Safety Instructions
Micropilot FMR50/51/52/53/54/56/57
4-20 mA HART, 2-wire, switch output (PFS)

Ex ic IIC T6 Gc

Segurança
INMETRO TÜVRheinland OCP 0004

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Safety instructions for electrical apparatus for explosion-hazardous areas

Endress+Hauser
People for Process Automation

Micropilot FMR50/51/52/53/54/56/57

4-20 mA HART

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Associated documentation

This document is an integral part of the following Operating Instructions:

BA01045F/00 (FMR50), BA01049F/00 (FMR51/52), BA01050F/00 (FMR53/54), BA01048F/00 (FMR56/57)

The Operating Instructions pertaining to the device apply.

Supplementary documentation

Explosion-protection brochure:
CP00021Z/11

The Explosion-protection brochure is available:
- In the download area of the Endress+Hauser website: www.endress.com → Download → Advanced → Documentation Code: CP00021Z
- On the CD for devices with CD-based documentation

Manufacturer's certificates

Certificate of Conformity

Certificate number:
TÜV 13.2010 X

Affixing the certificate number certifies conformity with the standards under www.abnt.org.br (depending on the device version).

- ABNT NBR IEC 60079-0 : 2008
- ABNT NBR IEC 60079-11 : 2009

Extended order code

The extended order code is indicated on the nameplate, which is affixed to the device in such a way that it is clearly visible. Additional information about the nameplate is provided in the associated Operating Instructions.

Structure of the extended order code

FMR5x	-	**********	+	A*B*C*D*E*F*G*..
Device type		Basic specifications		Optional specifications

* = Placeholder
At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.

- Basic specifications
  The features that are absolutely essential for the device (mandatory features) are specified in the basic specifications. The number of positions depends on the number of features available.
  The selected option of a feature can consist of several positions.
- Optional specifications
  The optional specifications describe additional features for the device (optional features).
  The number of positions depends on the number of features available.
  The features have a 2-digit structure to aid identification (e.g. JA). The first digit (ID) stands for the feature group and consists of a number or a letter (e.g. J = test, certificate). The second digit constitutes the value that stands for the feature within the group (e.g. A = 3.1 material (wetted parts), inspection certificate).

More detailed information about the device is provided in the following tables. These tables describe the individual positions and IDs in the extended order code which are relevant to hazardous locations.

Device type: FMR50, FMR51, FMR52, FMR53, FMR54, FMR56, FMR57

Basic specifications

Position		Selected option		Description
1, 2	Approval	FMR5x	MH *1	Ex ic IIC T6 Gc
3	Power Supply; Output	FMR5x	B	2-wire, 4-20 mA HART, switch output (PFS)
4	Display; Operation	FMR5x	A C E L *2 M *2	Without, via communication SD02 4-line, push buttons + data backup function SD03 4-line, illum., touch control + data backup function Prepared for display FHX50 + M12 connection Prepared for display FHX50 + custom connection
5	Housing	FMR51-54/57	B	Dual compartment, 316L (GT18)
		FMR5x	A C	Dual compartment, plastics PBT (GT19) Dual compartment, Alu coated (GT20)
7, 8	Antenna	FMR50	BM BN BR	Horn 40 mm/1½", PVDF encapsulated, −40…130 °C Horn 80 mm/3", PP cladded, −40…80 °C Horn 100 mm/4", PP cladded, −40…80 °C
		FMR51	Bx	Horn (different sizes)
		FMR52	BO BP	Horn 50 mm/2", −40…200 °C, flush mount Horn 80 mm/3", −40…200 °C, flush mount
		FMR53	Cx	Rod (different sizes)
		FMR54	Ax Bx Dx	Without Horn Horn (different sizes) Planar (different sizes)
		FMR56	BN BR	Horn 80 mm/3", PP cladded, −40…80 °C Horn 100 mm/4", PP cladded, −40…80 °C
		FMR57	Bx Fx	Horn (different sizes) Parabolic (different sizes)
9, 10	Seal	FMR51	A5 C1 D2 D3	Viton GLT, −40…150 °C Kalrez, −20…150 °C Graphite, −196…450 °C (HT) Graphite, −40…250 °C (XT)
		FMR54	A7 A8 B4 C2 D1 D2	Viton, −20…150 °C (Planar) Viton, −40…200 °C EPDM, −40…150 °C Kalrez, −20…200 °C, conductive media max. 150 °C Graphite, −196…280 °C (XT) Graphite, −196…400 °C (HT)
		FMR57	A6 D4	Viton GLT, −40…200 °C Graphite, −40…400 °C (HT)
11-13	Process Connection	FMR51-54/57	Axx, Cxx, Kxx	Flange (different sizes)
		FMR50	GGF, RGF	Thread, PVDF
		FMR51	Pxx Rxx Txx	Flange (different sizes) Thread, 316L and PVDF Tri-Clamp
		FMR52	Mxx Txx	Slotted-nut Tri-Clamp
		FMR53	RxJ RxF	Thread, 316L Thread, PVDF

