Process Gas Chromatograph PGC 9300



MAINTENANCE LOGBOOK

Reliable Measurement of Gas

RMG

Status: Version: 2019, July 30th 09



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Note Unfortunately, paper is not updated automatically, whereas technical development continuously advances. Therefore, we reserve the right to make technical changes in regard to the representations and specifications of these operating instructions. The latest version of this manual (and other devices) can be downloaded at your convenience from our Internet home-page

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PGC 930 Maintenace Logbook No.

PGC manufacturer numberPGC year of manufactureMeter serial number

GC 9300 manufacturer number	
GC 9300 year of manufacture	
GC 9300 software version	

Approved for Calorific value Gas quality
--

Operator	
Station	
Commissioning	

	Type / carrier gas	Column temperature [°C]	Column pressure [kPa]	Flushing time [s]
Column A				
Column B				
Column C				

Date	
Signature	

Maintenace Logbook PGC 930

Repair / exchange of components

PGC manufacturer number	
PGC year of manufacture	
Meter serial number	

GC 9300 manufacturer number	
GC 9300 year of manufacture	
GC 9300 software version	

Approved for	Calorific value	Gas quality 🔲

Operator	
Station	
Commissioning	

	Type / carrier gas	Column temperature [°C]	Column pressure [kPa]	Flushing time [s]
Column A				
Column B				
Column C				

Date	
Signature	



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1. Instructions for Keeping the Maintenance Logbook

The maintenance logbook is part of the design approval and is used to monitor the operation of the device. It is therefore mandatory that this maintenance logbook should be kept. When a service callout is required, the original maintenance logbook, or a copy, should be sent to the manufacturer.

The information on the first page and the relevant data in the table are entered by the testing laboratory before the device is delivered. These documents the condition of the device on delivery.

The device is to be inspected by the operator every **8 weeks** until **the first annual routine maintenance check/calibration** (inspections). **After the first annual routine maintenance check/calibration**, it is sufficient for the operator to perform an inspection **every 3 months**. The values listed in Table Section 1 of this maintenance logbook must be documented during every inspection. This applies in particular to the visual inspection of the condition of all filter indicators for PGCs with molsieve cylinders. Routine maintenance must be carried out once a year by qualified personnel in accordance with the manufacturer's instructions and documented in Table 3 of this maintenance book. All PGCs with molsieve cylinders must be baked out once a year as part of routine maintenance. For PGCs of type PGC 9301, it is recommended to bake them out during routine maintenance. Routine maintenance is also a requirement but not a part of the final calibration. The results of the calibration must be documented in table section 4.

1.1. Recommendation for PGCs from RMG

Note

RMG recommends the following table for maintenance work on the PGC 93 X series process gas chromatograph.

Measures and waiting times:



		the carrier gas	RTS-Fil Filter at		
	Control	Change	Control	Change	Baking out
PGC 9301 Natural gas transport pipeline / compressor stations	n.a.	n.a.	n.a.	n.a.	yearly
PGC 9303, PGC 9304 Natural gas transport pipeline / compressor stations	all 3 months	based on requirement	n.a.	yearly	yearly
PGC 9302 Biogas-plants	monthly	based on requirement	n.a.	yearly	yearly
PGC 9301 Underground storage	n.a.	n.a.	n.a.	n.a.	yearly
PGC 9303, 9304 Underground storage	Monthly	based on requirement	n.a.	yearly	yearly

n.a. – not available (there is no recommendation from RMG)

1.2. Inspection

1.2.1. Operating parameters on the GC 9300

The setpoints for the operating parameters are entered on the first page of this book by the test laboratory during commissioning and shall remain unchanged during operation, unless altered by an RMG service technician.

The actual values of the operating parameters can be checked at any time on the GC 9300 analyser under the *Status -> Meter* tab or using RMGView^{GC}. Because these values are constantly monitored by the controller and because divergences are officially recorded as "faults", these parameters do not have to be documented in the maintenance logbook. It is therefore necessary to check whether active or inactive faults or warnings are displayed on the GC 9300 at every visit to the station.

1.2.2. Cylinder pressures

The pressure in the gas cylinders is checked directly at the high-pressure gauges of the relevant pressure reducing unit at regular intervals, in other words at every maintenance check, and the information is then documented in the relevant table in Table Section 1 of this logbook. If a cylinder has been changed or switched, this should also be documented in the relevant column. If the PGC is found to be malfunctioning, this fact should also be recorded.



The pressures should be checked for:

- Carrier gas 1
- Carrier gas 2 (if applicable)
- Internal calibration gas

1.2.3. Carrier gas filter

All PGCs with molsieve cylinders contain carrier gas filters, some of which are provided with indicators. The status of the indicators must be checked and documented at each inspection visit. In the event of partial or complete discoloration of the indicator, the carrier gas cylinder must be changed immediately and all external filters of the PGCs replaced with new filters. It is recommended to have the affected PGC analyzed promptly by the service in order to avoid possible damage. It is also recommended to have the causing carrier gas cylinder checked for moisture.

1.3. Maintenance by service technicians

This section records all changes and measures carried out by service technicians. This encompasses routine maintenance tasks, software updates and service activities in the event of a malfunction. In the event of a malfunction, the operator or service technician should enter a brief description of the problem in the appropriate place.

It should be noted that this maintenance logbook is linked to a meter. In the event of a serious malfunction that requires the meter to be replaced, a new maintenance logbook must be started. This will be supplied with the new meter. **The old maintenance logbook, either a copy or the original, should be sent to the manufacturer for analysis.**



2. Manufacturer's requirements

2.1. Annual maintenance of the PGC

The annual inspection of the PGC 930x must be carried out on the basis of the checklist (Table Section 4) by persons who have received appropriate training from RMG to provide such maintenance.

2.2. Metrological check / calibration

Once the maintenance activities described in Section 2 are complete, the device will subsequently undergo routine calibration. A representative of the responsible calibration authorities must be on hand for this purpose. The design approval and the relevant guidelines and standards it contains are key to the technical calibration of the system.

