LUCATRON
keep contact

Tuning manual

SRC-201

Receiver Electronics 8.2MHz

Article No.: 876 603 600 A

Software version: V2.0
Document version: V1a

Contents

1 Introduction

In functional terms, the SRC-201 replaces the SRC-200 and, together with the STR-101 transmitter, forms the basis of the LUCATRON sweep 2 antenna RF system.
The most significant new features compared with its predecessor (the SRC-200) are an improved filter for connecting additional electronics to the filtered output (OUTF) (there can now 2 additional electronics be connected to that output) and the possibility for connecting a second people frequency counting receiver module.
Using a supplementary COM-module, the SRC-201 can be connected to the AGONET (EAS network of agon-systems). Tuning can take place either manually or using a PC (opto-interface).

As all LUCATRON systems are CE approved, the configurations and limitations recommended in this manual should be complied with.

These tuning instructions describe all functions and both the manual as well as the software tuning procedure for SRC electronics.
The functions of the transmitter electronics are described in the STR-101 tuning manual.

The positions of all the elements mentioned in this manual (connectors, jumpers, switches, potentiometers, etc.) can be found in the Appendix "Layout of tuning elements".
Warning: Elements that are not listed in "Layout of tuning elements" are necessary for factory adjustment. Their settings must not be modified in the field.

1.1 Functional description of the electronic receiver system

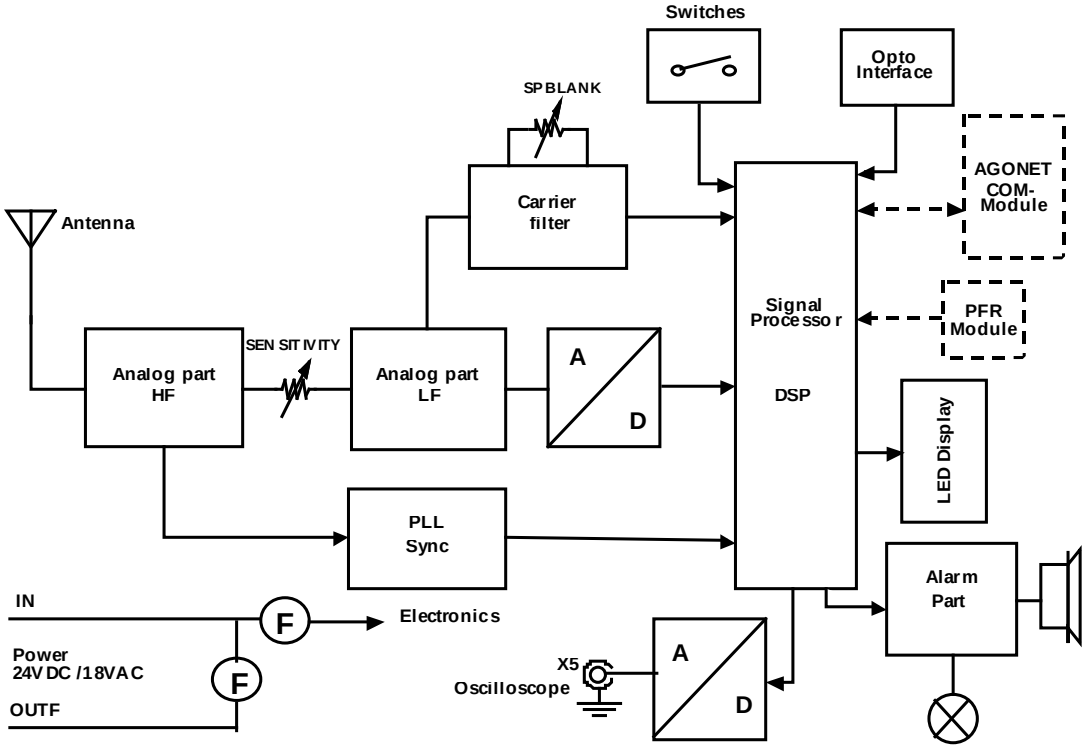
1.1.1 General

One SRC electronics is required for each receiver antenna. The SRC can receive and process frequency modulated RF signals. The only condition is that the associated transmitter complies with the following parameters. Nominal frequency 8.1 / 8.2MHz, maximum frequency deviation ±9% and a nominal modulation frequency of 78 - 86Hz. The SRC is air-synchronized, i.e. no synchronization cable is necessary between the transmitter (STR) and the receiver electronics (SRC).

1.1.2 Technical data

- Nominal frequency: 8.2 MHz
- Synchronous detector: 7.6 to 8.6 MHz
- Synchronization signals: 79, 82, 85 Hz
- Antenna impedance: 200 ohms
- Choice of buzzer: Internal (I) / External (E)
- Alarm light output (LIGHT): Maximum output current 50 mA.
- Alarm relay output (AUX): Max. values for relay contacts: 48 VDC or 48 VAC, 1 A
- Power input 24 VDC/18 VAC 0.6A
  Use LUCATRON 18V AC power supplies with built-in EMC filters.
  Order No.: 511 245 523 (1.4 A type for single gate, 2 electronic systems)
  511 505 520 (2A type for dual gate, 3 electronic systems)

1.1.3 Block diagram



F = Filter

1.1.4 Power supply

The SRC electronics is supplied with 24 VDC or 18 VAC to connector X1. The SRC is equipped with a built-in power supply filter to protect against any interference picked up on the incoming line. It has a supplementary filtered output (OUTF) for connection to another transmitter or receiver electronics.

1.1.5 Analog part

The antenna input signal is amplified by an input stage and then fed via a band pass filter to an amplifier with variable gain. By using the R109 potentiometer (RF GAIN) you can adjust the sensitivity of the receiver.
It is also possible to reduce the gain of the input amplifier by 10dB for small antenna distances by inserting jumper J1.
Fixed interference, such as carrier signals from radio transmitters and EAS systems can be inhibited using a special "carrier signal filter". The response threshold of this filter can be adjusted using potentiometer R233 (SP BLANK). The LED (SPB) flashes if the filter is active.

1.1.6 Digital signal processor (DSP)

A synchronization signal for the digital signal processor (DSP) is extracted from the RF signal via a phased lock loop (PLL) circuit.
The demodulated low frequency signal (LF) consisting of TAG signal and noise is converted using an A/D converter. The subsequent DSP filters and processes the converted data.
The DSP analyses the stored data and, if the predefined criteria are fulfilled, generates an alarm.

In order to display the signals processed internally, they are converted back to analog signals with a D/A converter. Various combinations (windows) prepared in this way are available for display on an oscilloscope at connector X5 and at test point P8. You can select these display windows either with switch S1 or using software. A negative trigger impulse is added to each display window to trigger the oscilloscope.

1.1.7 Alarm part

The SRC electronics is prepared to generate both an audible alarm (buzzer) and a visual alarm (alarm light).

Visual alarm:

- The alarm light is connected to connector X3 (LIGHT+, LIGHT-).
- The ALM LED on the PCB serves as a supplementary alarm display.

Audible alarm:

- The internal buzzer is normally used to provide the audible alarm.
- Alternatively an external buzzer (max. 15 V DC) can be connected to connector X1 (SOUND+ and SOUND-).
- Jumper J2 is used to select between an internal (I) and external (E) buzzer.
- Jumper J2 can be removed to switch off the buzzer.
- 3 predefined alarm patterns and one customer-defined alarm pattern are available. You can select the required alarm pattern with switch S1 (9.10).

Alarm relay:

- Synchronous to the alarm light, a relay (switch) is also switched. The relay contacts are available to connector X2 (AUX) (for details see "Alarm outputs" chapter).

1.1.8 Opto Interface (OIF)

The interface connector X9 (RJ10) is intended for the commissioning the SRC-201 electronics by software. It can be connected with a special interface (called OIF) to a PC.

1.1.9 COM-Module (COM)

The SRC-201 can be part of the AGONET (EAS network). An optional optical interface (called COM-Module) can be mounted on every SRC-201 electronics. So the SRC can be connected by opto cable to a network control center (NCC-10x). For details about this feature refer the AGONET handbook.

1.1.10 People Frequency Counter (PFC)

There are two input connectors (X6, X7) which can either be configured for connecting people frequency counting receiver-modules (PFR) or can be used as general purpose inputs. These inputs can be configured by the AGONET software (for details see chapters “Software commissioning”).

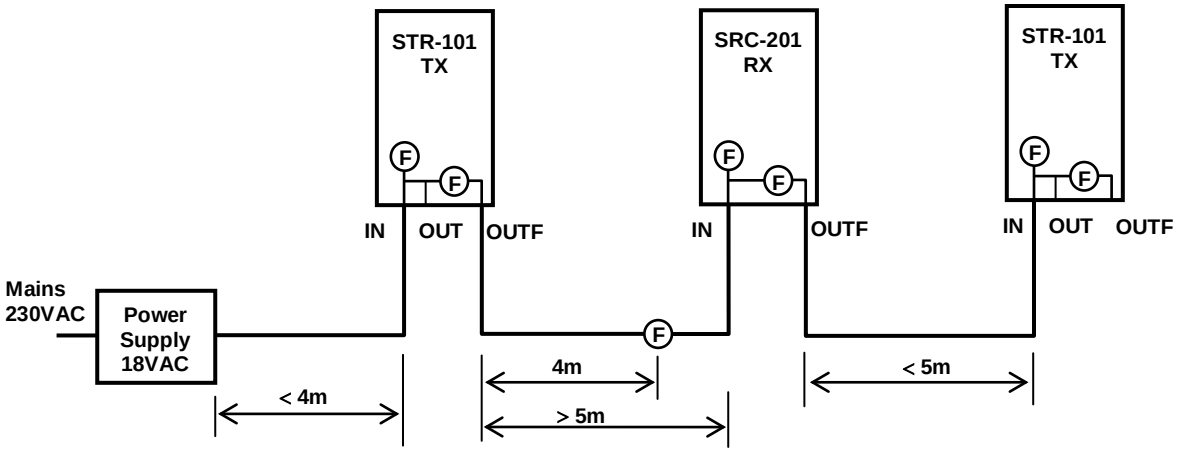
1.2 Transmitter

See *STR-101 Tuning manual* for details of tuning the transmission electronics.

