AST Gruppe
Angewandte System Technik

Load Link KAK-F

Original
Manual

Contents

The software ASTAS and further information on the KAK-F can be found on our website www.ast.de.

A.S.T. - Angewandte System Technik GmbH, Mess- und Regeltechnik
Marschnerstr. 26, 01307 Dresden, Germany
Tel. (+49 3 51) 44 55 30 Fax (+49 3 51) 44 55 555
www.ast.de vertrieb.dd@ast.de

1. Description

The KAK-F load link is a compact measuring device serving to determine the loads acting on wire rope hoists and lines. In conjunction with typical lifting tackle, such as shackles, eyes and hooks, it can be expanded into a complete crane weighing system.

The measured loads are displayed on the FFB 201 wireless remote control unit. The KAK-F load link and its corresponding FFB 201 remote control unit are factory-set to a common wireless address.

Start-up synchronisation is completed in approx. 4 to 10s, if the load link is switched on first. If the FFB 201 is switched on first, synchronisation may take up to 20 s, as the FFB 201 falls into a periodic standby mode no communication signal is detected (10s standby, 10s search for signal).

Communication may be disturbed in the immediate vicinity of strong radio fields.

The load link is currently only registered for wireless operation in Germany (registration no. 7908802 at the Regulatory Authority for Telecommunications and Posts). Registration is possible in all countries of the EU with the exception of Great Britain and Greece.

ATTENTION! **The load link is a measuring device, not a safety device!**

2. Scope of supply

- KAK-F load link
- FFB 201 wireless remote control unit
- USB cable
- CD-ROM with user instructions and ASTAS software
- Transport case

3. Safety notes

- The load link must only be used with an incorporated anti-twist protection into the load line.
- The operating load must be monitored at all times in order to exclude the risk of overload.
- If the display shows “⊓ ⊓ ⊓ ⊓” to indicate an overload (110% of rated load), the load must be reduced immediately.
- Dynamic load measurements are not permitted.
- The load must not rest on the tip of the shank hook.
- If several ropes are suspended from the hook, the load angle must not exceed 90°.
- It is not permitted to lift persons with the load measuring device.
- It is forbidden to tamper with the design of the load link or with the calibration of the load measuring device in any way.
- Ensure compliance with all applicable occupational health and safety regulations when using the load link. The stipulations of the accident prevention regulation “BGV D 6” are to be observed.
- It is the responsibility of the operator to provide for regular testing of the equipment.
- Use only grade 8 components designed for an appropriate chain size.

4. Measuring accuracy

To ensure an accurate measurement, the load and load link must always be suspended vertically and without swinging!

ATTENTION! Overloading of the load link in excess of 150% of the rated load leads to shifting of the zero point and is not permissible for safety reasons.

5. Using the KAK-F load link

ON OFF Switch on the load link.

ON OFF Switch off the load link (hold pressed for approx. 2 seconds).

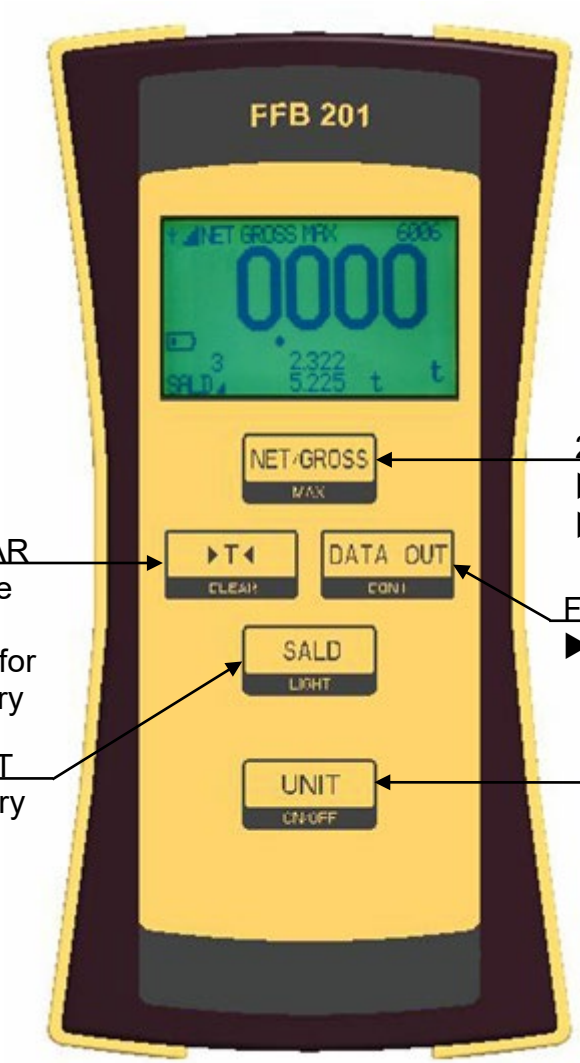
When the load link is switched on, the green LED (Power) flashes. The red LED lights to indicate a low battery. If the battery charge falls below the minimum charge level, the load link will switch itself off. In this case, it is necessary to replace the batteries (4 AA cells).

