

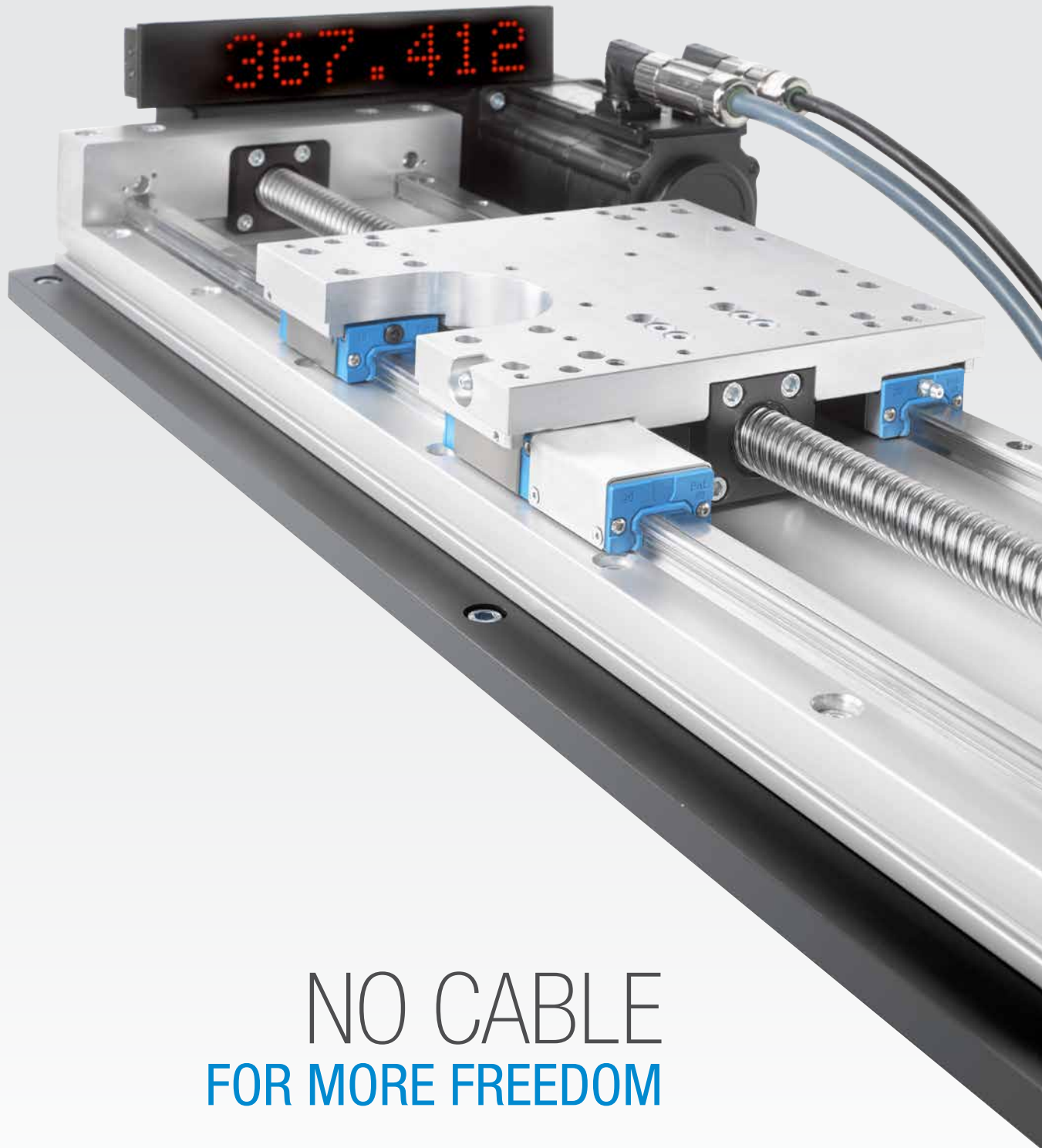
# WIRELESS LINEAR MEASURING SYSTEM



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With You



NO CABLE  
FOR MORE FREEDOM

## Wireless Linear Measuring System

### Highlights

- **Space saving**

The linear sensor is integrated directly into the guiding system.

- **More flexibility**

The wireless concept allows you to remove the energy chain.

