BRIO ShopVideo

VIDEO SURVEILLANCE
OF TRADING SYSTEMS

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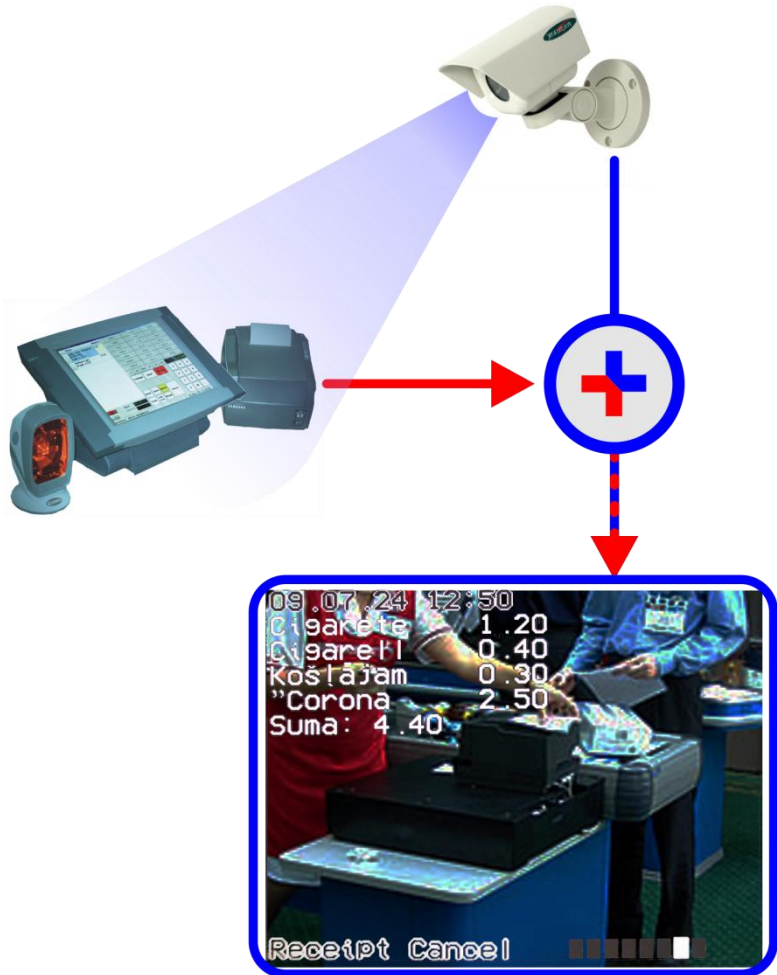
O.Khalatov
BRIO ShopVideo
TECHNICAL GUIDE.
BRIO EngineerinG, 2009,
Riga, Latvia.
www.brio.com.lv

C E

BRIO ShopVideo system is provided to combine real-time information about current sales, coming from the POS-terminals, with video, coming from the cameras of video surveillance.
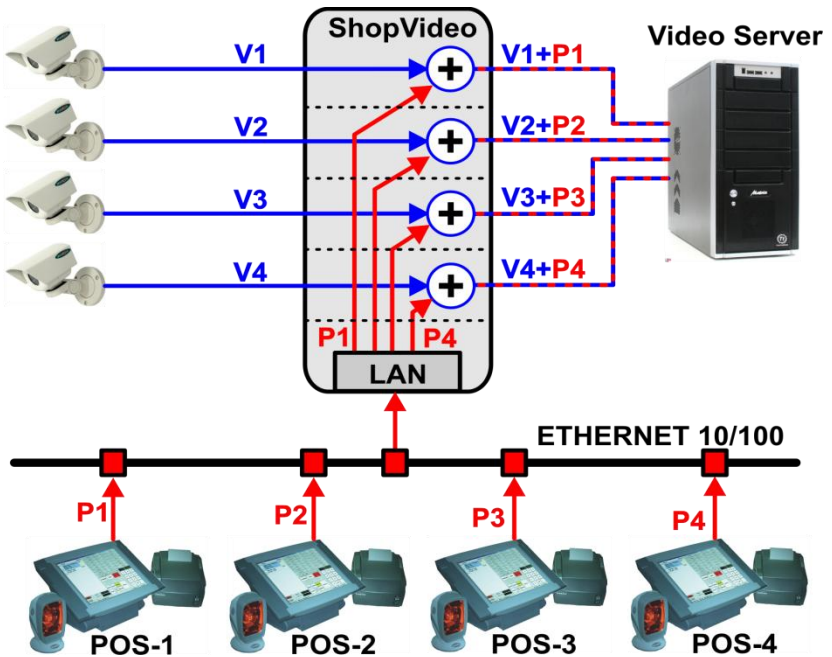
- **Full software and hardware compatible with computer trading systems ShoppinG-IV, OneTouch PRO, ACTIVe POS, ACTIVe POS Oil**

- **Up to 4 channels of video surveillance in one basic module.**

- **Important events of the sales process that are shown as bright labels.**

- **Color and black-and-white cameras.**

- **Any television surveillance systems.**

- **Real-time checks.**

- **Easy installation into existing video surveillance systems.**

- **Functionality on the TCP/IP protocol.**

- **Functions library for developers of other trading systems.**

TABLE OF CONTENTS:

1. HOW IT WORKS

- Video from surveillance systems video cameras (**V1...V4**), transits through the BRIO ShopVideo to video server.