2 Configuration and connection of receiver electronics

2.1 Power supply wiring

For undisturbed reception, any interference picked up from power cables must be eliminated. To be sure of achieving this, the maximum permitted unfiltered cable length must not be exceeded. The filter concept below is implemented using filters built into the LUCATRON power supplies, the filters in the STR and SRC electronics (X1 OUTF) and external supplementary filters.
WARNING: The filtered power output (OUTF) can conduct the current of 2 supplementary STR or SRC electronics only. If several electronics have to be connected, external supplementary filters have to be used (see drawing below).



Filter concept

Connections	SRC-201 connector	STR-101 connector
Power input	X1 (1.2)	X1 (1.2)
Filtered output	X1 (3.4)	X1 (5.6)
Unfiltered output	-	X1 (3.4)

NOTE: The maximum permitted unfiltered cable length is 5 meters. Intermediate filters should be used every 4 meters for longer power cables. Intermediate filters of this type are available from LUCATRON as an option.
Use wires having a cross section of at least 0.75mm^2 for the power supply wiring. If the environment exhibits strong interference, then use shielded power supply wiring.

2.2 DSP synchronization

The SRC electronics is air-synchronized to its associated transmitter.
No synchronization cable is necessary for the receiver electronics.

2.3 Alarm outputs

When a tag or label is detected, the system issues both audible (buzzer) and visual alarms (alarm light).
There are 3 predefined and one customer specified alarm patterns available (details: see chapters “Software commissioning” and “Appendix”).

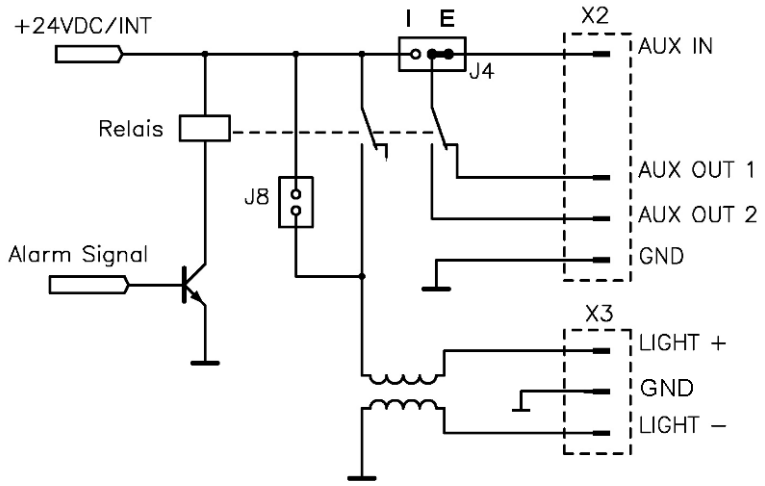
2.3.1 Buzzer

You can select either the internal buzzer (J2 = I) or an external one (J2 = E) using jumper setting J2. The external buzzer can be connected to connector X1 (5.6) (make sure polarity is correct).
Both buzzers can be switched off by removing jumper J2.

2.3.2 Alarm light

The alarm light is normally connected to connector X3 (LIGHT+, LIGHT-) (if using screened cables: screen to GND).
The maximum available current at the lamp output is 50 mA.
For greater currents or special applications (e.g.. switching between 2 light colors), the alarm light can be connected via the AUX output (for details please see "Relay output" chapter).

2.3.3 Relay output



In the case of an alarm, normally +24 V DC/INT is switched via the left-hand relay contact at output X3 (LIGHT+). If both states (alarm active and inactive) are necessary for an application (e.g.. for switching the color of the light: green for no alarm and red for alarm) then

- Insert jumper J8.
- Connect output X3 (LIGHT+) with AUX IN to connector X2.
- Insert jumper J4 in position E.

In the event of an alarm, the supplementary filtered +24 V DC/INT supply is now switched from AUX OUT 1 (alarm inactive) to AUX OUT 2 (alarm active).

NOTE: If J4 (I) is used instead of J8, the same function is carried out without a filter. This can be corrected by connecting an extra external filter in order to get a clean DC signal.

CAUTION:
Do not draw more than 50 mA when using the internal +24 VDC/INT source.

For higher current applications, you can apply an external voltage on the AUX IN contact (X2) with J4 set to E to provide the same switching effect.

CAUTION:
The maximum input to AUX IN on X2 is 48 VDC, 1A or 48 VAC, 1A.

3 Tuning

For the location of connectors, jumpers (J), test points (P) and tuning elements, see Appendix (Layout of adjusting elements).

CAUTION:
Elements not referenced in this manual are for factory use only and should not be adjusted or changed.

Tuning can take place either with an oscilloscope or by using the LED display. We recommend tuning with an oscilloscope (faults and interferences are visible).

It is a prerequisite for tuning the SRC that the electronic system has been configured and connected according to Chapter 2.
The relevant transmitter must be calibrated and put into operation according to the STR-101 Tuning manual.

3.1 Recommended measuring instruments

The following measuring instruments are required for tuning purposes:

- 2-channel oscilloscope (100 MHz, poss. battery-powered unit)
  - Oscilloscope probes (10:1)
  - SMB to BNC adaptor cable, for direct connection of the oscilloscope to connector X5.
- Sweep span meter (Je-tec article. no.: 963 600 209)
- Multimeter

3.2 Oscilloscope settings and connection (video output)

For tuning purposes, an oscilloscope must either be directly connected to connector X5 (SMB connector) or to test point P8 using a probe.
The signal (window) required for the display can be selected using switch S1 or software (see "Tuning adjustments" chapter and “Software commissioning” as well).
A negative trigger pulse is applied to these signals for triggering the oscilloscope.

Configuration:

- Connect oscilloscope either with a probe to P8 or with an SMB cable to X5.
- Oscilloscope settings:
  - Input 100 mV/Div AC
  - Time base 2 ms/Div
  - Trigger negative
    (select as low a trigger level as possible, see "Sensitivity" chapter)

3.3 Preparation of SRC electronics

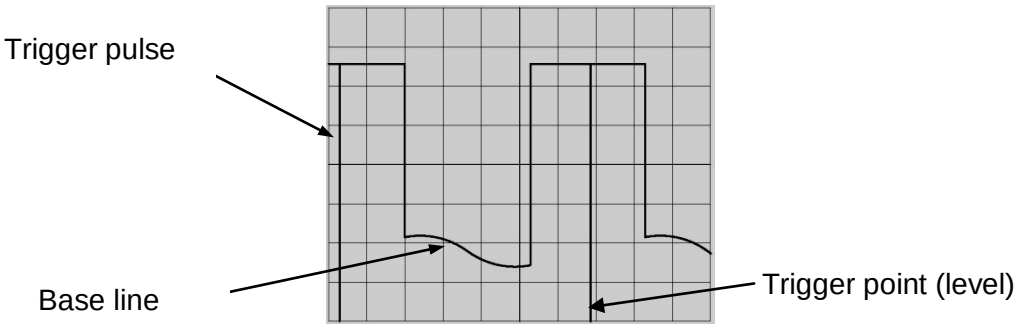
- Make sure the required jumper configuration is set up.
- Turn potentiometers R109 (RF GAIN) and R233 (SP BLANK) fully counter-clockwise at the start (to minimum position).
- Connect system power supply to mains and switch on.
- The green LED (PWR) should light up.

3.4 Tuning adjustment

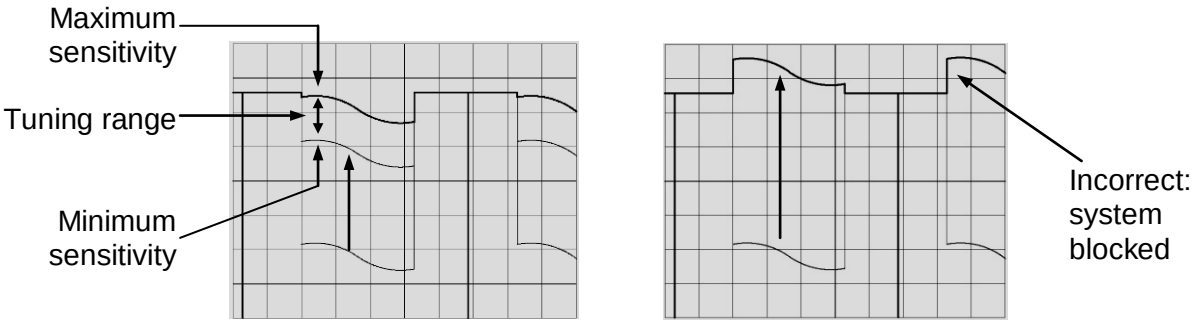
3.4.1 Sensitivity

- Switch settings S1 (sensitivity tuning)

- The signal displayed on the oscilloscope should look like the picture below. Remarks: The height and shape of the base line can vary from the picture. Basically, it depends on the impedance and characteristics of the antenna.

