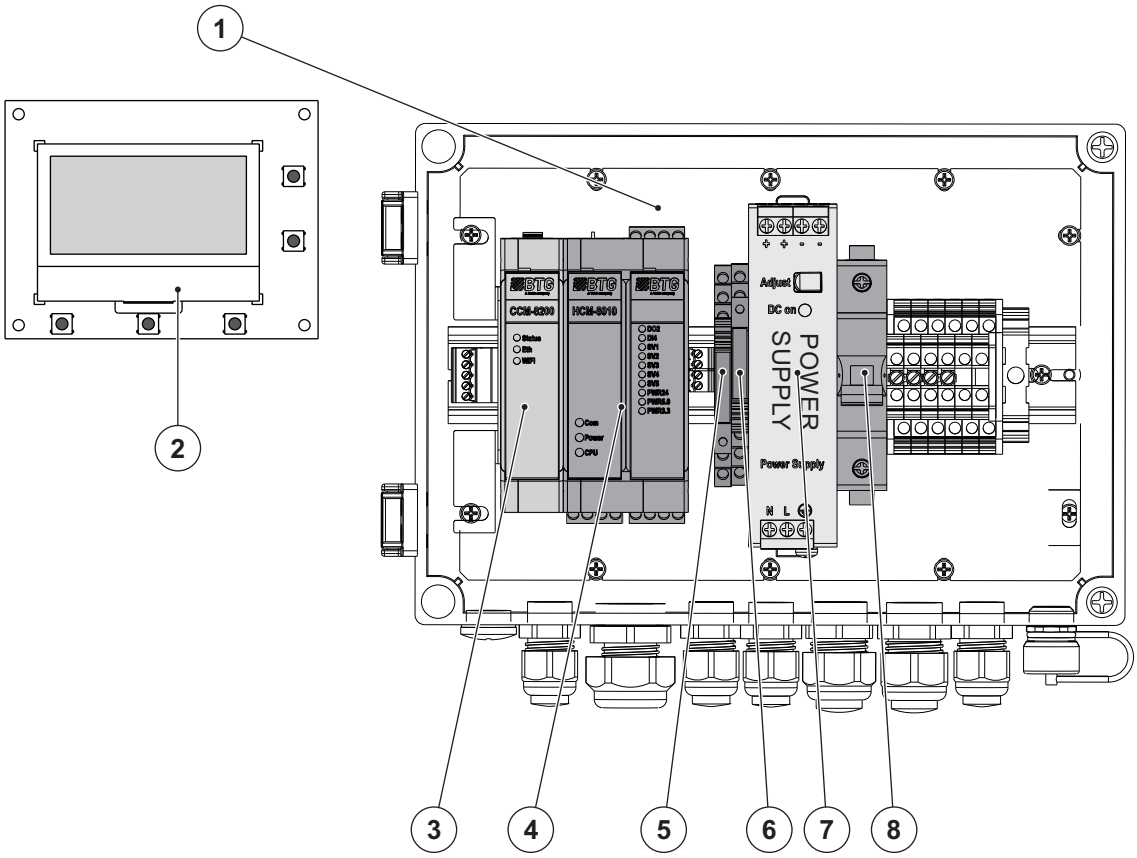


Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
1		1	Console kit large	PB2000196	Without electronics Including: Display holder, Front tape, Attachments
2		1	Display card kit	PB0011049	Including: Cable
3		1	Connection cable CPM - EOC	PA2004323	
4		1	CCM-8200 kit	PB2000197	Cloud communication module Including: Bottom socket 5 pin
5		1	HCM-8010 kit	PB0021774	Hart communication module with 8010 card for extended in- and outputs. Including Bottom sockets 5 pin x2
			FCM-8010 kit	PA0113415	Fieldbus communication module, programmed for PROFIBUS (PA) for extended in- and outputs
6		1	SCM-8000 Kit	KB0021782	Sensor control module Including: Bottom socket 5 pin
7		1	Interlock relay Kit	PA0119867	

Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
8		1	Alarm relay Kit	PA0174573	
9		1	80 W power supply kit	P4636133	
10		1	24 V Switch	P46033965	
11		1	SFM-8000 kit	PB0011056	Shield filter module kit
12		1	Communication cable RS-485	HA0112953	USB (not in figure)
13		1	RS485 service connector 1	PA0150151	(not in figure)
14		1	RS485 service connector 2	FB0102780	(not in figure)
15		1	SD card Industrial	P00X20418	Memory card for back-up (not in figure)

5.1.7 CPM-1510 with HCM/FCM-8010

For SPM-5500.



Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
1		1	Console kit large	PB2000196	Without electronics Including: Display holder, Front tape, Attachments
2		1	Display card kit	PB0011049	Including: Cable
3		1	CCM-8200 kit	PB2000197	Cloud communication module Including: Bottom socket 5 pin
4		1	HCM-8010 kit	PB0021774	Hart communication module with 8010 card for extended in- and outputs. Including Bottom sockets 5 pin x2
			FCM-8010 kit	PA0113415	Fieldbus communication module, programmed for PROFIBUS (PA) for extended in- and outputs
5		1	Interlock relay Kit	PA0119867	
6		1	Alarm relay Kit	PA0174573	
7		1	80 W power supply kit	P4636133	
8		1	24 V Switch	P46033965	
9		1	Communication cable RS-485	HA0112953	USB (not in figure)

Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
10		1	RS485 service connector 1	PA0150151	(not in figure)
11		1	RS485 service connector 2	FB0102780	(not in figure)
12		1	SD card Industrial	P00X20418	Memory card for back-up (not in figure)

5.1.8 CPM Accessories

Kit No.	Rec. spare parts	Qty	Spare Part	Part No.	Description
1		1	Communication cable RS-485	HA0112953	USB

6 Appendix

6.1 HCM-8000 Connections

Connection Block			ACT-2500	DRT-5500	MBT-2500	MBT-4500
P1	DI3	Digital In 3	Sample Input	Interlock (1=Interlock)	Sample Input	Sample Input
	DO	Digital Out	Alarm Output	Data Ready	Alarm Output	Alarm Output
P2	DI1	Digital In 1	Calibration set Input A	Calibration set Input A	Calibration set Input A	Calibration set Input A
	DI2	Digital In 2	Calibration set Input B	Calibration set Input B	Calibration set Input B	Calibration set Input B
P3	AO	Analog Out	Consistency output value 4 - 20 mA	Freeness output value 4 - 20 mA	Consistency output value 4 - 20 mA	Viscosity output value 4 - 20 mA
	AI	Analog In	Not used	Not used	Not used	Temperature or Flow input 4 - 20 mA

Connection Block			MEK-2500	MEK-3000	OCT-25x1	TCR-25x1
P1	DI3	Digital In 3	Sample Input	Sample Input or Interlock	Sample Input	Sample Input
	DO	Digital Out	Alarm Output	Alarm Output	Alarm Output	Alarm Output
P2	DI1	Digital In 1	Calibration set Input A	Calibration set Input A	Calibration set Input A	Calibration set Input A
	DI2	Digital In 2	Calibration set Input B	Calibration set Input B	Calibration set Input B	Calibration set Input B
P3	AO	Analog Out	Consistency output value 4 - 20 mA	Consistency output value 4 - 20 mA	Total Consistency output value 4 - 20 mA	Total Consistency output value 4 - 20 mA
	AI	Analog In	Not used	Not used	Not used	Not used

Connection Block			TCS-2531	TCT-25x1
P1	DI3	Digital In 3	Sample Input	Sample Input
	DO	Digital Out	Alarm Output	Alarm Output or PCD-1000 control
P2	DI1	Digital In 1	Calibration set Input A	Calibration set Input A
	DI2	Digital In 2	Calibration set Input B	Calibration set Input B
P3	AO	Analog Out	Total Consistency output value 4 - 20 mA	Total Consistency output value 4 - 20 mA
	AI	Analog In	Not used	Not used