Power is supplied via:

- 4 AA batteries (HR6 Mignon) or
- 4 rechargeable batteries, 1.2V

Batteries can only be charged outside the device.
The batteries are inserted on delivery. To change the batteries, open the battery compartment with a Phillips screwdriver and replace the batteries. Remove the batteries if you will not be using the device for a long time.

6. Remote control unit FFB 201



3-function button CLEAR
- ▶ Taring: Normal mode
- ▶ Reset: MAX mode
- ▶ Combination button for accumulation memory

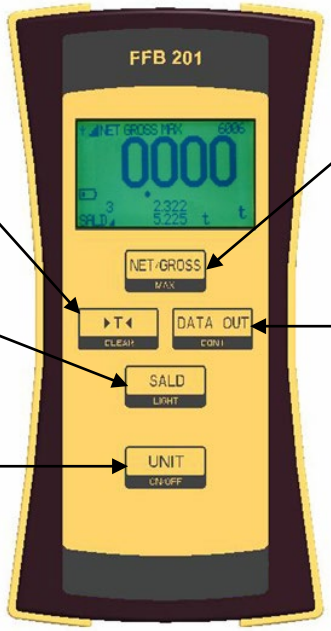
2-function button LIGHT
- ▶ Accumulation memory
- ▶ Display backlight

2-function button MAX
- ▶ GROSS ↔ NET
- ▶ MAX ↔ Normal

Function button CONT
- ▶ Measured value output to USB interface

3-function button ON/OFF
- ▶ ON ↔ OFF
- ▶ t-lb-to-kN-kg-t (1t ≈ 0,984to)
- ▶ Combination button for accumulation memory

7. FFB 201 button functions in weighing mode



3-function button CLEAR
- ▶ Taring: Normal mode
- ▶ Reset: MAX mode
- ▶ Clear accumulation memory

2-function button LIGHT
- ▶ Accumulation ON ↔ OFF
- ▶ Display backlight
  - ← press for 2 seconds

3-function button ON/OFF
- ▶ ON
- ▶ OFF ← press for 2 seconds
- ▶ Units ← tap

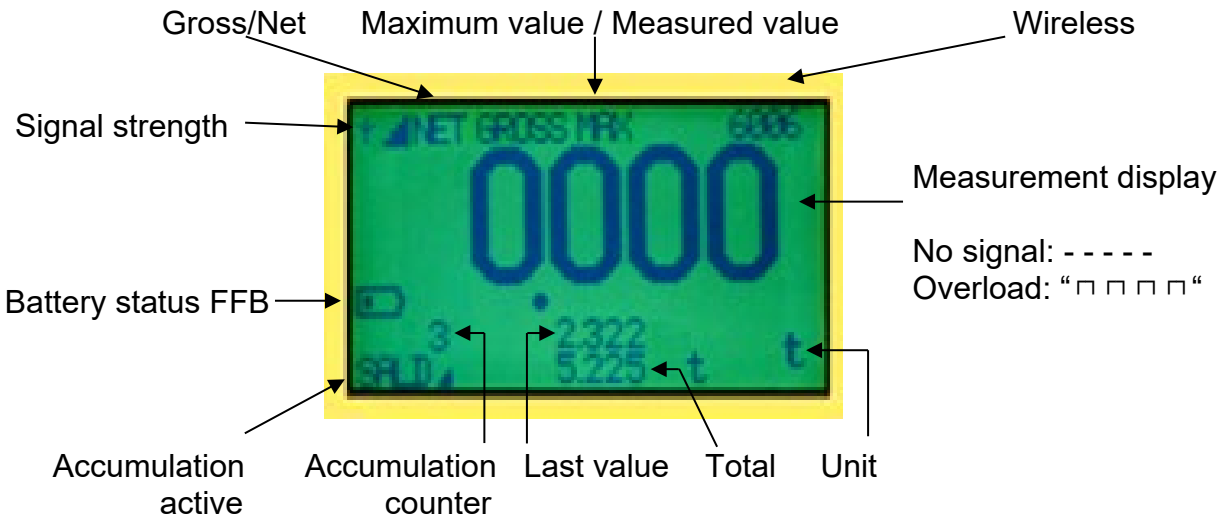
2-function button MAX
- ▶ GROSS ↔ NET
  - ← tap
- ▶ MAX ↔ Normal
  - ← press for 2 seconds