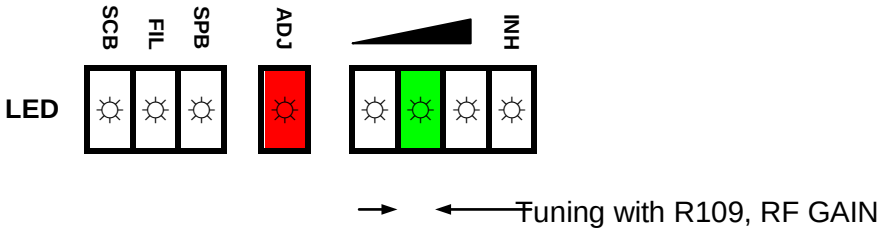


- Use potentiometer R109 (RF GAIN) to adjust the sensitivity until the signal displayed looks like the picture below left (in tuning range). (The right-hand picture is an example of poor tuning. The base line is higher than the flat part of the signal. The system is overloaded and blocked).



Correctly adjusted **HF signal** (Poorly adjusted)

The sensitivity (RF GAIN) can be adjusted by monitoring the LED display.
In all adjusting modes, the red LED (ADJ) is permanently lit up and it does not start to flash until switched to operating mode (F). If the set HF level is too high, the red LED (INH) lights up and therefore indicates that the receiver is blocked (i.e. overloaded). The LED display below shows correctly adjusted sensitivity (only the middle green LED is illuminated).



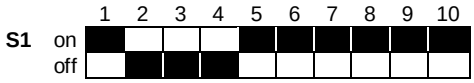
Troubleshooting

- If the sensitivity cannot be adjusted (LED INH lit up, the system is blocked), the following two possibilities for reducing the HF should be tried. Insert jumper J1 (Low Gain) on the SRC electronics and/or reduce the transmission level on the STR electronics.
- If the base line of the HF signal remains constantly low, either the transmission level must be increased on the STR electronics or the antenna distance reduced. The LED INH can also light up in this case. LED INH also lights up if the signal is so weak that the SRC can no longer synchronize.
- The two INH functions can be different because of the green LED.
    - o Signal too strong → right-hand green LED lights up
    - o Signal too weak → left-hand green LED lights up

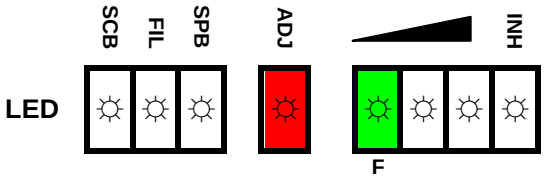
3.4.2 Tuning mode

In tuning mode, the buzzer is switched off and therefore silent (S1(1) ON). Alarms are only signaled via the alarm light (display time approx. 2 secs.)

Switch settings S1 (tuning mode):



In tuning mode, the LED display looks like this:



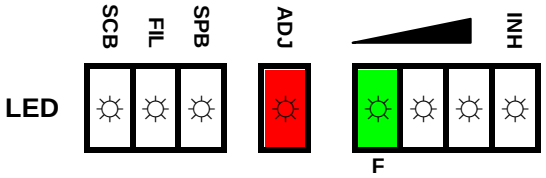
F means flashing

In a correctly adjusted system and disturbance free environment, the left-hand green LED of the level meter flashes. The maximum tolerable value on the level meter is the left-hand LED illuminated permanently and the middle LED flashing (for hard TAG).

3.4.3 Noise

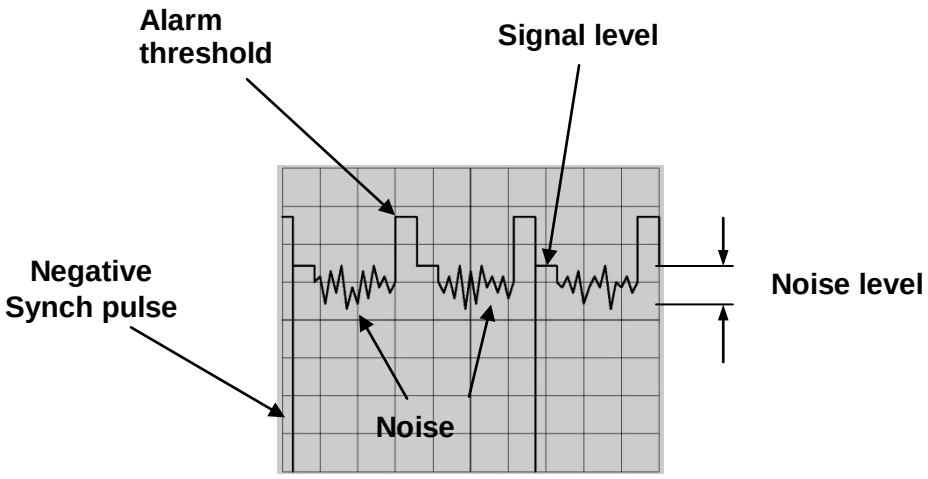
Switch settings S1 (tuning mode)

In tuning mode, the LED display looks like this:



F means flashing

- The oscilloscope signal below shows noise (without TAG in system):



Video signal without TAG

- For wide aisle applications, the noise level should lie between 50 and 150 mVpp.

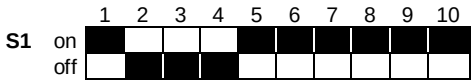
If the signal on the oscilloscope shows faults or resonances!

Continue to Chapter 3.5 "Locating and correcting faults".

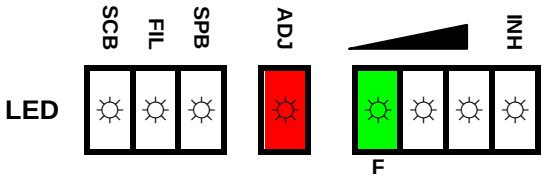
3.4.4 Detection and TAG signal

The detection of the system can now be tested with a test TAG (customer TAG).

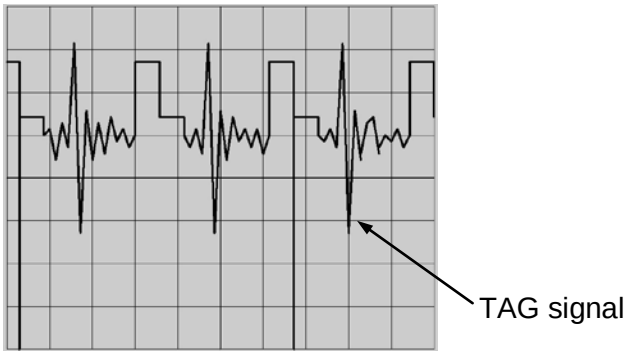
Switch settings S1 (tuning mode, equates to software “beep mode 0”)



In tuning mode, the LED display looks like this:



F means flashing



TAG and noise signal

Test sequence:

- Hold test TAG in front position into the system and watch the signal on the oscilloscope. If the signal level exceeds the alarm level, an alarm is generated. In the standard system set-up, the ratio of alarm level to signal level (noise) is set to 3:1. For TAGs with a strong TAG signal, the ratio can be increased using switches S1(5) and S1(6) (greater signal-to-noise ratio).

Allocation of switches:

S1(5)		S1(6)		Description	equates to Software „Threshold Level“
ON	OFF	ON	OFF		
X		**X**		Ratio 3:1	7
	X	X		Ratio 5:1	10
X			X	Ratio 6:1	14
	X		X	Ratio 8:1	20

- The alarm threshold is dynamic: if the signal level is rising slowly, the alarm level is automatically increased. The ratio set up with S1(5) and S1(6) is retained.

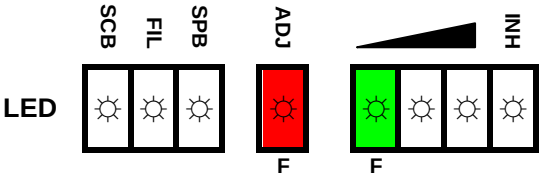
- Before an alarm is generated, the system must detect the TAG 24times consecutively (accept counter). In environments with less interference, the accept counter can be reduced to 8 (S1(4) ON) with switch S1(4). This makes the system faster, but more susceptible to false alarms.

3.4.5 Operating mode

The alarm is now generated according to the alarm pattern set with S1(9) and S1(10) (the buzzer is switched on).

S1 settings operating mode:

In operating mode, the LED display looks like this:



F means flashing

Introduce test TAG to system and check alarm pattern.

3.4.6 Alarm settings

You can use switches S1(9) and S1(10) to select between 3 predefined alarm patterns and one that the customer can define himself.
The customer-definable alarm pattern can be set up using AGONET PC software (see chapter: “Software Commissioning”).
Both alarms (audible and visual) have their own cycle time. So that shop personnel can determine where an alarm has been triggered, the alarm light time is set to be considerably longer than the buzzer time (light time: minimum 10 seconds).

Allocation of switches:

S1(9) ON	S1(9) OFF	S1(10) ON	S1(10) OFF	Description	equates to Software „Beeper Mode“
X		**X**		SRC-200 Style (Standard)	1
	X	X		SRC-100 Style	2
X			X	L- Style	3
	X		X	Can be modified with AGONET software	4

The above alarm patterns are shown diagrammatically in the Appendix.

Adjust the buzzer volume with potentiometer R326 (VOLUME).