- Information about current operations of the goods sale and cashier actions at POS (**P1…P4**), through a local computer network, in real-time is supplied to the BRIO ShopVideo base module.

- Information in the basic module, received from each of the POS, as text superimposed over video images of proper camera.

- Thus, the record in the video surveillance system contains not only a picture from camera, but there is information about the actions of the cashier at the POS (**V1**+**P1…V4**+**P4**) too.

2. SPECIFICATIONS

- **Channel number in one basic module:**   - Up to 4 modules of video channels

- **Software Compatibility:**
  - Trading systems ShoppinG-IV.
  - BRIO ACTIVe POS
  - BRIO ACTIVe POS Oil
  - BRIO OneTouch PRO

- **Text information:**
  - 14 lines of 30 characters.
  - Header line.
  - Event line with 8 icons.

- **Video cable impedance:**
  - 75 ohm.
  - 50 ohm (Option)

- **Connectors type for video path:**   - F-Type

- **Color system:**   - PAL / NTSC

- **Connection settings to the LAN:**
  - 10/100 Base TX.
  - Half/full duplex operation.
  - Auto-negotiation.
  - TCP/IP
  -

- **Current consumption:**   - 800 mA (Max!)

- **Dimensions:**

- **Power supply:**   - DC 7.5…9V

- **Performance:**   - For inner rooms

- **Recommended power supply:**   - DC 7.5V, 1A.

3. CONTROLS AND CONNECTIONS

- **Video channel output connector (OUT).**

  - **Video channel input connector (IN).**

    - **Video channel additional modules**
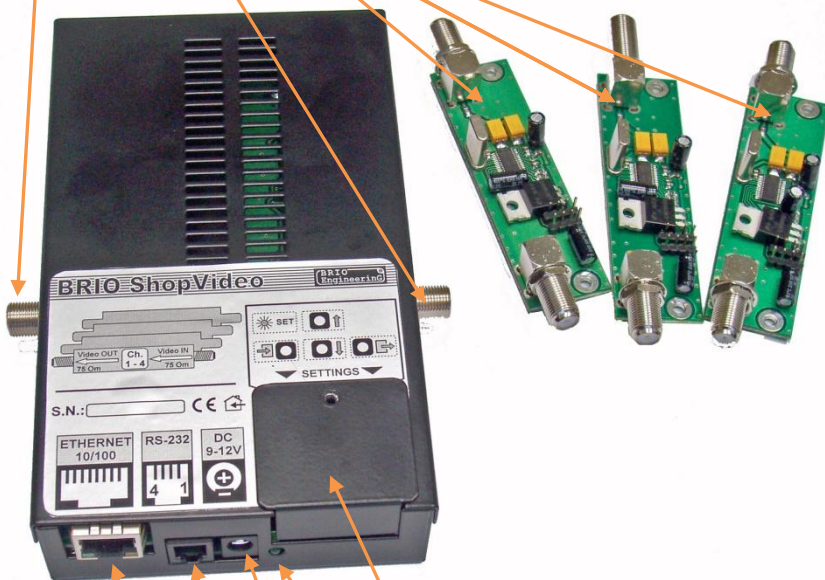
- **Configuration partition's cover of the basic module**

- **Switching on indicator.**

- **Power connector DC 9…12V**

- **Connector RS-232 (Option)**

- **Connector for LAN connecting**

4. SALES INFORMATION

4.1. CHECK SCREEN
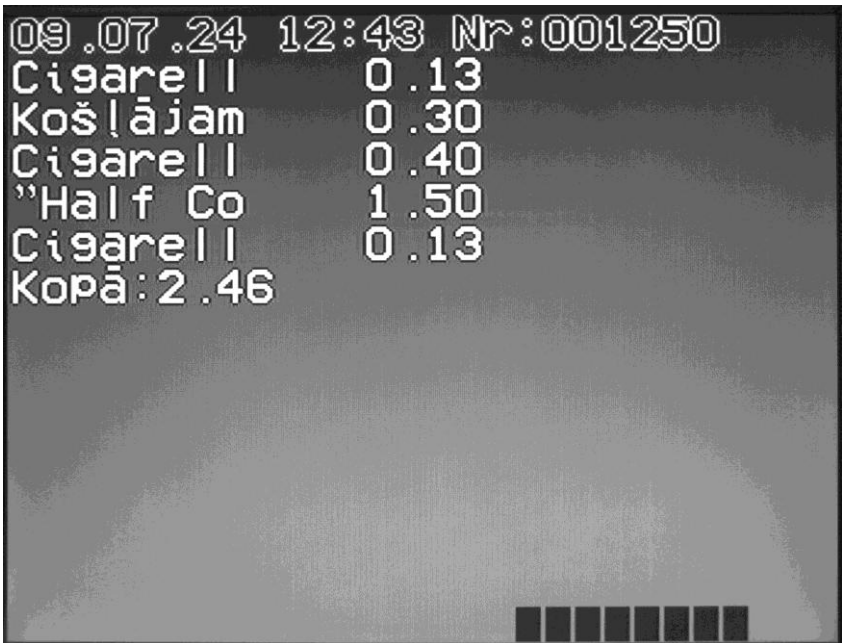
- Video screen is divided into three parts:
  - o **Check header:** Date, time, check number.
  - o **Check composition:** – Item name, price.
  - o **Information line:** Information about important events and visual tags.

