

# User Manual 2-Port OABR Multi-Media-Switch

(EAN 4038816090041 - Art.-No. 94798)





INO\_94798\_OABR\_Multi-Media-SwitchGebrauchsanweisung\_V1.6\_english



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I-NOVATIVE	

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# 1. Delivery

Please check the packaging and contents for damage before startup:

- > Does the packaging indicate something was damaged during transport?
- > Are signs of use visible on the device?

You may not operate the OABR Multi-Media-Switch if something seems to be damaged. In any case of doubt, please contact our technical support.

#### Package contents:

- i-NOVATIVE OABR Multi-Media-Switch
- 2 USB-cable
- Network Cable RJ45
- Tyco MQS 18 Pol connection cable

#### System requirements (for GUI):

- Microsoft Windows 2000, Windows XP 32/64Bit, Windows Vista 32/64Bit, Windows 7 32/64Bit, Windows 8 32/64Bit
- x86 compatible Processor (32 Bit or 64 Bit)
- 512MB RAM
- 30 MByte free discspace
- Screen resolution 1024x768 or higher with at least 256 colors

# 2. Commissioning and configuration

# 2.1. Commissioning and connection

#### Step 1

Connect your OABR Multi-Media-Switch to the existing test environment using the interface cable. If you do not have an i-NOVATIVE original cable, you can do your own cable wiring according to the description of pinning in chapter 2.5. Connect the two OABR ports of the OABR Multi-Media-Switch to the OABR ports of the devices to be connected.



Make sure that the power supply is within the specified range and connect the two CAN Bus lines. Please note that the correct CAN connections (CAN-High, CAN-Low) are used due to the CAN bus can be disturbed by incorrect connection. If necessary, check the correct configuration based on the pinning (2.5.).

#### Step 2

Connect your PC to a USB-A cable or RJ45 Ethernet cable and proceed with section 2.2. (Software installation and driver installation). Alternatively, the OABR Multi-Media-Switch can also be connected to the PC via a standard network switch and the Ethernet cable



### 2.2. Installation of the GUI software

To use the GUI of the OABR Multi-Media-Switch, you must first install the software on your PC.

- If necessary, download the latest OABR Multi-Media-Switch software on our website: http://www.i-novative.de/de/downloads

- Please note the location of the installation file
- Start the application with a double-click

Setup-Sp	orache auswählen	
<b>M</b>	Wählen Sie die Sprache aus, die während der Installation benutzt werden soll:	
	Deutsch	
	OK Abbrechen	

- Select the desired language for the installation process

Setup - OABR Multi-Media	-Switch
RINOVATIVE	Willkommen zum OABR Multi-Media-Switch Setup-Assistenten
i I	Dieser Assistent wird jetzt OABR Multi-Media-Switch 1.0.2 auf Ihrem Computer installieren.
ei j	Sie sollten alle anderen Anwendungen beenden, bevor Sie mit dem Setup fortfahren.
	"Weiter" zum Fortfahren, "Abbrechen" zum Verlassen.
	Weiter > Abbrechen

- Press "Next" to proceed with the installation.

Setup - OABR Multi-Media-Switch
Lizenzvereinbarung Lesen Sie bitte folgende, wichtige Informationen bevor Sie fortfahren.
Lesen Sie bitte die folgenden Lizenzvereinbarungen. Benutzen Sie bei Bedarf die Bildlaufleiste oder drücken Sie die "Bild Ab"-Taste.
License Agreement  This is a legal agreement between you, the end user, and i-Novative GmbH. By installing this software you are agreeing to accept ownership of this product and to be bound by the terms of this agreement. If, after reading this agreement, you do not agree with its terms, return the hardware, software and manuals within thirty days of purchase to the party from whom you received it for a refund. In order to receive a refund, the hardware and manuals must be in resellable condition.
<ul> <li>Ich akzeptere die Vereinbarung</li> <li>Ich lehne die Vereinbarung ab</li> </ul>
<zurüdk weiter=""> Abbrechen</zurüdk>

- Agree to the license agreement.



- Select the desired installation directory.

Preselection directory: "C:\Program Files\OABR Multi-Media-Switch". You can also choose another installation directory if necessary. Please remind your installation directory for later usage. Press "Next".

🔝 Setup - OABR Multi-Media-Switch	Setup - OABR Multi-Media-Switch
Startmenü-Ordner auswählen Wo sol das Setup die Programm-Verknüpfungen erstellen?	Zusätzliche Aufgaben auswählen Welche zusätzlichen Aufgaben sollen ausgeführt werden?
Des Setup wird de Programs-Verbrüchungen im folgenden Startmenu-Ordver erstellen.     Niches Seu // Verber*, um fortunfahren, Ricken Sie auf "Durchsuchen", fals Sie einen anderen Ordver auswählen möbiten.     Durchsuchen     Durchsuchen     Durchsuchen	Walten Die die suchtrichen Aufgeben aus, die das Setup während der Installation von OMBR Multi-Hede-binkth aufführen voll, und tricken Die denich auf "Weiter". Zusätzliche Symbolie I Deaktop-Symbol erstellen
< Zurück Weiter > Abbrechen	< 2urüd: Weter > Abbrechen

- Here you can select whether a shortcut of the application program shell be created. Press "Install".

Setup - OABR Multi-Media	Switch Beenden des OABR Multi-Media-Switch Setup-Assistenten
0.00	Das Setup het die Installation von OABR Mults-Media-Switch auf Bren Computer abgedinkenen, Die Americkang kom die die statieller ein opgenmin-einschufzungen gestartet worden. Kolden Sie auf Tiertigstellen", um das Setup zu beenden.
	Ferögstelen

- If you do not want to start the PC application software after installation, please remove the checkbox mark "Start OABR Multi-Media-Switch". Press afterwards "Finish".

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# 2.3. Driver Installation (USB, LAN)

#### 1. Automatic driver installation

The OABR Multi-Media-Switch driver can be installed on the following operating systems: Windows 2000, Windows XP 32/64Bit, Windows Vista 32/64Bit, Windows 7 32/64Bit and Windows 8 32/64Bit.

During the installation of the OABR Multi-Media-Switch software, the required driver for USB and "USB 2.0 to Ethernet" will be installed automatically. During the installation you can choose if you want to install the USB and LAN driver.

Setup	้ร	Setup
Do you want to install the USB driver?		Do you want to install the LAN driver?
Ja Nein		Ja Nein

Select "Yes" if the driver is not previously installed or a new driver is provided. The driver installation continues with the following messages that you must confirm:

#### LAN-Treiber

#### **USB** Treiber

) SMSC LAN9500 Device Driv	ver Setup	Windows-Sicherheit
	Willkommen beim Setup Assistenten von SMSC LAN9500 Device Driver	Möchten Sie diese Gerätesoftware installieren? Name: CMM Dieve Package Iterazigeben: HNOVATIVE GmbH
K	Mit dem Setup Assistenten härmen Sie SMSC LAN9500 Device Driver andern, reparieren oder entfernen. Kicken Sie auf Wetter "um frühfahren, oder auf "Abtrechen" um den Setup Assistenten zu beenden.	Software von "-NOVATIVE GmbH" immer vertrauen     Software von vertrauenswürdigen Herauspelen installieren. <u>Wie kann</u> fotgastellt werden, welche Gentlensthware bedreitende installieren kom?
	< Zurück Weiter > Abbrechen	

Select "Install" or "Next", the driver installation will continue. Follow the instructions on the screen to complete the installation

You will finally receive a message that the computer should be restarted.