Position		Selected option		Description
11-13	Process Connection	FMR50/56	UAE XR0 XxG	Mounting bracket Connection, without flange/mounting bracket Slip on flange (different sizes)
		FMR57	RxJ XxJ	Thread, 316L Align. device (different sizes)

*1 The designation changes in connection with "Display; Operation" = "L" or "M"
Ex ic [ia Ga] IIC T6 Gc

*2 In connection with "Housing" = "A": Observe the specifications in the "Overvoltage protection" (→ 🖹 7) and "Temperature tables" (→ 🖹 8) chapters!

Optional specifications

ID		Selected option		Description
Nx, Ox	Accessory Mounted	FMR5x	NA	Overvoltage protection
		FMR51/57	OW	Horn protection, PTFE, no airpurge possible

Safety instructions: General

- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
  - Be suitably qualified for their role and the tasks they perform
  - Be trained in explosion protection
  - Be familiar with national regulations
- Install the device according to the manufacturer's instructions and national regulations.
- Do not operate the device outside the specified electrical, thermal and mechanical parameters.
- Only use the device in media to which the wetted materials have sufficient durability.
- Avoid electrostatic charging:
  - Of plastic surfaces (e.g. housing, sensor element, special varnishing , attached additional plates, ..)
  - Of isolated capacities (e.g. isolated metallic plates)
- Refer to the temperature tables for the relationship between the permitted ambient temperature for the sensor and/or transmitter, depending on the range of application, and the temperature class.
- Modifications to the device can affect the explosion protection and must be carried out by staff authorized to perform such work by Endress+Hauser.
- After mounting and connecting the antenna, ingress protection of the housing must be at least IP65. Perform the following to achieve the degree of protection:
  - Screw the cover tight.
  - Mount the cable entry correctly.

Safety instructions: Special conditions

Permitted ambient temperature range at the electronics housing: $-40\ °C \leq T_a \leq +80\ °C$.
Observe the information in the temperature tables.

Basic specification, Position 5 (Housing) = A

- Avoid electrostatic charging of the housing (e.g. friction, cleaning, maintenance, strong medium flow).

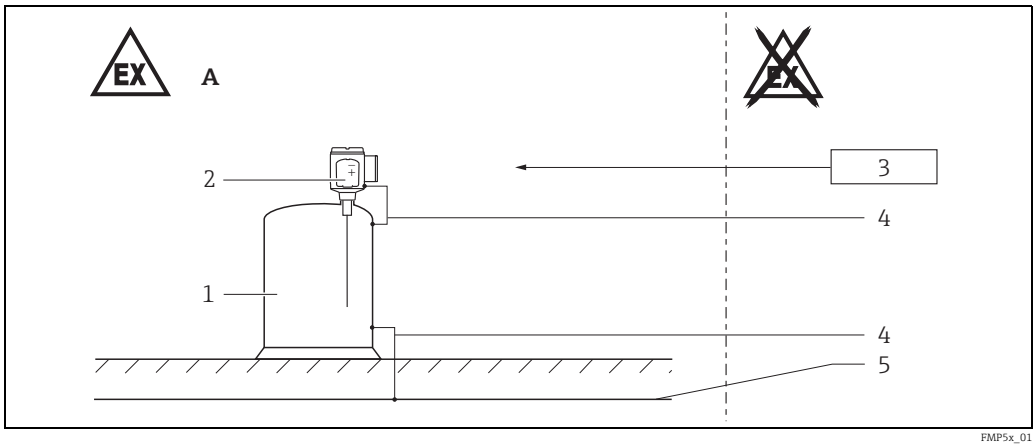
Device type FMR50, FMR52, FMR53, FMR54 (planar, enamel), FMR56

- An antenna coated with non-conductive material can be used if avoiding electrostatic charging (e.g. through friction, cleaning, maintenance, strong medium flow).

Device type FMR51, FMR57 and Optional specification, ID Ox (Accessory Mounted) = OW

- An antenna coated with non-conductive material can be used if avoiding electrostatic charging (e.g. through friction, cleaning, maintenance, strong medium flow).
- In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
- In the event of additional or alternative special varnishing on the housing or other metal parts:
  - Observe the danger of electrostatic charging and discharge.
  - Do not rub surfaces with a dry cloth.

Safety instructions: Installation



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A *Zone 2*

1 *Tank; Zone 2*
2 *Electronic insert*
3 *Certified associated apparatus*
4 *Potential equalization line*
5 *Potential equalization*

- After aligning (rotating) the housing, retighten the fixing screw (see Operating Instructions).
- When mounting the device:
  – Exclude any mechanical damage or friction during the application.
  – Pay particular attention to flow conditions and tank fittings.
- Continuous service temperature of the connecting cable: −40 to ≥ +85 °C; in accordance with the range of service temperature taking into account additional influences of the process conditions ($T_{a,min}$), ($T_{a,max}$ +20 K).