- Part of the screen with a list of items, as its fill, is moved upward. (Scrolling).

- In information line is textual description of events and it is highlighted proper tag.

4.2. EVENTS LABELS

- Events tags are provided to simplify the search of any event, when there is accelerated screening of surveillance system records.

- Trading terminal's software determines which of events will be tagged.

- Ability to display the tag and its location is determined by base unit BRIO ShopVideo settings.

- Tag position is shown on the display in a black square.

- When an event occurs, the corresponding **tag becomes white**, and appears its description.

- So, if you, for example, need to find the end of check, it is sufficient with accelerated screening to search 6th tag operation and by going to the normal mode, attentively view check and seller's action.

5. BASIC MODULE SETTINGS
5.1. ENTER IN TO SETUP MODE
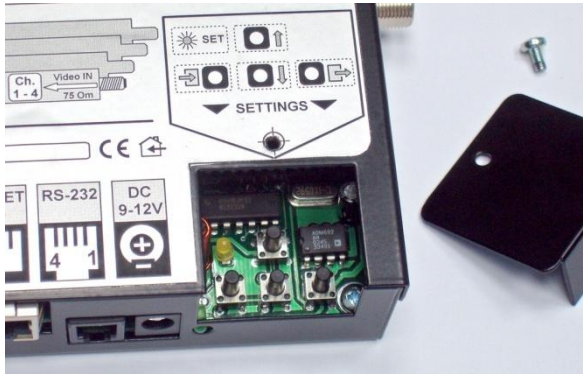
- Unscrew and remove configuration partition's cover of the basic module.

- Navigation key:
  o **ENTER – ►]**
  o **UP – ▲**
  o **DOWN – ▼**
  o **EXIT - [►**

- Press and hold key **ENTER** for 3 seconds.
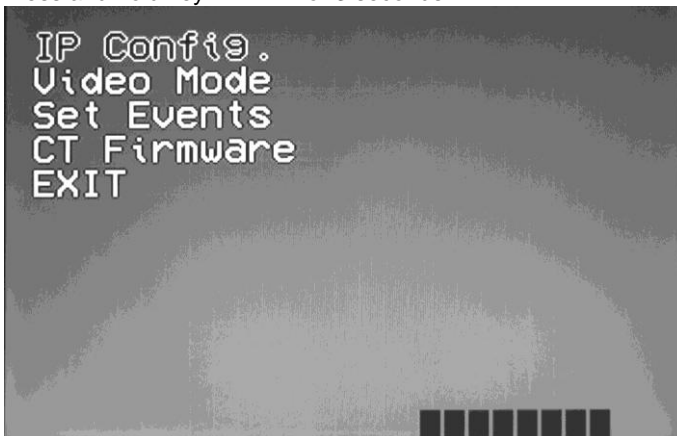
- **Yellow** LED lights and the main menu will be displayed on the screen.

- Settings:
    - o **PI Config.** Connection settings to the computer network.
    - o **Video Mode.** Video settings.
    - o **Set Events.** Event tag setting.
    - o **CT Firmware.** Customize built-in fonts.
    - o **EXIT.** Exit from setting mode.

- Use **UP** and **DOWN** keys, select necessary menu item and confirm it by pressing **ENTER**.

WARNING!!! To work with the settings is used video only on the FIRST CHANNEL.

WARNING!!! If there is no action after 15 seconds, the system will automatically exit setting mode.

5.2. COMPUTER NETWORK SETTINGS

- Settings:
    - o **IP –** Basic modules address in LAN.
    - o **Gate** – Gateway address.
    - o **Mask –** Subnet mask.
    - o **MAC –** The unique device identifier in the network.
    - o **Port –** Used port number.
    - o **Save –** Save changed settings and return to main menu.

- Use **UP** and **DOWN** keys, select necessary menu item and confirm it by pressing **ENTER**.

- Use **UP** and **DOWN** keys to change specified option.

- Use key **ENTER** to navigate in the option's line.

- **EXIT** key allow return to other option selection.