BHOVITIVE	Beenden des OABR Multi-Media-Switch-1.2.0 Setup-Assistenten
19. 10 - C.	Uin die bratalation von CABE Muk-Neda-Switch-12.0. abuchtleiben, musika die Sebup Ühren Computer neu starten. Michten Sie jetzt neu starten? (2) Jan, Computer jetzt neu starten (2) Nein, ich werde den Computer später neu starten
	Fertigstellen

#### 2. Manual Driver Installation

You can also manually install the OABR Multi-Media-Switch drivers. Proceed as follows:

- Download the latest driver from our website. There is always the latest driver provided: http://www.i-novative.de/de/downloads Alternatively, the driver is in the follwoing folder after installing the GUI: \Driver\
- Unzip the downloaded driver with a double click in the default directory of your C drive.
- Connect the USB cable to the PC and the OABR Multi-Media-Switch and switch on the device (= with 12V supply voltage via the Tyco connector)
- After a short time comes a message in the system tray that a driver could not be installed successfully.
- Now navigate to the *"Device Manager"* under the Windows Control Panel and search the entry "OABR Multi-Media-Switch" under *"Other Devices"*.

Please select "Update driver software":



- Click on the entry OABR Mulit-Media-Switch with the right mouse button and choose "Search for driver software on the computer".
- Select the folder where you unpacked the driver before and click on "Next" afterwards.
- · Select "Install".
- Finally, you will get the message "The driver software has been successfully updated".

## 2.4. Network Configuration

In principle, the OABR Multi-Media-Switch acts as a standard switch in a network. This means: a) for the participation of the PC via the OABR switch on this network, the PC must have the same subnet mask as well as a valid IP address. b) Please make sure that no IP address is assigned twice. Sniffing in the network (e.g., via Wireshark) requires no special setting on the PC.

# 2.5. Pinning Tyco MQS



High Speed CAN - Low	18	9	High Speed CAN - High
U_BAT	17	8	GND
ETH_ON	16	7	GND
	15	6	
OABR Port1-	14	5	
OABR Port1+	13	4	
OABR Shield	12	3	OABR Shield
OABR Port2-	11	2	
OABR Port2+	10	1	

#### Explanation of the connections:

HighSpeed CAN High/Low	Connection of the Higspeed CAN. Please pay attention to the correct termination of your CAN bus.
• U_Bat	Power supply 12V
• GND	Ground
• ETH_ON	The port is bi-directional. The OABR-Switch can be configured that in case of a positive signal level the devices wakes up. The pulse width can be configured. Additionally, over the GUI, a trigger signal can be sent. The signal level is GND (default) until U_BAT. In mode "Always On", the input trigger signal is ignored, the device is always active.
• OABR +/-	OABR connectors
OABR Shield	On this pins - if necessaary - a cable shield can be connected. The Shield is connected to the housing via a RC-Filter.

# 2.6. Configuration (GUI)

### 2.6.1. Toolbar

*Device selection:* All connected devices are listed here. If a device is selected, its settings are loaded and displayed.

Refresh Button: Refreshes the list of connected devices.

*Store*: Writes the changes to memory. Unsaved changes are discarded when the device is reset. The button is active as soon as a change has been made.

About: Shows the information about the application.

FAQ: Opens the FAQ page in the web browser.

*Downloads*: Opens the download page in the web browser. Here you will find the latest firmware, drivers and updates of the GUI as well as current instructions for use.

Homepage: Opens the i-novative homepage in the web browser.

Exit: Closes the application.

#### 2.6.2. Statusbar

Hardware Version: Please provide this information when inquiring the support.

Firmware Version: Version of the currently connected device. Please refer to firmware update..

*Connected/Not connected*: Indicates if there is a connection to the firmware of a connected device.

### 2.6.3. Port Config

OABR Multi-Media-Sw	vitch	and the second second					×					
File Network Help												
OABR Media Swtich - BI	OABR Media Switch - 813005 🚽 🔂 😑 🖬 🔮 STORE 🚺 🕐 👱 🏫 🧔 🖼 🛁											
Port Co	onfig											
OAE	BR1	OABR2		100BaseTX		USB						
VLAN				📝 auto-negotiat	ion							
Sniffing Role:	: master	Role:	slave	Duplex Mode:	full v	Duplex Mode:	half					
Flow Counter	Control: auto	<ul> <li>Flow Control:</li> </ul>	auto 💌	Flow Control:	force v	Flow Control:	none					
Life Cycle Spee	d: 10Mbps	<ul> <li>Speed:</li> </ul>	10Mbps •	Speed:	10Mbps v	Speed:	10Mbps					
Firmware Flash												
Hardware Version: B		Firmware Versio	n: 00.00.09.49		Connected							

#### OABR1 / OABR 2:

*Role*: Indicates whether the OABR port is set to Master or Slave. The setting can be changed via the hardware switch <INSERT switch>. See chapter 2.7.

Flow Control:	- force:	FC for RX and TX is activated
	- auto:	FC is deactivated, because no Auto-Negotiation is made

Speed: 100Mbps or 10Mbps

<u>100BaseTX:</u> Specifies the settings of the Ethernet interface.

*Auto-Negotiation*: initiates automatically the maximum possible transmission speed for the Ethernet-Networkport and as well as negotiation and configuration of the Duplex-mode. Precondition is that the connected network port also supports auto-negotiation.

*Duplex Modus*: Enables the network port to be switched to half-duplex mode to allow compatibility with certain network devices.

Flow Control:	- force FC:	FC for RX and TX is activated, regardless of the result of Auto-Negotiation
	- auto FC:	FC is negotiated at auto-negotiation. The switch supports RX-FC and TX-FC. The result depends on what the link partner offers during the auto-negotiation.

*Speed*: Enables the network port to be switched to 10Mbps to allow compatibility with certain network devices.

USB:

The settings of the USB port are made automatic by the <Ethernet 2 USB driver> and can not be changed.

#### 2.6.4. VLAN

The VLAN Panel provides the folling configuration functionality

- switch ports can be combined to VLAN-like port groups,
- frame forwarding can be controlled by modifying the Static MAC Table,
- dynamically learned MAC addresses can be displayed.

Future software versions will support the setup of IEEE 802.1q compliant VLANs.

#### Port Based VLAN

Using Port Based VLANs port groups can be set up. Frames are only forwarded between ports belonging to the same group.

The group membership is assigned in a matrix where each field represents a communication direction. The row indicates the source, the column indicates the destination.

For enabling bi-directional communication both corresponding fields must be checked. Arbitrary combinations can be set up. Inside a port group the other forwarding rules (MAC address lookup) apply.