Intrinsic safety

- The device is only suitable for connection to certified, intrinsically safe equipment with explosion protection Ex ic.
- If the conditions $U_i > U_o$, ($I_i > I_o$), $C_a > C_i + C_{cable}$ and $L_a > L_i + L_{cable}$ are met, the energy-limited installation concept (Ex ic) allows energy-limited devices or associated energy-limited devices to be connected according to the entity concept.
- The intrinsically safe input power circuit of the device is isolated from ground. If the device is only equipped with one input, the dielectric strength of the input is at least 500 V_{rms}. If the device is equipped with more than one input, the dielectric strength of each individual input to ground is at least 500 V_{rms}, and the dielectric strength of the inputs vis-à-vis one another is also at least 500 V_{rms}.
- Observe the pertinent guidelines when interconnecting intrinsically safe circuits.
- The device can be connected to the Endress+Hauser FXA291 service tool: refer to the Operating Instructions and specifications in the "Overvoltage protection" (→ 🖹 7) chapter.

Potential equalization

- Integrate the device into the local potential equalization.

Overvoltage protection

- If an overvoltage protection against atmospheric over voltages is required: no other circuits may leave the housing during normal operation without additional measures.
- For installations which require overvoltage protection to comply with national regulations or standards, install the device using overvoltage protection (e.g. HAW56x from Endress+Hauser).
- Observe the safety instructions of the overvoltage protection.

Optional specification, ID Nx (Accessory Mounted) = NA
(Overvoltage protection TRC [16], type OVP10 and TRC [17], type OVP20)

- The intrinsically safe input power circuit of the device is isolated from ground. If the device is only equipped with one input, the dielectric strength of the input is at least 290 V_{rms}. If the device is equipped with more than one input, the dielectric strength of each individual input to ground is at least 290 V_{rms}, and the dielectric strength of the inputs vis-à-vis one another is also at least 290 V_{rms}.

Temperature tables

→ 🖹 9

Caution!
Optional specification, ID Nx (Accessory Mounted) = NA
(Overvoltage protection TRC [16], type OVP10 and TRC [17], type OVP20)
- When using the internal overvoltage protection: Reduce the admissible ambient temperature at the housing by 2 K.

Basic specification, Position 5 (Housing) = A
- When using the remote display FHX50: Reduce the admissible ambient temperature at the housing by 3 K.

Connection data

Optional specification, ID Nx (Accessory Mounted) = NA
(Overvoltage protection TRC [16], type OVP10 and TRC [17], type OVP20)
- When using the internal overvoltage protection: No changes to the connection values.

Basic specification, Position 1, 2 (Approval) = MH

Ex ic

- Power supply and signal circuit with protection type: intrinsic safety Ex ic IIC or IIB

Basic specification, Position 3 (Power Supply; Output) = B (TRC [02])

Terminal 1 (+), 2 (–)	Terminal 3 (+), 4 (–)
Power supply: U_i = 35 V I_i = not applicable (current-controlled circuit) P_i = not applicable effective inner inductance L_i = 0 µH effective inner capacitance C_i = 5 nF	Switch output (PFS): U_i = 35 V I_i = not applicable (current-controlled circuit) P_i = 1 W effective inner inductance L_i = 0 µH effective inner capacitance C_i = 3 nF effective inner capacitance to ground C_i = 5.28 nF

Service interface (CDI)

Taking the following values into consideration, the device can be connected to the certified Endress+Hauser FXA291 service tool or a similar interface:

Service interface												
U_i = 7.3 V effective inner inductance L_i = negligible effective inner capacitance C_i = negligible												
U_o = 7.3 V I_o = 100 mA P_o = 160 mW												
L_o (mH) =	5.00	2.00	1.00	0.50	0.20	0.10	0.05	0.02	0.01	0.005	0.002	0.001
C_o (µF) =	0.73	1.20	1.60	2.00	2.60	3.20	4.00	5.50	7.30	10.00	12.70	12.70

Temperature tables

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General notes

Unless otherwise indicated, the positions always refer to the basic specification.

Note!
Observe the permitted temperature range at the antenna.

