CAMILLE BAUER

Трансмиттер углового положения
KINAX 2W2

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KINAX 2W2
Programmable transmitter for angular position

For installation

KINAX 2W2 is a compact, programmable transmitter for angular position for installation in devices and apparatus. Due to its unique capacitive measuring principle, it acquires the angular position of a shaft without contact and virtually reactionless, and converts the same into an impressed direct current proportional to the measured value.

The easy assembly via synchronous flange or flange adapter, the variety of connection options and free parameterising offer the highest degree of quality and flexibility in application and installation.

Your customer benefit

LOW LIFE-CYCLE COSTS DUE TO:

TESTED TOP QUALITY
- Capacitive Measuring principle
- Explosion protection acc. ATEX and IECEx intrinsic safety "ia" (gas)

SAFE, FREE OF MAINTENANCE
- 4...20mA analog output signal with 2-wire connection
- Drive shaft without stops, rotating
- Low starting troque
- High immunity against magnetic fields

EASY AND FAST COMMISSIONING
- No wear, low annual maintenance
- Measuring range, sense of rotation, characteristic and switch point can be parameterised via programming software
- Measured value simulation already during installation is possible

Technical data

General

Measured quantity:	Angle of rotation
Measuring principle:	Capacitive method

Measuring input

Angle measuring range:	programmable 0 ... 50° or 0 ... 350°
Drive shaft diameter:	Ø 2 mm [0.078"], Ø 6 mm [0.236"], 1/4"
Starting torque:	max. 0.001 Nm [0.141 in-oz] with shaft Ø 2 mm [0.078"] max. 0.03 Nm [4.248 in-oz] with shaft Ø 6 mm [0.236"] resp. 1/4"
Sense of rotation:	clockwise or counter-clockwise (in view of drive shaft)

Measuring output

Output variable I_A:	Load-independent DC current, proportional to the input angle
Zero point variation:	appox. ± 5 %
Final value variation:	approx. + 5 %
Current limitation:	I_A max. 40 mA
Standard range:	4...20 mA, 2-wire connection

Power supply:	<u>Standard (Non-Ex):</u>
	input voltage U_i: 12...33 V
	<u>Explosion protection intrinsic ia:</u>
	input voltage U_i: 12 ... 30 V
	max. input current I_i: 160 mA
	max. input power P_i: 1 W
	max. internal capacitance C_i: 6.6 nF
	max. internal inductance L_i: is negligible
Residual ripple in output current:	0.3 % p.p.
Response time:	< 5 ms
External resistance: (load)	$R_{ext\ max.}\ [k\Omega] = \frac{H\ [V] - 12\ V}{I_A\ [mA]}$
	H = Power supply
	I_A = Output signal end value

Accuracy data

Basic accuracy:	0.5 % with characteristic linear
Adjustments	350° version measuring range > 50…350° characteristic linear
	50° version measuring range ≥ 10…50° characteristic linear

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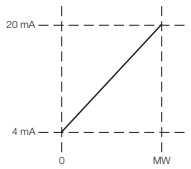
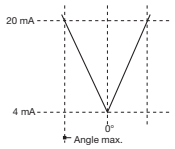
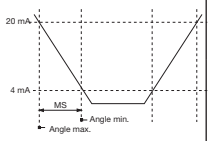
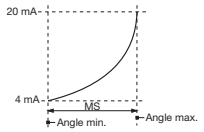
Additional errors (cumulative):

Characteristic	Definition	Additional error
Linear 	Programmed Angle max. = MW Angle min. = 0° $[f_{Add}]$=%	Device version 350°: $f_{Add}=(\frac{0.18°}{MS}$ x100-0.05)
		Device version 50°: $f_{Add}=(\frac{0.05°}{MS}$ x100-0.05)
	ex. with MW=180°: $f=f_{Add}+f_{Abs}=0.05\%+0.5\%=0.55\%$	
simple "V" characteristic 	Programmed Angle max. = MW Angle min. = 0° $[f_{Add}]$=%	Device version 350°: $f_{Add}=(\frac{0.18°}{MS}$ x100)
		Device version 50°: $f_{Add}=(\frac{0.05°}{MS}$ x100)
"V" characteristic with offset 	MS = (angle max.) – (angle min.) Angle max. = ± final angle Angle min. = > 0° $[f_{Add}]$=%	Device version 350°: $f_{Add}=(\frac{0.25°}{MS}$ x100)
		Device version 50°: $f_{Add}=(\frac{0.09°}{MS}$ x100)
any characteristic 	MS = (angle max.) – (angle min.) $[f_{Add}]$=%	Device version 350°: $f_{Add}=(\frac{0.25°}{MS}$ x100)
		Device version 50°: $f_{Add}=(\frac{0.09°}{MS}$ x100)