Calibration Set configuration

Calibration Set	Input A (Digital In 1)	Input B (Digital In 2)
1	0	0
2	1	0
3	0	1
4	1	1

6.2 HCM-8010 Connections

Connection Block			BT-5500 BLT-5500	DLT-5500	RET-25x2	RET-55xx
P1	DI3	Digital In 3	Initiate lab sample	Sample Input	Sample Input	Interlock
	DO	Digital Out 1	Alarm Output	Alarm Output	Alarm Output or PCD-1000 control	Alarm Output
P2	DI1	Digital In 1	Calibration set Input A	Calibration set Input A	Calibration set Input A	Calibration set Input A
	DI2	Digital In 2	Calibration set Input B	Calibration set Input B	Calibration set Input B	Calibration set Input B
P3	AO	Analog Out 1	Channel 1 output value 4 - 20 mA	Dissolved lignin (Channel 1) output value 4 - 20 mA	Total consistency (Channel 1) output value 4 - 20 mA	Total consistency (Channel 1) output value 4 - 20 mA
	AI	Analog In1	Analog input signals from external equipment 4 - 20 mA	Not used	Not used	Not used
P4	AO2	Analog Out 2	Channel 2 output value 4 - 20 mA	Total consistency (Channel 2) output value 4 - 20 mA	Ash consistency (Channel 2) output value 4 - 20 mA	Ash consistency (Channel 2) output value 4 - 20 mA (RET-55x3 only)
	AO3	Analog Out 3	Channel 3 output value 4 - 20 mA	Not used	Not used	Not used
P5	AO4	Analog Out 4	Channel 4 output value 4 - 20 mA	Not used	Not used	Not used
	AO5	Analog Out 5	Channel 5 output value 4 - 20 mA			
P6	AI2	Analog In 2	Analog input signals from external equipment 4 - 20 mA	Not used	Not used	Not used
	AI3	Analog In 3				
	AI4	Analog In 4				
P7	DI4	Digital In 4	Not used	Not used	Not used	Internally pre-wired[(a)]
	DO2	Digital Out 2				
P8	SV4	Sol. valve 4	Nut used	Not used	Not used	Internally pre-wired[(a)]
	SV5	Sol. valve 5				
P9	SV1	Sol. valve 1	Not used	Not used	Not used	Internally pre-wired[(a)]
	SV2	Sol. valve 2				
	SV3	Sol. valve 3				

(a) For more information about internally pre-wired connections, see the installation drawing for the transmitter

Connection Block			RT-5500	SPC-5500	SPM-5500
P1	DI3	Digital In 3	Sample Input	Interlock	Interlock
	DO	Digital Out 1 Floating DC switch max 30 V, 100 mA	Alarm Output	Alarm Output	Alarm output
P2	DI1	Digital In 1	Calibration set Input A	Not used	Not used
	DI2	Digital In 2	Calibration set Input B	Not used	Not used
P3	AO	Analog Out 1	Residual (Channel 1) output value 4 - 20 mA	Filtrate charge (Channel 1) output value 4 - 20 mA	Configurable (Channel 1) output value 4 - 20 mA
	AI	Analog In1	Analog input signals from external equipment 4 - 20 mA	Not used	Not used
P4	AO2	Analog Out 2	Conductivity (Channel 2) output value 4 - 20 mA	White water charge (Channel 2) output value 4 - 20 mA	Configurable (Channel 2) output value 4 - 20 mA
	AO3	Analog Out 3	Media temp. (Channel 3) output value 4 - 20 mA	Start streaming potential for filtrate (Channel 1)	Configurable (Channel 3) output value 4 - 20 mA
P5	AO4	Analog Out 4	Not used	Start streaming potential for white water (Channel 2)	Internally pre-wired[(a)]
	AO5	Analog Out 5		Not used	
P6	AI2	Analog In 2	Analog input signals from external equipment 4 - 20 mA	Not used	Internally pre-wired[(a)]
	AI3	Analog In 3	Not used		
	AI4	Analog In 4			Not used
P7	DI4	Digital In 4	Not used	Not used	Internally pre-wired[(a)]
	DO2	Digital Out 2 Floating DC switch max 30 V, 100 mA		Data ready Channel 1	Not used
P8	SV4	Sol. valve 4	Not used	Not used	Internally pre-wired[(a)]
	SV5	Sol. valve 5			Not used
P9	SV1	Sol. valve 1	Not used	Data ready Channel 2	Internally pre-wired[(a)]
	SV2	Sol. valve 2		Not used	
	SV3	Sol. valve 3			