- **Easy to assemble**

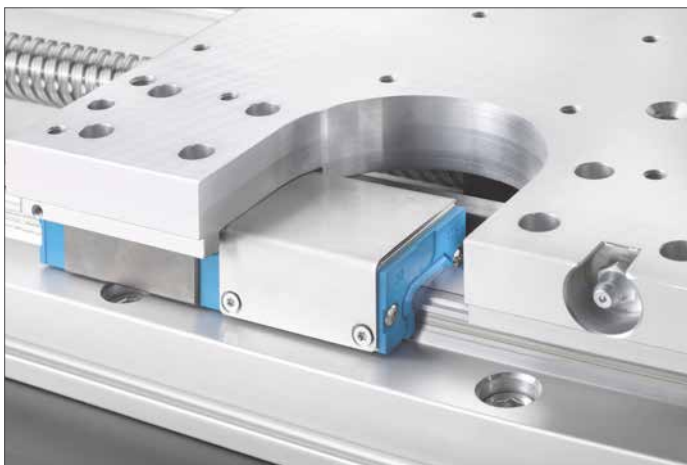
The sensor accuracy is ready to use and needs no calibration during installation.

- **High resolution sensing**

The very latest magnetic technology enables high performance position measurement.

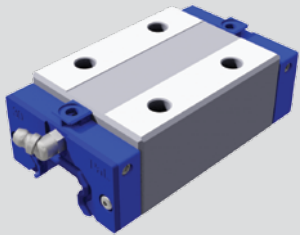
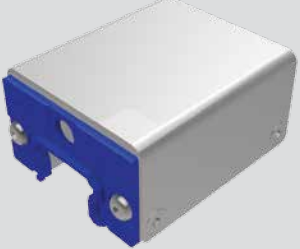
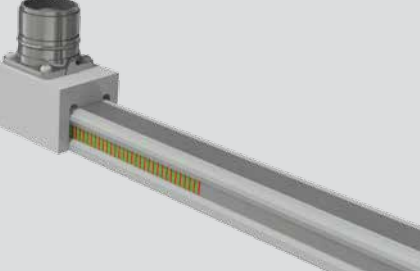

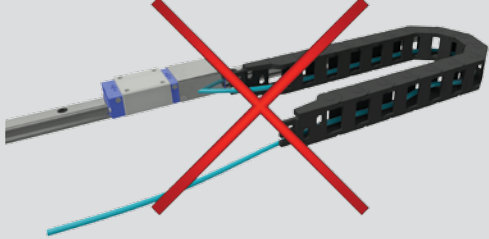
- **Robust design for harsh environment**

The measuring system can be combined with a multitude of sealing options.