*1 = Functional
Max. permissible process temperature

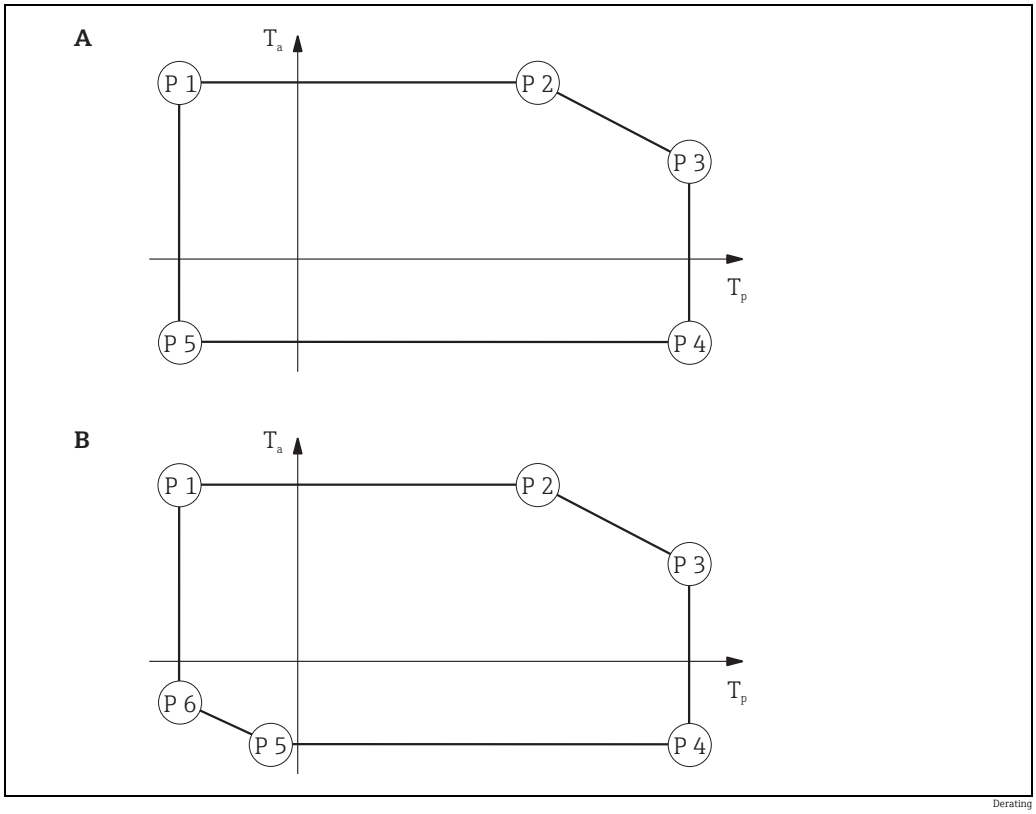
Selection table

Position 1, 2 (Approval)		Position 5 (Housing)	
MH	Ex ic IIC T6 Gc	A B C	GT19 dual compartment, plastics PBT GT18 dual compartment, 316L GT20 dual compartment, Alu coated

Position 3 (Power Supply; Output)		Transmission code of the terminal module	Channels
B	2-wire, 4-20 mA HART, switch output (PFS)	TRC [02]	1 or 2 channels used

Diagram

Example diagrames to the temperature tables



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A *Version 1*
B *Version 2*

T_a *Ambient temperature*
T_p *Process temperature*

Antenna and electronics housing: Zone 2

FMR50, Position 7, 8 (Antenna) = BM

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	57 °C	57 °C	57 °C	80 °C	55 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	80 °C	39 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	80 °C	58 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	80 °C	49 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-

FMR50, Position 7, 8 (Antenna) = BN, BR

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	57 °C	57 °C	57 °C	80 °C	54 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	80 °C	38 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	80 °C	58 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	80 °C	49 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR51

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	49 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	72 °C	72 °C	72 °C	100 °C	64 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	72 °C	72 °C	72 °C	135 °C	57 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	72 °C	72 °C	72 °C	150 °C	53 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	85 °C	33 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	56 °C	56 °C	56 °C	100 °C	46 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	56 °C	56 °C	56 °C	135 °C	37 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	56 °C	56 °C	56 °C	150 °C	33 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	54 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	69 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	68 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	150 °C	65 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	44 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	59 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	62 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	150 °C	59 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	55 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	70 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	70 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	150 °C	68 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	45 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	60 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	65 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	150 °C	62 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR51, Position 9, 10 (Seal) = D3

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	57 °C	57 °C	57 °C	85 °C	53 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	72 °C	72 °C	72 °C	100 °C	68 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	72 °C	72 °C	72 °C	135 °C	63 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	72 °C	72 °C	72 °C	200 °C	53 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
	T2 (300 °C)	−40 °C	72 °C	72 °C	72 °C	250 °C	44 °C	250 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	85 °C	37 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	56 °C	56 °C	56 °C	100 °C	50 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	56 °C	56 °C	56 °C	135 °C	45 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	56 °C	56 °C	56 °C	200 °C	35 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	57 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	72 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	74 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	67 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
	T2 (300 °C)	−40 °C	80 °C	80 °C	80 °C	250 °C	62 °C	250 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	48 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	63 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	69 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	62 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
	T2 (300 °C)	−40 °C	75 °C	75 °C	75 °C	250 °C	57 °C	250 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	58 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	73 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	75 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	70 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
	T2 (300 °C)	−40 °C	80 °C	80 °C	80 °C	250 °C	66 °C	250 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	48 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	63 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	70 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	65 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
	T2 (300 °C)	−40 °C	75 °C	75 °C	75 °C	250 °C	60 °C	250 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR51, Position 9, 10 (Seal) = D2