5.3. DISPLAY SETTINGS
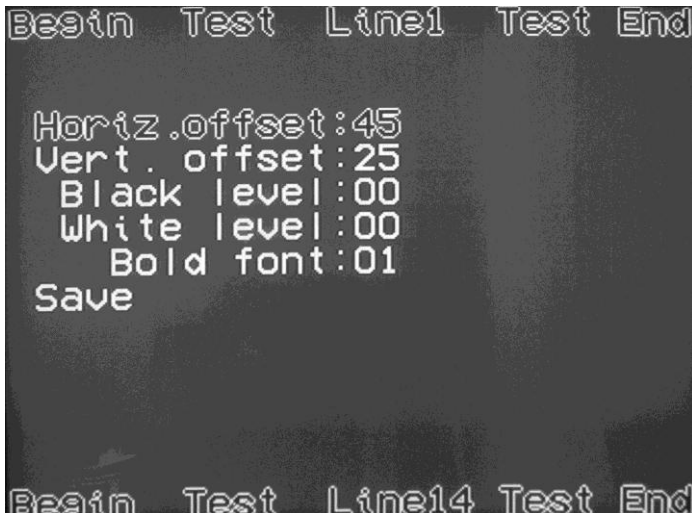
- Settings:
    - o **Horiz. offset –** Image offset horizontally.
    - o **Vert. offset –** Image offset vertically.
    - o **Black level –** Character black colour level (0…3).
    - o **White level –** Character white colour level (0…3).
    - o **Bold font –** Font weight (0,1).
    - o **Save –** Save changed settings and return to main menu.

- Use **UP** and **DOWN** keys, select necessary menu item and confirm it by pressing **ENTER**.

- Use **UP** and **DOWN** keys to change specified option.

- **EXIT** key allow return to other option selection.

WARNING!!! Image settings apply to all four channels simultaneously.

5.4. EVENTS TAG SETTING

- Settings:
    - o **Event NN XX YY –** Event tag number and its parameters.
    - o **XX –** Number of character place for tag.
    - o **YY–** Show (01), or don't show (00) tag.
    - o **Save –** Save changed settings and return to main menu.

- Use **UP** and **DOWN** keys, select necessary menu item and confirm it by pressing **ENTER**.

- Use **UP** and **DOWN** keys to change specified option.

- Use key **ENTER** to navigate in the option's line.

- **EXIT** key allow return to other option selection.

WARNING!!! In specific trading terminal's software determines which of events will be tagged.
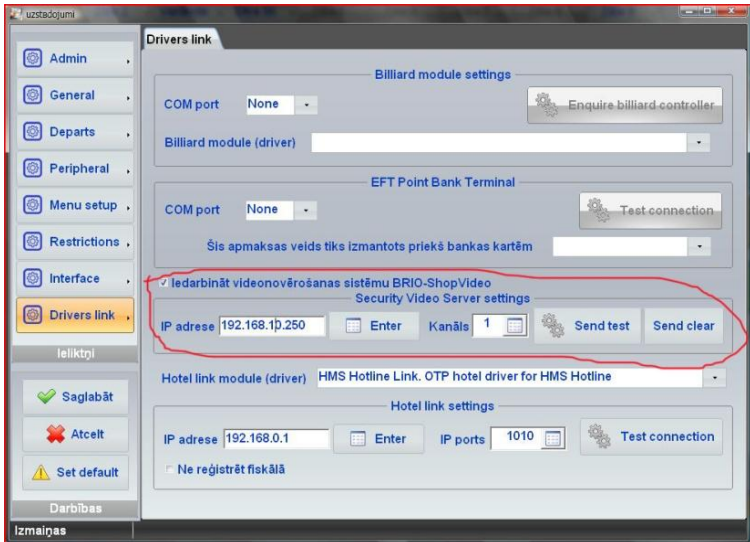
5.5. INSTALLED FONTS VERIFICATION

- At the top of the screen displaying a font sample of international alphabets available in this BRIO ShopVideo version.

- **EXIT** key allow return to other option selection.

6. BRIO OneTouch PRO SETTING

6.1. CONNECTION SETTINGS WITH BRIO ShopVideo

- In OneTouchPro Setup open bookmark **DRIVERS LINK**

- **Start the video surveillance system BRIO-ShopVideo:** If the option is active, the trading terminal will send information about sales in BRIO-ShopVideo.

- **IP address:** Network address of basic module BRIO-ShopVideo. Must be pre-installed.

- **Channel:** Channel number (1…4) in BRIO-ShopVideo for transmission of video streams. In the basic module must be installed the necessary number of modules channels.

- **SEND TEST:** Enable test caption transmission to the selected BRIO-ShopVideo channel.

  SEND CLEAR: Disable test caption transmission to the selected BRIO-ShopVideo channel.