Calibration entails:

- Checking the area around the existing power outputs
- Basic calibration of the PGC's (device type: PGC 9301, PGC 9302, PGC 9303 with internal calibration gas)
- Normal calibration of the PGC 9304 with internal calibration gas
- Verification with external calibration gasses with chromatogram
- Verification of power transmission and/or bus transmission of mandatory calibration values
- Record of all work carried out, entries in the maintenance book

Following the verification of the official parameters to be set in the GC 9300 (tab: *Detail*), metrological check begins with the opening of the calibration lock and the implementation of a basic calibration (select tab: *Detail->01-GC 9300->Mode->Basic Calibration*). Following basic calibration, the new **response factors** (tab: *Detail->09 Calibration Results->RFZ*) and **retention times** (tab: *Detail->09 Calibration Results->RTZ*) are noted down in Table Section 4. If the device is calibrated using the "new mathematics", the *GLK*s (tab: *Detail->11 Component Parameters/ [component]->GLK*) are to be noted down instead of the *RFZ*s. In addition, the chromatograms for the calibration gas are compared with the sample chromatograms shown in the design approval. The chromatograms can be analysed using the RMGView^{GC} software or on the basis of the chromatogram displays in GC 9300 (tab: *Graph->Chroms*).

The metrological check of the device takes place subsequently. The test gases defined in the design approval are analysed in succession. At least three analyses are required for each gas. The result of the third analysis is to be used for the verification. The results of these analyses are to be found in the GC 9300 (tab: *Archives*) and **should be fully recorded in the table provided for this purpose**. The key parameters for the official verification (according to the design approval) are indicated in the table. The setpoints can be found in the certificates for the test gasses used and should also be noted. It is recommended that the chromatograms of the test gasses should be checked.



Table Section 1

Cylinder pressures

Filter of the carrier gas

To be performed at:

- Every inspection
- Every maintenance

Entries made by:

- Operator
- RMG Service



G:	Cylinder	changed
----	----------	---------

⚠ : Device faulty

Carriergas	I	Int. calibration	gas	Carrier gas	II		Dete	
Pressure / bar	¢	Pressure / bar	¢	Pressure / bar	¢	\triangle	Date	Initials

.....

.....



G:	Cylinder	changed
----	----------	---------

⚠ : Device faulty

Carriergas	I	Int. calibration gas		Carrier gas	II		Dete	
Pressure / bar	¢	Pressure / bar	¢	Pressure / bar	¢	\triangle	Date	Initials

.....



G:	Cylinder	changed
----	----------	---------

⚠ : Device faulty

Carriergas	I	Int. calibration	gas	Carrier gas	II		Dete	Initiala
Pressure / bar	¢	Pressure / bar	¢	Pressure / bar	¢	\triangle	Date	Initials

.....

.....



Filter:U: uncoloured F: fully uncolouredP: partly uncoloured G: changed								():	Device fau	lty	
Filt	er at	the P	GC		xtra f ylindo			Filter without indicator		Date	Initials
U	Ρ	F	Ç	U	Ρ	С	¢	C,	\triangle		



Filter:U: uncolouredP: partly uncolouredF: fully uncolouredG: changed									A :	Device fau	lty
Filt	er at	the P	GC		Extra filter on Filter without cylinder rack indicator				Date Initial		Initials
U	Р	F	¢	U	Ρ	С	¢	C,	\triangle		

10



Table section 2

Maintenance measures, general

To be performed at:

- Annual routine maintenance
- Software update
- Metrological check
- Calibration
- Repair

Entries made by:

- Trained personnel
- RMG Service



Measures performed		12
Routine maintenance	Table 3	
Software update		
Metrological check	Table 4	
Calibration	Table 4	
Defect	See below	

Description of problem	Measure

Performed by	
Performed on	

Signature	
-----------	--



Measures performed		13
Routine maintenance	Table 3	
Software update		
Metrological check	Table 4	
Calibration	Table 4	
Defect	See below	

Description of problem	Measure

Performed by	
Performed on	

Signature	
-----------	--



Measures performed		14
Routine maintenance	Table 3	
Software update		
Metrological check	Table 4	
Calibration	Table 4	
Defect	See below	

Description of problem	Measure

Performed by	
Performed on	

Signature	
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Measures performed		15
Routine maintenance	Table 3	
Software update		
Metrological check	Table 4	
Calibration	Table 4	
Defect	See below	

Description of problem	Measure

Performed by	
Performed on	

Signature	
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Measures performed		16
Routine maintenance	Table 3	
Software update		
Metrological check	Table 4	
Calibration	Table 4	
Defect	See below	

Description of problem	Measure

Performed by	
Performed on	

Signature	
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Measures performed		17
Routine maintenance	Table 3	
Software update		
Metrological check	Table 4	
Calibration	Table 4	
Defect	See below	

Description of problem	Measure

Performed by	
Performed on	

Signature	
-----------	--



Measures performed		18
Routine maintenance	Table 3	
Software update		
Metrological check	Table 4	
Calibration	Table 4	
Defect	See below	

Description of problem	Measure

Performed by	
Performed on	

Signature	
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Measures performed		19
Routine maintenance	Table 3	
Software update		
Metrological check	Table 4	
Calibration	Table 4	
Defect	See below	

Description of problem	Measure

Performed by	
Performed on	

Signature	
-----------	--



Measures performed		20
Routine maintenance	Table 3	
Software update		
Metrological check	Table 4	
Calibration	Table 4	
Defect	See below	

Description of problem	Measure

Performed by	
Performed on	



Magazina parformad			
Measures performed	-		21
Routine maintenance		Table 3	
Software update			
Metrological check		Table 4	
Calibration		Table 4	
Defect		See below	

Description of problem	Measure

Performed by	
Performed on	

Signature	
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Table section 3

Annual routine maintenance

To be performed at:

• Annual routine maintenance

Entries made by:

- Trained personnel
- **RMG** Service •



Tested:	OK	n. OK	None
Checklist for HP reduction type DRS			
Functional check of regulator			
Leak check			
Functional check of analysis gas heating (if any)			
Functional check of HP reduction heating (if any)			
Checklist for cylinder rack			
Check and documentation of all cylinder pressures			
Functional test of cylinder heating			
Functional check of HP regulator			
Verification of contact gauge			
Functional check of 2 nd press. regulation level (porter regulator, if any)			
Leak check			
Checklist for measuring element and GC 9300			
Verification prefilters on gas connector unit (change of filter as nec.)			
Leak check			
Verification init. press. carrier, measuring, int. a. ext. calibration gas			
Functional check of solenoid valve control			
Functional check of housing heating in measuring element			
Verification relevant operating parameters (Section 1 Op. para.)		1	
Evaluation of the documented automatic calibrations			
Verification of the "method" by means of special service software			
Verification of retention times			
Evaluation of the chromatograms			
Measures for PGCs with molsieve cylinders			
Bake out overnight (1000 min)			
Exchange filter on PGC			
Exchange of both filters on the bottle rack (if any)			
Date			
Signature			