(a) For more information about internally pre-wired connections, see the installation drawing for the transmitter

Connection Block			SPK-5500 Single Channel	SPK-5500 Dual Channel	TCR-25x2
P1	DI3	Digital In 3	Remote stop	Remote stop	Sample Input
	DO	Digital Out 1 Floating DC switch max 30 V, 100 mA	Alarm Output	Alarm Output	Alarm Output
P2	DI1	Digital In 1	Calibration set Input A	Calibration set Input	Calibration set Input A
	DI2	Digital In 2	Calibration set Input B	Not used	Calibration set Input B
P3	AO	Analog Out 1	Kappa LRV - URV output value 4 - 20 mA	Channel 1 LRV - URV output value 4 - 20 mA	Total consistency (Channel 1) output value 4 - 20 mA
	AI	Analog In1	Not used	Not used	Not used
P4	AO2	Analog Out 2	RMS 0-0.0015 V output value 4 - 20 mA	Channel 2 LRV - URV output value 4 - 20 mA	Ash consistency (Channel 2) output value 4 - 20 mA
	AO3	Analog Out 3	CwZ 0-1.65 V output value 4 - 20 mA	aCwZ 0-1.65 V output value 4 - 20 mA	Not used
P5	AO4	Analog Out 4	CwT 0-0.165 V output value 4 - 20 mA	aCwT 0-0.165 V output value 4 - 20 mA	Not used
	AO5	Analog Out 5	Mean Kappa[(a)] LRV - URV output value 4 - 20 mA	Channel 1[(a)] mean value or RMS output value 4 - 20 mA	
P6	AI2	Analog In 2	Internally pre-wired[(b)]	Internally pre-wired[(b)]	Not used
	AI3	Analog In 3			
	AI4	Analog In 4			
P7	DI4	Digital In 4	Sample Input	Sample Input	Not used
	DO2	Digital Out 2 Floating DC switch max 30 V, 100 mA	Data Ready or Clean Pump	Data Ready or Clean Pump	
P8	SV4	Sol. valve 4	Internally pre-wired[(b)]	Internally pre-wired[(b)]	Not used
	SV5	Sol. valve 5			
P9	SV1	Sol. valve 1	Internally pre-wired[(b)]	Internally pre-wired[(b)]	Not used
	SV2	Sol. valve 2			
	SV3	Sol. valve 3			

(a) Average since last start. Normally only used for batch applications

(b) For more information about internally pre-wired connections, see the installation drawing for the transmitter

6.3 FCM-8000 Connections

Connection Block			ACT-2500 BLT-5500 BTT-5500 DLT-5500 MBT-2500 MBT-4500 MEK-2500 RT-5500 TCR-25xx	DRT-5500	MEK-3000	TCT-25x1 RET-25x2
P1	DO	Digital Out	Alarm Output	Data Ready	Alarm Output	Alarm Output or PCD-1000 control
	DI3	Digital In 3	Sample Input	Interlock (1 = interlock)	Sample Input or Interlock	Sample Input
P2	FF / PROFIBUS PA		See separate table below for data between Profibus and Transmitter			