#### Configuration-Exemple 1: Two Port Groups

OABR Multi-	Media-Switch				
File Network	Help				
OABR Media S	wtich - B13005	£5 -	😑 🖯 🖄	STORE 👔	💿 👱 🏠 🧔 🛋 🛁
×	Dynamic MAC Address Tal	ble VLAN Table	Static MAC Add	ress Table Port	Based VLAN
Port Config	Port based VLAN				
					How to use Port Based VLANs
VLAN		USB 100	IBTX OABR2	OABR1	Using Port Based VLANs port groups can be set up. Frames are only forwarded between ports belonging to the same group.
Sniffing	USB	7		V	The group membership is assigned in a matrix where
104	100BTX				each tear tepresens a communication direction: the row indicates the source, the column indicates the destination. Checking field [100BTX_OABR2] means that traffic from the 100BTX port can be forwarded to the
Counter	OABR2		7		OABR2 port. For enabling bi-directional communication both corresponding fields must be checked (e.g. [100BTX,OABR2] and [OABR2,100BTX]).
Life Cycle	OABR1			$\forall$	Inside a port group the other forwarding rules (MAC address lookup) apply.
Firmware Flash			<u>a</u>		Arbitrary combinations can be set up. For instance, it is possible to exclude a post completely from forwarding. If there is a micro port used only for smilling transmission from this port can be deactivated effectively setting up a steath smiller.
					It is also possible to turn the OABR-Media-Switch into two independent media converters by assigning two port groups - one containing USB and OABR1 and the other
Hardware Versio	n: B		Firmware Version: (	00.00.09.49	Connected

In the above example, the OABR-Media-Switch is turned into two independent media converters by assigning two port groups - one containing USB and OABR1 and the other containing 100BTX and OABR2.

Configuration-Exemple 2: Uni-Directional Traffic

OABR Multi-	Media-Switch	- U	0			
File Network	Help		-			
OABR Media S	wtich - B13005		- 62 🖸 🔁	8   🛎 :	STORE	1 🖸 🕑 👱 🏠   🥨 🖼 剩
X	Dynamic MAC Address T	able VLAN	Table Static	MAC Addres	s Table	Port Based VLAN
Port Config	Port based VLAN					
						How to use Port Based VLANs
VLAN		USB	100BTX	OABR2	OABR	81 Using Port Based VLANs port groups can be set up. Frames are only forwarded between ports belonging to the new newsystem of the set of th
Sniffing	USB	7				The group membership is assigned in a matrix where
104	100BTX					row indicates the source, the column indicates the destination. Checking field (100BTX,OABR2) means that traffic from the 100BTX port can be forwarded to the
Counter	OABR2			7		OABR2 port. For enabling bi-directional communication both corresponding fields must be checked (e.g. [100BTX,OABR2] and [OABR2,100BTX]).
Life Cycle	OABR1				7	Inside a port group the other forwarding rules (MAC address lookup) apply.
Firmware Flash						Arbitrary combinations can be set up. For instance, it is possible to exclude a port completely from forwarding. If there is a mirror port used only for sniffing transmission from this port can be deactivated effectively setting up a stealth sniffer.
						It is also possible to turn the OABR-Media-Switch into two independent media converters by assigning two port groups - one containing USB and OABR1 and the other
Hardware Versio	n: B		Firmwa	e Version: 00.	00.09.49	Connected

The above example shows the setup of a uni-directional connection. Frames can be forwarded from the 100BTX port to the USB port but not vice versa. Practically this will only work with a static ARP table setup since ARP replies from USB to 100BTX are not forwarded. If there is a mirror port used only for sniffing transmission from this port can be deactivated effectively setting up a stealth sniffer. It is also possible to exclude a port completely from forwarding. Port Based VLANs are not IEEE 802.1q compliant. VLAN tags have no influence of the port group assignment.

#### Static MAC Table

The switch forwards Ethernet frames primarily based on MAC addresses that are stored in the Dynamic MAC Table. Source MAC addresses of frames received at a certain port are learned together with the respective port number. Thus the switch knows which nodes can be reached by which ports. By matching the destination MAC address with the learned source addresses the switch delivers an Ethernet frame only to the appropriate destination port.

This behavior can be overridden using the Static MAC Table. Entries within that table consist of a MAC address, a list of forwarding ports, and a validity flag. Frames matching an entry in the Static MAC table with their destination MAC address are forwarded to the ports set in this entry. Only valid entries are used for frame forwarding. Frames are never forwarded to their source port even when it is in the port list.

The port list inside a Static MAC Table entry can assign none, all, or a subset of ports for forwarding.

If no forwarding port is assigned all matching frames are dropped. That way a MAC based frame filter can be set up. Filtering also works with broadcast or multicast addresses.

By enabling more than one forwarding ports matching traffic will be forwarded to all activated ports. Doing so, traffic can be mirrored.

Using a single forwarding port can be used to avoid the MAC learning procedure and thus speeding up the initial frame delivery. Statically populating the nodes' ARP tables additionally eliminates the need for the address resolution procedure.

The Static MAC Table can hold a maximum of 32 entries.

Configuration-Exemple: Static Mac Table with 3 entries

File Network	Help						_	_			
OABR Media Sv	vtich - B13005			- (	82   63		🛃 STORE	10	👱 🏫 🧔 🖿	-	
¥	Dynamic MA	C Address	Table	VLAN Ta	able St	tatic MAC	Address Table	Port Based	VLAN		
Deat Carefor	- Static MAC A	Address Ta	ble								
Port Config		Valid FID	Fwd P4 OABR1	Fwd P3 OABR2	Fwd P2 100BTX	Fwd P1 USB	MAC Addre	is ^	How to use the	Static MAC Address Table	*
	1	7		<b>m</b>	<b>m</b>	<b>m</b>	FE:FE:FE:FE:FE	FF			
••	2	<b>V</b>	<b>V</b>	m		<b>m</b>	00:80:CA:FE:BA	:BE	The switch forward	Is Ethernet frames primarily based on MA	C
VLAN	3		1		1	7	D0:90:DE:AD:B	EEF	addresses that are	e stored in the Dynamic MAC Table. Sour	ce
	4						00:00:00:00:00	00	MAC addresses of	f frames received at a certain port are	
	5						00:00:00:00:00	00	learned together w	ith the respective port number. Thus the	
<b>1</b>	6			<b>F</b>	<u></u>		00:00:00:00:00	00	switch knows which	h nodes can be reached by which ports. I	By
California a	7					<u> </u>	00:00:00:00:00	00	matching the desti	ination MAC address with the learned	·
Shiring	8						00:00:00:00:00	00	source addresses	the switch delivers an Ethernet frame only	/ =
	9						00:00:00:00:00	00	to the appropriate	destination port.	
202	10						00:00:00:00:00	00			
101	11			-	1	100	00:00:00:00:00	00 =	This behavior can	be overridden using the Static MAC Table	
Counter	12				100	100	00:00:00:00:00	00 -	Entries within that	table consist of a MAC address, a list of	
	15				1000	-	00:00:00:00:00	00	forwarding ports, a	ind a validity flag. Frames matching an	
	15		1	8			00.00.00.00.00	00	entry in the Static	MAC table with their destination MAC	
0	16		100		<b>m</b>		00-00-00-00-00	00	address are forwar	ded to the ports set in this entry. Only val	id
•	17			m	m	m	00-00-00-00-00	00	entries are used fo	r frame forwarding. Frames are never	
Life Cycle	18	m	(m)	m	m	m	00-00-00-00-00	00	forwarded to their :	source port even when it is in the port list	
	19			1			00:00:00:00:00	00			
	20			1	1		00:00:00:00:00	00	The port list inside	a Static MAC Table entry can assign	
<u> 3</u>	21						00:00:00:00:00	00	none, all, or a sub	set of ports for forwarding.	
	22			<b></b>			00:00:00:00:00	00			
Firmware	23				<b>F</b>		00:00:00:00:00	00	If no forwarding po	rt is assigned all matching frames are	
Flash	24	FT					00:00:00:00:00	.00	dropped That way	a MAC based frame filter can be set up	
	25						00:00:00:00:00	00	Filtering also work	s with broadcast or multicast addresses	
	26						00:00:00:00:00	00	r mennig also work	s min broadcast of mandast addresses.	
	27						00:00:00:00:00	00	By enabling more	than one forwarding porte matching traffic	
	28						00:00:00:00:00	00 +	will be forwarded to	o all activated ports. Doing so traffic can l	he
	~		100					4	mirrorad	o an addressed porto. Doing 30, name carri	-
Hardware Version	n: B				Firm	ware Vers	ion: 00.00.09.49		Co	nnected	