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Tested:	OK	n. OK	None
Checklist for HP reduction type DRS			
Functional check of regulator			
Leak check			
Functional check of analysis gas heating (if any)			
Functional check of HP reduction heating (if any)			
Checklist for cylinder rack			
Check and documentation of all cylinder pressures			
Functional test of cylinder heating			
Functional check of HP regulator			
Verification of contact gauge			
Functional check of 2 nd press. regulation level (porter regulator, if any)			
Leak check			
Checklist for measuring element and GC 9300			
Verification prefilters on gas connector unit (change of filter as nec.)			
Leak check			
Verification init. press. carrier, measuring, int. a. ext. calibration gas			
Functional check of solenoid valve control			
Functional check of housing heating in measuring element			
Verification relevant operating parameters (Section 1 Op. para.)			
Evaluation of the documented automatic calibrations			
Verification of the "method" by means of special service software			
Verification of retention times			
Evaluation of the chromatograms			
Measures for PGCs with molsieve cylinders			
Bake out overnight (1000 min)			
Exchange filter on PGC			
Exchange of both filters on the bottle rack (if any)			
Date			
Signature			

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Tested:	ОК	n. OK	None
Checklist for HP reduction type DRS			
Functional check of regulator			
Leak check			
Functional check of analysis gas heating (if any)			
Functional check of HP reduction heating (if any)			
Checklist for cylinder rack			
Check and documentation of all cylinder pressures			
Functional test of cylinder heating			
Functional check of HP regulator			
Verification of contact gauge			
Functional check of 2 nd press. regulation level (porter regulator, if any)			
Leak check			
Checklist for measuring element and GC 9300			
Verification prefilters on gas connector unit (change of filter as nec.)			
Leak check			
Verification init. press. carrier, measuring, int. a. ext. calibration gas			
Functional check of solenoid valve control			
Functional check of housing heating in measuring element			
Verification relevant operating parameters (Section 1 Op. para.)			
Evaluation of the documented automatic calibrations			
Verification of the "method" by means of special service software			
Verification of retention times			
Evaluation of the chromatograms			
Measures for PGCs with molsieve cylinders			
Bake out overnight (1000 min)			
Exchange filter on PGC			
Exchange of both filters on the bottle rack (if any)			
Date			
Signature			

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Tested:	OK	n. OK	None
Checklist for HP reduction type DRS			
Functional check of regulator			
Leak check			
Functional check of analysis gas heating (if any)			
Functional check of HP reduction heating (if any)			
Checklist for cylinder rack			
Check and documentation of all cylinder pressures			
Functional test of cylinder heating			
Functional check of HP regulator			
Verification of contact gauge			
Functional check of 2 nd press. regulation level (porter regulator, if any)			
Leak check			
Checklist for measuring element and GC 9300			
Verification prefilters on gas connector unit (change of filter as nec.)			
Leak check			
Verification init. press. carrier, measuring, int. a. ext. calibration gas			
Functional check of solenoid valve control			
Functional check of housing heating in measuring element			
Verification relevant operating parameters (Section 1 Op. para.)			
Evaluation of the documented automatic calibrations			
Verification of the "method" by means of special service software			
Verification of retention times			
Evaluation of the chromatograms			
Measures for PGCs with molsieve cylinders			
Bake out overnight (1000 min)		T	
Exchange filter on PGC			
Exchange of both filters on the bottle rack (if any)			
Date		<u> </u>	
Signature			

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Tested:	OK	n. OK	None
Checklist for HP reduction type DRS			
Functional check of regulator			
Leak check			
Functional check of analysis gas heating (if any)			
Functional check of HP reduction heating (if any)			
Checklist for cylinder rack			
Check and documentation of all cylinder pressures			
Functional test of cylinder heating			
Functional check of HP regulator			
Verification of contact gauge			
Functional check of 2 nd press. regulation level (porter regulator, if any)			
Leak check			
Checklist for measuring element and GC 9300			
Verification prefilters on gas connector unit (change of filter as nec.)			
Leak check			
Verification init. press. carrier, measuring, int. a. ext. calibration gas			
Functional check of solenoid valve control			
Functional check of housing heating in measuring element			
Verification relevant operating parameters (Section 1 Op. para.)			
Evaluation of the documented automatic calibrations			
Verification of the "method" by means of special service software			
Verification of retention times			
Evaluation of the chromatograms			
Measures for PGCs with molsieve cylinders			
Bake out overnight (1000 min)			
Exchange filter on PGC			
Exchange of both filters on the bottle rack (if any)			
Date			
Signature			

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Tested:	OK	n. OK	None
Checklist for HP reduction type DRS			
Functional check of regulator			
Leak check			
Functional check of analysis gas heating (if any)			
Functional check of HP reduction heating (if any)			
Checklist for cylinder rack	·		
Check and documentation of all cylinder pressures			
Functional test of cylinder heating			
Functional check of HP regulator			
Verification of contact gauge			
Functional check of 2 nd press. regulation level (porter regulator, if any)			
Leak check			
Checklist for measuring element and GC 9300	_		
Verification prefilters on gas connector unit (change of filter as nec.)			
Leak check			
Verification init. press. carrier, measuring, int. a. ext. calibration gas			
Functional check of solenoid valve control			
Functional check of housing heating in measuring element			
Verification relevant operating parameters (Section 1 Op. para.)			
Evaluation of the documented automatic calibrations			
Verification of the "method" by means of special service software			
Verification of retention times			
Evaluation of the chromatograms			
Measures for PGCs with molsieve cylinders			
Bake out overnight (1000 min)		Ι	T
Exchange filter on PGC			
Exchange of both filters on the bottle rack (if any)			
Date			
Signature			