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−196 °C	60 °C	60 °C	60 °C	85 °C	52 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	9 °C
	T5 (100 °C)	−196 °C	72 °C	72 °C	72 °C	100 °C	67 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	9 °C
	T4 (135 °C)	−196 °C	72 °C	72 °C	72 °C	135 °C	61 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	9 °C
	T3 (200 °C)	−196 °C	72 °C	72 °C	72 °C	200 °C	49 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	9 °C
2 channels used	T6 (85 °C)	−196 °C	43 °C	43 °C	43 °C	85 °C	36 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	9 °C
	T5 (100 °C)	−196 °C	56 °C	56 °C	56 °C	100 °C	48 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	9 °C
	T4 (135 °C)	−196 °C	56 °C	56 °C	56 °C	135 °C	42 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	9 °C
	T3 (200 °C)	−196 °C	56 °C	56 °C	56 °C	200 °C	30 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	9 °C

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−196 °C	60 °C	60 °C	60 °C	85 °C	56 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T5 (100 °C)	−196 °C	75 °C	75 °C	75 °C	100 °C	71 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T4 (135 °C)	−196 °C	80 °C	80 °C	80 °C	135 °C	72 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T3 (200 °C)	−196 °C	80 °C	80 °C	80 °C	200 °C	64 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T2 (300 °C)	−196 °C	80 °C	80 °C	80 °C	300 °C	50 °C	300 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
2 channels used	T6 (85 °C)	−196 °C	51 °C	51 °C	51 °C	85 °C	47 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T5 (100 °C)	−196 °C	66 °C	66 °C	66 °C	100 °C	62 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T4 (135 °C)	−196 °C	75 °C	75 °C	75 °C	135 °C	67 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T3 (200 °C)	−196 °C	75 °C	75 °C	75 °C	200 °C	58 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T2 (300 °C)	−196 °C	75 °C	75 °C	75 °C	300 °C	44 °C	300 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	–196 °C	60 °C	60 °C	60 °C	85 °C	57 °C	85 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
	T5 (100 °C)	–196 °C	75 °C	75 °C	75 °C	100 °C	72 °C	100 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
	T4 (135 °C)	–196 °C	80 °C	80 °C	80 °C	135 °C	74 °C	135 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
	T3 (200 °C)	–196 °C	80 °C	80 °C	80 °C	200 °C	67 °C	200 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
	T2 (300 °C)	–196 °C	80 °C	80 °C	80 °C	300 °C	56 °C	300 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
	T1 (450 °C) *1	–196 °C	80 °C	80 °C	80 °C	450 °C	39 °C	450 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
2 channels used	T6 (85 °C)	–196 °C	51 °C	51 °C	51 °C	85 °C	48 °C	85 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
	T5 (100 °C)	–196 °C	66 °C	66 °C	66 °C	100 °C	63 °C	100 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
	T4 (135 °C)	–196 °C	75 °C	75 °C	75 °C	135 °C	68 °C	135 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
	T3 (200 °C)	–196 °C	75 °C	75 °C	75 °C	200 °C	61 °C	200 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
	T2 (300 °C)	–196 °C	75 °C	75 °C	75 °C	300 °C	51 °C	300 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C
	T1 (450 °C) *1	–196 °C	75 °C	75 °C	75 °C	450 °C	34 °C	450 °C	–40 °C	–40 °C	–40 °C	–196 °C	–20 °C

Antenna and electronics housing: Zone 2

FMR52, Position 7, 8 (Antenna) = BO

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	51 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	72 °C	72 °C	72 °C	100 °C	66 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	72 °C	72 °C	72 °C	135 °C	59 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	72 °C	72 °C	72 °C	200 °C	42 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	85 °C	35 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	56 °C	56 °C	56 °C	100 °C	47 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	56 °C	56 °C	56 °C	135 °C	40 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	55 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	70 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	71 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	59 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	45 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	60 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	65 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	53 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	56 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	71 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	72 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	63 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	47 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	62 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	67 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	58 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR52, Position 7, 8 (Antenna) = BP

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	49 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	72 °C	72 °C	72 °C	100 °C	64 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	72 °C	72 °C	72 °C	135 °C	57 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	72 °C	72 °C	72 °C	200 °C	36 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	85 °C	33 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	56 °C	56 °C	56 °C	100 °C	46 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	56 °C	56 °C	56 °C	135 °C	38 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	54 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	69 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	69 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	55 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	44 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	59 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	63 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	49 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	55 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	70 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	71 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	60 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	46 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	61 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	65 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	54 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR53, Position 11-13 (Process Connection) = RxF