- Entry 1: Ethernet broadcasts (FF:FF:FF:FF:FF) are blocked.
- *Entry 2:* Frames with destination address 00:80:CA:FE:BA:BE are only forwarded to port OABR1.
- *Entry 3:* Frames with destination address 00:90:DE:AD:BE:EF are forwarded to ports USB and 100BTX

Reading and writing of the Static MAC Table takes a bit of time thus it is not automatically synchronized with the switch. Instead, the Refresh and Apply buttons must be used.

When storing the Static MAC Table only valid entries are made persistent. This way startup time is minimized since the table has to be populated at each power-on or reset.

#### **Dynamic MAC Adress Table**

The source Ethernet addresses of each incoming frame together with the number of the port that has received that frame are stored in the Dynamic MAC Table (MAC address learning).

This table has a maximum of 1024 entries.

Refreshing the table can take a bit of time thus it is not synchronized automatically. Instead, the Refresh button must be used for updating the table contents.

#### Example Dynamic MAC Table

	usial P12005		28	-		a o 📕 \land 🧑 📼 🔺
S Co	(D	<b>* 11</b>   10	• 62			
×	Dynamic MAC Addres	s Table VL	AN Table	Static	MAC Address Table	Port Based VLAN
Port Config	Dynamic MAC Addres	sTable				
<u>.</u>			Port	FID	MAC Address	
VLAN		1	OABR1	0	20:CF:30:26:38:55	How to use the Dynamic MAC Address Table
_		2	USB	8	00:80:0F:CA:FE:00	
100 million (100 m		3				frame together with the number of the port that has
Sniffing		4				received that frame are stored in the Dynamic MAC
		5				Table (MAC address learning).
1078		6				This table has a maximum of 1024 entries
		/	-			
Counter		0				Refreshing the table can take a bit of time thus it is
<i>a</i> .		10				hot synchronized automatically. Instead, the Refresh button must be used for undating the table contents
0		11				auton maat be sees ter speaking tre table contenter.
Life Cycle		12				By using copy and paste MAC addresses can be
		13				transferred from the Dynamic NIAC Table to the Static MAC Table
		14	_			
		15				
Flash						
		ſ				
			Kefres	'n		

MAC addresses from the Dynamic MAC table can be transferred to the static MAC table via copy/paste.

The function of the Filter ID (FID) is described in chapter 802.1Q VLAN.

#### 802.1Q VLAN

The OABR Media Switch supports IEEE 802.1Q compliant VLAN functionality. The following features are available:

- · Insert / remove VLAN tags,
- Filtering based on the Port VLAN ID (PVID),
- Filtering / Forwarding based on the VLAN Table.

a) Enable / disable 802.1Q VLAN functionality

802.1Q VLAN features are enabled and disabled through the checkbox in the upper left corner of the VLAN tab.

<u>F</u> ile <u>N</u> etwork <u>H</u> elp										
OABR Media Swtich - 20WN4XEQ -										
×	Dynamic MAC A	Address Tal	ble	VLAN 1	able					
Port Config	VLAN Table									
	<b>▼</b> 802.1Q		PVID	Insert	Tag	Rei				
•		OABR1	1							
		OABR2	8							
		100BTX	1							
VLAN		USB	8							
		_								
		V	alid \	VID	O OA	BR				

The VLAN settings can only be changed if 802.1Q VLAN is enabled. The same applies to updating the tables. If 802.1Q VLAN is not needed, it should remain disabled. This saves time for loading the VLAN table.

#### b) Port-related VLAN settings

The upper table in the VLAN tab contains the port-specific VLAN settings.

	Dynamic MAC Address Table			VLAN Table	Static MAC	Static MAC Address Table Port		
	VLAN Table							
	<b> 802.1</b> Q		PVID	Insert Tag	Remove Tag	<b>PVID Filter</b>	VTable Fi	ilter
		OABR1	1	<b>V</b>				
		OABR2	8		<b>V</b>			
		USB	8				<b>V</b>	
PVID:		The Port VLA	N ID	can be use	d to filter or t	ag packets	without a	tag.
Insert Ta	ig:	The PVID is ii have a VID ar	nserte re not	ed in packa changed.	ges without a	a tag. Packa	ages that	already
Remove	Tag:	The VLAN tag	g from	n received p	oackets is rer	noved.		
PVID Fil	ter:	Received packets whose VID corresponds to the PVID are forwarded. All others are discarded. The PVID must have a valid VLAN ID in the range from 0-4095.						
VTable F	Table Filter:         The forwarding of the packages happens on the basis of the entries i the VLAN Table.							tries in



c) VLAN Table

The VLAN Table contains VLAN-specific settings for forwarding packets with VLAN tag. The entries in the VLAN table are applied only to the packets received on ports whose *VTable Filter* Flag is set.

Valid	VID	FID	OABR1	OABR2	100BTX	USB	*
<b>V</b>	2	9		<b>V</b>	<b>V</b>		
<b>V</b>	73	8	<b>V</b>	<b>V</b>	<b>V</b>	<b>V</b>	

The VLAN table contains a maximum of 32 entries. Using the context menu (right mouse button), entries can be deleted, added or the whole table can be deleted.

An entry in the VLAN table has the following meaning:

Valid:

This entry is used for packet forwarding. Entries that are not marked as valid, will be ignored. When saving the configuration (Store) only valid entries are persisted.

VID:

The *VLAN ID* is the key in the VLAN table. Each VID may only exist once. The forwarding rules of this entry are applied to packages with matching VIDs. The VID must be in the range of 0-4095.

FID:

The switch supports a maximum of 128 active of 4096 possible VLANs. The packet forwarding is therefore internally based on the filter ID rather than the VLAN ID. For this purpose, each entry must be assigned to a filter ID in the range 0-127. If 802.1Q is activated, the FID is also learned during MAC address learning and stored in the Dynamic MAC table. The forwarding is then based on the destination address and FID. In the static MAC table, the combination of MAC address and FID can be specified manually.

#### OABR1/OABR2/100BTX/USB:

The individual port flags indicate to which ports packets with a specific VID should be forwarded. Certain VLANs can be blocked if no port is activated.

d) VLAN exemples

The insertion and removal of VLAN tags e.g. makes sense, if non VLAN-capable devices shell be integrated into a VLAN.



