Teldat

SPI Agent

Teldat-Dm 793-I

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Table of Contents

Chapter 1 Introduction

1.1 Introduction

The aim of this document is to describe the SPI Agent configuration and monitoring environment in Teldat routers.

SPI (IP Presence Service) is a communication protocol used to supervise Machine to Machine (M2M) cellular technology platforms. This protocol aims to offer an advanced information system over remote terminals through IP networks.

The information transmission mode used by the SIP protocol is User Datagram Protocol (UDP). The information packets are exchanged through cellular mobile networks (GPRS/UMTS/HSPA).

The protocol is designed so multiple SPI Agents can access an SPI Server. An SPI Agent resides in a mobile or cellular terminal.

The information exchanged in the SPI is basically related to the cellular interface status. The aim is to help resolve connectivity problems between data cellular terminals and the mobile network.

The Teldat routers implement multi instance SPI Agent i.e. they can establish connections with more than one SPI Server.

The SPI Service is an M2M supervision platform that you have to subscribe to and is usually the carrier's.

The SPI Agent is only operative in those Teldat routers that incorporate Cellular interfaces.

The SPI Agent implemented in Teldat routers can use VRFs.

1.2 Definitions

GPRS - General Packet Radio Service. This is an improvement on the GSM standard for supplying data packets over the radio interface.

GSM – Global System for Mobile Communications. This is the second generation European standard for digital mobile communications.

ICC-ID – Integrated Circuit Card Identification. GSM SIMs are internationally developed through their ICC-ID. The ICC-ID is stored in the SIM card and generally is recorded or printed on either side of the card. The length of the ICC-ID number is 18 or 19 digits. It is used to identify the GSM network subscribers.

MSISDN – Mobile Subscriber ISDN Number. Represents the telephone number associated to a GSM SIM.

SPI – Advanced IP Presence Service.

UDP / IP – User Datagram Control Protocol / Internet Protocol. This is a network layer and transport communications protocol in the OSI layer structure. It's used when exchanging packets over channels unoriented to connection.

1.3 SPI Description

The SPI Agent is a feature in the Teldat routers and implements the SPI service logic and protocol.

With the aim of understanding the basics of SPI protocol in the Teldat routers, this section describes how the SPI Agent operates.

The various protocol configuration parameters are described as well as the timers and the message types.

1.3.1 Exchanged messages types

The communication protocol for SPI uses three types of messages in one direction and a different three in the opposite direction.

The three types of messages sent from the Agent to the SPI Server are:

      KA *Keep Alive*

      KAI *Keep Alive on Inquiry mode*

KAO *Keep Alive On demand*

The three types of messages sent from the Server to the SPI Agent are:

KAR *Keep Alive Response*

SIM *Set device on Inquiry Mode*

RKAO *Request of Keep Alive On demand*

1.3.2 SPI Agent States

The SPI Agent only implements two states:

- **Keep Alive Inquiring status (KAI)**: In this state the SPI Agent requests the Server to register in the SPI service. This is done by sending a KAI message. The following situations can arise in the responses from the Server:

  - Positive response. This is produced when the Agent receives a KAR message from the Server. In this case the Agent passes to a Normal Keep Alive (NKA) state.

  - Negative response. This is produced when the Agent receives a SIM message from the Server. In this case the Agent remains in this state (KAI state).

  - It doesn't receive a response. In this situation the Agent remains in this state and retransmits the KAI message various times depending on the configuration.

- **Normal Keep Alive status (NKA)**: In this state the Agent has established connection with the Server; it maintains the connection periodically updating the information on the radio interface towards the server. To maintain the connection, the Agent sends KA (Keep Alive) messages to the Server. The following situations can arise in the responses from the Server:

  - Positive response. This is produced when the Agent receives a KAR message from the Server. In this case the Agent remains in this state: Normal Keep Alive (NKA).

  - Negative response. This is produced when the Agent receives a SIM message from the Server. In this case the Agent passes to a Keep Alive Inquiring (KAI) state.

  - It doesn't receive a response. In this situation the Agent remains in this state and retransmits the KA message various times depending on the configuration.

1.3.3 SPI Service: Specific Parameters

- **KAI status parameters**

  These are the parameters that control the protocol in KAI status. These parameters are configurable in the Agent (router):

  - **Tkai** (Default value: 3600 seconds): represents how often Keep Alive Inquiry (KAI) messages are sent. This indicates the time period the KAI messages are sent to the SPI Server when the Agent is in a KAI state.