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Tested:	OK	n. OK	None
Checklist for HP reduction type DRS			
Functional check of regulator			
Leak check			
Functional check of analysis gas heating (if any)			
Functional check of HP reduction heating (if any)			
Checklist for cylinder rack	·		
Check and documentation of all cylinder pressures			
Functional test of cylinder heating			
Functional check of HP regulator			
Verification of contact gauge			
Functional check of 2 nd press. regulation level (porter regulator, if any)			
Leak check			
Checklist for measuring element and GC 9300			
Verification prefilters on gas connector unit (change of filter as nec.)			
Leak check			
Verification init. press. carrier, measuring, int. a. ext. calibration gas			
Functional check of solenoid valve control			
Functional check of housing heating in measuring element			
Verification relevant operating parameters (Section 1 Op. para.)			
Evaluation of the documented automatic calibrations			
Verification of the "method" by means of special service software			
Verification of retention times			
Evaluation of the chromatograms			
Measures for PGCs with molsieve cylinders			
Bake out overnight (1000 min)			
Exchange filter on PGC			
Exchange of both filters on the bottle rack (if any)			
Date			
Signature			

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Tested:	OK	n. OK	None
Checklist for HP reduction type DRS			
Functional check of regulator			
Leak check			
Functional check of analysis gas heating (if any)			
Functional check of HP reduction heating (if any)			
Checklist for cylinder rack			
Check and documentation of all cylinder pressures			
Functional test of cylinder heating			
Functional check of HP regulator			
Verification of contact gauge			
Functional check of 2 nd press. regulation level (porter regulator, if any)			
Leak check			
Checklist for measuring element and GC 9300			
Verification prefilters on gas connector unit (change of filter as nec.)			
Leak check			
Verification init. press. carrier, measuring, int. a. ext. calibration gas			
Functional check of solenoid valve control			
Functional check of housing heating in measuring element			
Verification relevant operating parameters (Section 1 Op. para.)			
Evaluation of the documented automatic calibrations			
Verification of the "method" by means of special service software			
Verification of retention times			
Evaluation of the chromatograms			
Measures for PGCs with molsieve cylinders			
Bake out overnight (1000 min)			
Exchange filter on PGC			
Exchange of both filters on the bottle rack (if any)			
Date			
Signature			

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Table section 3 / annual routine maintenance

Tested:	OK	n. OK	None
Checklist for HP reduction type DRS			
Functional check of regulator			
Leak check			
Functional check of analysis gas heating (if any)			
Functional check of HP reduction heating (if any)			
Checklist for cylinder rack			
Check and documentation of all cylinder pressures			
Functional test of cylinder heating			
Functional check of HP regulator			
Verification of contact gauge			
Functional check of 2 nd press. regulation level (porter regulator, if any)			
Leak check			
Checklist for measuring element and GC 9300			
Verification prefilters on gas connector unit (change of filter as nec.)			
Leak check			
Verification init. press. carrier, measuring, int. a. ext. calibration gas			
Functional check of solenoid valve control			
Functional check of housing heating in measuring element			
Verification relevant operating parameters (Section 1 Op. para.)			
Evaluation of the documented automatic calibrations			
Verification of the "method" by means of special service software			
Verification of retention times			
Evaluation of the chromatograms			
Measures for PGCs with molsieve cylinders			
Bake out overnight (1000 min)			
Exchange filter on PGC			
Exchange of both filters on the bottle rack (if any)			
Date			
Signature			

.....



Table section 3 / annual routine maintenance

Tested:	OK	n. OK	None
Checklist for HP reduction type DRS			
Functional check of regulator			
Leak check			
Functional check of analysis gas heating (if any)			
Functional check of HP reduction heating (if any)			
Checklist for cylinder rack			
Check and documentation of all cylinder pressures			
Functional test of cylinder heating			
Functional check of HP regulator			
Verification of contact gauge			
Functional check of 2 nd press. regulation level (porter regulator, if any)			
Leak check			
Checklist for measuring element and GC 9300			
Verification prefilters on gas connector unit (change of filter as nec.)			
Leak check			
Verification init. press. carrier, measuring, int. a. ext. calibration gas			
Functional check of solenoid valve control			
Functional check of housing heating in measuring element			
Verification relevant operating parameters (Section 1 Op. para.)			
Evaluation of the documented automatic calibrations			
Verification of the "method" by means of special service software			
Verification of retention times			
Evaluation of the chromatograms			
Measures for PGCs with molsieve cylinders			
Bake out overnight (1000 min)			
Exchange filter on PGC			
Exchange of both filters on the bottle rack (if any)			
Date			
Signature			

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Table section 4

Test gas analyses

To be performed at:

- Metrological check
- Calibration

Entries made by:

- Trained personnel
- RMG Service

Note:

Handwritten entry is not required if a clearly labelled printout of the values is archived in the maintenance logbook.



- 1. Performance of basic calibration (PGC 9301, PGC 9302, PGC 9303) respectively normal calibration (PGC 9304) with logging of the
 - retention times (RTZ, resp. RT)
 - response factors (RFZ / GLK, resp. RF)
- 2. Analysis of the test gases
- 3. Verification of the chromatograms / data transmission Current outputs only need to be checked if they are used for official transmission of fiscal metering readings.
- 4. Verification of software CRC
- 5. Entry of notes, as necessary

	Basic ca	libration	Normal c	alibration
	RTZ / s	RFZ / GLK	RT / s	RF
Nitrogen				
Methane				
Carbon dioxide				
Ethane				
Propane				
Isobutane				
N-butane				
Neopentane				
Isopentane				
N-pentane				
Hexane (C6+)				
Heptane				
Octane				
Nonane				
Oxygen				
Helium				
Hydrogen				



Relevant for calibration?		Test gas 1			Test gas 2			
		Туре		Error	Туре		Error	
	→	set	actual	absolute	set	actual	absolute	
Calorific value								
Standard density								
Nitrogen								
Methane								
Carbon dioxide								
Ethane								
Propane								
Isobutane								
N-butane								
Neopentane								
Isopentane								
N-pentane								
Hexane (C6+)								
Heptane								
Octane								
Nonane								
Oxygen								
Helium								
Hydrogen								



Relevant for calibration?		Test gas 1			Test gas 2			
		Туре		Error	Туре		Error	
	→	set	actual	absolute	set	actual	absolute	
Calorific value								
Standard density								
Nitrogen								
Methane								
Carbon dioxide								
Ethane								
Propane								
Isobutane								
N-butane								
Neopentane								
Isopentane								
N-pentane								
Hexane (C6+)								
Heptane								
Octane								
Nonane								
Oxygen								
Helium								
Hydrogen								