As exemple,a PC and a server shell communicate with each other. The server is configured for VLAN 73, the PC does not support 802.1Q VLAN. From packages that go from the server to the PC side, the VLAN tag must be removed. In packets that the PC to the server, the VLAN tag must be inserted. The PC is connected to the USB port of the OABR Multi-Media-Switch, the server is connected to the 100BTX port.

								-
Dynamic MAC A	ddress Ta	ble	VLAN T	able	Static MAG	Address	Table	Port Base
VLAN Table								
<b>▼</b> 802.1Q		PVID	Insert	Tag Rer	nove Tag	<b>PVID</b> Filt	ter VT	able Filter
	OABR1	1						
	OABR2	1						
	100BTX	88	<b>V</b>					
	USB	73			<b>V</b>			
	١	Valid	VID FID	OABR	I OABR2	100BTX	USB	A
	_							
		<b>V</b>	73 1					

The VLAN 73 must be configured as a valid VLAN in the VLAN table. The forwarding ports are not important in this case because VLAN table filtering is disabled.

The port to which the PC is connected (USB), is configured with VLAN ID 73 as PVID. The PVID of the input port is inserted when the packet is forwarded, if at the Output port (100BTX) the flag "insert tag" is set.

In order to remove the VLAN tag 73 from the packets of the server, the Remove Tag flag must be set on the destination port (USB).

The PVID of port 100BTX (88) is irrelevant in this case, since no other port has the insert tag flag set.

### 2.6.5. Sniffing

OABR Multi	-Media-Switch					- • ×
File Network	Help					
OABR Media	Swtich - 813005	£5 -	📄 🔚 遵 STORE	0 🕑 👱 🏠 🤇	۵ 📼 🚽	
Port Config	- Sniffing	Ports			How to use Port Mirroring Mirror Port Settings	
Sniffing		Sniff on Port:	OABR1 -		Sniff on Port: Specifies the port to which the traffic will be forwarded.	
107		OABR1:	off v		Mirrored Port Settings RX only: Only the received packets on	
Counter		OABR2:	RX only 👻		the port will be forwarded to the sniffer port. <i>TX only:</i> Only the transmitted packets on the port will be forwarded to	
Eirecycle		100BaseTx:	TX and RX 🔻		the sniffer port. <i>TX and RX:</i> Both the transmitted and the received packets will be forwarded to the sniffer port	
Flash		USB:	TX only •		Off: Packets on this port will not be mirrored to the sniffer port.	
Hardware Versi	on: B		Firmware Version: 00.00.09.49	)	Connected	

Sniff on Port: Specifies the port on which the traffic is output.

Port Settings:

- RX only: Only the incoming packets are forwarded to the sniffing port
- *TX only*: Only the outgoing packets are forwarded to the sniffing port
- RX and TX: Both the inbound and outbound packets are forwarded to the sniffing port
- Off. Packages at this port are not considered during sniffing

Dynamic MAC Table: Displays the dynamic MAC table for each port.

Refresh Mac Table: Read the table again from the device.

2.6.6. Counter

Displays a list of counters of the selected OABR switch. The lists can be updated via the Refresh button. The counters are reset to zero each time the switch is restarted..

ABR Media Sw	tich - B13005			185	) 📮 🗖 💌	STORE	6	0 🕹 💧 🖉	7 📼				
8.0.	100.0		_					· · · · · · · · · · · · · · · · · · ·					
X	MIB Counter				04883			1000			LICP		
ort Config	UABRI				UABK2			TOOBASETX			USB		
	Counters	Value	^		Counters	Value	<u>^</u>	Counters	Value	^	Counters	Value 🔨	
	RxLoPriorityByte	0			RxLoPriorityByte	0		RxLoPriorityByte	0		RxLoPriorityByte	0	
	RxHiPriorityByte	0			RxHiPriorityByte	0		RxHiPriorityByte	0		RxHiPriorityByte	0	
VLAN	RxUndersizePkt	0			RxUndersizePkt	0		RxUndersizePkt	0		RxUndersizePkt	0	
	RxFragments	0			RxFragments	0		RxFragments	0		RxFragments	0	
	RxOversize	0			RxOversize	0		RxOversize	0		RxOversize	0	
1000 C	RxJabbers	0			RoJabbers	0		RxJabbers	0		Ridabbers	0	
Sniffing	RxSymbolError	0	Ξ		RxSymbolError	0	E	RxSymbolError	0	Ξ	RxSymbolError	0 =	
-	RxCRCerror	0			RxCRCerror	0		RxCRCerror	0		RxCRCerror	0	
	RxAlignmentError	0			RxAlignmentError	0		RxAlignmentError	0		RxAlignmentError	0	
102	RxControl8808Pkts	0			RxControl8808Pkts	0		RxControl8808Pkts	0		RxControl8808Pkts	0	
ounter	RxPausePkts	0			RxPausePkts	0		RxPausePkts	0		RxPausePkts	0	
	RxBroadcast	0			RxBroadcast	0		RxBroadcast	0		RxBroadcast	0	
10	RxMulticast	0			RxMulticast	0		RxMulticast	0		RxMulticast	0	
Mo.	RxUnicast	0	-		RxUnicast	0		RxUnicast	0		RxUnicast	0	
e Cycle	Rx64Octets	0			Rx64Octets	0		Rx64Octets	0		Rx64Octets	0	
	Rx65to127Octets	0			Rx65to127Octets	0		Rx65to127Octets	0		Rx65to127Octets	0	
	Rx128to255Octets	0			Rx128to255Octets	0		Rx128to255Octets	0		Rx128to255Octets	0	
<b>W</b>	Rx256to511Octets	0			Rx256to511Octets	0		Rx256to511Octets	0		Rx256to511Octets	0	
irmware	Rx512to1023Octets	0			Rx512to1023Octets	0		Rx512to1023Octets	0		Rx512to1023Octets	0	
Flash	Rx1024to1522Octets	0			Rx1024to1522Octets	0		Rx1024to1522Octets	0		Rx1024to1522Octets	0	
	TxLoPriorityByte	0			TxLoPriorityByte	0		TxLoPriorityByte	0		TxLoPriorityByte	0	
	TxHiPriorityByte	0	٣		TxHiPriorityByte	0	-	TxHiPriorityByte	0	-	TxHiPriorityByte	• 0	
	Refres	h ]			Refrest	1		Refres	h		Refres	h	