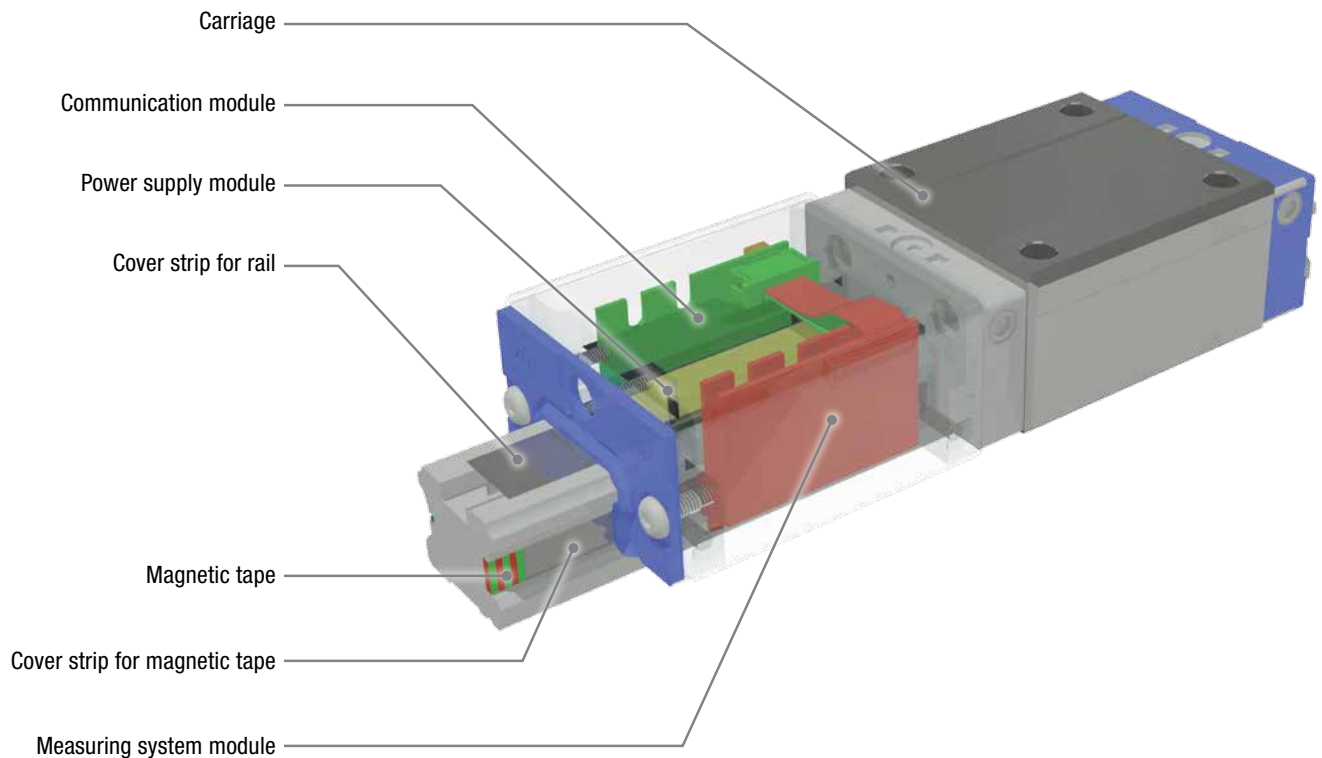
## 1. Description

The wireless measuring system from NTN-SNR is composed of

	<p>Carriage                  Available from size 20 to 55                  Normal or flat height                  14 sealing options                  Lubrication options</p>
	<p>Wireless sensing unit                  Including magnetic sensor, power transfer and data transmission units</p>
	<p>Guiding rail                  Available from size 20 to 55                  Maximum length: 4 meters                  Integrated magnetic scale                  Integrated inductive power transfer system                  Optical guide integrated                  With cable and connector</p>
	<p>Receiver unit                  Including power stage and data processing unit.                  Connected to the rail and to a superior controller or display</p>
	<p>The system brings together mechanical guiding and linear position measuring into a single product without any moving cable</p>

## 2. Structure

The mechatronic system fulfills the functions of guidance and measurement into one unit



### Energy system

The embedded electronics is supplied using an inductive power transfer technology. No battery is present inside the unit and the energy is available as soon as the receiver is powered on. It uses a primary unit integrated into the rail and a receiver in the mobile part.

### Measuring solution

The measuring sensor is a low power magnetoresistive chip. It scans without any contact the magnetic scale located on the rail side and protected by a steel strip. The conditioning circuit is able to output high resolution position. A zero position can be defined on the magnetic scale and enables a pseudo absolute system.

### Data transmission

The contactless data transmission is based on an optical technology. An optical guide is integrated on the rail side, protected by a hardcoated film with excellent chemical and scratch resistance. The wireless mobile unit consists of a light source with a signal processing unit. It encodes and position data as light output at high rate. A light receiver at the end of the rail converts the light intensity changes into a binary data stream.

### Connection

The linear rail is connected with a fixed cable to the receiver using a round plug coupling. The receiver should be connected to a superior controller using the M23 flange socket (female) 12 pin.

### 3. Technical datas

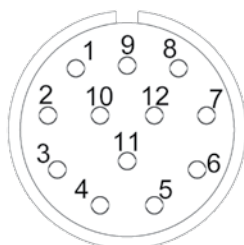
Maximum travel velocity	5 m/s
Protection class (EN 60529)	IP68
Operation temperature	0 to 70 °C
Storage temperature	-10 to 70 °C
Power supply	9 V to 24V
Power consumption	20 W
Cable	PUR Jacket high flexibility
Output signals	RS422 – SSI (100 Kbps – 200 Kbps)
Signal coding	24 bit
Measuring system resolution	1 µm
Measuring system accuracy	+/- 15 µm/m

Other output protocols (BiSS / EnDAT 2.2 / CanOpen / Incremental ABZ TIA-422-A) are available on request

### 4. Electrical Interfaces

The receiver integrates two M23 plugs, which are connected to the rail (female one) respectively to a controller or display (male one).