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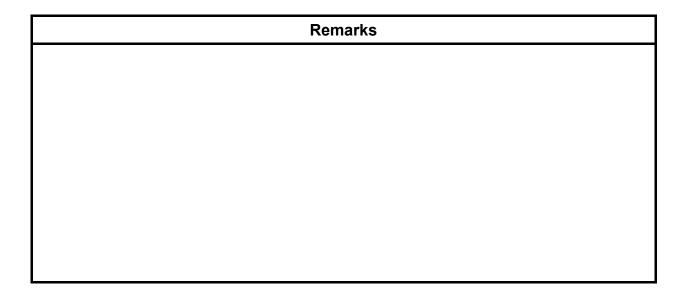
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Relevant for calibration?		Test gas 1			Test gas 2			
		Туре		Error	Туре		Error	
	↓	set	actual	absolute	set	actual	absolute	
Calorific value								
Standard density								
Nitrogen								
Methane								
Carbon dioxide								
Ethane								
Propane								
Isobutane								
N-butane								
Neopentane								
Isopentane								
N-pentane								
Hexane (C6+)								
Heptane								
Octane								
Nonane								
Oxygen								
Helium								
Hydrogen								



	OK?
Verification of the chromatogram of the internal calibration gas	
Verification of the chromatogram of test gas 1	
Verification of the chromatogram of test gas 2	
Verification of the chromatogram of test gas 3	
Verification of the chromatogram of test gas 4	
Verification of the chromatogram of test gas 5	
Verification of the chromatogram of test gas 6	
Checking the range of the current outputs	
Verification of the fiscal metering values transmitted at the outputs	
Verification of the software and kernel CRCs	
Are all results correctly logged?	



Signatures							
Service							
Authority							

The signatures relate to the entire metrological check / calibration, i.e. including the entries on pages 34 to 38.



- 1. Performance of basic calibration (PGC 9301, PGC 9302, PGC 9303) respectively normal calibration (PGC 9304) with logging of the
 - retention times (RTZ, resp. RT)
 - response factors (RFZ / GLK, resp. RF)
- 2. Analysis of the test gases
- Verification of the chromatograms / data transmission Current outputs only need to be checked if they are used for official transmission of fiscal metering readings.
- 4. Verification of software CRC
- 5. Entry of notes, as necessary

	Basic ca	alibration	Normal c	alibration
	RTZ / s	RFZ / GLK	RT/s	RF
Nitrogen				
Methane				
Carbon dioxide				
Ethane				
Propane				
Isobutane				
N-butane				
Neopentane				
Isopentane				
N-pentane				
Hexane (C6+)				
Heptane				
Octane				
Nonane				
Oxygen				
Helium				
Hydrogen				



Relevant for calibration?		Test gas 1			Test gas 2			
	1	Туре		Error	Туре		Error	
	\rightarrow	set	actual	absolute	set	actual	absolute	
Calorific value								
Standard density								
Nitrogen								
Methane								
Carbon dioxide								
Ethane								
Propane								
Isobutane								
N-butane								
Neopentane								
Isopentane								
N-pentane								
Hexane (C6+)								
Heptane								
Octane								
Nonane								
Oxygen								
Helium								
Hydrogen								



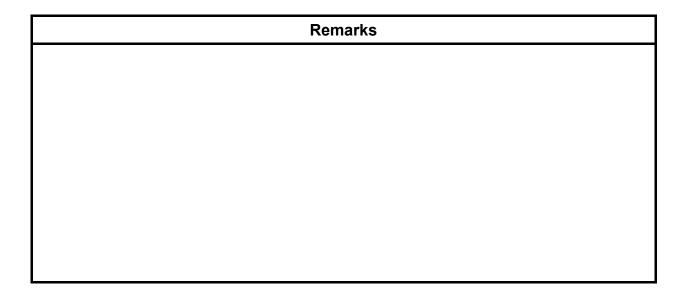
Relevant for calibration?		Test gas 1			Test gas 2			
		Туре		Error	Туре		Error	
	→	set	actual	absolute	set	actual	absolute	
Calorific value								
Standard density								
Nitrogen								
Methane								
Carbon dioxide								
Ethane								
Propane								
Isobutane								
N-butane								
Neopentane								
Isopentane								
N-pentane								
Hexane (C6+)								
Heptane								
Octane								
Nonane								
Oxygen								
Helium								
Hydrogen								



Relevant for calibration?		Test gas 1			Test gas 2			
		Туре		Error	Туре		Error	
	→	set	actual	absolute	set	actual	absolute	
Calorific value								
Standard density								
Nitrogen								
Methane								
Carbon dioxide								
Ethane								
Propane								
Isobutane								
N-butane								
Neopentane								
Isopentane								
N-pentane								
Hexane (C6+)								
Heptane								
Octane								
Nonane								
Oxygen								
Helium								
Hydrogen								



	OK?
Verification of the chromatogram of the internal calibration gas	
Verification of the chromatogram of test gas 1	
Verification of the chromatogram of test gas 2	
Verification of the chromatogram of test gas 3	
Verification of the chromatogram of test gas 4	
Verification of the chromatogram of test gas 5	
Verification of the chromatogram of test gas 6	
Checking the range of the current outputs	
Verification of the fiscal metering values transmitted at the outputs	
Verification of the software and kernel CRCs	
Are all results correctly logged?	



Signatures						
Service						
Authority						

The signatures relate to the entire metrological check / calibration, i.e. including the entries on pages 39 to 43.



- 1. Performance of basic calibration (PGC 9301, PGC 9302, PGC 9303) respectively normal calibration (PGC 9304) with logging of the
 - retention times (RTZ, resp. RT)
 - response factors (RFZ / GLK, resp. RF)
- 2. Analysis of the test gases
- 3. Verification of the chromatograms / data transmission Current outputs only need to be checked if they are used for official transmission of fiscal metering readings.
- 4. Verification of software CRC
- 5. Entry of notes, as necessary

	Basic ca	alibration	Normal calibration			
	RTZ / s	RFZ / GLK	RT / s	RF		
Nitrogen						
Methane						
Carbon dioxide						
Ethane						
Propane						
Isobutane						
N-butane						
Neopentane						
Isopentane						
N-pentane						
Hexane (C6+)						
Heptane						
Octane						
Nonane						
Oxygen						
Helium						
Hydrogen						



Relevant for calibration?			Test gas 1		Test gas 2		
		Туре		Error	Туре		Error
	\rightarrow	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



Relevant for calibration?			Test gas 1		Test gas 2		
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							