RxLoPriorityByte RxHiPriorityByte	Rx lo-priority (default) octet count including bad packets. Rx hi-priority octet count including bad packets.
RXUIIdelSizerki ByErgamonto	Rx forgenet packate w/bod CRC.
RAFIAGINEINS ByOuaraiza	Rx rugginent packets wided CRC, symbol errors of alignment errors.
RXOVEISIZE By Johnson	Rx posterial packets w/good CRCC (max. 1530 of 1522 bytes).
RAJabbers	A packets longer than 1022b wetting or Pv packets langer than 1016P only
PxSymbolError	Rx packets w/ invalid data symbol and legal preamble, packet size
RXSymbolenor RxCRCerror	Rx packets within (64 1522) bytes w/an integral number of bytes and a had CRC (upper
TXCICCEIO	limit depends up on max packet size setting).
RxAlignmentError	Rx packets within (64,1522) bytes w/a non-integral number of bytes and a bad CRC (upper limit
0	depends on max packet size setting).
RxControl8808Pkts	The number of MAC control frames received by a port with 88-08h in EtherType field
RxPausePkts	The number of PAUSE frames received by a port. PAUSE frame is qualified with EtherType (88-08h),
	DA, control opcode (00-01), data length (64B min), and a valid CRC.
RxBroadcast	Rx good broadcast packets (not including errored broadcast packets or valid multicast packets).
RxMulticast	Rx good multicast packets (not including MAC control frames, errored multicast packets or valid broadcast packets).
RxUnicast	Rx good unicast packets.
Rx64Octets	Total Rx packets (bad packets included) that were 64 octets in length.
Rx65to127Octets	Total Rx packets (bad packets included) that are between 65 and 127 octets in length.
Rx128to255Octets	Total Rx packets (bad packets included) that are between 128 and 255 octets in length.
Rx256to511Octets	Total Rx packets (bad packets included) that are between 256 and 511 octets in length.
Rx512to1023Octets	Total Rx packets (bad packets included) that are between 512 and 1023 octets in length.
Rx1024to1522Octets	Total Rx packets (bad packets included) that are between 1024 and 1522 octets in length (upper limit
	depends on max packet size setting).
TxLoPriorityByte	Tx lo-priority good octet count, including PAUSE packets.
TxHiPriorityByte	Tx hi-priority good octet count, including PAUSE packets.
TxLateCollision	The number of times a collision is detected later than 512 bit-times into the Tx of a packet.
TxPausePkts	The number of PAUSE frames transmitted by a port
TxBroadcastPkts	Tx good broadcast packets (not including errored broadcast or valid multicast packets).
TxMulticastPkts	Tx good multicast packets (not including errored multicast packets or valid broadcast packets).
TxUnicastPkts	Tx good unicast packets.
TxDeferred	Tx packets by a port for which the 1st Tx attempt is delayed due to the busy medium.
TxTotalCollision	Tx total collision, half-duplex only.
TxExcessiveCollision	A count of frames for which Tx fails due to excessive collisions.
TxSingleCollision	Successfully Tx frames on a port for which Tx is inhibited by exactly one collision.
TxMultipleCollision	Successfully Tx frames on a port for which Tx is inhibited by more than one collision.

### 2.6.7. Life Cycle Settings

Displays a list of counters of the selected OABR switch. The lists can be updated via the Refresh button. The counters are reset to zero each time the switch is restarted.

In the *"Life Cycle Settings*" submenu, all configurations can be made to make the OABR Multi-Media-Switch operate in a life-cycle-dependent environment, such as in a test-car.

**ATTENTION**: As long as the OABR Multi-Media-Switch is connected to a host via the Config Port via USB, the device will always remain active!

Harc Hedia Swath - Blac	012 I GR	atore 🖸 📕 atore 🕕	0 🛫 🔂 🥨 🖬 剩	
Port Config	CAN Speed Configuration 3	2	Life Cycle Settings Life Cycle Mode (DDP Switch -Pin 1):	ways On
	Can Node:	Normal	Life Cycle Trigger Mode:	All only
YEAN	Charles (Parada)	1900	Time to sleep [ms]:	20000
	Phase Segment 1	680~1	ETH_ON Settings	-
Stiffing	3	1	Pulse Width (ms):	400
	Phase Segment 2	Syncro Jump Width	Pulse Threshold [ms]:	2000
Counter	3		Send Pulse:	Send
	<ul> <li>Use larger of phase 2</li> </ul>	Use mulple bit sampling	CAN Settings	
00	C Use larger of phase I	Use wake up filter	@ Any message	Specific ID(s)
re Cyde Settings	Propagation Delay	Oscillator Freq	MaskäFilter	101010104
<b>S</b>	þ 🔳	15 Mhz	@ Standard ID	C Extended ID
Firmsare Flash		1999 DE DE SER O DE SUD & S	Filter1 hex'	0
	Analy Settion	CONTRACT	Filter2 'hex'	0
	regery solutings	CAN INDUS	Mask hex'	0

In the section "*CAN Speed Configuration*" the baud rate (1) as well as specific bit timing Parameter (2) of the CAN bus adjustable. Optionally, one of the 6 preconfigured or customized settings can be selected. The configuration mask (2) is based on the "*Microchip CAN Bit Timing Calculator*" tool of the company "*Intrepid Control Systems, Inc.*", which can be downloaded from the following link:

http://www.intrepidcs.com/support/mbtime.htm

**NOTE**: Special attention is paid to the CAN mode (3). This must be configured properly. In mode *"Normal"*, the OABR Multi-Media-Switch is participating actively on low level with the CAN bus data communication according to the CAN specification. This means, that CAN telegrams are acknowledged with an acknowledge. In the *"Listen only"* Mode, on the other hand, the OABR Multi-Media-Switch acts as a spy, making the actual data communication transparent.

**ATTENTION**: If the OABR Multi-Media-Switch is required to be operated together with another CAN node, the mode "*Normal"* must be selected!

In the section *"Life Cycle Settings"* you can find further Life Cycle specific settings. The Life Cycle mode (4) of the OABR Multi-Media-Switch is set with the DIP switch 4. In the *"Always On"* position, the switch does not participate in the life cycle process. If *"*Customized" is selected, the device behaves according to the specified Life Cycle parameters.

48R. Media Switich - 8:	13012	ia 🛁 🖬 🔚 etore 🕚	0 2 12 10 1 1	$\int G$
For Config Vul Setting Contor Contor Contor Contor Contor Contor Contor Contor Contor Contor Contor Contor Contor Contor Contor Config	CAN Speed Configuration Can Hods: Bloadwise (Bload): Phase Segment 1 3 7 Phase Segment 2 3 6: Use larger of phase 2 6: Use larger of phase 1 Propagation Delay 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Normal	Life Cycle Settings Life Cycle Settings Life Cycle Mode (DP Setch - Pro 4): Life Cycle Tragger Mode: Time to skep (ms) ETH_ON Settings Pulse Weeth (ms) Pulse Weeth (ms) Pulse Thereihold (ms): Send Pulse: CAN Settings & Any message Housebody # Rang Teach Plant Teach Plant Teach Plant Teach Plant Teach	

For the life cycle, the following must be set accordingly.:

- Life Cycle Trigger Mode (5): Specifies the operating mode. Here can be swiched between "CAN only", "ETH\_ON only" and "ETH\_ON & CAN".
- Time to sleep (6): Specifies the time in milliseconds where the device goes to sleep mode.

In section *"ETH\_ON Settings*", the settings for the bi-directional wake-up line (ETH\_ON) can be configured. The ETH\_ON wake-up line is in idle state at low level. If the mode *"ETH\_ON only"* or *"ETH\_ON & CAN"* is selected, the OABR Multi-Media-Switch responds to a high level of the ETH\_ON. The pulse width stimulus threshold can be set under Pulse Threshold (7) in the millise-cond range.

The OABR Multi-Media-Switch is also able to actively send a trigger pulse on the ETH\_ON line. The pulse width (8) can also be specified in the millisecond range. By means of the *"Send"* button (9) the pulse is generated.