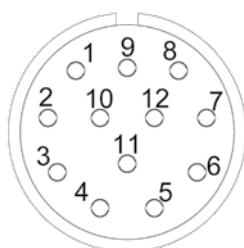
Receiver input (12 pin female flange M23)



Contact	Signal name
1	Supply A
2	Supply B
3	Supply C
4	Supply D
5	NC
6	Signal
7	NC
8	NC
9	NC
10	0V
11	Supply
12	NC

Cable shield connected to housing

Receiver output (12 pin male flange M23)



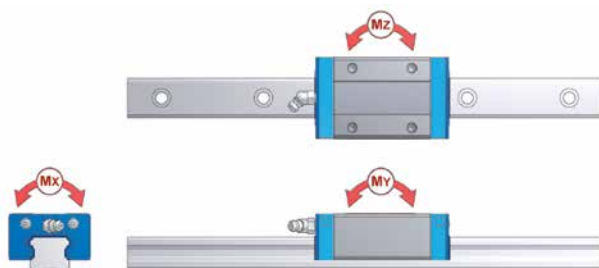
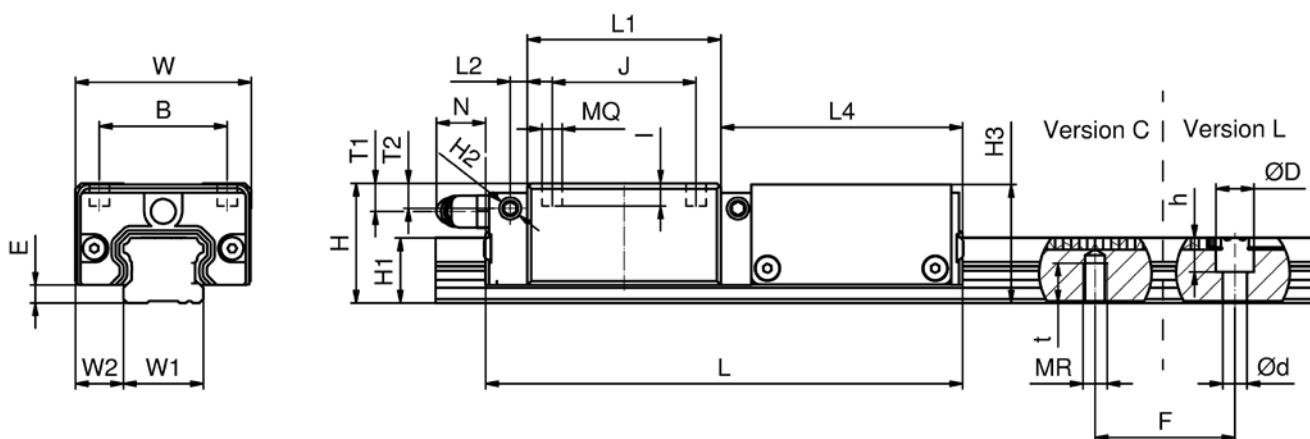
Contact	Signal name
1	Supply
2	NC
3	0V
4	NC
5	Data+
6	Data-
7	Clock+
8	Clock-
9	NC
10	0V
11	Diagnosis
12	NC