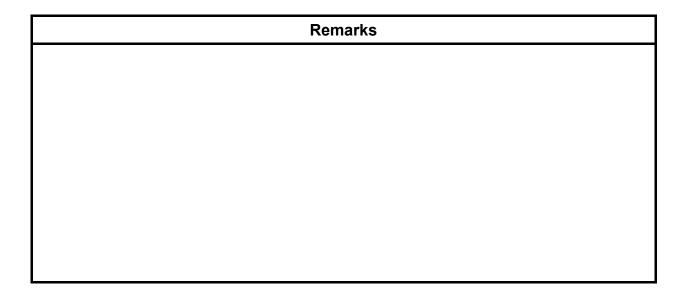
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Relevant for calibration?			Test gas 1		Test gas 2		
		Туре		Error	Туре		Error
	\rightarrow	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



	OK?
Verification of the chromatogram of the internal calibration gas	
Verification of the chromatogram of test gas 1	
Verification of the chromatogram of test gas 2	
Verification of the chromatogram of test gas 3	
Verification of the chromatogram of test gas 4	
Verification of the chromatogram of test gas 5	
Verification of the chromatogram of test gas 6	
Checking the range of the current outputs	
Verification of the fiscal metering values transmitted at the outputs	
Verification of the software and kernel CRCs	
Are all results correctly logged?	



Signatures						
Service						
Authority						

The signatures relate to the entire metrological check / calibration, i.e. including the entries on pages 44 to 48.



- 1. Performance of basic calibration (PGC 9301, PGC 9302, PGC 9303) respectively normal calibration (PGC 9304) with logging of the
 - retention times (RTZ, resp. RT)
 - response factors (RFZ / GLK, resp. RF)
- 2. Analysis of the test gases
- Verification of the chromatograms / data transmission Current outputs only need to be checked if they are used for official transmission of fiscal metering readings.
- 4. Verification of software CRC
- 5. Entry of notes, as necessary

	Basic ca	alibration	Normal calibration			
	RTZ / s	RFZ / GLK	RT / s	RF		
Nitrogen						
Methane						
Carbon dioxide						
Ethane						
Propane						
Isobutane						
N-butane						
Neopentane						
Isopentane						
N-pentane						
Hexane (C6+)						
Heptane						
Octane						
Nonane						
Oxygen						
Helium						
Hydrogen						



Relevant for calibration?			Test gas 1		Test gas 2		
		Туре		Error	Туре		Error
	↓	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



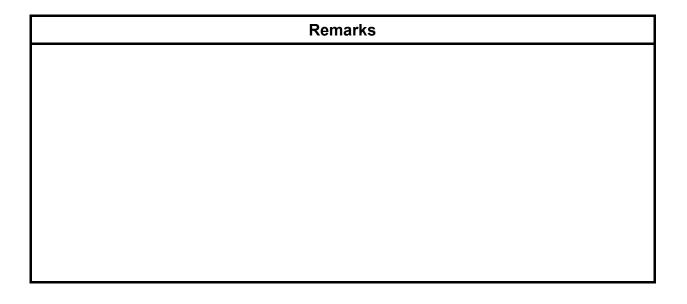
Relevant for calibration?			Test gas 1		Test gas 2		
	1	Туре		Error	Туре		Error
	\rightarrow	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



Relevant for calibration?			Test gas 1	1 Test gas 2			2
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



	OK?
Verification of the chromatogram of the internal calibration gas	
Verification of the chromatogram of test gas 1	
Verification of the chromatogram of test gas 2	
Verification of the chromatogram of test gas 3	
Verification of the chromatogram of test gas 4	
Verification of the chromatogram of test gas 5	
Verification of the chromatogram of test gas 6	
Checking the range of the current outputs	
Verification of the fiscal metering values transmitted at the outputs	
Verification of the software and kernel CRCs	
Are all results correctly logged?	



Signatures						
Service						
Authority						

The signatures relate to the entire metrological check / calibration, i.e. including the entries on pages 49 to 53.



- 1. Performance of basic calibration (PGC 9301, PGC 9302, PGC 9303) respectively normal calibration (PGC 9304) with logging of the
 - retention times (RTZ, resp. RT)
 - response factors (RFZ / GLK, resp. RF)
- 2. Analysis of the test gases
- 3. Verification of the chromatograms / data transmission Current outputs only need to be checked if they are used for official transmission of fiscal metering readings.
- 4. Verification of software CRC
- 5. Entry of notes, as necessary

	Basic ca	alibration	Normal calibration			
	RTZ / s	RFZ / GLK	RT / s	RF		
Nitrogen						
Methane						
Carbon dioxide						
Ethane						
Propane						
Isobutane						
N-butane						
Neopentane						
Isopentane						
N-pentane						
Hexane (C6+)						
Heptane						
Octane						
Nonane						
Oxygen						
Helium						
Hydrogen						



Relevant for calibration?			Test gas 1		Test gas 2		
		Туре		Error	Туре		Error
	\rightarrow	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



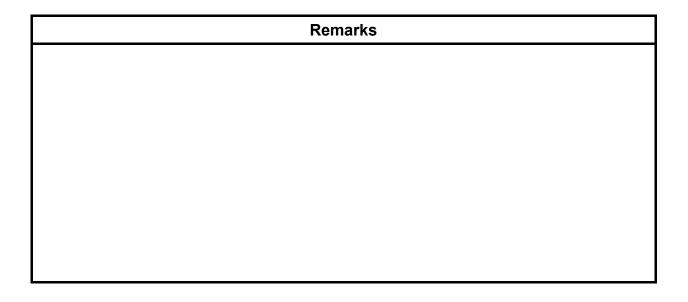
Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



Relevant for calibration?			Test gas 1		Test gas 2		
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



	OK?
Verification of the chromatogram of the internal calibration gas	
Verification of the chromatogram of test gas 1	
Verification of the chromatogram of test gas 2	
Verification of the chromatogram of test gas 3	
Verification of the chromatogram of test gas 4	
Verification of the chromatogram of test gas 5	
Verification of the chromatogram of test gas 6	
Checking the range of the current outputs	
Verification of the fiscal metering values transmitted at the outputs	
Verification of the software and kernel CRCs	
Are all results correctly logged?	



Signatures					
Service					
Authority					

The signatures relate to the entire metrological check / calibration, i.e. including the entries on pages 54 to 58.