  - **Tkair** (Default value: 15 seconds): This parameter is used to execute KAI message retransmission to the SPI Server. This indicates the maximum time Agent waits for the Keep Alive Response (KAR) message before sending a new KAI message.

  - **Nkair** (Default value: 3 retransmissions): This parameter is used to execute KAI message retransmissions to the SPI Server. This indicates the maximum number of KAI message retransmissions.

  - **Tkaigprs** (Default value: 7200 seconds): Maximum time to maintain the PDP context active. This parameter tries to prevent the PDP context from constantly activating/deactivating. This is only used when the Agent implements context deactivation during idle periods. The value for this parameter should be: Tkaigprs < Tkai. (NOT IMPLEMENTED IN TELDAT ROUTERS)

Note

Tkai must be > than Tkair (Nkair+1).

- **KA Status Parameters**

  These are the parameters that control the protocol in KA status. These parameters are sent by the SPI Server in KAR messages.

  - **Tka**: Represents how often Keep Alive (KA) messages are sent. This indicates the time period the KA messages are sent to the SPI Server when the Agent is in a KA state.

  - **Tkar**: This parameter is used to execute KA message retransmission to the SPI Server. This indicates the maximum time Agent waits for the Keep Alive Response (KAR) message before sending a new KA message.

  - **Nkar**: This parameter is used to execute KA message retransmissions to the SPI Server. This indicates the maximum number of KA message retransmissions.

  - **Tkagprs**: Maximum time to maintain the PDP context active. This parameter tries to prevent the PDP context from constantly activating/deactivating. This is only used when the Agent implements context deactivation during idle periods. The value for this parameter should be: Tkagprs > Tka. (NOT IMPLEMENTED IN TELDAT ROUTERS)

Note

Tka must be > than Tkar (Nkair+1). This condition is guaranteed by the SPI server.

Chapter 2 Configuration

2.1 Accessing the SPI Agent configuration

To access the SPI feature configuration, enter the **FEATURE SPI** command in the main configuration menu.

Syntax:

```
Config>feature spi
-- SPI global configuration --
SPI Config>
```

2.2 Configuration Commands

This section describes the SPI Agent configuration commands.

The available programming commands are as follows:

Command	Function
? (HELP)	Lists the available commands or their options.
AGENT	Permits you to configure an SPI Agent instance.
NO	Permits you to configure default values or negate a command.
EXIT	Returns to the configuration menu.

2.2.1 ? (HELP)

You can use the **?** (HELP) command to list the valid commands at the level where the router is configured. This command can also be used after any specific command to list the available options.

Syntax:

```
SPI Config>?
```

Example:

```
SPI Config>?
  agent    Instance agent configuration
  no       Negate a command or set its defaults
  exit
SPI Config>
```

2.2.2 AGENT

This command permits you to configure and/or access the configuration for an SPI Agent instance. This permits multiple SPI Agent instances, i.e. the possibility of accessing more than one SPI Server.

This command creates a new SPI Agent instance, or if the Agent already exists, permits you to modify it.

On executing this command, you access the Agent configuration menu which is entered as a parameter.

Syntax:

```
SPI Config>agent <agent name>
  <1..20 chars>    SPI agent instance name
SPI Config>
```

Example:

```
SPI Config>agent oper-1


-- SPI Agent instance configuration --
SPI Agent Config>
```

You can configure the following parameters in the SPI Agent configuration menu:

```
SPI Agent Config>?
  agent-addr       Configure agent SPI IP address (local)
  agent-port       Configure agent SPI UDP port (local)
  enable           enable current SPI agent
  icc-id           Configure SIM Integrated Circuit Card Identification
  msisdn           Mobile Subscriber Integrated Services Digital Network
                   Number
  nkair            Max number of KAI retries
  no               Negate a command or set its defaults
  server-address   Configure server SPI IP address (remote)
  server-port      Configure server SPI UDP port (remote)
  tkai             Periodicity time to send KAI messages
  tkair            Wait time for KAI Response to perform retries
  vrf              Configure link to VRF
  wwan-interface   Configure associated WWAN port
  exit
SPI Agent Config>
```

2.2.2.1 AGENT-ADDR

This parameter permits you to configure the SPI Agent IP address. This address is the one that is included in the UDP packets as source address. The IP address configured must be one of the ones that is visible to the router so the response messages from the Server can reach the Agent. The messages sent by the SPI Server are sent to this IP address.