Function button CONT
- ▶ Send *one* measured value
  - ← tap
- ▶ Continuous sending
  - ← press for 2 seconds

8. FFB 201 button functions in accumulation mode

Buttons	Function	Remark
SALD + UNIT	Accumulation memory ON/OFF	Press for 0.5sec
SALD	Save/accumulate measurement	Same unit, not zero
SALD + T	Clear the last 5 values	Press for 0.5sec
SALD + T	Clear whole accumulation memory	Press for 2sec

9. FFB 201 display



10. Troubleshooting

No wireless signal / no measured value displayed

- Check that both devices are switched on.
- Check that the batteries of both devices still possess a sufficient charge
- Check the distance between the devices and the probability of signal disturbances, e.g. by moving the FFB closer to the KAK-F.
- Check that the wireless address of the FFB 201 matches the serial number of the KAK-F

KAK-F cannot be tared or fails to respond properly to commands

- Issue the command once more; a feedback should be received after approx. 2 seconds. Check for signal disturbances.

Displayed measurement constant but too high

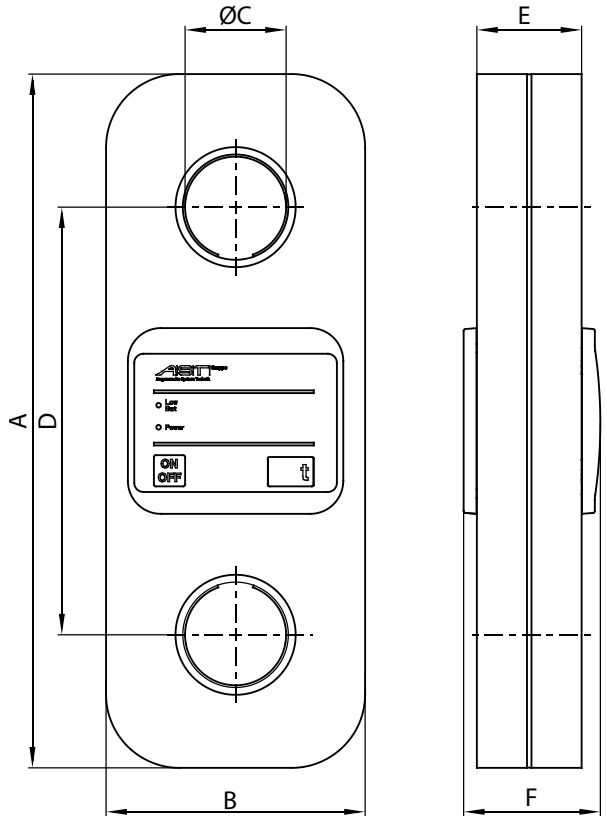
- Check whether the maximum value display is active; if so, press NET/GROSS for 2 seconds
- Check whether the KAK-F has been overloaded (e.g. outward signs of damage due to dropping or bending); in this case, the device is irreparably defective.

Displayed measurement very unstable or extremely high/low or else overload even without a load

- Check whether moisture may have penetrated into the KAK-F.

11. Technical specifications

Dimensioned drawing



Rated load	A	B	C	D	E	F	Weight
1t	190	118	∅14	151	16	38	1.1kg
2.5t	233	118	∅22	173	25	42	1.7kg
5.0t	250	118	∅27	180	30,5	45	2.1kg
10t	325	118	∅48	213	47	64	3.9kg
20t	378	141	∅55	233	57	74	6.8kg
35t	405	156	∅66	245	67	84	9.4kg
50t	450	180	∅76	264	77	94	14.4kg
100t	640	260	∅100	380	99	113	39.3g

Technical specifications – Load link KAK-F

Accuracy class	%	**0.2**
Rated load (=S)	t	1/2.5/5/10/20/35/50/100
Maximum permissible load	%S	150
Overload warning	%S	110
Ultimate overload	%S	>500
Ambient conditions		
Reference temperature	°C	+23
Rated temperature range	°C	-10 . . . .+40
Operating temperature range	°C	-20 . . . . +70
Storage temperature range	°C	-20 . . . . +70
Protection category (EN 60529)		IP 54
Power supply		4x AA batteries
Battery life	h	140