- 1. Performance of basic calibration (PGC 9301, PGC 9302, PGC 9303) respectively normal calibration (PGC 9304) with logging of the
 - retention times (RTZ, resp. RT)
 - response factors (RFZ / GLK, resp. RF)
- 2. Analysis of the test gases
- Verification of the chromatograms / data transmission Current outputs only need to be checked if they are used for official transmission of fiscal metering readings.
- 4. Verification of software CRC
- 5. Entry of notes, as necessary

	Basic ca	alibration	Normal calibration			
	RTZ / s	RFZ / GLK	RT / s	RF		
Nitrogen						
Methane						
Carbon dioxide						
Ethane						
Propane						
Isobutane						
N-butane						
Neopentane						
Isopentane						
N-pentane						
Hexane (C6+)						
Heptane						
Octane						
Nonane						
Oxygen						
Helium						
Hydrogen						



Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



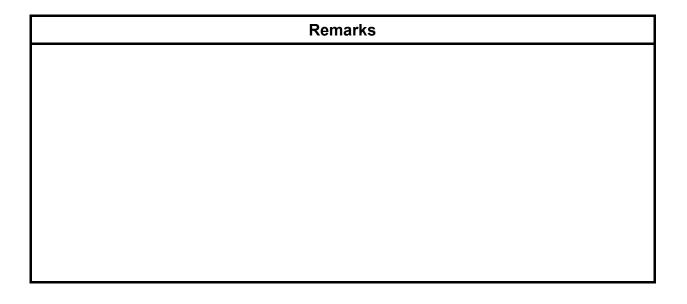
Relevant for calibration?			Test gas 1		Test gas 2		
	1	Туре		Error	Туре		Error
	\rightarrow	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



Relevant for calibration?			Test gas 1	1 Test gas 2			2
	1	Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



	OK?
Verification of the chromatogram of the internal calibration gas	
Verification of the chromatogram of test gas 1	
Verification of the chromatogram of test gas 2	
Verification of the chromatogram of test gas 3	
Verification of the chromatogram of test gas 4	
Verification of the chromatogram of test gas 5	
Verification of the chromatogram of test gas 6	
Checking the range of the current outputs	
Verification of the fiscal metering values transmitted at the outputs	
Verification of the software and kernel CRCs	
Are all results correctly logged?	



Signatures				
Service				
Authority				

The signatures relate to the entire metrological check / calibration, i.e. including the entries on pages 59 to 63.



- 1. Performance of basic calibration (PGC 9301, PGC 9302, PGC 9303) respectively normal calibration (PGC 9304) with logging of the
 - retention times (RTZ, resp. RT)
 - response factors (RFZ / GLK, resp. RF)
- 2. Analysis of the test gases
- 3. Verification of the chromatograms / data transmission Current outputs only need to be checked if they are used for official transmission of fiscal metering readings.
- 4. Verification of software CRC
- 5. Entry of notes, as necessary

	Basic calibration		Normal calibration		
	RTZ / s	RFZ / GLK	RT / s	RF	
Nitrogen					
Methane					
Carbon dioxide					
Ethane					
Propane					
Isobutane					
N-butane					
Neopentane					
Isopentane					
N-pentane					
Hexane (C6+)					
Heptane					
Octane					
Nonane					
Oxygen					
Helium					
Hydrogen					



Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



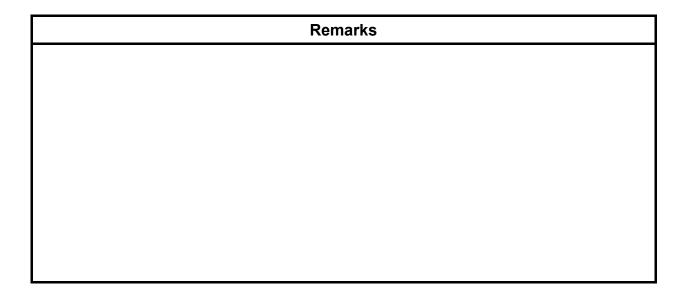
Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	↓	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



Relevant for calibration?		Test gas 1			Test gas 2			
		Туре		Error	Туре		Error	
	\rightarrow	set	actual	absolute	set	actual	absolute	
Calorific value								
Standard density								
Nitrogen								
Methane								
Carbon dioxide								
Ethane								
Propane								
Isobutane								
N-butane								
Neopentane								
Isopentane								
N-pentane								
Hexane (C6+)								
Heptane								
Octane								
Nonane								
Oxygen								
Helium								
Hydrogen								



	OK?
Verification of the chromatogram of the internal calibration gas	
Verification of the chromatogram of test gas 1	
Verification of the chromatogram of test gas 2	
Verification of the chromatogram of test gas 3	
Verification of the chromatogram of test gas 4	
Verification of the chromatogram of test gas 5	
Verification of the chromatogram of test gas 6	
Checking the range of the current outputs	
Verification of the fiscal metering values transmitted at the outputs	
Verification of the software and kernel CRCs	
Are all results correctly logged?	



Signatures						
Service						
Authority						

The signatures relate to the entire metrological check / calibration, i.e. including the entries on pages 64 to 68.



Procedure for metrological check / calibration

- 1. Performance of basic calibration (PGC 9301, PGC 9302, PGC 9303) respectively normal calibration (PGC 9304) with logging of the
 - retention times (RTZ, resp. RT)
 - response factors (RFZ / GLK, resp. RF)
- 2. Analysis of the test gases
- Verification of the chromatograms / data transmission Current outputs only need to be checked if they are used for official transmission of fiscal metering readings.
- 4. Verification of software CRC
- 5. Entry of notes, as necessary

	Basic ca	alibration	Normal calibration			
	RTZ / s	RFZ / GLK	RT/s	RF		
Nitrogen						
Methane						
Carbon dioxide						
Ethane						
Propane						
Isobutane						
N-butane						
Neopentane						
Isopentane						
N-pentane						
Hexane (C6+)						
Heptane						
Octane						
Nonane						
Oxygen						
Helium						
Hydrogen						



Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	↓	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



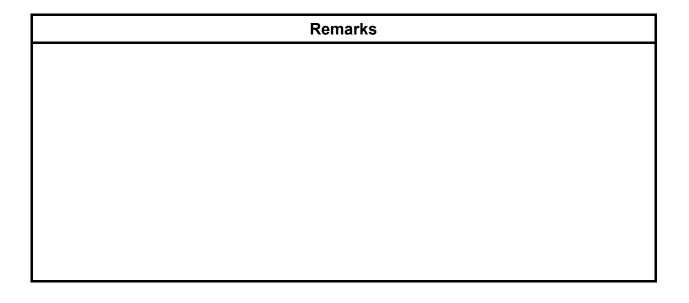
Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