In the section *"CAN Settings"* mask- and filter settings for the CAN Life Cycle Management can be specified. In this case, any message can be received (10), which also wakes up the OABR Multi-Media-Switch. Alternatively you can set Filter criteria (11), whereby the switch is then awakened by one or more specific CAN messages with a special identifier. Here, two filter parameters and one mask parameter (12) can be set. The mask parameter specifies the relevant bits of the identifier, which can also be used to set identifier groups.

By using the button *"Apply Settings*" (13), the settings are temporarily transferred to the OABR Multi-Media-Switch. In order to save the data permanently, you have to save with *"STORE*" (14).

Via the button "*CAN Traces*" (15) a Trace window can be opened for checking the previously configured CAN settings. The recording of the CAN Telegrams can simply be started, stopped and stored telegrams can be deleted.

**ATTENTION**: An active CAN tracing with a high data rate can increase the response times of the PC software massivly.

CAN Trace F	Panel				
	2				
	~				
0002280 3C 0	08 697A0397010037F	F			
0002399 314 03	3 FF00FF				
0002439 12F 08	617D8ADDFFFFFFF	4			
0002440 3D3 02	2 FFFF				
0002443 26E 00	3 000000000FFFFFFF				
0002443 387 03	8 OOFCE4				
0002460 3D8 02	2 AFC0				
0002479 3C 08	34780397010037FF				
0002481 130 05	5 F7FFFFFFFF				
0002481 324 02	2 C000				
0002631 510 08	4010400003970100	4			
0002641 387 03	00FCE4				
0002641 389 03	00FCE4				
0002668 6F4 04	DF023E80				
0002009 014 04	FEPU23EU2				
		44			
_	Timestamp	ID	Length	Data	
1	Timestamp 0002481	ID 324	Length 02	Data	<b>^</b>
1 2	Timestamp 0002481 0002479	ID 324 331	Length 02 02	Data C000 00F0	
1 2 3	Timestamp 0002481 0002479 0002460	ID 324 331 3D8	Length 02 02 02 02	Data	
1 2 3 4	Timestamp 0002481 0002479 0002460 0002443	ID 324 331 3D8 26E	Length 02 02 02 02 08	Data C000 00F0 AFC0 00000000FFFFFFF	
1 2 3 4 5	Timestamp 0002481 0002479 0002460 0002443 0002440	ID 324 331 3D8 26E 3D3	Length 02 02 02 02 08 02	Data C000 00F0 AFC0 00000000FFFFFF FFFF	
1 2 3 4 5 6	Timestamp 0002481 0002479 0002460 0002443 0002443 0002440 0001764	ID 324 331 308 26E 303 1D6	Length 02 02 02 02 08 08 02 02	Data C000 00F0 AFC0 00000000FFFFFFF FFFF FFFF	
1 2 3 4 5 6 7	Timestamp 0002481 0002479 0002460 0002443 0002440 0001764 0001764	ID 324 331 3D8 26E 3D3 1D6 1F6	Length 02 02 02 02 08 02 02 02 02 02 02	Data C000 00F0 AFC0 00000000FFFFFFF FFFF FFFF 80F0	
1 2 3 4 5 6 7 8	Timestamp 0002481 0002461 0002460 0002443 0002440 0001764 0001744 0001725	ID 324 331 308 26E 303 1D6 1F6 2A6	Length 02 02 02 02 08 02 02 02 02 02 02 02 02 02 02 02 02	Data C000 00F0 AFC0 0000000FFFFFFF FFFF FFFF	
1 2 3 4 5 6 7 8 9	Timestamp 0002491 0002479 0002440 0002440 0001764 0001764 0001725 0002631	ID 324 331 308 26E 303 1D6 1F6 2A6 510	Length 02 02 02 08 02 02 02 02 02 02 02 02 02 02 02 02 02	Data C000 O0F0 AFC0 00000000FFFFFFF FFFF 80F0 FFC7 401040003970100	
1 2 3 4 5 5 6 7 8 9 10	Timestamp 0002481 0002479 0002460 0002443 0002443 0001764 0001764 0001725 0002631 0002132	ID 324 331 308 26E 303 1D6 1F6 2A6 510 2F4	Length 02 02 02 02 02 08 08 02 02 02 02 02 02 02 02 02 02 02	Data C000 00F0 AFC0 00000000FFFFFFF FFFF 80F0 FFF2 4010400003970100 0101	
1 2 3 4 5 6 7 8 9 10	Timestamp 0002481 0002479 0002460 0002443 0002440 0001764 0001744 0001725 0002631 0002132	ID 324 331 308 26E 303 1D6 1F6 2A6 510 2F4 314	Length 02 02 02 02 02 02 02 02 02 02 02 02 02	Data C000 00F0 AFC0 0000000FFFFFF FFFF 80F0 FFC7 401040003970100 0101 FF00FF	
1 2 3 4 5 6 7 7 8 9 9 10 11 11 12	Timestamp 0002481 0002479 0002440 0002440 0001764 0001764 0001764 0001725 0002631 0002132 0002399	ID 324 331 308 26E 303 1D6 1F6 2A6 510 2F4 314 130	Length 02 02 02 02 02 02 02 02 02 02 02 02 02	Data C000 O0F0 AFC0 00000000FFFFFFF FFFF 80F0 FFC7 401040003970100 0101 FF00FF FFFFFFFF	
1 2 3 4 4 5 6 7 7 8 9 9 10 11 11 12 13	Timestamp 0002481 0002479 0002460 0002443 0002443 0001764 0001764 0001764 0001725 0002631 0002132 0002399 0002481 0001048	ID 324 331 3D8 26E 3D3 1D6 2F6 2A6 510 2F4 314 130 6F	Length 02 02 02 02 02 02 02 02 02 02 02 02 02	Data C000 O0F0 AFC0 00000000FFFFFFF FFFF 80F0 FFC7 401040003970100 0101 FF00FF F7FFFFFFFF 08EB1C36289020FF	
1 2 3 4 5 5 5 7 7 8 9 9 10 11 11 12 13 14	Timestamp 0002481 0002479 0002460 0002443 0002440 0001764 0001744 0001725 0002631 0002132 0002399 0002481 0001048	ID 324 331 308 26E 303 1D6 2A6 510 2F4 314 130 6F 6E	Length 02 02 02 02 02 02 02 02 02 02 02 02 02	Data C000 00F0 AFC0 0000000FFFFFFF FFFF 80F0 FFC7 401040003970100 0101 FF00FF F7FFFFFFF 00EB1C36289020FF 00EB1C36289020FF	
1 2 3 4 4 5 6 7 8 9 9 10 11 11 12 13 14 5	Timestamp 0002481 0002479 0002440 0002440 0001764 0001764 0001764 0001764 0002132 0002399 0002481 0002132	10 324 331 308 268 303 106 1F6 2A6 510 2F4 314 130 6F 6E 3C	Length 02 02 02 02 02 02 02 02 02 02 02 02 02	Data           C000         00F0           AFC0         0000000FFFFFFF           FFFF         80F0           FFFF         80F0           FFC7         401040003970100           0101         FF00FF           PFFFFFFF         006EB1C36289020FF           006EB1C306285FF         347B0337F100337F1	
1 2 3 4 4 5 6 7 7 8 9 9 10 11 11 12 3 14 15 16	Timestamp 0002481 0002479 0002460 0002443 0002443 0001764 0001764 0001764 0001764 0001725 0002631 0002132 0002299 0002481 0001048 0001048	10 324 331 308 26E 303 106 246 510 2F4 510 2F4 314 130 6F 6E 3C 663	Length 02 02 02 08 02 02 02 02 02 02 02 02 02 03 05 08 08 06 08 06 08	Data           C000         00F0           AFC0         00000000FFFFFFF           FFFF         FFFF           80F0         FFC7           401040003970100         0101           FF00FF         FFFFFFFF           08EB1C36289020FF         00EB1C0000EB3SFF           04EB1C0000EB3SFF         34780397010037FF	

#### 2.6.8. Firmware Flash

This panel is used to update the firmware of the OABR switch. The firmware will exclusively delivered by i-novative GmbH as i-nvoative firmware file (.iff). After Installing the GUI, the associated Flash software is also in the program folder: \ Firmware \.