In cases where this parameter isn't configured, the router will select the IP address pertaining to the packet output interface.

Syntax:

```
SPI Agent Config>agent-addr <a.b.c.d>
  <a.b.c.d>    Ipv4 format
```

Example:

```
SPI Agent Config>agent-addr 192.23.44.26
SPI Agent Config>
```

2.2.2.2 AGENT-PORT

This parameter permits you to configure the UDP port where the Agent LISTENS. The UDP messages from the SPI Server must be directed to this port.

The Agent cannot operate if this parameter isn't configured.

> **Note**
>
> You need to be careful when configuring more than one SPI Agent as you cannot assign the same Agent UDP port to more than one instant. This is only possible when the instances that have the same port belong to different VRFs.

The valid values are from 0 to 65535.

Syntax:

```
SPI Agent Config>agent-port <port>
  <0..65535>    Value in the specified range
```

Example:

```
SPI Agent Config>agent-port 44445
SPI Agent Config>
```

2.2.2.3 ENABLE

This parameter enables the SPI Agent. It's essential that this command is included in the configuration so the protocol can begin to operate.

Syntax:

```
SPI Agent Config>enable
  <cr>
```

Example:

```
SPI Agent Config> enable
SPI Agent Config>
```

2.2.2.4 ICC-ID

This command permits you to configure the ICC-ID. The ICC-ID is a parameter that identifies a GSM network sub-
scriber. This parameter can, generally, automatically obtain the SIM as it is stored in its memory. This command has
been created for situations where the SIM ICC-ID cannot be read automatically. The ICC-ID is usually printed on one
of the sides of the SIM so it can be entered manually. By default this parameter is empty. If it is configured, the
device won't try to automatically read the SIM ICC-ID, it uses the configured one. The ICC-ID is an important para-
meter as it is sent to the SIP Server to identify the subscriber. The ICC-ID consists of a number between 18 and 19
digits.

Syntax:

```
SPI Agent Config>icc-id  <num icc-id >
  <1..20 digits>    Configure SIM Integrated Circuit Card Identification
```

Example:

```
SPI Agent Config>icc-id 1234567890123456789
SPI Agent Config>
```

2.2.2.5 MSISDN

This command permits you to configure the MSISDN (Mobile Subscriber Integrated Services Digital Network). The
MSISDN is the subscriber telephone number for a GSM network. The MSISDN is an important parameter as it is
sent to the SIP Server to identify the subscriber.

The Agent cannot operate if this parameter isn't configured.

Syntax:

```
SPI Agent Config>msisdn <num msisdn>
  <1..16 digits>    Mobile Subscriber Integrated Services Digital Network
                    Number
```

Example:

```
SPI Agent Config>msisdn 34618897603
SPI Agent Config>
```

2.2.2.6 NKAIR

This command configures the "nkair" parameter defined by the SIP protocol. It's used to execute KAI message re-
transmissions to the SPI Server. This indicates the maximum number of KAI message retransmissions permitted.
Default is 3. You can configure values between 1 and 1000.

Syntax:

```
SPI Agent Config>nkair <num retrans>
  <1..1000>    Value in the specified range
```

Example:

```
SPI Agent Config>nkair 10
SPI Agent Config>
```

2.2.2.7 NO

This parameter is used to disable functions or to set the default values for some parameters.

Syntax:

```
SPI Agent Config>no ?
  agent-addr        Configure default agent SPI IP address (local)
  enable            Disable current SPI agent
  icc-id            Configure default ICC-ID
```

```
 msisdn          Configure default MSISDN
 server-address  Configure default server SPI IP address (remote)
 vrf             Configure link to default VRF
```

2.2.2.7.1 NO AGENT-ADDR

This parameter eliminates the SPI Agent IP address.

In cases where the Agent IP address isn't configured, the router will select the IP address for the packet output interface.

Example:

```
SPI Agent Config>no agent-addr
```

2.2.2.7.2 NO ENABLE

This command disables the SIP Agent.

Example:

```
SPI Agent Config>no enable
```

2.2.2.7.3 NO ICC-ID

This command eliminates the ICC-ID from the configuration.

If the ICC-ID is configured, it doesn't try and read the SIM ICC-ID automatically, it uses the one already configured.

Example:

```
SPI Agent Config>no icc-id
```

2.2.2.7.4 NO MSISDN

This command eliminates the MSISDN from the configuration.