3.5 Locating and correcting faults

All of the filters described in the sections below should be switched on and off selectively. As a rule, any change to these filters compared with the standard setting also results in a reduction of the detection distance. More features for correcting faults are available by the AGONET software (see chapter “Software Commissioning”)

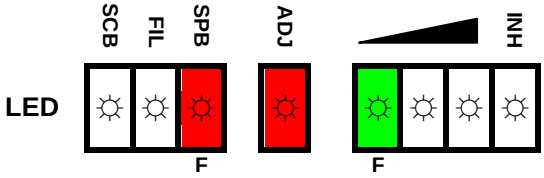
3.5.1 Carrier signal filter (SP BLANK adjustment)

Carriers from radio stations and, to a certain extent, from RF systems not synchronized with our system, can be screened out with this filter. The red LED (SPB) indicates if the filter is activated. The response threshold of the filter can be adjusted by using potentiometer R233 (SP BLANK).

- Synchronized deactivators in the system to be adjusted should be switched off for the duration of the carrier signal filter tuning process (they are automatically blanked by the system).
- Before adjusting always try to locate the source of any visible signals and eliminate them, because each blanking results in a reduction of system sensitivity.
  NOTE: Synchronization of a system located in the environment is preferable to screening out this system.

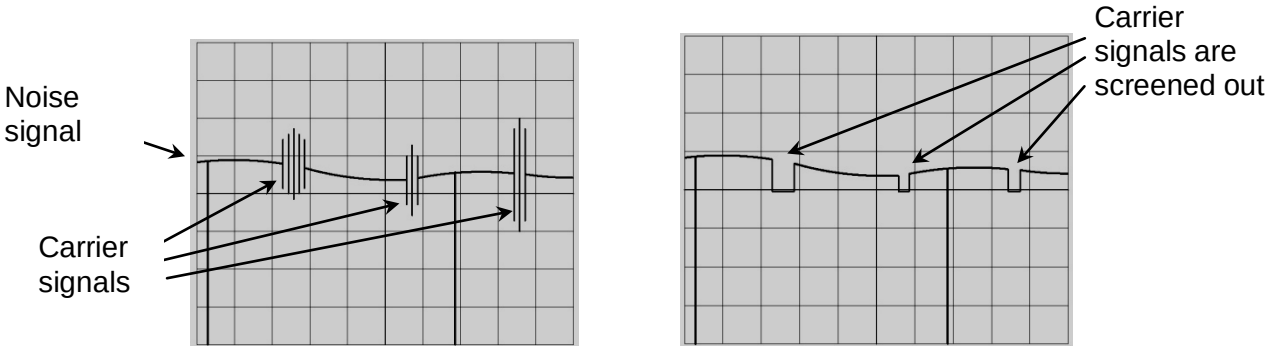
- Switch setting S1 for adjusting the filter:

The LED display for adjusting the carrier signal filter looks like this:



The red LED (SPB) always flashes if the carrier signal filter is active.

- The following illustrations show various carrier signals (e.g. radio stations or RF systems) before and after processing by the carrier signal filter:



3.5.2 Level-dependent spike filter

The level-dependent spike filter can no longer be switched on and off using DIP switches as was the case with the SRC-100.
It is switched off as standard and can only be switched on using the AGONET software.

3.5.3 Slew rate filter

Rapid signal rises, usually caused by noise, can make the receiver oscillate. The slew rate filter inhibits this oscillation. The "FIL" LED indicates if this filter is activated. TAGs of a very high quality factor (high Q TAGs) can trigger this filter, so that in some rare cases, the filter has to be switched off.
Caution: Only switch this filter off, if you are certain you have very little ambient noise.
Standard position: S1(7) ON (filter active)

3.5.4 Base band filter

You can select one of two different base band filters with switch S1(8). The "Standard base band filter" (S1 (8) ON) has filter characteristics that are adequate for most applications. You can select the "Enhanced base band filter" with the switch setting (S1(8) OFF). This filter provides additional attenuation for week resonances caused by so-called "low Q devices". "Low Q devices" can be: shopping trolleys, rolls of cable, installations close to the system, cable ducting, etc.
The LED (SCB) indicates if the base band is limited by one of the two filters.
Standard position: S1(8) ON (Standard base band filter)

3.5.5 Alarm threshold

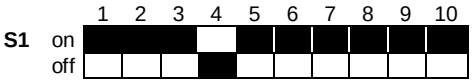
Using switches S1(5) and S1(6) the alarm level (threshold) can be adjusted to suit ambient conditions (interference and noise) and the TAG size. You can select between the following ratios (alarm level to signal level [noise]) 3:1, 5:1, 6:1 and 8:1 (please see Appendix for allocation of switches)
If it proves impossible to remove existing interference, the ratio can be increased by using TAGs that generate a stronger signal (reduction in false alarms).
Standard position: S1(5) ON, S1(6) ON (3:1)

3.5.6 Alarm accept counter

You can set up here how often the DSP must detect a TAG before an alarm is generated. Using switch S1(4), you can select between 8 and 24 times. The alarm accept counter should only be set to 8 in a interference free environment (greater danger of false alarms)
Standard position: S1(4) OFF (24 times)

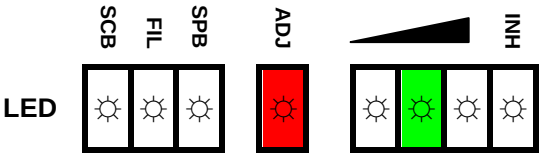
3.6 Short form tuning instructions

- Ensure power supply and synchronization cables are in order.
- Insert necessary jumpers according to Configuration overview 4.1.
- Turn potentiometers R109 and R233 fully counter-clockwise as far as the stop.
- Put switch S1 into tuning position as shown below.



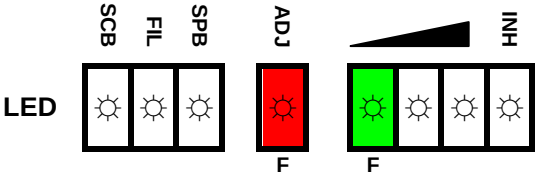
- Turn power supply on.
- Firstly adjust the STR electronics according to STR-101 Tuning manual.
- Check if the green LED (PWR) is lit up.

- Turn the sensitivity potentiometer R109 slowly in a clockwise direction until the LED display looks as shown below:



- Put switch S1 into operating mode

The LED display should now look like this:



The system is properly adjusted if the left-hand LED of the level display is flashing.

- If more than one LED lights up or flashes, you should connect an oscilloscope to connector X5 to check the signals (procedure according to Chapter 3.4 "Tuning adjustment").

- If there are any faults present, they should be located and eliminated according to Chapter 3.5 "Locating and correcting faults".

- Check system with a test TAG (customer TAG).

- Adjust volume of buzzer with R326 to suit the customer's requirements.

4 Software Commissioning

For the software commissioning a PC with installed AGONET software and a CM-Stick are necessary. For details about AGONET software installation und software license refer the “AGONET System Manual”.

CM-Stick with license data

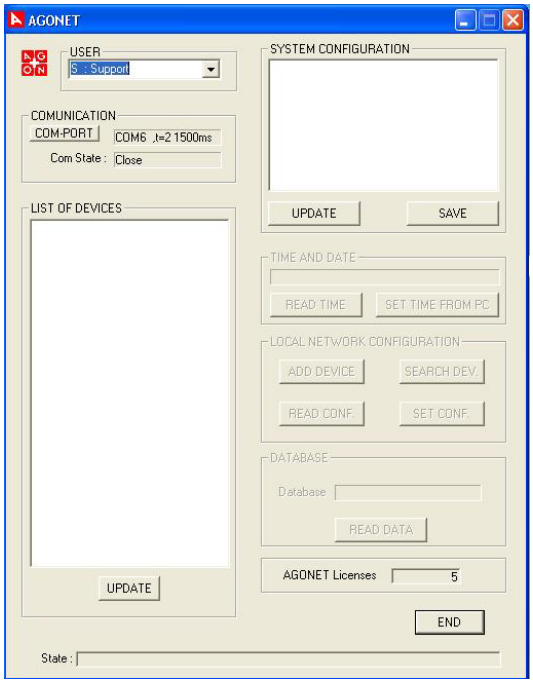
4.1 Electronics board address

Every EAS device (SRC electronics) is identified by its specific address. The device address (default value) is basically given by the last two figures of the device serial number (see ID Sticker: SRC electronics). The address can be changed according chapter 4.5.1.1.

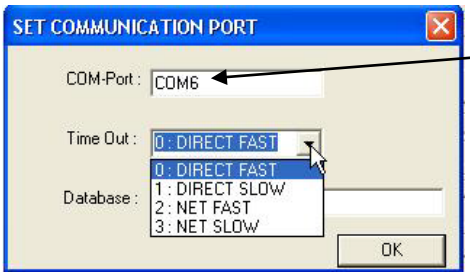
4.2 AGONET startup

- Connect your PC via the opto interface (OIF) to the SRC electronics (connector X9)

- Double click to the AGONET Icon for opening the basic user interface of AGONET.



- Enter the COM port number intended for use (range COM1..99) and specify the necessary time. Normally “Direct Fast”.



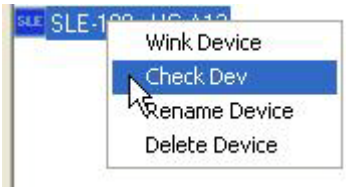
- Start searching for connected electronics by mouse click on the “UPDATE” icon (LIST OF DEVICES). Your connected SRC electronics should then be displayed in the “LIST OF DEVICES”.