Cable shield connected to housing

## 5. Mechanical properties

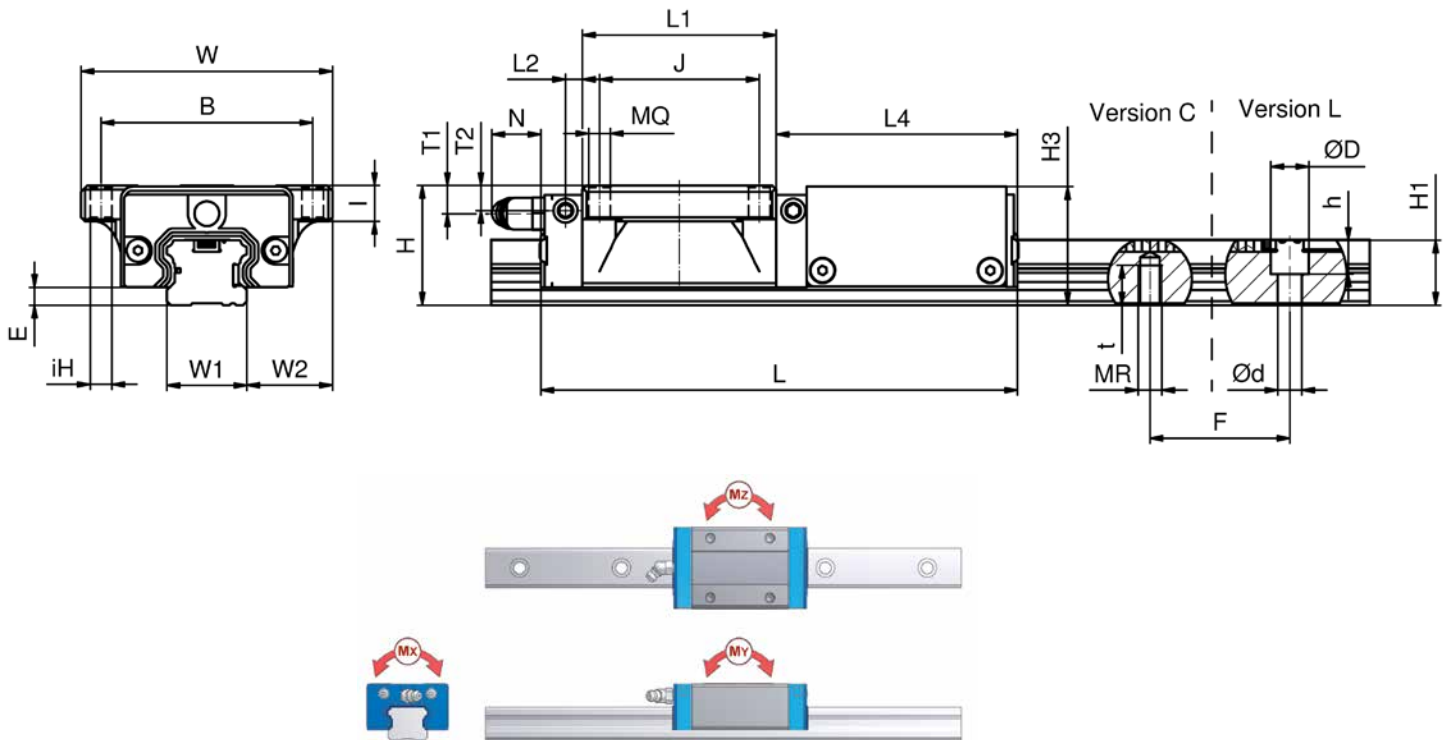
The carriage is available in two different design versions : block and flange

### Carriage design; normal und flat height



Typ		System mm					Carriage mm											Load rating					Mass kg	
		H	W	W2	E	L	B	J	MQ	I	L1	H3	L4	T1	N	T2	L2	L3	C	C0	MX	MY		MZ
<b>Normal height</b>																								
LGBXH20 BN	LGBCH20 BN	30	44	12,0	4,5	119,3	32	36	M 5	6,5	48,5	29,7	60,4	7,1	15,6	6,3	4,25	2,10	17,98	30,96	0,289	0,224	0,224	0,310
LGBXH20 BL	LGBCH20 BL	30	44	12,0	4,5	132,1	32	36	M 5	6,5	61,3	29,7	60,4	7,1	15,6	6,3	4,25	2,10	23,30	40,11	0,376	0,366	0,366	0,360
LGBXH20 BE	LGBCH20 BE	30	44	12,0	4,5	147,3	32	50	M 5	6,5	76,5	29,7	60,4	7,1	15,6	6,3	4,25	2,10	27,85	49,61	0,464	0,565	0,565	0,470
<b>Flat</b>																								
LGBXS20 BS	LGBCS20 BS	28	42	11,0	4,5	98,3	32	--	M 5	5,5	27,5	29,7	60,4	5,1	15,6	4,3	4,25	2,10	9,25	15,93	0,148	0,066	0,066	0,170
LGBXS20 BN	LGBCS20 BN	28	42	11,0	4,5	119,3	32	32	M 5	5,5	48,5	29,7	60,4	7,1	15,6	4,3	4,25	2,10	17,98	30,96	0,289	0,224	0,224	0,220