Data Between Profibus and transmitter

Profi-bus	Trans mitter	ACT-2500 MBT-2500 MEK-2500 MEK-3000	BT-5500 BLT-5500	DLT-5500	DRT-5500	MBT-4500
AI1	AO	Consistency output	Channel 1 output	Dissolved lignin (Channel 1) output	Freeness output	Viscosity output
AI2	AO2	Not used	Channel 2 output	Total consistency (Channel 2) output	Not used	Not used
AI3	AO3	Not used	Channel 3 output	Not used	Not used	Not used
AI4	AO4	Not used	Channel 4 output	Not used	Not used	Not used
AI5	AO5	Not used	Channel 5 output	Not used	Not used	Not used
AI6	AO6	Not used	Channel 6 output	Not used	Not used	Not used
AO1	AI	Not used	Input signal from external equipment	Not used	Not used	Temperature or Flow Input
DI	DO	Alarm Out(a)	Alarm Out(a)	Alarm Out(a)	Data Ready(a	Alarm Out(a)
DO1	DI1	Calibration set Input A	Calibration set Input A	Calibration set Input A	Calibration set Input A	Calibration set Input A
DO2	DI2	Calibration set Input B	Calibration set Input B	Calibration set Input B	Calibration set Input B	Calibration set Input B
DO3	DI3	Sample Input(a)	Initiate lab sample(a)	Sample Input(a)	Interlock(a)	Sample Input(a)

(a) Also available on hardware. See connection table above.

Profi-bus	Trans mitter	TCT-25x1	RET-25x2	TCR-25x1	TCR-25x2
AI1	AO	Total Consistency output value	Total consistency (Channel 1) output value	Total Consistency output value	Total consistency (Channel 1) output value
AI2	AO2	Not used	Ash consistency (Channel 2) output value	Not used	Ash consistency (Channel 2) output value
AI3	AO3	Not used	Not used	Not used	Not used
AI4	AO4	Not used	Not used	Not used	Not used
AI5	AO5	Not used	Not used	Not used	Not used
AI6	AO6	Not used	Not used	Not used	Not used
AO1	AI	Not used	Not used	Not used	Not used
DI	DO	Alarm Out or PCD-1000 control[(a)]	Alarm Out or PCD-1000 control[(a)]	Alarm Out[(a)]	Alarm Out[(a)]
DO1	DI1	Calibration set Input A	Calibration set Input A	Calibration set Input A	Calibration set Input A
DO2	DI2	Calibration set Input B	Calibration set Input B	Calibration set Input B	Calibration set Input B
DO3	DI3	Sample In[(a)]	Sample In[(a)]	Sample In[(a)]	Sample In[(a)]

(a) Also available on hardware. See connection table above.

6.4 FCM-8010 Connections

Connection Block			RET-55xx	RT-5500	SPC-5500	SPM-5500	SPK-5500 Single Channel	SPK-5500 Dual Channel
P1	DO	Digital Out 1	Alarm Output	Alarm Output	Alarm Output	Alarm Output	Alarm Output	Alarm Output
	DI3	Digital In 3	Interlock	Sample Input	Interlock	Interlock	Remote stop	Remote stop
P2	FF / PROFIBUS PA		See separate table below for data between Profibus and Transmitter					
P4	AO2	Analog Out 2	Ash Consistency (Channel 2) output value 4-20 mA (RET-55x3 only)	Conductivity (Channel 2) output value 4 - 20 mA	White water charge (Channel 2) output value 4 - 20 mA	Configurable (Channel 2) output value 4 - 20 mA	RMS 0-0.0015 V output value 4 - 20 mA	Channel 2 LRV-URV output value 4 - 20 mA
	AO3	Analog Out 3	Internally pre-wired[(a)]	Media temp. (Channel 3) output value 4 - 20 mA	Start streaming potential for filtrate (Channel 1)	Configurable (Channel 3) output value 4 - 20 mA	CwZ 0-1.65 V output value 4 - 20 mA	aCwZ 0-1.65 V output value 4 - 20 mA
P5	AO4	Analog Out 4	Not used	Not used	Start streaming potential for white water (Channel 2)	Internally pre-wired[(a)]	CwT 0-0.165 V output value 4 - 20 mA	aCwT 0-0.165 V output value 4 - 20 mA
	AO5	Analog Out 5			Not used		Mean Kappa output value 4 - 20 mA	Ch1 mean value or RMS output value 4 - 20 mA
P6	AI2	Analog In 2	Not used	Analog input signals from external equipment 4 - 20 mA	Not used	Internally pre-wired[(a)]	Internally pre-wired[(a)]	Internally pre-wired[(a)]
	AI3	Analog In 3		Not used				
	AI4	Analog In 4				Not used		
P7	DI4	Not used	Internally pre-wired[(a)]	Not used	Not used	Internally pre-wired[(a)]	Sample Input	Sample Input
	DO2	Digital Out 2			Data ready Channel 1	Not used	Data Ready or Chem Clean Pump	Data Ready or Chem Clean Pump
P8	SV4	Sol. valve 4	Internally pre-wired[(a)]	Not used	Not used	Internally pre-wired[(a)]	Internally pre-wired [(a)]	Internally pre-wired[(a)]
	SV5	Sol. valve 5				Not used		
P9	SV1	Sol. valve 1	Internally pre-wired[(a)]	Not used	Data ready Channel 2	Internally pre-wired[(a)]	Internally pre-wired [(a)]	Internally pre-wired[(a)]
	SV2	Sol. valve 2			Not used			
	SV3	Sol. valve 3						