4.3 Functions on the right mouse button

With the right mouse button click on the displayed SRC-200 electronics. The following functions will appear.

4.3.1 Device Check

Click with the left mouse button on “Check Dev”



The system checks communication to the connected device (SRC).
Thereafter the results of the of the communication check are displayed in the “state” field at the bottom of the AGONET basic user interface.

4.3.2 Wink Device

Click with the left mouse button on “Wink Device”

For device identification the system issues an alarm to the connected SRC.
The output of the alarm is confirmed in the “state” field (see below).

4.3.3 Rename Device

If more than one SRC is connected to the same network, for differentiation an additional text (max. 8 characters) can be append to the standard text “SRC-201”.

Click with the left mouse button on “Rename Device”

For additional text input the following window appears.

Click “OK” for terminating the text input.

4.3.4 Delete Device

If more than one SRC is connected to the same network and for any reason one of them has to be removed from the “LIST OF DEVICES” (e.g. replacement of an SRC electronics).
Click with the left mouse button on “Delete Device” for removing the selected device.

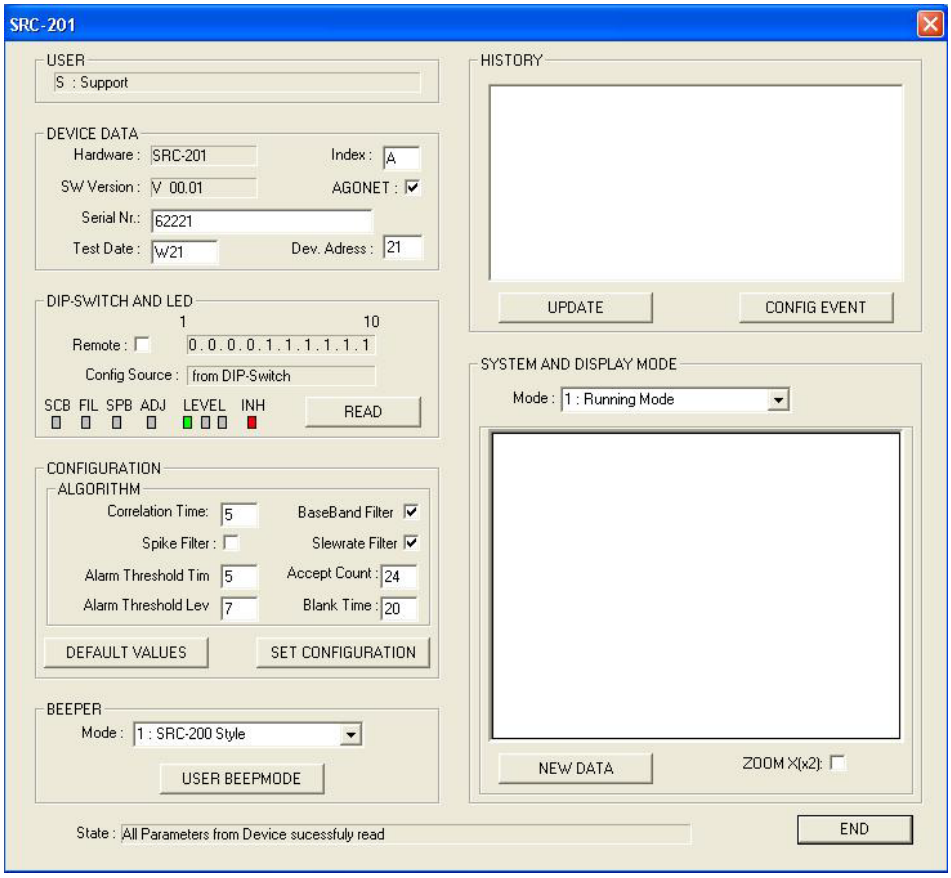
4.4 User type change

The user type can be changed on the top of the AGONET basic user interface in a drop down menu. In other windows the user type is displayed only but it can not be changed.
The actual displayed user type is defined in your license (CM-Stick).
You are only privileged to select either your own or the user levels below your own level.

Note: If you choose a user level below your own level not all parameters are available. E.g. if you own a license as a service engineer (user level: support) and the level in the AGONET basic user interface is changed to customer (user level: user) then the “SRC window” can no longer be opened.

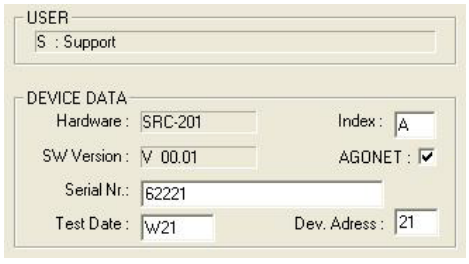
4.5 SRC configuration

The SRC configuration window can be opened by double clicking on the desired device (SRC) in the “LIST OF DEVICES” (AGONET basic user interface).



4.5.1 Device Data

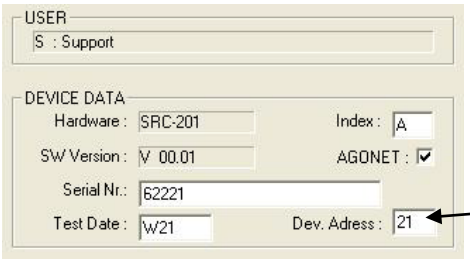
All device data are factory set and can not be changed with support user privileges (Exception: “Dev. Address”. Details see chapter 4.5.1.1).
Device data like serial number, production index and software version are for information only.



NOTE: If there no check mark is set in the AGONET checkbox, software parameters can only be changed locally but the electronics can not be configured for an AGONET network. It means events can neither be configured nor can they be stored (e.g. no people frequency counting is possible).

4.5.1.1 Device Address change

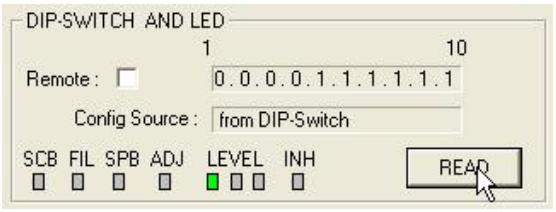
The default value of the device address is given by the last 2 figures of the serial number. It can be changed (overwritten) and will be stored automatically (address range 1 .. 100).



Device address can be overwritten

4.5.2 Read state of the SRC electronics

The momentary state of the DIP switches and the LEDs on the SRC electronics can be read by clicking on the “READ” button.
The display is not self refreshing. Every time a refresh is desired a click on the “READ” button is necessary. If LEDs are flashing the momentary state can be on or off.

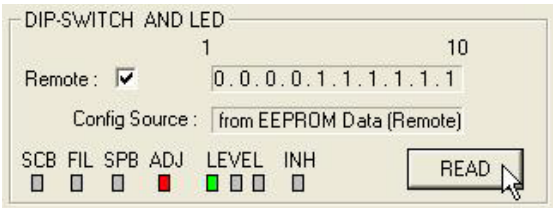


Meaning of DIP switch states:
0 = OFF
1 = ON

If there no check mark is on the “Remote” check box parameters are always defined by the DIP switch settings (Config Source: from DIP-Switch).

4.5.3 Switch to remote operation

A check mark set on the “Remote” check box means that data are no longer defined by the DIP switch settings (Config Source: from EEPROM Data).
The check mark on the “Remote” check box can either be set by software (clicking on the check box) or by removing the Jumper J7 on the SRC electronics.



If remote operation is active:

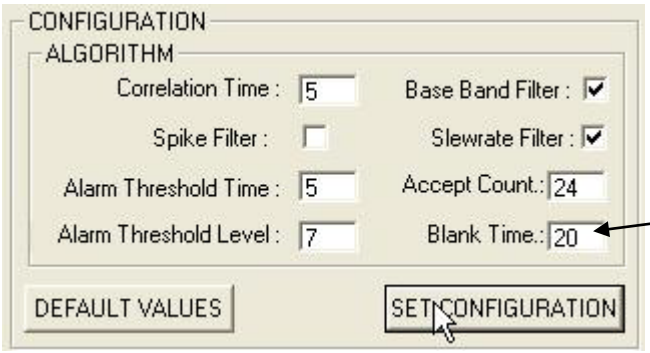
- LED “ADJ” always lights stable.
- Parameters can be defined according chapter “Algorithm Configuration”
- Display data can be evaluated by the pull down menu “Mode”

CAUTION:
When the check mark on the “Remote” check box is removed or jumper J7 on the SRC electronics is reset parameters adjusted on “Algorithm Configuration” are no longer active.
DIP switch related standard parameters are reactivated.

4.5.4 Algorithm Configuration

For remote operation only (Configuration Source is: EEPROM Data).
For defining and applying the data set below either a check mark has to be set on the “Remote” check box or the Jumper J7 on the SRC electronics has to be removed.

CAUTION:
Algorithm configuration should only be done by experienced field technicians.

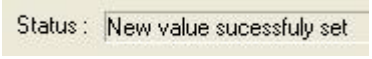


The parameter „Blank Time“ is used for „Config Source“, „DIP-Switch“ as well as for „EEPROM-Data“.

- The whole parameter set can be reset to default values by clicking on the “DEFAULT VALUES” button.
- Definitions of the configuration algorithm parameter set see following chapters.

NOTE:
Every data changed (reset to default values as well) has to be stored on the SRC electronics (EEPROM) by clicking on the “SET CONFIGURATION” button.

Successful parameter download is indicated on the “Status” line at the bottom of the SRC-201 window.



