



HOME OF SENSOR TECHNOLOGY

Desription of the LoRaWAN® interface

- AF25+ LRW
- AGS55+ LRW
- AKF10+ LRW
- DPA(x)+ LRW
- FTA54+ LRW
- FTK+ LRW
- LA+ LRW
- Li65+ LRW
- LK+ LRW
- LS02+ LRW
- MCS (x) LRW
- MWF+ LRW
- NOVOS 3 LRW
- OF14+ LRW
- TF25+ LRW
- WK02+ LRW
- WSA LRW

Revision

Revision	Date	Description	author
A	21.02.2022	Initial release	MD; JD
B	30.10.2023	Extension NOVOS 3 LRW	MD
C	12.03.2025	Additions and corrections	MD, JD
D	30.03.2026	Extension NOVOS 3 EPD, AF25+ OF14+ and TF25+	MD

Thermokons LoRaWAN® interface is used for two different purposes

- Transmitting device process data (e.g. measurement values)
- Adjusting the devices configuration

In general every LoRaWAN® telegramm consists of two parts:

- The **identifier** for the following data bytes
- The **data bytes** itself

Example: 0x **10 00A6 12 1688 13 00 0B**

Data types

Following data types are used:

Type	Amount of bytes	min value	max value
INT8	1	-128	127
UINT8	1	0	255
INT16	2	-32768	32767
UINT16	2	0	65535

Measured variables

Identifier	Data type	Designation	Unit	Divider	Description
0x10	INT16	Temperature 1	°C	10	$276 \pm 27,6$ °C
0x11	INT8	Relative Humidity	% rH	1	54 ± 54 % rH
0x12	UINT16	CO2	ppm	1	1548 ± 1548 ppm
0x13	UINT16	VOC	%	1	10 = 10%
0x30	UINT16	Absolute pressure	mBar/hPa	1	
0x31	INT16	Differential pressure	Pa	1	
0x32	UINT16	Volume flow	m3/h*	1	*Unit depends on device configuration
0x40	UINT16	Brightness	lux	1	$3245 = 3245$ lux
0x41	UINT8	Occupancy			Bit 0: actual value; 1=occupied; 0=unoccupied Bit 1-7: Amount of movements detected since last transmission
0x50	UINT8	Reed contact 1			Bit 0: actual value Bit 1-7: Amount of detected switching operations since last transmission
0x51	INT16	Leakage/ Condensation			Bit 15: Actual relay state Bit 0-14: Raw value (0-4095)
0x54	INT8	Energy level	mV	0,05	75 ± 1500 mV
0x55	INT6	Button 1			Bit 0: 1= long press / 0 = short press Bit 1-7: <i>Mode Button:</i> Number of detected button presses since the last transmission <i>Modus Fanstanges:</i> Selected fan speed <i>Modus Occupancy:</i> Selected occupancy
0x63	INT8	Setpoint 1	%		0% = Potentiometer left stop; 100% = Potentiometer right stop
0x9100	INT16	Temperatur 2	°C	10	$276 \pm 27,6$ °C
0x9500	UINT8	Reed contact 2			Bit 0: actual value Bit 1-7: Amount of switching operations detected since last transmission

Identifier	Data type	Designation	Unit	Divider	Description
0x9550	INT8	Button 2			Bit 0: 1= long press / 0 = short press Bit 1-7: <i>Mode Button</i> : Number of detected button presses since the last transmission <i>Modus Fanstanges</i> : Selected fan speed <i>Modus Occupancy</i> : Selected occupancy
0x9630	INT16	Setpoint 2	(°C)	10	Setpoint Incremental Encoder Default in °C → configurable
0xA100	INT16	Temperature 2	°C	10	276 ± 27,6 °C

Configuration- and device parameter

Additionally to the devices payload configuration- and device parameter can be transmitted via LoRaWAN® downlink. The structure consists analog to the payloadf consists of two parts.

- The **identifier** for the following data bytes
- The **data bytes** itself

Example: 0x **C000** **0000012C**

Device information

Identifier	Data type	Designation	Unit	Default	Description
0xC000	UINT16	Device key			0x 40 01 = MCS LRW 0x 40 02 = NOVOS 3 LRW 0x 40 03 = USE BAT LRW

General device configuration

Identifier	Data type	Designation	Unit	Default	Description
0xC100	UINT16	Control commands			1: Reset Configuration (Default values) 2: Save Configuration 3: Reboot
0xC106	UINT16	Heartbeat intervall	min	1440	
0xC107	UINT16	Hysteresis transmission behaviour		1	0= no hysteresis 2= medium hystersis 1= big hysteresis 3= small hystersis
0xC108	UINT16	Messsurement/Uplink intervall	s/min*	60/5*	Depends on device type (see software manual)
0xC10B	UINT16	Latency time digital inputs	s	10	
0x8413	UINT16	Disabeling time occupancy sensor	s	10	
0x8414	UINT16	Follow-up time occupancy sensor	s	600	

Configuration LoRaWAN®

Identifier	Data type	Designation	Unit	Default	Description
0xC216	UINT16	Uplink/Downlink Port		2	Gültige Ports: 1 - 223
0xC217	UINT16	Adaptive Datenrate (ADR)		1	0= disabled 1= enabled
0xC218	UINT16	Datenrate (DR) default		3	0=DR0/Spreading Factor 12 1=DR1/Spreading Factor 11 2=DR2/Spreading Factor 10 3=DR3/Spreading Factor 9 4=DR4/Spreading Factor 8 5=DR5/Spreading Factor 7
0xC21C	UINT16	Re-Join Intervall	min	0	0 = disabeld; 0x 05 A0 = Re-Join after 1440 min
0xC21D	UINT16	Confirmation Activation (for Heartbeat)		0	0= disabled; 1=enabled

Configuration Dispaly NOVOS 3

Identifier	Data type	Designation	Unit	Default	Description
0xC194	UINT16	Overwrite external value 1			
0xC19C	UINT16	Overwrite external value 2			
0xC1A4	UINT16	Overwrite external value 3			
0xC1AC	UINT16	Overwrite external value 4			