Reproducibility: < 0.2 %

Influence of temperature output current (-40 … +75 °C): [–40 ... +167 °F]: ± 0.2 % / 10 K

Installation data

Housing: Aluminium, surface alodine 400

Mounting position: Any

Connections: Soldering terminals resp. screw terminals
Protection class IP 00 acc. to IEC 60 529

Admissible static loading of shaft:

Direction	Drive shaft Ø	
	2 mm	6 mm resp. 1/4˝
radial max.	16 N	83 N
axial max.	25 N	130 N

Bearing play influence: ± 0.1 %

Weight: Approx. 0.1 kg

Regulations

Spurious radiation: EN 61000-6-3

Immunity: EN 61000-6-2

Test voltage: 750 V DC, 50 Hz, 1 min.
All connections against housing

Admissible common-mode voltage: 100 V AC, 50 Hz

Impulse voltage withstand: 1 kV, 1.2/50 µs, 0.5 Ws, CAT II

Housing protection: IP 50 acc. to EN 60 529

Environmental conditions

Climatic rating: Standard (NEx):
Temperature –25 … +75 °C
[–13 ... +167 °F]
Rel. humidity ≤ 90 % non-condensing

Version with improved climatic rating
Temperature – 40 to + 75 °C
[-40 ... 167 °F]
Annual mean relative humditiy ≤ 95 %

Ex version

Max. performance	Temperature class		
Pi	T6	T5	T4
1000 mW	40 °C [104 °F]	55 °C [131 °F]	75 °C [167 °F]
900 mW	44 °C [111 °F]	59 °C [138.2 °F]	75 °C [167 °F]
800 mW	49 °C [120.2 °F]	64 °C [147.2 °F]	75 °C [167 °F]
700 mW	54 °C [129.2 °F]	69 °C [156.2 °F]	75 °C [167 °F]
660 mW	56 °C [132.8 °F]	71 °C [159.8 °F]	75 °C [167 °F]

Permissible vibration: 0…200 Hz,
10 g continuous, 15 g for 2 h
200…500 Hz,
5 g continuous, 10 g for 2 h

Shock: 3 × 50 g every 10 impulses in all axes

Transportation and storage temperature: –40 ... +80 °C [–40 ... +176 °F]

Dimensional drawing

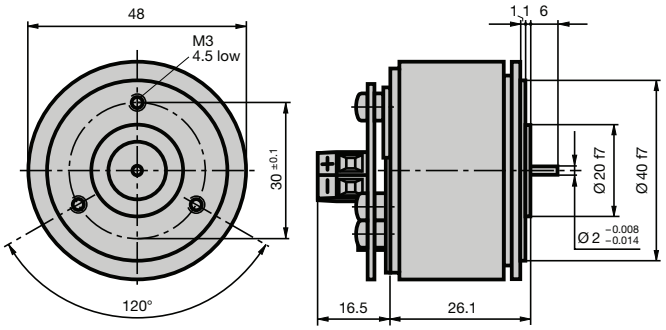


*Fig. 1. KINAX 2W2 with standard drive shaft at front **only**, dia. 2 mm, length 6 mm, screw terminal versions*

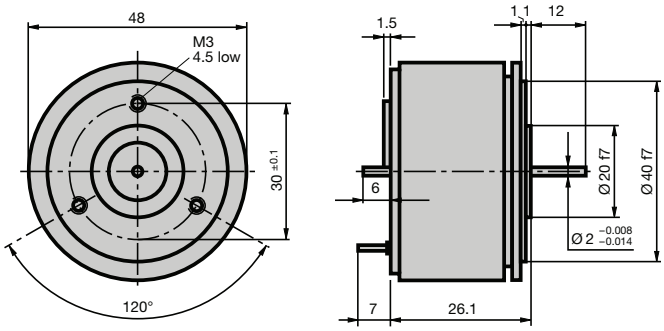


*Fig. 2. KINAX 2W2 with special shaft drive at front **and** at rear.*
At front: dia. 2 mm, length 12 mm. At rear: dia. 2 mm, length 6 mm.