- Test caption on video:
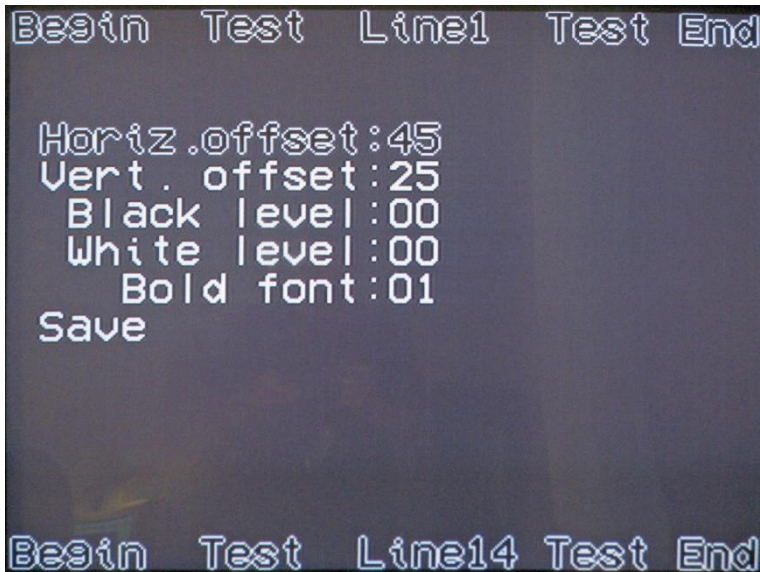
6.2. EVENTS TAGS VALUE

- **TAG1.** – X,Z-report.
- **TAG2.** – Placement, withdrawal, deposit and etc. currency transactions (except check payment).
- **TAG3.** – Status of check begin.
- **TAG4.** – Check return and corrections in check.
- **TAG5.** – Price change for check position.
- **TAG6.** – Common discount and discount for position.
- **TAG7.** – Cancel check.
- **TAG8.** – Print pre-check.

7. BRIO ACTIVe POS SETTING

7.1. CONNECTION SETTINGS WITH BRIO ShopVideo

- In directory BRIO ACTIVe POS must be file **ShopVi-deo.dll**

- Open with any text editor an initialization file **post-ouch.ini** and add following lines:

  [ShopVideo]
  Address = XXXX.XXXX.XXXX.XXXX
  Channel = NN
  Active=1/0

  - **Address:** Network address of basic module BRIO-ShopVideo. Must be pre-installed.

  - **Channel:** Channel number (1…4) in BRIO-ShopVideo for transmission of video streams. In the basic module must be installed the necessary number of modules channels.

  - **Active:** Enable (1), or disable (0) data transmission to the module.

7.2. EVENTS LABELS VALUE
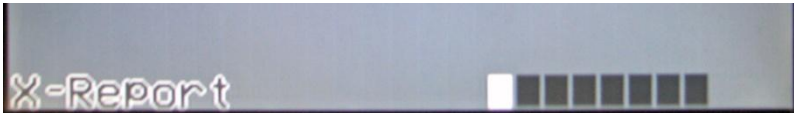
- **TAG1.** – X,Z-report.
- **TAG2.** – Placement, withdrawal, deposit and etc. currency transactions (except check payment).
- **TAG3.** – Status of check begin.
- **TAG4.** – Check return and corrections in check.
- **TAG5.** – Price change for check position.
- **TAG6.** – Common discount and discount for position.
- **TAG7.** – Cancel check.
- **METKA8.** – Reserve.

8. PROGRAMMING
8.1. SOFTWARE PACKAGE STRUCTURE

In a software package for other company developers are some files included:
- **Exsamle Delphi.pas** – Program example on Delphi
- **ShopVideo.dll** – Dynamic library.
- **ShopVideo.h** – Header file.
- **ShopVideoConsole.exe** – Control program.
- **ShopVideo.log** – System error protocol.
- **ShopVideo.log** – Exchange protocol.

8.2. PROGRAM ShopVideo CONSOLE
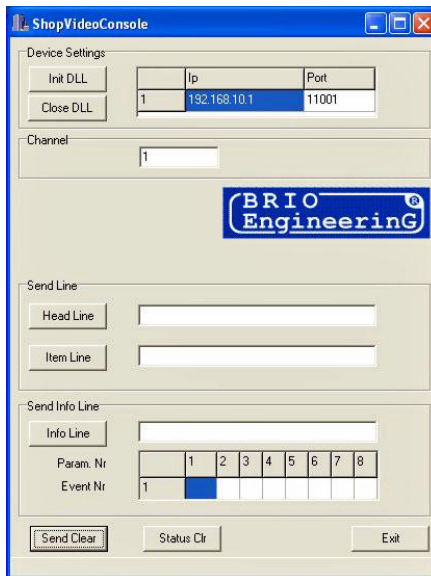
- **Device Settings.** Connection settings with basic module.
    - **Init DLL –** Initialize library ShopVideo.dll.
    - **Close DLL –** Close library ShopVideo.dll.
    - **IP**- Field for enter IP address of basic module.
    - **Port** – used port number of basic module.

- **Channel.** – Video channel number in basic module.

- **Send Line.** Send text for it displaying to the basic module.
    - **Head line –** Field for text enter in „Check Header".

- **Item line –** Field for text enter in „Check Items".
- **Send Info Line.** – Send text for it displaying to the basic module in informa-
  tion line and events tags.
    - **Info line –** Field for text enter in „Information line".
    - **Param Nr.–** Event tag number in „Information line".
    - **Event Nr. –** Tag value.