4.5.4.1 Correlation Time (sw)

The correlation time represents a smoothing factor for the detector curve. This factor shows how disturbances can be suppressed. The higher that factor the better disturbances are suppressed. But also the higher the factor the slower measurement is.

Range:
Minimum value = 2
Fast measurement with low disturbance suppression.
Maximum value = 7
Slow measurement with high disturbance suppression.

Default: 5

4.5.4.2 Base Band Filter (sw)

The same functions as on switch S1(8) are available at this check box. You can select one of two different base band filters by clicking on the check box for setting a check mark and vice versa for removing the check mark.
Range:
"**Standard base band filter" (check mark set)**: these filter characteristics are adequate for most applications.
"**Enhanced base band filter" (check mark removed)**: This filter provides additional attenuation for week resonances caused by so-called "low Q devices". "Low Q devices" can be: shopping trolleys, rolls of cable, installations close to the system, cable ducting, etc.
The **LED (SCB)** indicates if the base band is limited by one of the two filters.

Default: Standard base band filter (check mark set)

4.5.4.3 Spike Filter (sw)

If the level-dependent spike filter is active and a predetermined amount of spikes (disturbances) is exceeded the alarm issue will be suppressed.

CAUTION:
Use that filter in a interference free environment only. If there are too much spikes all alarms can be suppressed and your system does not detect anymore.

This filter can be switched by clicking on the check box for setting a check mark and vice versa for removing the check mark.
Range:
Spike Filter OFF (check mark removed).
Spike Filter ON (check mark set).

Default: Spike Filter OFF (check mark removed)

4.5.4.4 Slew rate Filter (sw)

This filter can be switched by clicking on the check box for setting a check mark and vice versa for removing the check mark.
Range:
Slew Rate Filter ON (check mark set). Rapid signal rises, usually caused by noise, can make the receiver oscillate. The slew rate filter inhibits this oscillation.
The **"FIL" LED** indicates if this filter is activated.
Slew Rate Filter OFF (check mark removed). TAGs of a very high quality factor (high Q TAGs) can trigger this filter, so that in some rare cases, the filter has to be switched off.

Default: Slew Rate Filter ON (check mark set)

CAUTION:
Only switch this filter off, if you are certain you have very little ambient noise.

4.5.4.5 Alarm Threshold Level (sw)

The alarm threshold level is dynamic: if the actual measurement signal level is rising, the alarm threshold level is automatically increased. Its rising speed is defined by the alarm threshold time (chapter 4.5.4.6). The alarm threshold level can be adjusted to suit ambient conditions (interference and noise) and the TAG size. The higher the alarm threshold level the more TAG signal is necessary for triggering an alarm.

Range:

Minimum value = 2

For undisturbed environment and small TAGs.

Maximum value = 100

For disturbed environment and strong TAG signal.

Default: 7

4.5.4.6 Alarm Threshold Time (sw)

This parameter shows how fast the alarm threshold level (chapter 4.5.4.5) changes. Its speed is based on the measurement value change (integration). The bigger the difference the higher the slew rate (short alarm threshold time results in high slew rate).

Range:

Minimum value = 2

Fast slew rate to compensate big measurement level changes.

Maximum value = 7

Slow slew rate to compensate small measurement level changes.

Default: 5

4.5.4.7 Accept Counter (sw)

You can set up here how often the DSP must detect a TAG before an alarm is generated.

Range:

Minimum value = 4

The alarm accept counter should only be set to 4 in an interference free environment (greater danger of false alarms)

Maximum value = 48

Higher accept counter values result in less false alarms but the big disadvantage is that the detection speed decreases.

Default: 24

4.5.4.8 Blanking Time (sw)

The blanking time represent the sections where on the SRC electronics the detection is suppressed (max. and min. value of the sweep signal). During the blanking time paper labels can be deactivated without disturbing the associated EAS system (the deactivator

electronics has to be synchronized to the EAS system).
With the blanking time some variation of the detection bandwidth is possible.

Range:

Minimum value = 15

Use lower values only in applications where enlarged detection bandwidth is necessary and no deactivators are involved.

Maximum value = 25

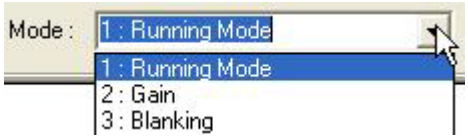
Higher values (up to the maximum value) can be used to narrow the detection bandwidth in a disturbed environment.

Default: 20

The default value is intended for use together with deactivator electronics

4.5.5 System and Display mode

To analyze the current state of the SRC electronics snap shots of the life data can be displayed (screens). All screens are displayed without any grid.
The different screens can be selected by the pull down menu “Mode” (remote operation has to be activated).

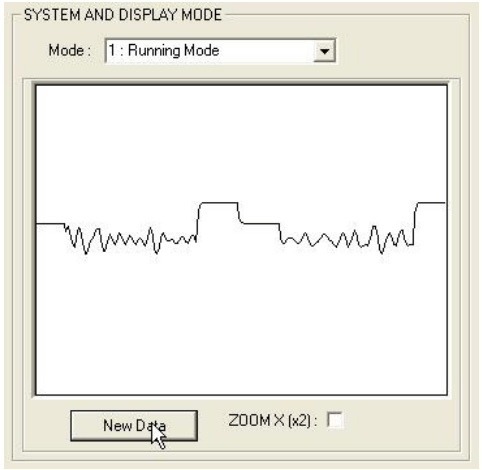


NOTE:
If remote operation is not activated only the screen selected by the DIP switches S1(1 – 3) can be displayed.

NOTE:
The selected screen can be displayed or refreshed by clicking on the “New Data” button.

4.5.5.1 Running Mode screen

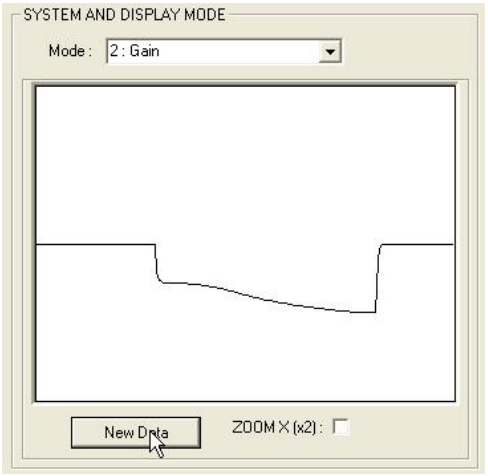
Signals defined in chapter 3.4.3 and 3.4.4 can be displayed.



- On that screen noise or noise and TAG signals can be displayed.
- Level bars vary depending on environment noise and TAG signal.

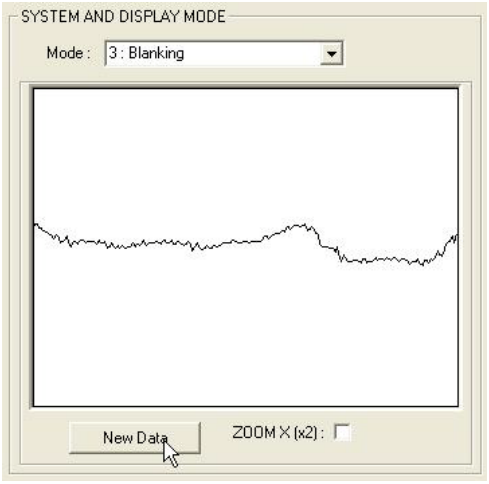
4.5.5.2 Gain screen

On that screen the sensitivity adjustment signal is displayed according chapter 3.4.1.

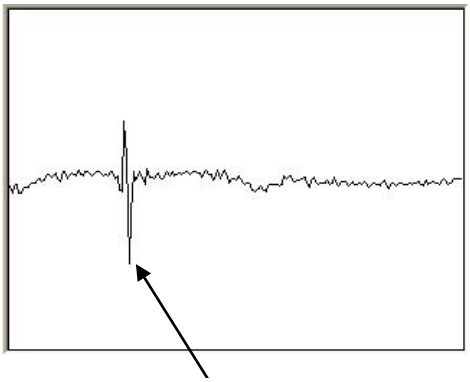


4.5.5.3 Blanking screen

This is the most useful screen for environment analysis. It shows noise and disturbances. The base shape of that curve depend also on the antenna characteristics.



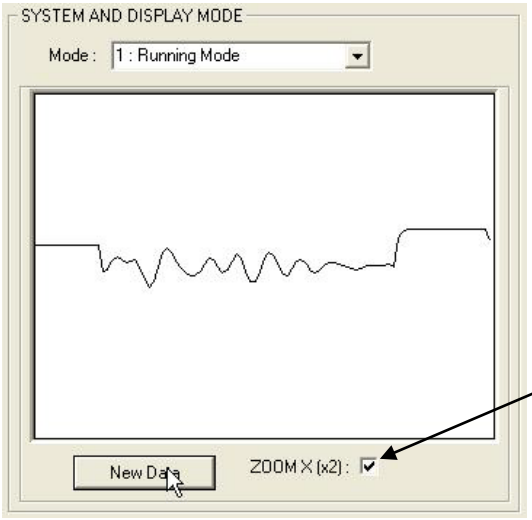
Example of a disturbed curve:



This interference is caused by a pulsed nearby the sweep system

4.5.5.4 Display zoom

Every screen evaluated on the “Mode” pull down menu can be enlarged by factor 2 clicking on the “ZOOM X (x2)” check box.



Check mark for zoom factor can be set or removed by mouse click on that check box.