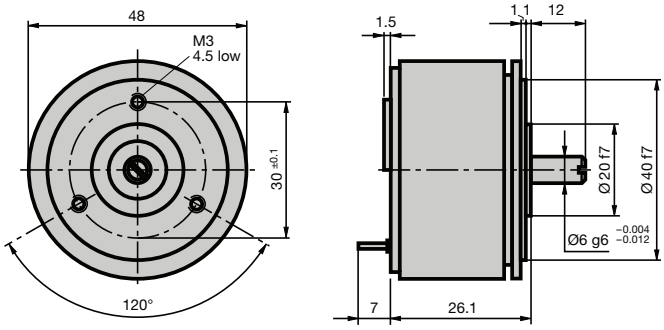


*Fig. 3. KINAX 2W2 with special drive shaft at front **only**,*
dia. 6 mm, length 12 mm.

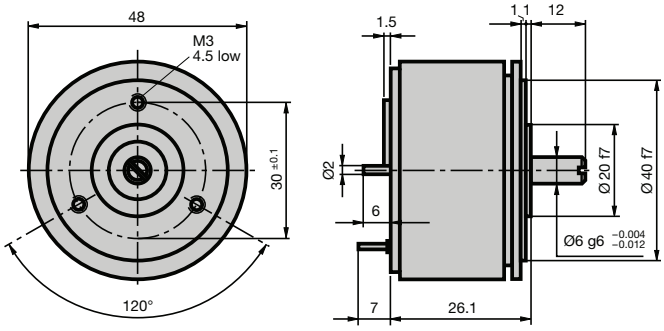


*Fig. 4. KINAX 2W2 with special drive shaft at front **and** rear.*
At front: dia. 6 mm, length 12 mm. At rear dia. 2 mm, length 6 mm.

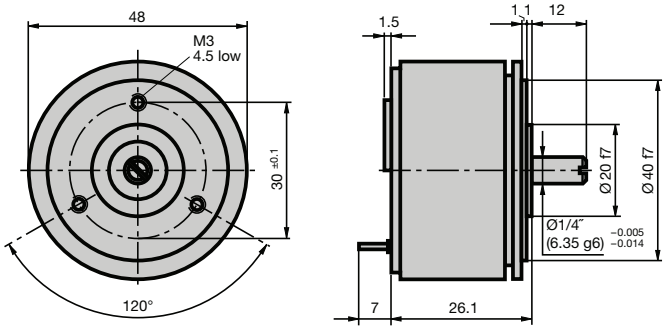


*Fig. 5. KINAX 2W2 with special drive shaft at front **only**,*
dia. 1/4", length 12 mm.

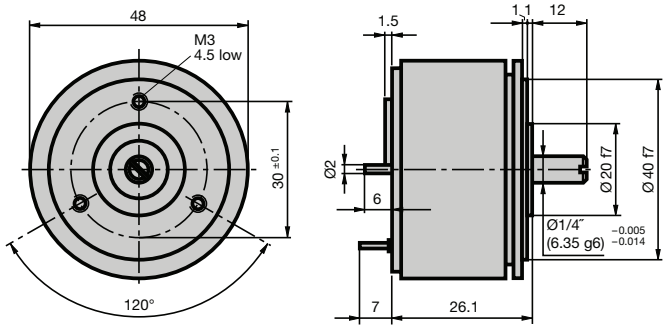
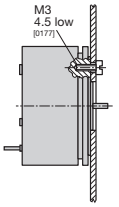
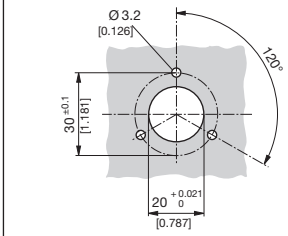
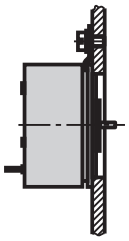
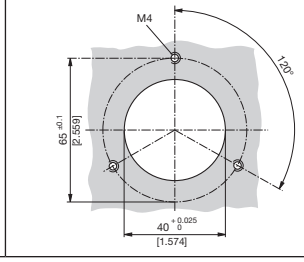