- **Send Clear** – Send command for display reset.
- **Status Clear** – Reset information about command execution that appears at
  the bottom of the program window.
- **Exit –** Exit program

8.3. FUNCTION LIBRARY SHOPVIDEO.DLL

- **CONSTANTS**
    const int ERR_OK = 0;
    const int ERR_INTERNAL_ERROR = -100;
    const int ERR_ERROR_OPEN_DEVICE = -101;
    const int ERR_ERROR_WRITE_DEVICE = -102;
    const int ERR_ERROR_READ_DEVICE = -103;
    const int ERR_ERROR_WRITE_TIMEOUT = -104;
    const int ERR_ERROR_READ_TIMEOUT = -105;
    const int TIMEOUT_SEND = 1500;

- **DRIVER INITIALIZATION**
    int Initialize(char * ip, char * port);
        ip – device IP address
        port – device IP port

- **END EXECUTE DRIVER**

    int Close(char * buf);

- **HEADER SETTING**
    int Head(int channel, char * item);
        channel - channel
        item = header

- **LINE**
    int Item(int channel, char * item);
        Channel – channel
        Item – line

- **STATUS**
  int Status(int channel, char * status, int event1, int event2, int event3, int event4, int event5, int event6, int event7, int event8);
  > **Channel** – channel
  > **status** – line
  > **event1-8** - event

- **CLEAR**
  int Clear(int channel);
  > **Channel** – channel

8.4. HEADER FILE

```
#ifndef __SHOPVIDEO_H__
  #define __SHOPVIDEO_H__

const int  ERR_OK = 0;
const int  ERR_INTERNAL_ERROR              = -100;
const int  ERR_ERROR_OPEN_DEVICE = -101;
const int  ERR_ERROR_WRITE_DEVICE = -102;
const int  ERR_ERROR_READ_DEVICE = -103;
const int  ERR_ERROR_WRITE_TIMEOUT = -104;
const int  ERR_ERROR_READ_TIMEOUT = -105;
const int  TIMEOUT_SEND = 4000;

extern "C" __declspec(dllexport)
  int CALLBACK Send( char * buf );
extern "C" __declspec(dllexport)
  int CALLBACK SendRetry( char * buf, int count );
extern "C" __declspec(dllexport)
  int CALLBACK Initialize( char * ip, char * port );

extern "C" __declspec(dllexport)
  int CALLBACK Close( char * buf );
extern "C" __declspec(dllexport)
  int CALLBACK Open( int reason );
extern "C" __declspec(dllexport)
  int CALLBACK GetOpened( int reason );

//High level
extern "C" __declspec(dllexport)
  int CALLBACK Configure( int channel, int event1, int offset1, char active1, char
inactive1,
          int event2, int offset2, char active2, char inactive2,
          int event3, int offset3, char active3, char inactive3,
          int event4, int offset4, char active4, char inactive4,
```

```
                int event5, int offset5, char active5, char inactive5,
                int event6, int offset6, char active6, char inactive6,
                int event7, int offset7, char active7, char inactive7,
                int event8, int offset8, char active8, char inactive8 );

extern "C" __declspec(dllexport)
    int CALLBACK Head( int channel, char * item );
extern "C" __declspec(dllexport)
    int CALLBACK Item( int channel, char * item );
extern "C" __declspec(dllexport)
    int CALLBACK Status( int channel, char * status, int event1, int event2, int event3,
int event4, int event5, int event6, int event7, int event8 );
extern "C" __declspec(dllexport)
    int CALLBACK Clear( int channel );

#endif
```