Example:

```
SPI Agent Config>no msisdn
```

2.2.2.7.5 NO SERVER-ADDR

This parameter eliminates the SPI Server IP address

Example:

```
SPI Agent Config>no agent-addr
```

2.2.2.7.6 NO VRF

This configures the default VRF.

Example:

```
SPI Agent Config>no vrf
```

2.2.2.8 SERVER-ADDR

This parameter configures the SPI Server IP address. This address is included in the UDP packets as the destination address. Messages sent by the SPI Agent are sent to this IP address.

The Agent cannot operate if this parameter isn't configured.

Syntax:

```
SPI Agent Config>server-addr <a.b.c.d>
  <a.b.c.d>   Ipv4 format
```

Example:

```
SPI Agent Config>server-addr 192.23.44.30
SPI Agent Config>
```

2.2.2.9 SERVER-PORT

This parameter configured the UDP port in order to access the SPI Server. UDP messages from the SPI Server should be addressed to this port.

The Agent cannot operate if this parameter isn't configured.

The range of valid values is from 1 to 65535.

Syntax:

```
SPI Agent Config>server-port ?
  <1..65535>    Value in the specified range
```

Example:

```
SPI Agent Config>server-port 11112
SPI Agent Config>
```

2.2.2.10 TKAI

This command configures the "tkai" parameter defined by the SIP protocol. This indicates the time the KAI messages are periodically sent to the SPI Server when the Agent is in KAI state. Default is 3600 seconds. You can configure values between 1 and 172.800 seconds.

Syntax:

```
SPI Agent Config>tkai <time>
  <1s..2d>    Time value
```

Example:

```
SPI Agent Config>tkai 4000
SPI Agent Config>
```

2.2.2.11 TKAIR

This command configures the "tkair" parameter defined by the SPI protocol. This parameter is used to retransmit KAI messages to the SPI Server. This indicates the maximum wait for the Keep Alive Response (KAR) messages before sending a new KAI message. Default value is 15 seconds. You can configure values between 1 and 3600 seconds.

Syntax:

```
SPI Agent Config>tkair <time>
  <1s..1h>    Time value
```

Example:

```
SPI Agent Config>tkair 40
SPI Agent Config>
```

2.2.2.12 VRF

This command permits you to select the VRF the SPI Agent pertains to.

Syntax:

```
SPI Agent Config>vrf <vrf-name>
  <1..32 chars>    VPN Routing/Forwarding instance name
```

Example:

```
SPI Agent Config>vrf vrf-1
SPI Agent Config>
```

2.2.2.13 WWAN-ITERFACE

This command selects the cellular, or mobile, telephony interface that serves as base to generate the SPI Server information. Teldat routers can also incorporate more than one cellular interface. With this command you can associate the cellular interface to the SPI Agent. The supported interface is "cellularx/0".

Syntax:

```
SPI Agent Config>wwan-interface <interface>
  <interface>    WWAN associated interface
```

Example:

```
SPI Agent Config>wwan-interface cellular1/0
SPI Agent Config>
```

2.2.3 NO

This command is used to disable functions or to set the default values for some parameters.

Syntax:

```
SPI Config>no ?
  agent    Instance agent configuration
```

2.2.3.1 NO AGENT

This command eliminates an SPI Agent.

Syntax:

```
SPI Config>no agent <name>
  <1..20 chars>    SPI agent instance name
```

Example:

```
SPI Config>no agent oper-2
SPI Config>
```

2.2.4 EXIT

This returns you to the previous menu.

Example:

```
SPI Agent Config>exit
SPI Config>
```

2.3 Configuring an SPI Service

This section describes the steps to create an SPI Agent configuration.

The steps are as follows:

- Obtain a subscription for an SPI Service.
- Obtain parameters from an SPI Server.
- Obtain information on the SIM GPRS going to be used as an SPI Agent base.
- Configure the SPI Agent configuration.
- Check the connection with the SPI Server.

2.3.1 General configuration for the router

The router is configured complying with the connectivity requirements.

2.3.2 Configuring the SPI Agent

A search is carried out for the cellular interfaces available in the router. To do this execute the LIST DEVICES command located in the basic configuration menu:

Example:

```
Config>list devices

Interface          Connector      Type of interface
ethernet0/0        LAN1           KS8995M Fast Ethernet Switch
```

```
x25-node            ---           Router->Node
cellular1/0         SLOT1         AT COM
cellular1/1         SLOT1         AT COM
ppp1                ---           Generic PPP
Config>
```

The following parameters need to be obtained from the SPI Service provider.