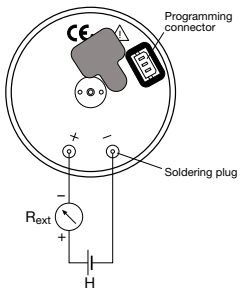
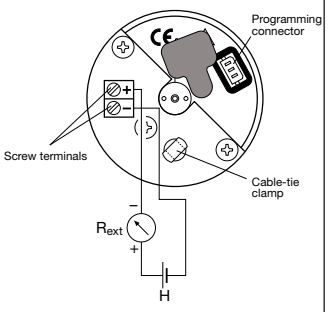
*Fig. 6. KINAX 2W2 with special drive shaft at front **and** at rear.*
At front dia. 1/4", length 12 mm. At rear dia. 2 mm, length 6 mm.

Montage

All versions of the transmitter can be mounted either directly or by means of 3 mounting clips to the item being measured. The screws are not supplied, because the required length varies according to the thickness of the mounting surface. Both methods of mounting and the relevant drilling and cut-out plans can be seen from Table:

Mounting versions[2]		Drilling and cut-out diagrams for mounting transmitters)
directly		
with 3 clamps		

Electrical connections

Connection to soldering plugs	Connection to screw terminals
	
R_{ext} = External resistance	H = power supply 12 … 33 V DC resp. 12 … 30 V DC Ex version

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Programming

A PC, the programming cable PK 610 plus ancillary cable and the configuration software 2W2 are required to program the transmitter. (Details of the programming cable and the software are to be found in the separate data sheet: PK 610 Le.)

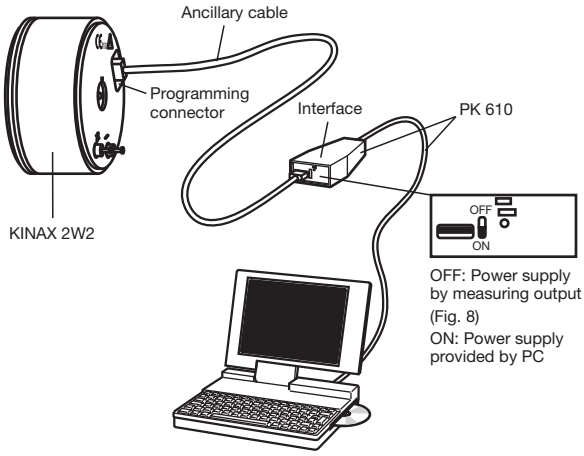

Fig. 7. Example of the set-up for programming a KINAX 2W2 without the power supply. For this case the switch on the interface must be set to "ON".

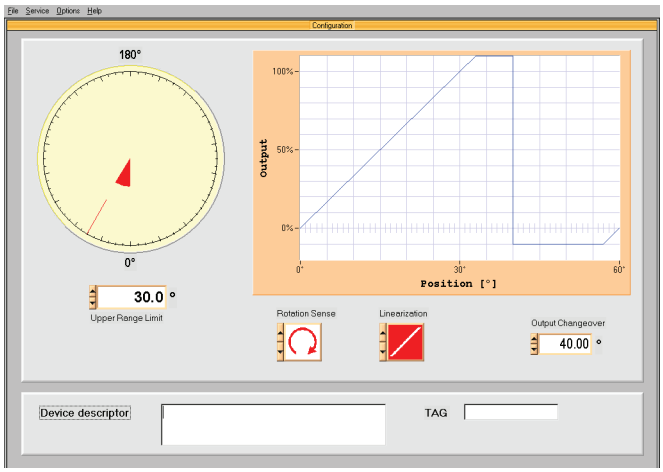

Fig. 8. Print screen example of the menu-controlled programming software.

Basic configuration

The transmitter KINAX 2W2 is also available already programmed with a **basic** configuration which is especially recommended in cases where the programming data is not known at the time of ordering (see "Table 1: Specification and ordering information" feature 7).