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	57 °C	57 °C	57 °C	80 °C	55 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	80 °C	39 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	80 °C	58 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	80 °C	49 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	80 °C	58 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	80 °C	49 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR53

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	48 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	72 °C	72 °C	72 °C	100 °C	63 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	72 °C	72 °C	72 °C	135 °C	56 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	72 °C	72 °C	72 °C	150 °C	52 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	85 °C	33 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	56 °C	56 °C	56 °C	100 °C	45 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	56 °C	56 °C	56 °C	135 °C	36 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	56 °C	56 °C	56 °C	150 °C	32 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	53 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	68 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	67 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	150 °C	64 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	43 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	58 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	61 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	150 °C	58 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	54 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	69 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	70 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	150 °C	67 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	45 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	60 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	64 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	150 °C	61 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR54

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	48 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	72 °C	72 °C	72 °C	100 °C	63 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	72 °C	72 °C	72 °C	135 °C	55 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	85 °C	32 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	56 °C	56 °C	56 °C	100 °C	45 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	56 °C	56 °C	56 °C	135 °C	35 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	53 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	68 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	67 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	51 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	43 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	58 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	60 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	45 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	54 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	69 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	69 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	56 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	44 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	59 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	63 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	50 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR54, Position 9, 10 (Seal) = D1

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−196 °C	60 °C	60 °C	60 °C	85 °C	51 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	18 °C
	T5 (100 °C)	−196 °C	72 °C	72 °C	72 °C	100 °C	66 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	18 °C
	T4 (135 °C)	−196 °C	72 °C	72 °C	72 °C	135 °C	59 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	18 °C
	T3 (200 °C)	−196 °C	72 °C	72 °C	72 °C	200 °C	42 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	18 °C
2 channels used	T6 (85 °C)	−196 °C	43 °C	43 °C	43 °C	85 °C	35 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	18 °C
	T5 (100 °C)	−196 °C	56 °C	56 °C	56 °C	100 °C	47 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	18 °C
	T4 (135 °C)	−196 °C	56 °C	56 °C	56 °C	135 °C	40 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	18 °C

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−196 °C	60 °C	60 °C	60 °C	85 °C	55 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	−9 °C
	T5 (100 °C)	−196 °C	75 °C	75 °C	75 °C	100 °C	70 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	−9 °C
	T4 (135 °C)	−196 °C	80 °C	80 °C	80 °C	135 °C	71 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	−9 °C
	T3 (200 °C)	−196 °C	80 °C	80 °C	80 °C	200 °C	60 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	−9 °C
	T2 (300 °C)	−196 °C	80 °C	80 °C	80 °C	280 °C	46 °C	280 °C	−40 °C	−40 °C	−40 °C	−196 °C	−9 °C
2 channels used	T6 (85 °C)	−196 °C	51 °C	51 °C	51 °C	85 °C	45 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	−9 °C
	T5 (100 °C)	−196 °C	66 °C	66 °C	66 °C	100 °C	60 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	−9 °C
	T4 (135 °C)	−196 °C	75 °C	75 °C	75 °C	135 °C	65 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	−9 °C
	T3 (200 °C)	−196 °C	75 °C	75 °C	75 °C	200 °C	54 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	−9 °C
	T2 (300 °C)	−196 °C	75 °C	75 °C	75 °C	280 °C	40 °C	280 °C	−40 °C	−40 °C	−40 °C	−196 °C	−9 °C

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−196 °C	60 °C	60 °C	60 °C	85 °C	56 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T5 (100 °C)	−196 °C	75 °C	75 °C	75 °C	100 °C	71 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T4 (135 °C)	−196 °C	80 °C	80 °C	80 °C	135 °C	72 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T3 (200 °C)	−196 °C	80 °C	80 °C	80 °C	200 °C	64 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T2 (300 °C)	−196 °C	80 °C	80 °C	80 °C	280 °C	53 °C	280 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
2 channels used	T6 (85 °C)	−196 °C	51 °C	51 °C	51 °C	85 °C	47 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T5 (100 °C)	−196 °C	66 °C	66 °C	66 °C	100 °C	62 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T4 (135 °C)	−196 °C	75 °C	75 °C	75 °C	135 °C	67 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T3 (200 °C)	−196 °C	75 °C	75 °C	75 °C	200 °C	58 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C
	T2 (300 °C)	−196 °C	75 °C	75 °C	75 °C	280 °C	47 °C	280 °C	−40 °C	−40 °C	−40 °C	−196 °C	−15 °C