### Flange design; normal and flat height



Typ		System mm					Carriage mm												Load rating					Mass kg	
without ball chain	with ball chain	H	W	W2	E	L	B	J	MQ	ih	I	L1	H3	L4	T1	N	T2	L2	L3	C	C0	MX	MY	MZ	Carriage
<b>Normal height</b>																									
LGBXH20 FN	LGBCH20 FN	30	63	21,5	4,5	119,3	53	40	M 6	5,4	9,0	48,5	29,7	60,4	7,1	15,6	6,3	4,25	2,10	17,98	30,96	0,289	0,224	0,224	0,50
LGBXH20 FL	LGBCH20 FL	30	63	21,5	4,5	132,1	53	40	M 6	5,4	9,0	61,3	29,7	60,4	7,1	15,6	6,3	4,25	2,10	23,30	40,11	0,376	0,366	0,366	0,56
LGBXH20 FE	LGBCH20 FE	30	63	21,5	4,5	147,3	53	40	M 6	5,4	9,0	76,5	29,7	60,4	7,1	15,6	6,3	4,25	2,10	27,85	49,61	0,464	0,565	0,565	0,71
<b>Flat</b>																									
LGBXS20 FS	LGBCS20 FS	28	59	19,5	4,5	98,3	49	--	M 6	5,4	7,0	27,5	29,7	60,4	5,1	15,6	4,3	4,25	2,10	9,25	15,93	0,148	0,066	0,066	0,28
LGBXS20 FN	LGBCS20 FN	28	59	19,5	4,5	119,3	49	32	M 6	5,4	7,0	48,5	29,7	60,4	5,1	15,6	4,3	4,25	2,10	17,98	30,96	0,289	0,224	0,224	0,41

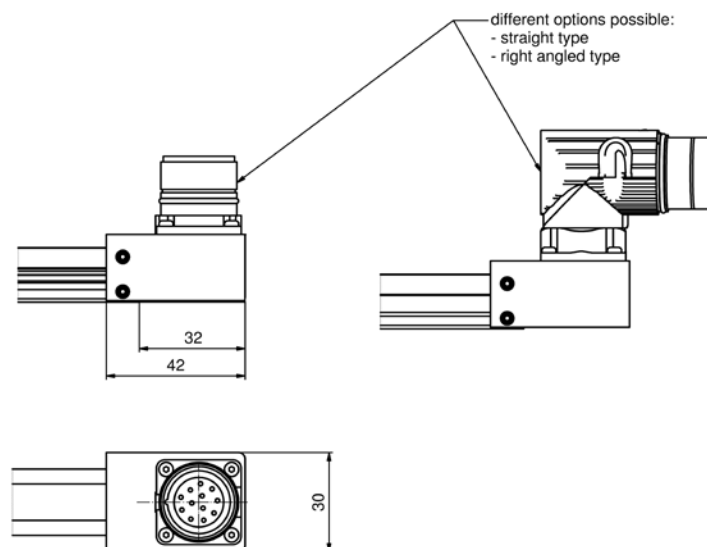
## Rail dimensions

W1	H1	F	d	D	h	MR	t	Mass [kg/m]
20	16,3	60	6	9,5	8,5	M6	10	2,15

## End cap device

The end cap device should be attached to one end of the rail. It manages the energy and data link with the receiver.

Mechanical dimensions



## Sealing options

Linear guides are exposed to a variety of pollution types during operation. NTN-SNR linear guides can be combined with a multitude of sealing options to provide an optimal sealing system for various applications.

Here is an overview of the different options that are available.