Basic configuration:

Order Code	Mechanical angle range	Measuring range	Switching point	Sense of rotation	Characteristic of output variable
760 - 1**1**11 100	50°	0 … 50°	55	Clockwise	Linear
760 - 1**2**11 100	350°	0 … 350°	355°	Clockwise	Linear

Table 1: Specification and ordering information

Description	***Blocking code**	**No-go with blocking code**	**Article No./ Feature**
KINAX 2W2 **Order Code 760 - xxxx xxxx xxxx**			760 –
Features, Selection			
1. Version of the transmitter			
Standard, measuring output non intrinsically safe			1
Ex ia IIC T6, CENELEC/ATEX, measuring output intrinsically safe			2
2. Mechanical angle range			
Angle range, to 50°			1
Angle range > 50 to 350°			2
3. Drive shaft			
Standard, dia. 2 mm at front, length 6 mm			1
Special, dia. 2 mm at front, length 12 mm, dia. 2 mm at rear, length 6 mm			2
Special, dia. 6 mm at front, length 12 mm			3
Special, dia. 6 mm at front, length 12 mm, dia. 2 mm at rear, length 6 mm			4

Description	*Blocking code	No-go with blocking code	Article No./ Feature
KINAX 2W2 Order Code 760 - xxxx xxxx xxxx			760 –
Features, Selection			
Special, dia. 1/4″, length 12 mm			5
Special, dia. 1/4″, length 12 mm, dia. 2 mm at rear, length 6 mm			6
4. Output variable			
Current, 4 … 20 mA, 2-wire connection			1
5. Electrical connection			
Connection to soldering terminals			1
Connection to screw terminals			2
6. Test certificate			
Without test certificate			0
Test certificate in German			D
Test certificate in English			E
7. Configuration			
Basic configuration programmed (specification complete!)	G		0
Programmed to order			1
Programmed to order, with zero position mark on the drive shaft disk Required if the device is to be installed without 2W2 software.			2
8. Sense of rotation			
Programmed for sense of rotation clockwise	J		0
Programmed for sense of rotation counterclockwise	J	G	1
Programmed for “V” characteristic	K	G	2
9. Measuring range [° angle] 0 … final value Switching point: ____ Admissible values: Final value: ≥ 10 to 50° with selected angle range 50° > 50 to 350° with selected angle range 350° Switching point: > Final value, max. 60° with angle range 50° > Final value, max. 360° with angle range 350° ≥ 105% final value with non-linear characteristic		K	9
“V” characteristic [±° angle] Min. Max. ____ Admissible values: Minimum value: [±° angle] ≥ 0 Maximum value [±° angle] ≤ 25° with angle range 50°, span (max. – min.) ≥ 5° > 25° to 175° with angle range 350°, span ≥ 25° symmetrical about the center line, e.g. [±° angle], min. value = 15; max. value = 120, ≙ – 120 … – 15 … 0 … 15 … 120° (input) and + 20 … 4 … < 4 … 4 … + 20 mA (output)		GJ	Z
10. Characteristic of output variable			
Linear			0
Function X to the power of 1/2		GK	1
Function X to the power of 3/2		GK	2

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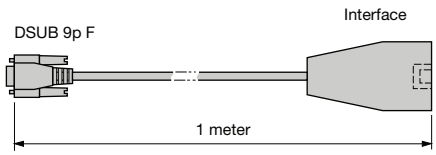
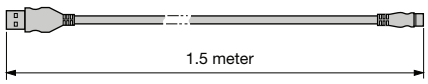
Description	*Blocking code	No-go with blocking code	Article No./ Feature
KINAX 2W2 Order Code 760 - xxxx xxxx xxxx			760 –
Features, Selection			
Function X to the power of 5/2		GK	3
Customized Give an algorithm or fixed points (23 values in 5 % steps from – 5 % to 105 % of the measuring range. Output continuously variable 0 to 100 %)		GK	4
Lines 1 to 4: Not possible with “V” characteristic (line 2 in feature 8, sense of action)			
11. Climatic rating			
Standard climatic rating (annual mean relative humidity ≤ 90 %)			0
Improved climatic rating (annual mean relative humidity ≤ 95 %)		G	1
12. Marine version			
Without			0