8.5. PROGRAM EXAMPLE ON DELPHI

```
var//global
 nVDllHandle:Longword;

//***********************************************************************
function TExtLinkForm.InitVL(Addr:string): Boolean;
var
  VLinit:function(sIPAddr,sIPPort:Pchar):integer;stdcall;
  sTmp:string;
  nRes:integer;
begin
  Result:=False;

  nVDllHandle:=LoadLibrary('ShopVideo.dll');

  if nVDllHandle>32 then
   try
   @VLinit := GetProcAddress(nVDllHandle, 'Initialize');
   nRes:=VLinit(PChar(Addr),'11001');//always 11001
   if nRes<>0 then
     begin
     ShowMessage('Initialize() Error Code='+IntToStr(nRes));
     end
   Else
     Result:=True;
   except
   end;
end;
```

```
//************************************************************************
function  TExtLinkForm.VLSendInfo(nCmd: Byte; sStr: String;Channel:integer{1..4}):
Boolean;
var
 VLSend:function(nChl:integer;sMsg:Pchar):integer;stdcall;
 nRes:integer;
 sProcName:string;
begin
 Result:=False;

 if nVDllHandle<32 then
  begin
  exit;
  end;

 sStr:=Copy(sStr,1,25);//max!

 if nCmd=1 then
  sProcName:='Head';
 if nCmd=2 then
  sProcName:='Item';

 try
 @VLSend := GetProcAddress(nVDllHandle, PChar(sProcName));
 nRes:=VLSend(Channel,PChar(sStr));
 if nRes<>0 then
  begin
  ShowMessage(sProcName+'() Error Code='+IntToStr(nRes));
  end
 else
  Result:=True;
 except
 end;
end;

//************************************************************************
function  TExtLinkForm.VLSendStat(nStat: Byte; sStr: string;Channel:integer{1..4}):
Boolean;
var
 VLStat:function(nChl:integer;sMsg:PChar;
  st1, st2, st3, st4, st5, st6, st7, st8:integer):integer;stdcall;
 nRes:integer;
begin
 Result:=False;

 if nVDllHandle<32 then
  begin
```

```
     exit;
     end;

   sStr:=Copy(sStr,1,17);//max

   try
   @VLStat := GetProcAddress(nVDllHandle, 'Status');
   nRes:=VLStat(Channel,PChar(sStr),nStat,0,0,0,0,0,0);
   VLClear;//"reset" will be execute after 3 seconds
   if nRes<>VL_OK then
     begin
     ShowMessage('Status() Error Code='+IntToStr(nRes));
     end
   else
     Result:=True;
   except
   end;
end;

//********************************************************************
Procedure TExtLinkForm.VLClear();
var
  VLClear:function(nChl:integer):integer;stdcall;
  nRes:integer;
begin
//after command receive, „reset" always will be execute with delay,
//after 3 seconds. Delay is implemented in module ShopVideo
  if nVDllHandle<32 then
    begin
    exit;
    end;

   try
   @VLClear := GetProcAddress(nVDllHandle, 'Clear');
   nRes:=VLClear(VidLink.Channel);
   if nRes<>0 then
     begin
     ShowMessage('Clear() Error Code='+IntToStr(nRes));
     end;
   except
   end;
end;
```
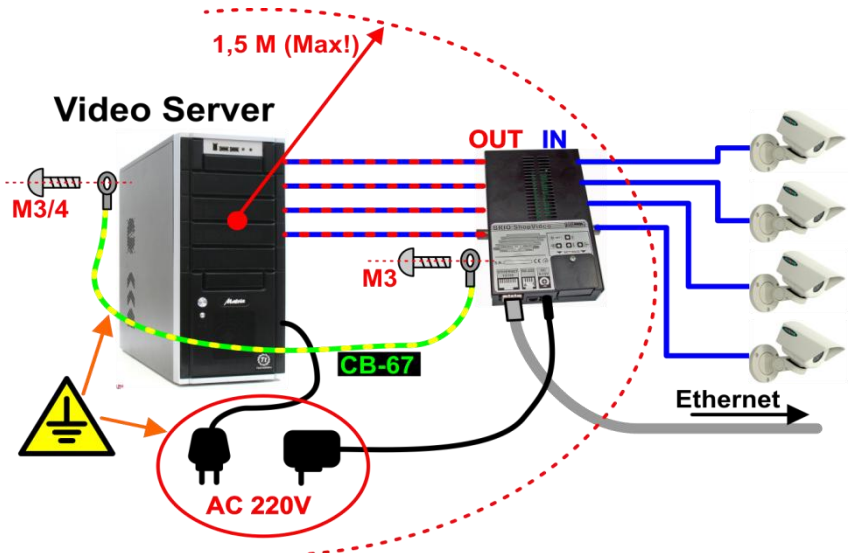
9. INSTALLATION AND CONNECTION
## 9.1. BASE UNIT INSTALLATION

- Base unit of BRIO ShopVideo should be installed close to the video server (Not more than 1,5 m!).

- Disconnect all cables coming from the proper camera to the video server and connect them to the BRIO ShopVideo input connectors **(IN)**.

- Using coaxial cable with F-type connectors, connect BRIO ShopVideo output connectors **(OUT)** with video server.

- Connect the video server and the base unit cases via a cable **CB-67**.To attach the cable in the BRIO ShopVideo base unit use any of the side screws of the case, but in video server - any of the screws that are connected to the metal chassis.

- Connect BRIO ShopVideo power supply to the same socket AC 220V, to which is video server connected and insert the power connector into the device. LED will be highlighting.

- Using the appropriate patch cable, connect BRIO ShopVideo base unit with to local computer network.
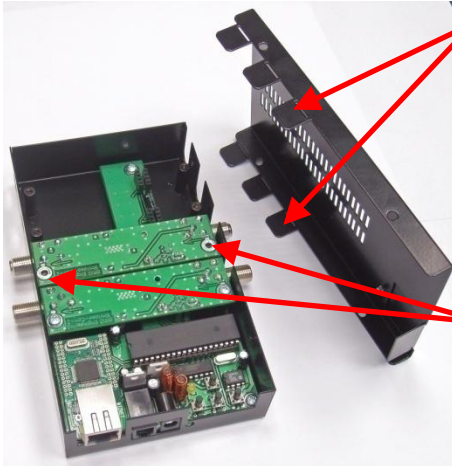
9.2. ADDITIONAL CHANNELS INSTALLATION