Relevant for calibration?		Test gas 1			Test gas 2			
		Туре		Error	Туре		Error	
	→	set	actual	absolute	set	actual	absolute	
Calorific value								
Standard density								
Nitrogen								
Methane								
Carbon dioxide								
Ethane								
Propane								
Isobutane								
N-butane								
Neopentane								
Isopentane								
N-pentane								
Hexane (C6+)								
Heptane								
Octane								
Nonane								
Oxygen								
Helium								
Hydrogen								



	OK?
Verification of the chromatogram of the internal calibration gas	
Verification of the chromatogram of test gas 1	
Verification of the chromatogram of test gas 2	
Verification of the chromatogram of test gas 3	
Verification of the chromatogram of test gas 4	
Verification of the chromatogram of test gas 5	
Verification of the chromatogram of test gas 6	
Checking the range of the current outputs	
Verification of the fiscal metering values transmitted at the outputs	
Verification of the software and kernel CRCs	
Are all results correctly logged?	



Signatures						
Service						
Authority						

The signatures relate to the entire metrological check / calibration, i.e. including the entries on pages 69 to 73.



Procedure for metrological check / calibration

- 1. Performance of basic calibration (PGC 9301, PGC 9302, PGC 9303) respectively normal calibration (PGC 9304) with logging of the
 - retention times (RTZ, resp. RT)
 - response factors (RFZ / GLK, resp. RF)
- 2. Analysis of the test gases
- Verification of the chromatograms / data transmission Current outputs only need to be checked if they are used for official transmission of fiscal metering readings.
- 4. Verification of software CRC
- 5. Entry of notes, as necessary

	Basic ca	alibration	Normal calibration		
	RTZ / s	RFZ / GLK	RT / s	RF	
Nitrogen					
Methane					
Carbon dioxide					
Ethane					
Propane					
Isobutane					
N-butane					
Neopentane					
Isopentane					
N-pentane					
Hexane (C6+)					
Heptane					
Octane					
Nonane					
Oxygen					
Helium					
Hydrogen					



Relevant for calibration?			Test gas 1		Test gas 2		
		Туре		Error	Туре		Error
	\rightarrow	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



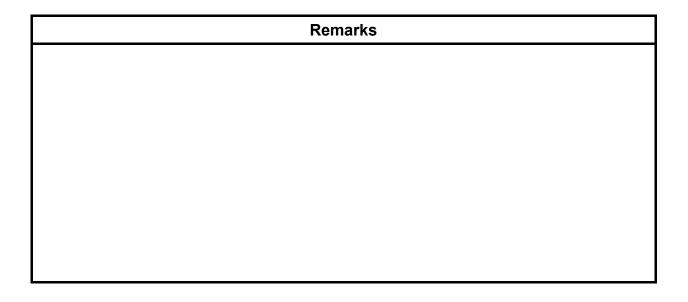
Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	↓	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



	OK?
Verification of the chromatogram of the internal calibration gas	
Verification of the chromatogram of test gas 1	
Verification of the chromatogram of test gas 2	
Verification of the chromatogram of test gas 3	
Verification of the chromatogram of test gas 4	
Verification of the chromatogram of test gas 5	
Verification of the chromatogram of test gas 6	
Checking the range of the current outputs	
Verification of the fiscal metering values transmitted at the outputs	
Verification of the software and kernel CRCs	
Are all results correctly logged?	



.....

Signatures			
Service			
Authority			

The signatures relate to the entire metrological check / calibration, i.e. including the entries on pages 74 to 78.



Procedure for metrological check / calibration

- 1. Performance of basic calibration (PGC 9301, PGC 9302, PGC 9303) respectively normal calibration (PGC 9304) with logging of the
 - retention times (RTZ, resp. RT)
 - response factors (RFZ / GLK, resp. RF)
- 2. Analysis of the test gases
- Verification of the chromatograms / data transmission Current outputs only need to be checked if they are used for official transmission of fiscal metering readings.
- 4. Verification of software CRC
- 5. Entry of notes, as necessary

	Basic ca	alibration	Normal c	alibration
	RTZ / s	RFZ / GLK	RT / s	RF
Nitrogen				
Methane				
Carbon dioxide				
Ethane				
Propane				
Isobutane				
N-butane				
Neopentane				
Isopentane				
N-pentane				
Hexane (C6+)				
Heptane				
Octane				
Nonane				
Oxygen				
Helium				
Hydrogen				



Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



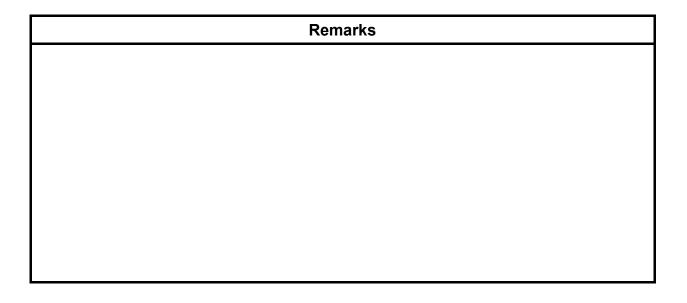
Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



Relevant for calibration?		Test gas 1			Test gas 2		
		Туре		Error	Туре		Error
	→	set	actual	absolute	set	actual	absolute
Calorific value							
Standard density							
Nitrogen							
Methane							
Carbon dioxide							
Ethane							
Propane							
Isobutane							
N-butane							
Neopentane							
Isopentane							
N-pentane							
Hexane (C6+)							
Heptane							
Octane							
Nonane							
Oxygen							
Helium							
Hydrogen							



	OK?
Verification of the chromatogram of the internal calibration gas	
Verification of the chromatogram of test gas 1	
Verification of the chromatogram of test gas 2	
Verification of the chromatogram of test gas 3	
Verification of the chromatogram of test gas 4	
Verification of the chromatogram of test gas 5	
Verification of the chromatogram of test gas 6	
Checking the range of the current outputs	
Verification of the fiscal metering values transmitted at the outputs	
Verification of the software and kernel CRCs	
Are all results correctly logged?	



Signatures			
Service			
Authority			

The signatures relate to the entire metrological check / calibration, i.e. including the entries on pages 79 to 83.

Subject to technical modification

For further information please visit our website:

www.rmg.com

or contact your local sales support office to learn more about the RMG products.

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