** Lines with letter(s) under “No-go” cannot be combined with preceding lines having the same letter under “Blocking code”.*

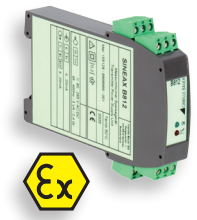
Accessories

Description	Order No.
Programming cable PK 610 	137 887
Ancillary cable 	141 440
Configuration software 2W2 Windows 95 or higherr on CD in German and English In addition, the CD contains all configuration programmes presently available for Camille Bauer products	146 557
Kit mounting clamp for 2W2 and 3W2	168 387
Different bellow couplings	xxx xxx
Different helical and cross-slotted coupling	xxx xxx
Different spring washer coupling	xxx xxx

Scope of delivery

1 Transmitter for angular position KINAX 2W2 (according to Order)
1 3 clamps
1 Operating instructions in German, French, English and Russian
1 Type examination certificate, only with ATEX-approval

You find power supply units for KINAX 2W2 in our process instrumentation product range.

SINEAX B812 1-channel power supply unit	SINEAX B811 1-channel power supply unit
	

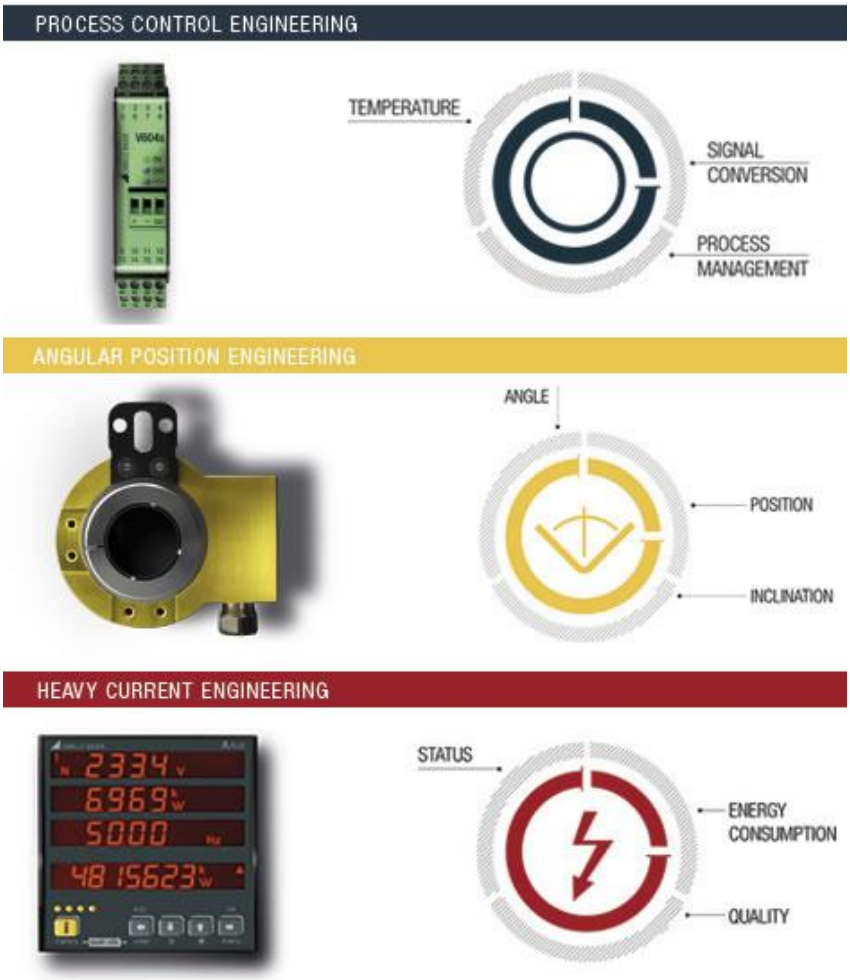
Approvals

Approval		Identification
Ex	Explosion protection according to ATEX	Ex II 2G Ex ia IIC T6 Gb

По вопросам продажи и поддержки обращайтесь:

Архангельск (8182)63-90-72
Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Единый адрес для всех регионов: cmn@nt-rt.ru || www.camille-bauer.nt-rt.ru



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