- **Turn off the base unit by unplugging the power cord.**

- **Unscrew four screws on the case edges and remove the top cover.**
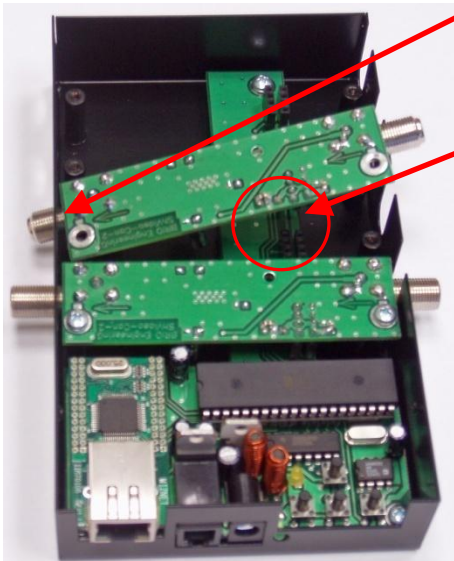
- **Insert a left channel module connector in a round case's hole as shown in the figure**.

- **Carefully insert module's contacts into proper connector in base unit.**

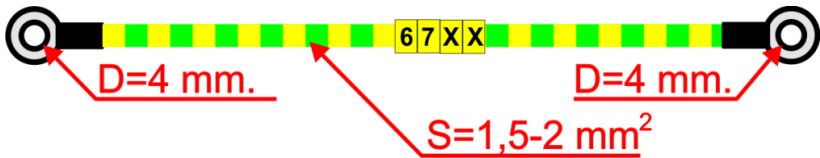- **By easy pressing, install the module into the proper place.**

- **On the base unit top cover break down the protective caps in connector's place of installed video channel module.**

- **Fix the video channel module with two screws M3X6.**

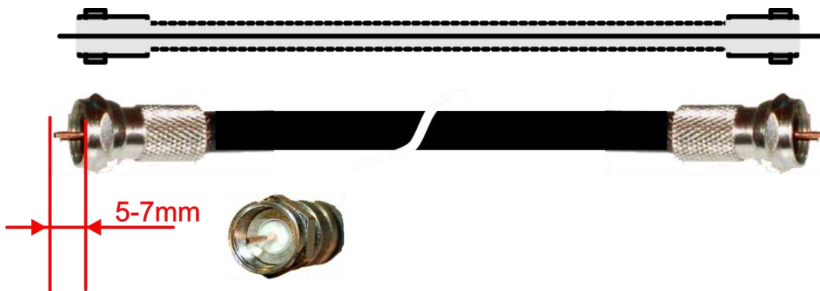- **Close base unit and fix it with four screws on the edges of the case.**

9.3. CABELS

9.3.1. GROUND CABLE CB-67

D=4 mm.   6 7 X X   D=4 mm.

$S = 1,5\text{-}2\ mm^2$

- Maximal cable length – 2 meters!

9.3.2. F-Type CONNECTORS INSTALLATION

5-7mm

- There are many methods of F-Type cable connector exploitation, but in any of this methods is following:

   - The cable must be carefully prepare and have length of the protruding part of the central strand - not less than **5-7 mm.**

   - It is required to provide reliable electrical connection of the braided cable screen connection with a metal connector's case.

   - Do not use cables with damaged isolation or braided-screen.

   - The cable must have a wave resistance **75 ohm!**

10. SAFETY ACTIVITIES

- **Specialists of BRIO ShopVideo system service, installation and repair must pass safety courses.**

- **Only personnel with appropriate access group of electrical safety may be allowed to system power part components installation.**

- **Do not work with the BRIO ShopVideo system components when the covers are removed.**

- **Before BRIO ShopVideo system components installation must carefully view the cables and verify its working condition.**

- **Do not open covers of the BRIO ShopVideo components if they are switched on, or there all cables are not disconnected!!!**

- **Do not use the device if in the sockets AC 220V and in installation metal parts no active safety ground.**

- **Do not use the BRIO ShopVideo system components, if power cable and signal wires are damaged.**

11. BRIO EngineerinG® WARRANTY

ZRF BRIO Ltd. (BRIO EngineerinG®) ensures proper operation of the BRIO ShopVideo system components, within one year from the sales date. During the warranty period BRIO EngineerinG® undertakes to repair or replace BRIO ShopVideo system components for free.

Warranty applies only to the BRIO ShopVideo system components, that are purchased from authorized ZRF BRIO Ltd. dealers.

Warranty does not apply to devices that have been exposed to high temperature, electric or other fields, with aggressive chemical environments, or out of service due to mechanical damage, or careless using.

ZRF BRIO Ltd. (BRIO EngineerinG®) is not responsible for incorrect device operation, if they was installed by other companies, that are not official ZRF BRIO Ltd. dealers.

More information about the warranty prolongation can get in any of the ZRF BRIO Ltd. (BRIO EngineerinG®) representations.

This warranty becomes invalid, if the supply contract of a proper system or system, that includes the device, is otherwise specified.