(a) For more information about internally pre-wired connections, see the installation drawing for the transmitter

Data Between Profibus and transmitter

Profi-bus	Trans mitter	RET-55xx	RT-5500	SPC-5500	SPM-5500	SPK-5500 Single Channel	SPK-5500 Dual Channel
AI1	AO	Total consistency (Channel 1) output	Residual (Channel 1) output	Filtrate charge (Channel 1) output	Configurable (Channel 1) output	Kappa LRV - URV output value 4- 20 mA	Channel 1 LRV - URV output value 4 - 20 mA
AI2	AO2	Ash consistency (Chanel 2) output(b) (RET-55x3 only)	Conductivity (Channel 2) output(b)	White water charge (Channel 2) output(b)	Configurable (Channel 2) output(b)	RMS 0-0.0015 V output value 4-20 mA(b)	Channel 2 LRV - URV output value 4 - 20 mA(b))
AI3	AO3	Not used	Media temp. (Channel 3) output(b)	Start streaming potential for filtrate(b) (Channel 1)	Configurable (Channel 3) output(b)	CwZ 0-1.65 V output value 4 - 20 mA(b)	aCwZ 0-1.65 V output value 4 - 20 mA(b)
AI4	AO4	Not used	Not used	Start streaming potential for white water(b) (Channel 2)	Stockline dilution actuator(b)	CwT 0-0.165 V output value 4 - 20 mA(b)	aCwT 0-0.165 V output value 4 - 20 mA(b)
AI5	AO5	Not used	Not used	Not used	Sensor dilution actuator(a)	Mean Kappa(a) LRV - URV output value 4- 20 mA(b)	Channel 1(a) mean value or RMS output value 4- 20 mA(b)
AI6	AO6	Not used	Not used	Not used	Not used	Not used	Not used
AO1	AI	Not used	Input signal from external equipment	Not used	Not used	Not used	Not used
DI	DO	Alarm Out(b)	Alarm Outb(b)	Alarm Out(b)	Alarm Out(b)	Alarm Out(b)	Alarm Out(b)
DO1	DI1	Calibration set Input A	Calibration set Input A	Not used	Not used	Calibration set Input A	Calibration set Input A
DO2	DI2	Calibration set Input B	Calibration set Input B	Not used	Not used	Calibration set Input B	Not used
DO3	DI3	Interlock(b)	Sample Input(b)	Interlock(b)	Interlock(b)	Remote stop(b)	Remote stop(b)

(a) Average since last start. Normallyonly used for batch applications
(b) Also available on hardware. See connection table above.

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