Antenna and electronics housing: Zone 2

FMR54, Position 9, 10 (Seal) = D2

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−196 °C	60 °C	60 °C	60 °C	85 °C	52 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	11 °C
	T5 (100 °C)	−196 °C	72 °C	72 °C	72 °C	100 °C	67 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	11 °C
	T4 (135 °C)	−196 °C	72 °C	72 °C	72 °C	135 °C	60 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	11 °C
	T3 (200 °C)	−196 °C	72 °C	72 °C	72 °C	200 °C	47 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	11 °C
2 channels used	T6 (85 °C)	−196 °C	43 °C	43 °C	43 °C	85 °C	36 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	11 °C
	T5 (100 °C)	−196 °C	56 °C	56 °C	56 °C	100 °C	48 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	11 °C
	T4 (135 °C)	−196 °C	56 °C	56 °C	56 °C	135 °C	41 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	11 °C

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−196 °C	60 °C	60 °C	60 °C	85 °C	56 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C
	T5 (100 °C)	−196 °C	75 °C	75 °C	75 °C	100 °C	71 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C
	T4 (135 °C)	−196 °C	80 °C	80 °C	80 °C	135 °C	72 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C
	T3 (200 °C)	−196 °C	80 °C	80 °C	80 °C	200 °C	62 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C
	T2 (300 °C)	−196 °C	80 °C	80 °C	80 °C	300 °C	48 °C	300 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C
	T1 (450 °C) *1	−196 °C	80 °C	80 °C	80 °C	400 °C	31 °C	400 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C
2 channels used	T6 (85 °C)	−196 °C	51 °C	51 °C	51 °C	85 °C	46 °C	85 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C
	T5 (100 °C)	−196 °C	66 °C	66 °C	66 °C	100 °C	61 °C	100 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C
	T4 (135 °C)	−196 °C	75 °C	75 °C	75 °C	135 °C	66 °C	135 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C
	T3 (200 °C)	−196 °C	75 °C	75 °C	75 °C	200 °C	57 °C	200 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C
	T2 (300 °C)	−196 °C	75 °C	75 °C	75 °C	300 °C	42 °C	300 °C	−40 °C	−40 °C	−40 °C	−196 °C	−13 °C

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	–196 °C	60 °C	60 °C	60 °C	85 °C	57 °C	85 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
	T5 (100 °C)	–196 °C	75 °C	75 °C	75 °C	100 °C	72 °C	100 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
	T4 (135 °C)	–196 °C	80 °C	80 °C	80 °C	135 °C	74 °C	135 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
	T3 (200 °C)	–196 °C	80 °C	80 °C	80 °C	200 °C	66 °C	200 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
	T2 (300 °C)	–196 °C	80 °C	80 °C	80 °C	300 °C	54 °C	300 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
	T1 (450 °C) *1	–196 °C	80 °C	80 °C	80 °C	400 °C	42 °C	400 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
2 channels used	T6 (85 °C)	–196 °C	51 °C	51 °C	51 °C	85 °C	47 °C	85 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
	T5 (100 °C)	–196 °C	66 °C	66 °C	66 °C	100 °C	62 °C	100 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
	T4 (135 °C)	–196 °C	75 °C	75 °C	75 °C	135 °C	68 °C	135 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
	T3 (200 °C)	–196 °C	75 °C	75 °C	75 °C	200 °C	60 °C	200 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
	T2 (300 °C)	–196 °C	75 °C	75 °C	75 °C	300 °C	49 °C	300 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C
	T1 (450 °C) *1	–196 °C	75 °C	75 °C	75 °C	400 °C	37 °C	400 °C	–40 °C	–40 °C	–40 °C	–196 °C	–19 °C

Antenna and electronics housing: Zone 2

FMR54, Position 7, 8 (Antenna) = Dx

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	50 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	72 °C	72 °C	72 °C	100 °C	65 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	72 °C	72 °C	72 °C	135 °C	58 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	72 °C	72 °C	72 °C	150 °C	55 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	85 °C	34 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	56 °C	56 °C	56 °C	100 °C	47 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	56 °C	56 °C	56 °C	135 °C	39 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	56 °C	56 °C	56 °C	150 °C	36 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	55 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	70 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	70 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	150 °C	68 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	45 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	60 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	64 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	150 °C	62 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	56 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	71 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	72 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	150 °C	70 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	46 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	61 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	66 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	150 °C	64 °C	150 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR56, Position 7, 8 (Antenna) = BN, BR

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	57 °C	57 °C	57 °C	80 °C	54 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	80 °C	38 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	80 °C	58 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	80 °C	49 °C	80 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR57

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	57 °C	57 °C	57 °C	85 °C	53 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	72 °C	72 °C	72 °C	100 °C	67 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	72 °C	72 °C	72 °C	135 °C	62 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	72 °C	72 °C	72 °C	200 °C	51 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	85 °C	37 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	56 °C	56 °C	56 °C	100 °C	49 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	56 °C	56 °C	56 °C	135 °C	43 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	56 °C	56 °C	56 °C	200 °C	33 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	56 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	71 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	73 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	65 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	47 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	62 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	68 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	60 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	57 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	72 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	75 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	69 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	48 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	63 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	69 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	63 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Antenna and electronics housing: Zone 2