- SPI Server IP address.
- SPI Server UDP port.
- UDP port that must start in the SPI Agent.

The following parameters must be obtained from the SIM GSM:

- MSISDN – Telephone number. This should include the country prefix.
- ICC-ID – Only if you want to enter this manually.

Subsequently we need to configure some parameters that are needed for the SPI Agent.

Example:

```
SPI Config>
; Showing Menu and Submenus Configuration for access-level 15 ...
; H1 IPSec SNA VoIP T+ Router 16 12 Version 10.7.37-MR


     agent oper-1
; -- SPI Agent instance configuration --
        enable
        server-port 44445
        server-address 80.224.26.22
        agent-port 21212
        wwan-interface cellular1/0
        msisdn 34640500683
     exit
;
SPI Config>
```

2.3.3 Events

Optional, but very useful for determining problems.

Example:

```
;
   event
; -- ELS Config --
     enable trace subsystem SPI ALL
   exit
;
```

2.3.4 Saving the configuration

The configuration needs to be saved and the router restarted so the new configuration activates.

Example:

```
Config>save yes

Building configuration as text... OK
Writing configuration... OK on Flash
Config>
```

2.3.5 Checking the connection with the Server

Monitoring the events.

Example:

```
09/04/09 17:01:43  GW.001 System restarted -- H1 IPSec SNA VoIP T+ router cold start
```

```
09/04/09 17:01:43  GW.002 Portable CGW H1 IPSec SNA VoIP T+ Rel 10.7.37-Alfa MR strtd
09/04/09 17:01:43  GW.005 Bffrs: 1238 avail 1238 idle   fair 106 low 247
09/04/09 17:01:43  SPI.001 SPI initialized sucessfully agent oper-1
09/04/09 17:01:43  SPI.002 Tx msg error (ICC-ID not available) agent:oper-1, st:0
09/04/09 17:01:54  SPI.010 Timeout (INITIAL) agent:kk, st:0
09/04/09 17:01:54  SPI.002 Tx msg error (ICC-ID not available) agent:oper-1, st:0
09/04/09 17:02:04  SPI.010 Timeout (INITIAL) agent:kk, st:0
09/04/09 17:02:04  SPI.002 Tx msg error (ICC-ID not available) agent:oper-1, st:0
09/04/09 17:02:14  SPI.010 Timeout (INITIAL) agent:kk, st:0
09/04/09 17:02:14  SPI.012 Tx KAI msg agent:oper-1, SvrIP:80.224.26.22 SvrPORT:33323 st:0
09/04/09 17:02:29  SPI.010 Timeout (TKAIR) agent:oper-1, st:1
09/04/09 17:02:29  SPI.012 Tx KAI msg agent:oper-1, SvrIP:80.224.26.22 SvrPORT:33323 st:1
09/04/09 17:02:29  SPI.016 Rx data agent:kk st:1 (SvrIP:80.224.26.22,22 bytes):
 00 00 00 2C 00 00 00 C8 00 00 00 C9 00 00 00 0B
 33 34 36 39 30 38 30 30 32 38 33 00 4A A1 48 16
 00 00 00 44 00 00 00 0
09/04/09 17:02:29  SPI.005 Rx msg KAR agent:oper-1, SvrIP:80.224.26.22 SvrPORT:33323 st:1
09/04/09 17:04:29  SPI.010 Timeout (TKA) agent:oper-1, st:2
09/04/09 17:04:29  SPI.011 Tx KA msg agent:oper-1, SvrIP:80.224.26.22 SvrPORT:33323 st:2
09/04/09 17:04:33  SPI.016 Rx data agent:oper-1 st:2 (SvrIP:80.224.26.22,64 bytes):
 00 00 00 2C 00 00 00 C8 00 00 00 C9 00 00 00 0B
 33 34 36 39 30 38 30 30 32 38 33 00 4A A1 48 9D
 00 00 02 79 00 00 00 0
09/04/09 17:04:33  SPI.005 Rx msg KAR agent:oper-1, SvrIP:80.224.26.22 SvrPORT:33323 st:2
09/04/09 17:06:33  SPI.010 Timeout (TKA) agent:oper-1, st:2
09/04/09 17:06:33  SPI.011 Tx KA msg agent:oper-1, SvrIP:80.224.26.22 SvrPORT:33323 st:2
09/04/09 17:06:33  SPI.016 Rx data agent:oper-1 st:2 (SvrIP:80.224.26.22,64 bytes):
 00 00 00 2C 00 00 00 C8 00 00 00 C9 00 00 00 0B
 33 34 36 39 30 38 30 30 32 38 33 00 4A A1 49 19
 00 00 00 AB 00 00 00 0
09/04/09 17:06:33  SPI.005 Rx msg KAR agent:oper-1, SvrIP:80.224.26.22 SvrPORT:33323 st:2
```