Technical specifications – Wireless remote control FFB 201

Wireless transmitter		
- Frequency		ISM band 868.3MHz)
- Transmit power		5mW (7dBm)
- Transmission rate		1 measurement every 2sec
- Line-of-sight range	m	approx. 40
Display		5-digit LCD
- Digit height	mm	14
- Display resolution (at rated load)		0.5kg (1t), 1kg (2.5t...5t), 10kg (10t...50t); 50kg (100t)
Operating voltage	VDC	3.0...4.8 (3 AA batteries) or powered via USB port
Power consumption (without backlight)	W	0.24
Operating time with supplied batteries	h	approx. 40
Ambient conditions		
Operating temperature range	°C	-10...+50
Storage temperature range	°C	-20...+70
Design details		
Keys		Membrane keys
USB interface		Mini-B USB connector, 5-pin
Dimensions: W x H x D	mm	82.1 x 161.7 x 53.8
Weight without batteries	g	240
Protection category (EN 60529) in normal use, USB port closed		IP 54

Functions: Backlight, tare, measurement unit, maximum value, data transmission, Accumulation (summation of weighing results)

Type code

Type code	
KAK-F / 20t / 0,2	Load link, including transport case (box), CD-ROM with user instructions, PC software ASTAS and USB connecting cable

Options

	Type code	**Description**
Power supply	XKC 107	Charger for 1-4 batteries (batteries not included), charging time approx. 2.2h
	Akku - AA	AA rechargeable battery, NiMH (order separately)
Factory calibration	**XKW 222**	Factory calibration for KAK-F/1t 20t
	XKW 242	Factory calibration for KAK-F/35t ...100t
Reducer sleeves /spacers		For “play-free” fitting into shackles

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AST Gruppe
Angewandte System Technik

EG-Konformitätserklärung
EC Declaration of Conformity

No. 25/16

Hersteller: Manufacturer:	A.S.T. - Angewandte System Technik GmbH Mess- und Regeltechnik
Anschrift: Adress:	Marschnerstraße 26, 01307 Dresden Bundesrepublik Deutschland
Produktbezeichnung: Product description:	Zuglasche Baureihe KAK-F Tension load cell type series KAK-F
Tragfähigkeit / Load capacity:	1 t bis 100 t
Maschinentyp: Type of machine:	Lastaufnahmemittel Load-carrying equipment

Seriennummer / serial number: ab / from Baujahr / year of manufacture 2011

Das bezeichnete Produkt stimmt in der von uns in Verkehr gebrachten Ausführung mit den Vorschriften folgender Europäischer Richtlinien überein:
The product described above in the form as delivered is in conformity with the provisions of the following European Directives:

2006/42/EG	Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten für Maschinen. Council Directive on the approximation of the laws of the Member States relating to machines.
2014/30/EU	Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit. Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Der Hersteller verpflichtet sich, die speziellen Unterlagen zur unvollständigen Maschine einzelstaatlichen Stellen auf Verlangen elektronisch zu übermitteln.
Die zum Gerät gehörenden speziellen technischen Unterlagen nach Anhang VII Teil A wurden erstellt.
Name des Dokumentationsbevollmächtigten: Dr. Kruse
Adresse des Dokumentationsbevollmächtigten: siehe Adresse des Herstellers

The manufacturer is responsible for transmitting the specific documents of the incomplete machine electronically to the national responsible authority on demand.
The specific technical documentations of the instrument are created in accordance with Annex VII, Part A.
Name of the documentation agent: Dr. Kruse
Address of the documentation agent: see the address of the manufacturer

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Anhang zur EG-Konformitätserklärung
Annex A to the EC Declaration of Conformity

No. 25/16

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Die Konformität mit der Richtlinie 2006/42/EG wird nachgewiesen durch die Einhaltung folgender harmonisierter Normen:
Conformity to the Directive 2006/42/EC is assured through the application of the following harmonised standards:

DIN EN ISO 12100:2004-04 Teil 1 und 2

Die Konformität mit der Richtlinie 2014/30/EU wird nachgewiesen durch die Einhaltung folgender harmonisierter Normen:
Conformity to the Directive 2014/30/EU is assured through the application of the following harmonised standards:

Störfestigkeit: Interference resistance:	DIN EN 61000-6-2: 2006-03
Störaussendung: Emitted interference	DIN EN 61000-6-3: 2011-09 DIN EN 55011: 2011-04

Hinweis: Bei einer nicht mit uns abgestimmten Änderung oder einer nicht bestimmungsgemäßen Verwendung verliert diese Erklärung ihre Gültigkeit.
Advice: If you make a technical change without our agreement or you don't use this product in accordance with the specified application in the manual, than the declaration loses its validity.

Dresden, den 14.10.2016

i. A. Heinrich

gez. Dr.-Ing. Gerd Heinrich
Qualitätsmanagementbeauftragter