4.5.6 Alarm modes (Beeper)

4.5.6.1 Select alarm mode

Mode

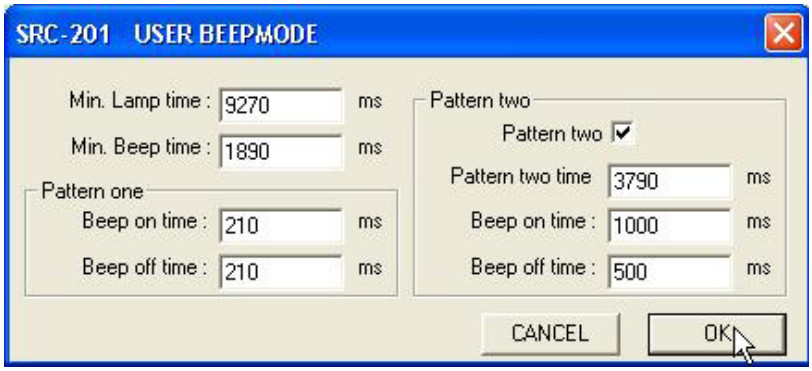
Four different beep modes can be selected by a pull down menu.
Three of them are predefined and can not be changed by the user. The pattern of the fourth can be changed by clicking on the “USER BEEPMODE” button.

Schematic drawings of the different beeper modes see appendix (chapter 5.1)

4.5.6.2 User Beep mode

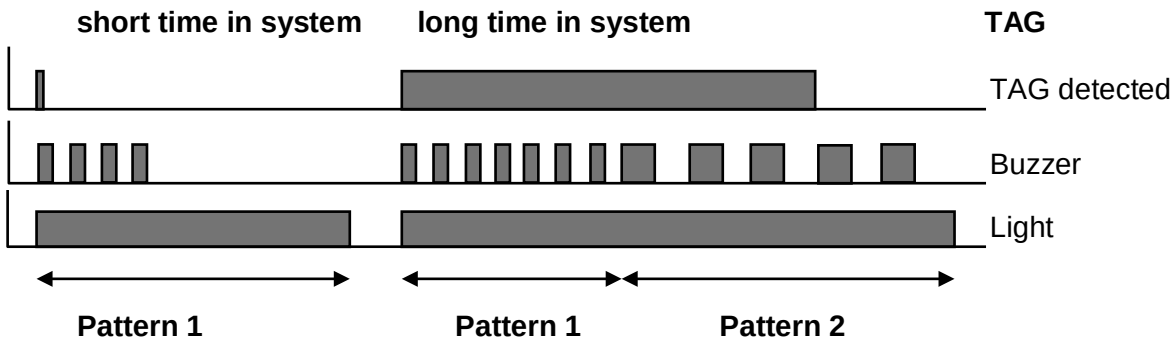
For the definition of the user beep mode click on the “USER BEEPMODE” button for opening the definition mode.

Two patterns can be defined.
The first one is an initial pattern when a TAG comes into the system.
The second one is a continues pattern which is applied when the TAG remains in the system. The second pattern can be disabled by unchecking the pattern two check box.



- "Min. Lamp time" and "Min. Beep time" are applied when the TAG stays only for a short time in the system.
- "Pattern two time" is becomes active when the TAG is removed from the system while Pattern 2 is applied.
- If pattern 2 is selected (checkmark on "pattern two" check box) it will be applied until the TAG is taken out of the system.
- For both pattern "Beep on time" and "Beep off time" can be specified independent from each other.

User defined mode (initial values)



- After the new user beep mode is defined confirm it by clicking on the "OK" button.
- The user defined beep mode can then be applied by selecting it as mode "4: User defined" on the drop down menu.

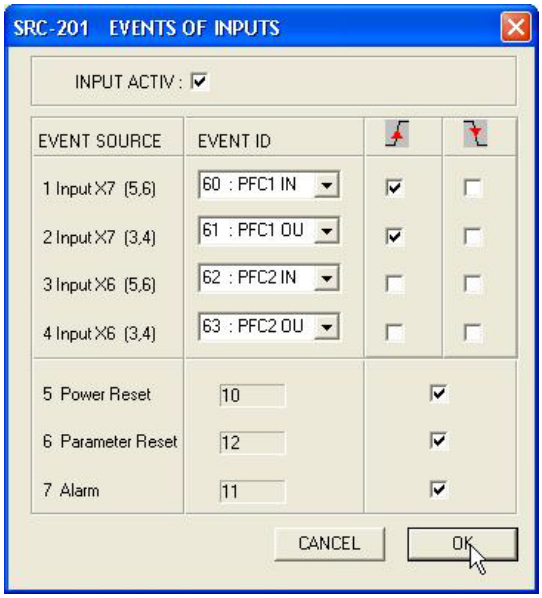
4.5.7 HISTORY

In "CONFIG EVENT" can be specified which data have to be logged and with "UPDATE" the last 120 data sets can be displayed.

4.5.7.1 Data logging and people frequency counting

Data logging and the additional inputs X6 and X7 can be activated and configured by mouse click on the "CONFIG EVENT" button.

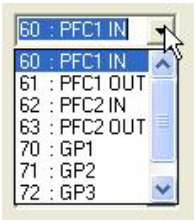
Configuration window



People frequency counter and general purpose input configuration

Note: For the configuration of these inputs it is necessary to set a check mark into the "INPUT ACTIV" check box.
Boards without that check mark are not capable for people frequency counting.

For the "EVENT SOURCE" 1 – 3 the following sources can be allocated.



PFCINx: People frequency counter entrance
PFCOUTx: People frequency counter exit
GPx: General purpose input
(subsequent numbers are for differentiation only)

- The numbers before the event text can later be used as event identifiers.
- For every input the active edge can be specified by setting a check mark into the appropriated check box.

Note: With an AGON people frequency counter module connected to X6 or X7 (inputs configured PFCINx and PFCOUTx) people frequency counting can be realized in both directions IN and OUT.

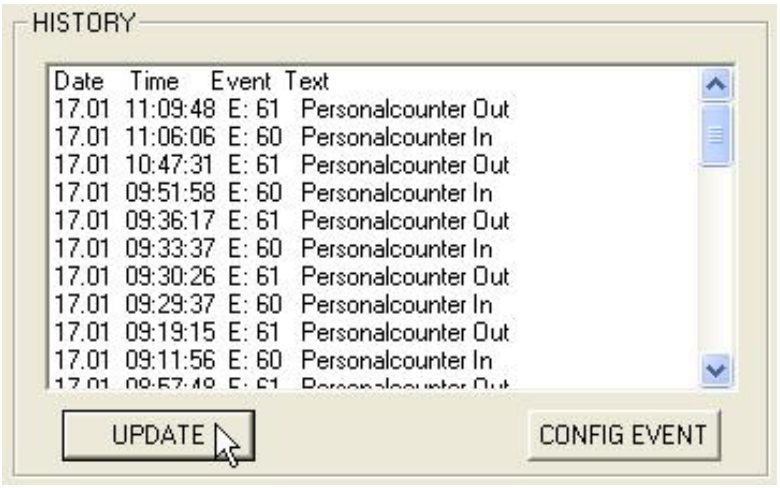
System parameter logging

"EVENT SOURCE" 5 – 7 can be evaluated to be logged by setting a check mark into the appropriated check box.

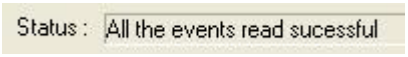
- Every event on such a marked item results in a data set.
- The last 120 data sets can be stored on the appropriated SRC-201 electronics.
- If more data sets have to be stored AGONET has to be installed.

4.5.7.2 Data display

Data locally stored on the SRC-201 electronics can be displayed by mouse click on the “UPDATE” button.

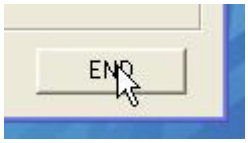


The download of the stored data will be confirmed on the state line as follows:



4.5.8 Terminate configuration

The configuration can be terminated by mouse click on the “END” button.



Thereafter the AGONET basic user interface appears.

From the AGONET basic user interface the program can be left by mouse click on the “END” button.

5 Appendix

5.1 Overview of tables

Connectors

Connector	Name	Pins	Function
X1	Power supply	1-2	24 V DC or 18 V AC input
		3-4	24 V DC or 18 V AC output (filtered)
	Ext. buzzer	5-6	SOUND+, SOUND -
X2	AUX (Alarm)	1	AUX IN (external input)
		2	OUT1 relay contact, normally closed
		3	OUT2 relay contact, normally opend
		4	GND, for X2 signals (connected to system ground)
X3	Alarm light	1	LIGHT - (24 V internal, 50 mA max.)
		2	GROUND for screening (if available)
		3	LIGHT + (24 V internal, 50 mA max.)
X4	Antenna input	1	Antenna input (ANT)
		2	GND (normally not connected)
		3	Antenna input (ANT)
X5	SCOPE	SMB	SMB connector (oscilloscope, video signal out)
X6	PFC or GP Input	1 - 6	For connecting people frequency counter sensors, door contacts etc.
X7	PFC or GP Input	1 - 6	For connecting people frequency counter sensors, door contacts etc.
X9	PC connection	4 pins	For local operation with AGONET software
X10, X12	COM module	-	For AGONET network

Jumper settings (**bold** = standard setting)