FMR57, Position 9, 10 (Seal) = D4

Position 3 (Power Supply; Output) = B (TRC [02])

Position 5 (Housing) = A													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	57 °C	57 °C	57 °C	85 °C	54 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	72 °C	72 °C	72 °C	100 °C	68 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	72 °C	72 °C	72 °C	135 °C	64 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	72 °C	72 °C	72 °C	200 °C	55 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
	T2 (300 °C)	−40 °C	72 °C	72 °C	72 °C	300 °C	37 °C	300 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	43 °C	43 °C	43 °C	85 °C	38 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	56 °C	56 °C	56 °C	100 °C	51 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	56 °C	56 °C	56 °C	135 °C	46 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	56 °C	56 °C	56 °C	200 °C	37 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = B													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	−40 °C	60 °C	60 °C	60 °C	85 °C	57 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	75 °C	75 °C	75 °C	100 °C	72 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	80 °C	80 °C	80 °C	135 °C	75 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	80 °C	80 °C	80 °C	200 °C	69 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
	T2 (300 °C)	−40 °C	80 °C	80 °C	80 °C	300 °C	60 °C	300 °C	−40 °C	−40 °C	−40 °C	-	-
	T1 (450 °C) *[1]	−40 °C	80 °C	80 °C	80 °C	400 °C	51 °C	400 °C	−40 °C	−40 °C	−40 °C	-	-
2 channels used	T6 (85 °C)	−40 °C	51 °C	51 °C	51 °C	85 °C	48 °C	85 °C	−40 °C	−40 °C	−40 °C	-	-
	T5 (100 °C)	−40 °C	66 °C	66 °C	66 °C	100 °C	63 °C	100 °C	−40 °C	−40 °C	−40 °C	-	-
	T4 (135 °C)	−40 °C	75 °C	75 °C	75 °C	135 °C	70 °C	135 °C	−40 °C	−40 °C	−40 °C	-	-
	T3 (200 °C)	−40 °C	75 °C	75 °C	75 °C	200 °C	64 °C	200 °C	−40 °C	−40 °C	−40 °C	-	-
	T2 (300 °C)	−40 °C	75 °C	75 °C	75 °C	300 °C	54 °C	300 °C	−40 °C	−40 °C	−40 °C	-	-
	T1 (450 °C) *[1]	−40 °C	75 °C	75 °C	75 °C	400 °C	45 °C	400 °C	−40 °C	−40 °C	−40 °C	-	-

Position 5 (Housing) = C													
Power Supply; Output	Temperature class	P 1		P 2		P 3		P 4		P 5		P 6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
1 channel used	T6 (85 °C)	–40 °C	60 °C	60 °C	60 °C	85 °C	58 °C	85 °C	–40 °C	–40 °C	–40 °C	-	-
	T5 (100 °C)	–40 °C	75 °C	75 °C	75 °C	100 °C	73 °C	100 °C	–40 °C	–40 °C	–40 °C	-	-
	T4 (135 °C)	–40 °C	80 °C	80 °C	80 °C	135 °C	76 °C	135 °C	–40 °C	–40 °C	–40 °C	-	-
	T3 (200 °C)	–40 °C	80 °C	80 °C	80 °C	200 °C	71 °C	200 °C	–40 °C	–40 °C	–40 °C	-	-
	T2 (300 °C)	–40 °C	80 °C	80 °C	80 °C	300 °C	64 °C	300 °C	–40 °C	–40 °C	–40 °C	-	-
	T1 (450 °C) *[1]	–40 °C	80 °C	80 °C	80 °C	400 °C	57 °C	400 °C	–40 °C	–40 °C	–40 °C	-	-
2 channels used	T6 (85 °C)	–40 °C	51 °C	51 °C	51 °C	85 °C	49 °C	85 °C	–40 °C	–40 °C	–40 °C	-	-
	T5 (100 °C)	–40 °C	66 °C	66 °C	66 °C	100 °C	64 °C	100 °C	–40 °C	–40 °C	–40 °C	-	-
	T4 (135 °C)	–40 °C	75 °C	75 °C	75 °C	135 °C	71 °C	135 °C	–40 °C	–40 °C	–40 °C	-	-
	T3 (200 °C)	–40 °C	75 °C	75 °C	75 °C	200 °C	66 °C	200 °C	–40 °C	–40 °C	–40 °C	-	-
	T2 (300 °C)	–40 °C	75 °C	75 °C	75 °C	300 °C	59 °C	300 °C	–40 °C	–40 °C	–40 °C	-	-
	T1 (450 °C) *[1]	–40 °C	75 °C	75 °C	75 °C	400 °C	52 °C	400 °C	–40 °C	–40 °C	–40 °C	-	-

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