To enable upload, the target system and the bootloader version in the loaded file and the attached hardware must match together. After starting the flash process, the switch performs a reset and the firmware is flashed. If the switch can not perform an automatic reset, the reset switch on the switch must be pressed for 5 seconds (point 2.), until the firmware is loaded.

**Note:** Flashing the device resets or overwrites all OABR switch configurations to their default values. **Please save all configuration settings via the GUI in a file (XML Config) before the firmware flash.** 

1. Loading the firmware file:

Please select the location of the Firmware file with *"Browse"…* 

CARD Marca C	- N	
3.7.	Encoder and the second se	
×	Partware upone	
of Cong	Prosen Each	
A		
VLAN	Re	Lead File
Solfing	Para	
109		
Counter	Red Fit Marine	Constitution
	Page File Vessel	Contra reson
°•	Target System: 0488, Multi-Media-Switch	Target System: OABR, Multi-Media-Switch
Life Cycle Settines	Bootloader Version: 01.008	Bootloader Venion: 05.008
	Formate Venicer 00.00.03.43	Fermane Version 00.00.00.00
General		
	Firmware Date: 2054/02/11	Firmware Date: 2014/02/11
Plesh		
Flesh		
Plash		
Flesh		

2. Reset switch:

In case of no automatic reset, the reset switch must be pressed for at least 5 seconds to start update process.



#### 3. Flash process

The device starts with the upload of the firmware. Please wait until the flash process ended correctly and was confirmed by the GUI.

**NOTE:** Installing the firmware must not be interrupted as this can lead to an inconsistent condition of the device.

File Network	Help					
GAER Media S	which - 813001	👌 🗀 🔂 🏦 stote 🕻	0 🗄 🟦 🕲	-		
Port Config	Firmware Update					
VLAN	Re				Load File	
EEE Softing	Flash	Progress dialog				
Counter	Flash File Version Terget System: 0488,344	Writing Formulate	Can	ut) Auto Media San	ch	
Life Cycle Settings	Sootloader Version: 01.008		Bootloader Version	00.008		
Firmulate	Firmware Date: 2004/02/1		Firmware Date:	2014/02/11		

### 2.7. Hardware-Configuration (DIP-Switch)

The OABR Multi-Media-Switch can also be configured for basic functions without GUI via the front panel DIP selector switches:



DIP1:	off = OABR1-Slave;	on = OABR1-Master
DIP2:	off = OABR2-Slave;	on = OABR2-Master
DIP3:	not used	
DIP4:	<i>on</i> = always on;	off = on@CAN-Activity

# 2.8. Default settings

It may happen that your OABR Multi-Media-Switch is no longer accessible through user settings, etc. In this case, you can use the following reset procedure to reset the device to the factory settings (all settings and values of the device are lost!!):

Switch on the device. By using a non-conductive pointed article (e.g.toothpick), press the RESET button through the small hole and hold it pressed for about 6 seconds. After that, the reset process is completed and all settings are back to default.

# 3. Cleaning

Before cleaning, unplug all cables from the OABR Multi-Media-Switch. When cleaning, use a slightly damp and soft cloth (best of all Microfiber cloth). Never use cleaning agents, alcohol or other solvents for cleaning. Please note that the plugs are very sensitive and already at improper contact, damage to the contacts may occur.

# 4. Technical specifications

- 2 Ports Broadcom BroadR-Reach® (100 MBit/s Fullduplex on a single unshielded twisted pair)
- 1 Port Fast Ethernet (100BaseTX Fullduplex)
- 1 Port USB to Ethernet (100 MBit/s Ethernet via USB2.0)
- 1 High-Speed CAN (selective: CAN Identifier or CAN Activity)
- 1 Ethernet WakeUp Line
- Status LEDs for each BroadR-Reach® port
- · Life-Cycle management function by
  - CAN Bus (selective: CAN Identifier or CAN Activity)
  - Ethernet/BroadR-Reach® (via Ethernet WakeUp Line)
- · Easy to use GUI for configuration and firmware update:
  - Master/Slave
  - HalfOut/FullOut
  - Port Forwarding
  - Port Mirroring
  - VLAN Tagging
  - CAN Settings
  - Ethernet WakeUp Settings
- Power requirement: 8 to 16 Volt DC
- Size: 120 x 80 x 35 mm
- · Robust aluminium case with EMC optimization
- Manufacturer: i-NOVATIVE® GmbH

# 5. Important instructions

# 5.1 Packaging ordinance

"Basically, manufacturers as well as distributors are obliged to ensure that Sales packaging are in principle taken back after use by the end user and recycled or reused.." (according § 4 Satz 1 VerpackVO). If you as a customer have problems with the disposal of packaging and shipping materials, please write an email to info@i-novative.de.

# 5.2. Recycled reference and RoHS compliance



Please note that parts of the products of i-novative<sup>®</sup> GmbH should be submitted to recycle deposits not disposed of with household waste (i.e. circuit boards, power supply, etc.).



ii-novative<sup>®</sup> products are RoHS compliant (RoHS = Restriction of the use of certain hazardous substances; dt. "Restriction of use certain dangerous substances ").

# 5.3. CE marking

The i-novative OABR Multi-Media-Switch has the CE mark.



This device complies with the requirements of EU Directive: 89/336 / EC Directive on electromagnetic compatibility and the mutual recognition of their Conformity. Conformity with the o.a. Directive is confirmed by the CE mark.

# 5.4. Registered trademarks

BroadR-Reach $\ensuremath{\mathbb{R}}$  is a registered trademark of Broadcom Corporation, 5300 California Avenue Irvine, CA 92617 US

# 6. Manufacturer and Support

**i-novative**<sup>®</sup> is a registered trademark of i-novative® GmbH. If you have quaestions ans for any problems or product information please contact us directly

Manufacturer:		
i-novative <sup>®</sup> GmbH	E-Mail:	support@i-novative.de
Kesselbodenstrasse 11	Phone:	+49 (0)8166 5 82 91 40
85391 Allershausen	Fax:	+49 (0)8166 9 88 91 70
	Internet:	www.i-novative.de

# 7. Guarantee

Within the warranty period, we eliminate manufacturing and material defects free of charge. You can find the guarantee conditions valid for your country on the homepage of your Distributors. If you have questions or problems with the device, you can reach us during our normal opening times at the following telephone number +49 (0)8166 5 82 91 40 or via e-Mail: support@i-novative.de.

NOVATIVE	