Chapter 3 Monitoring

3.1 Accessing the SPI Agent monitoring

To access the SPI Service monitoring menu you need to first access the general monitoring menu and subsequently the SPI feature:

Example:

```
*p 3
Console Operator
+feature SPI
-- SPI Agent user console --
SPI+
```

3.2 Monitoring the interface

This section lists and describes the SPI Service monitoring commands.

Command	Function
? (HELP)	Permits you to view the available commands or their options.
CLEAR	Deletes the statistics information for all the SPI Agents.
STATISTICS	Presents the statistics information for the SPI Agents.
EXIT	Returns to the previous menu.

3.2.1 ? (HELP)

You can use the **?** (HELP) command to list all the commands that are valid at the layer where the router is being monitored. This command can also be used after a specific command to list its available options.

Syntax:

```
SPI+?
```

Example:

```
SPI+?
  clear        Initialize statistics
  statistics   Display statistics information
  exit
SPI+
```

3.2.2 CLEAR

Deletes the gathered statistics information for all the configured SPI Agents up to the point when this command is executed.

Syntax:

```
SPI+clear
```

Example:

```
SPI+clear
```

3.2.3 STATISTICS

Use this command to obtain the statistics information for one specific SPI Agent or for all of them.

Syntax:

```
SPI+statistics ?
  agent    Display statistics information for one SPI Agent
  all      Display all statistics information
```

```
SPI+clear
```

3.2.3.1 STATISTICS AGENT

Use this command to obtain the statistics information for a specific SPI Agent.

Syntax:

```
SPI+statistics agent <name>
  <1..20 chars>    SPI agent instance name
```

Example:

```
SPI+statistics agent oper-1

------------- SPI AGENT PARAMS INFO ------------
 Agent name:...........oper-1
 Agent state:..........Normal Keep Alive status
 Server IP Address:....80.224.26.22
 Server UDP port:......32333
 TKA received:.........120
 TKAR received:........10
 NKAR received:........3


--------------- STATISTICS INFO --------------
 KA sends:.............2
 KAI sends:............0
 KAO sends:............0
 KAR received:.........2
 SIM received:.........0
 RKAO received:........0
 Unknown msg received:.0
 TKAIR triggers:.......0
 TKAI triggers:........0
 TKAR triggers:........0
 TKA triggers:.........2
 NKAIR triggers:.......0
 NKAI triggers:........0

SPI+
```

3.2.3.2 STATISTICS ALL

Through this command you can obtain the statistics information on all the SPI Agents.

Syntax:

```
SPI+statistics all
```

Example:

```
SPI+statistics all

------------- SPI AGENT PARAMS INFO ------------
 Agent name:...........oper-1
 Agent state:..........Normal Keep Alive
 Server IP Address:....80.224.26.22
 Server UDP port:......32333
 TKA received:.........120
 TKAR received:........10
 NKAR received:........3


--------------- STATISTICS INFO --------------
 KA sends:.............2
 KAI sends:............1
 KAO sends:............0
 KAR received:.........2
 SIM received:.........0
```

```
RKAO received:........0
Unknown msg received:.0
TKAIR triggers:.......0
TKAI triggers:........0
TKAR triggers:........0
TKA triggers:.........2
NKAIR triggers:.......0
NKAI triggers:........0

------------- SPI AGENT PARAMS INFO ------------
Agent name:...........oper-2
Agent state:..........Keep Alive Inquiring
Server IP Address:....80.224.26.33
Server UDP port:......32344
TKA received:.........120
TKAR received:........10
NKAR received:........3

---------------- STATISTICS INFO ---------------
KA sends:.............0
KAI sends:............3
KAO sends:............0
KAR received:.........2
SIM received:.........0
RKAO received:........0
Unknown msg received:.0
TKAIR triggers:.......3
TKAI triggers:........0
TKAR triggers:........0
TKA triggers:.........0
NKAIR triggers:.......0
NKAI triggers:........0

SPI+
```

3.2.4 EXIT

Returns to the previous menu.

Example:

```
SPI+exit
+
```