Description	LGB	LGM	Sealing structure
SS	S	-	End seals on both sides, inner and side seals
AA	X	X	No sealing
UU	X	-	End seals on both sides
BB	X	S	End seals on both sides and side seals
EE	X	-	Double end seals on both sides, inner and side seals
FF	X	-	End seals on both sides, inner and side seals, scraper on both sides
GG	X	-	Double end seals on both sides, inner and side seals, scraper on both sides
ES	X	-	Double end seals on one side, inner and side seals
FS	X	-	End seals on both sides, inner and side seals, scraper on one side
GS	X	-	Double end seals on one side, inner and side seals, scraper on one side
VV	X	-	Double end seals on both sides, inner and side seals, MLS on both sides
WW	X	-	Double end seals on both sides, inner and side seals, scraper and MLS on both sides
LL	X	-	LFS on both sides
JJ	X	-	LFS on both sides and side seals
XX	X	-	Special sealing option (description of customer specification required)



Depending on which sealing option is chosen the carriage length varies according to the following table.

Size	Sealing option										
	SS	UU	AA	BB	EE	FF	GG	VV	WW	LL	JJ
LGB_20_S	98,3	98,3	98,3	98,3	105,3	99,5	107,7	118,3	120,7	98,3	98,3
LGB_20_N	119,3	119,3	119,3	119,3	126,3	120,5	128,7	139,3	141,7	119,3	119,3
LGB_20_L	132,1	132,1	132,1	132,1	139,1	133,3	141,5	152,1	154,5	132,1	132,1
LGB_20_E	147,3	147,3	147,3	147,3	154,3	148,5	156,7	167,3	169,7	147,3	147,3

## 6. Lubrication options

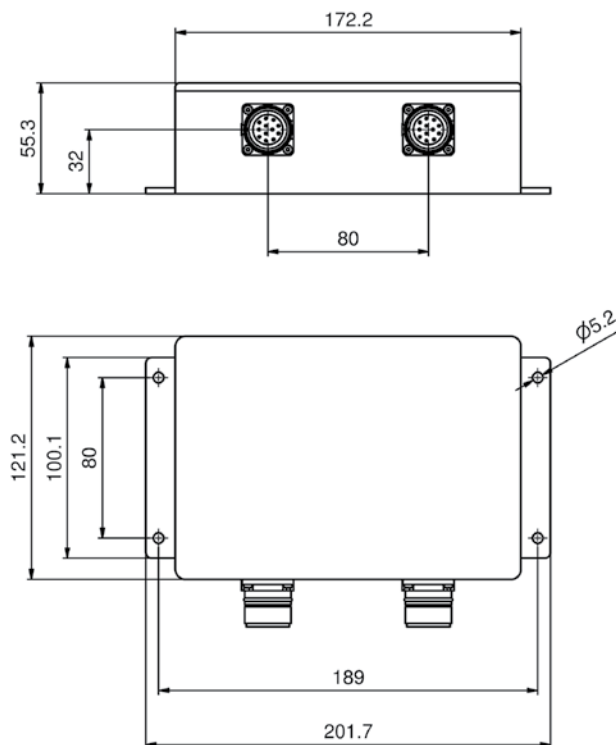
### Grease nipples, lubrication connections

Installation position	Grease nipple	Lubrication connection	
	GRN-M6-8,0-z-0	LE-MQ-MqxL	
	GRN-M6-12,0-z-0	double seals, double seals + Scraper	LS-MQ-Mq
	GRN-M6-5,5-k-45		LH-M6S-ØD
	GRN-M6-8,0-z-67		LH-M6A-ØD
	GRN-M6-12,0-z-67	double seals + Scraper	
	GRN-M6-7,5-z-90		
	GRN-M6-12,0-z-90	double seals + Scraper	
	GRN-M6-5,0-z-0	LE-MQ-MqxL	
	GRN-M6-5,5-k-45		LH-M6S-ØD
	GRN-M6-5,0-z-67		LH-M6A-ØD
	GRN-M6-5,5-k-90		

Lubrication adapter (Lubrication from the top side)

## 7. Receiver dimensions

The receiver module represents the interface between the measuring system/rail and a superior controlling unit or display. It is connected to both items by M23 connectors.



*Dimensional Drawing*

## Conclusion

**The Wireless Measuring system from NTN-SNR offers new opportunities in your machine design.**

By using the innovative wireless data transmission technology, restraining trailing cable installations and their junctions can be omitted. Therefore the overall construction can be carried out much more compact, while the measurement system can be integrated easily.

In addition, the high-precision low-power measuring system enables accurate positioning and meets modern system requirements.

Feel free to contact us at [linear.motion@ntn-snr.com](mailto:linear.motion@ntn-snr.com)



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