Jumper	setting	Function
J1	C	Low gain (amplification for short distance use)
	NC	High gain (amplification for long distance use)
J2	**I**	Internal buzzer
	E	External buzzer, connection to connector X1 (5-6)
J4	I	AUX OUTs 1 and 2 internal source 24 V DC (50 mA max.)
	E	AUX OUTs 1 and 2 external power supply to input (AUX IN)
J5	**NC**	DSP Reset
J7	**C**	Changeover manual / software tuning (AGONET)
J8	C	Light output X3 inactive (filtered 24 V DC output)
	NC	Light output X3 active (24 V DC switched)

Test points

Test point	Signal
G1, G3, G4, G5	Digital and analog ground
G2	Measuring ground for P2
P2	HF signal
P8	SCOPE (probe connection, parallel to connector X5)

Switch settings S1

(X = switch setting, **bold** = standard setting)

Operating modes and oscilloscope selection display window

S1(1)		S1(2)		S1(3)		Mode	Description
ON	OFF	ON	OFF	ON	OFF		
	X		**X**		**X**	Operation	Standard operating position
X			X		X	Tuning	Buzzer switched off, light time 2 secs.
X		X		X		Adjustment	Adjust RF gain with R109
	X		X	X		Adjustment	Carrier filter (blanking) adjustment with R233

Filter and accept counter

Switch	Mode		Description
	ON	OFF	
S1(4)	X		Accept counter 8
		X	Accept counter 24
S1(7)	**X**		Slew rate filter active (LED: FIL)
		X	Slew rate filter inactive
S1(8)	**X**		Standard base band filter (LED: SCB)
		X	Enhanced base band filter (reduces "low Q" effects) (LED: SCB)

Alarm-signal level ratio

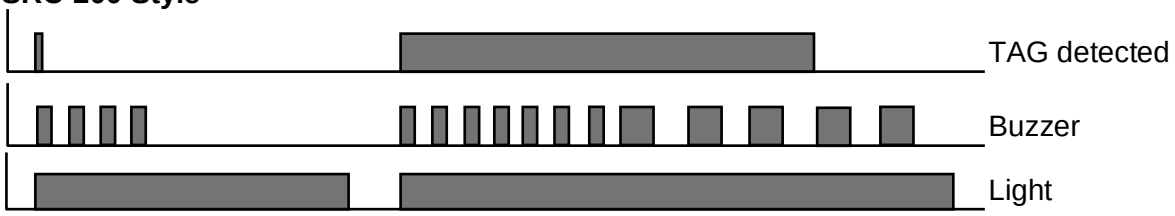
S1(5)		S1(6)		Description	equates to Software „Threshold Level“
ON	OFF	ON	OFF		
X		**X**		Ratio 3:1	7
	X	X		Ratio 5:1	10
X			X	Ratio 6:1	14
	X		X	Ratio 8:1	20

Alarm pattern selection

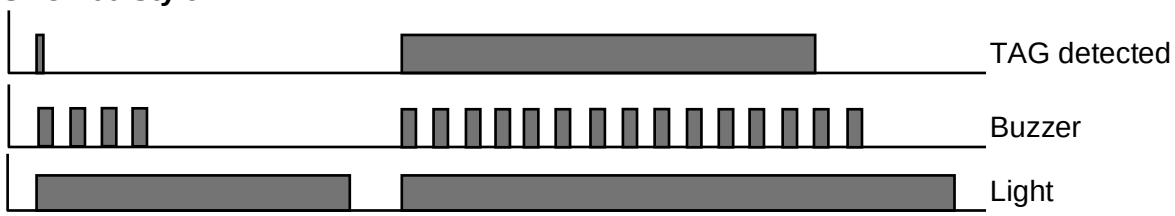
S1(9) ON	S1(9) OFF	S1(10) ON	S1(10) OFF	Description
X		**X**		SRC-200 Style
	X	X		SRC-100 Style
X			X	L- Style
	X		X	Can be defined by customer using AGONET software

Alarm pattern definition

SRC-200 Style

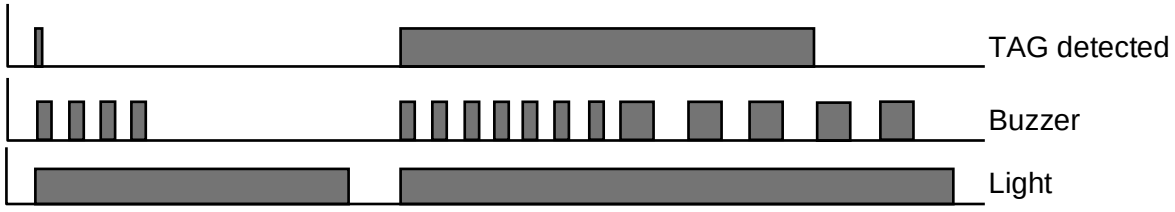


SRC-100 Style

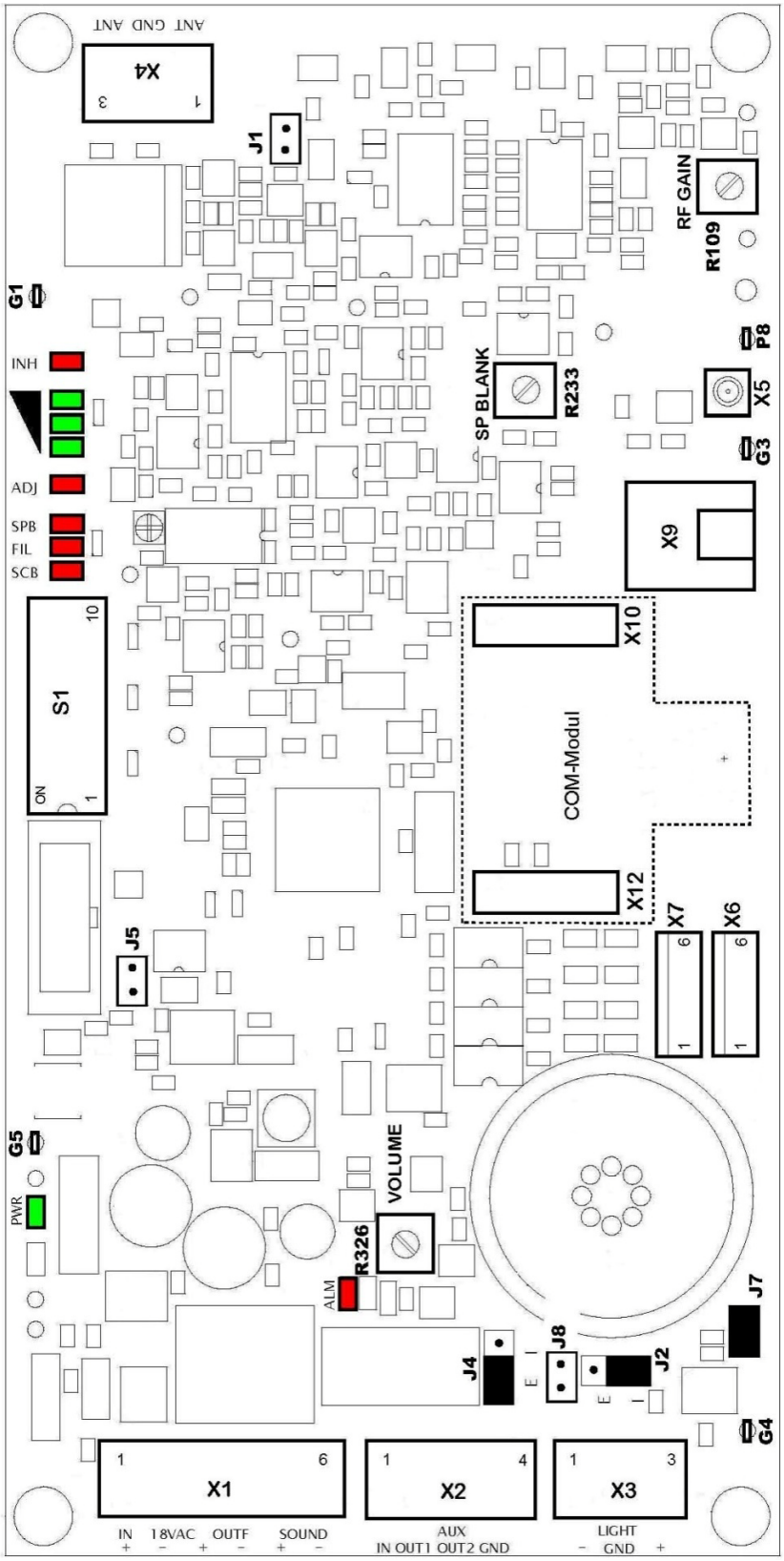


L-Style

Can be defined by customer (initial values)



5.2 Layout of adjusting elements



5.3 Ordering Information

Type	Description:	Article No.:	Comment:
Power Supply	AC adapter 230V/18VAC / 1.4A	511 245 523	
	AC adapter 230V/18VAC / 2.0A	511 505 520	
Filter			
Power Filter	IFB-101 EMC filter 24V	950 600 166	without housing
Power Line Filter	IFB-102 EMC filter 230V	970 600 098	with housing
Interface/Software			
CM STICK_S	CM-Stick AGONET Support (USB)	876 100 000	Support Technician
CM STICK_U	CM-Stick AGONET User (USB)	876 100 001	Enduser (Customer)
OIF	Opto Interface AGONET / RS232	876 500 700	
COM	Communication module OPTO	786 602 800	
PFC	**People frequency counting**		
PFT-100	PFT TX CIR-Transmitter (PFC Transmitter)	876 602 200	
PFR-100	PFR RX CIR-Receiver (PFC Receiver)	876 602 300	