



XSLAN+140 Ethernet Extender SHDSL Switch

Installation manual

Document reference : **9020409-01**

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1 Products identification

| XSLAN+140 | |
|--|-----|
| Min supply V. VDC | 10 |
| Max supply V. VDC | 60 |
| Power consumption (W) | 4 |
| SHDSL ports | 1 |
| Max data rate (Mb/s) | 5.6 |
| Ethernet ports 10-100 Mb/s | 4 |
| RS232 | 0 |
| RS485 2 wires | 0 |
| VLAN, | Y |
| SNMP, QoS DiffServ | Y |
| Html Configuration | Y |
| Serial gateway RAW TCP&UDP telnet, modbus, unitelway | 0 |

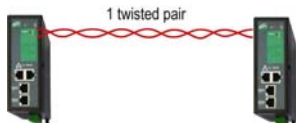
2 Delivery content and accessories

The product itself is delivered with a CD including the user manual and the eticfinder software tool with which you can discover the IP address of any product manufactured by ETIC TELECOM and connected to an Ethernet network.

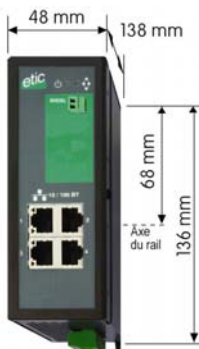
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3 Product overview

The XSLAN+140 provides one shdsl interface to extend an Ethernet network over a twisted pair.



4 Dimensions



5 Connectors

Factory default configuration
push-button

SHDSL screw block

4 Ethernet
ports

Power supply screw block



2 positions screw terminal : Supply voltage 2 Protected against reverse polarity

| Position | Signal | Function |
|----------|---------|--------------------------------|
| 1 | Power + | 10-60 VDC : |
| 2 | Power - | 0V isolated from the enclosure |

4 positions screw terminal :Digital input and output

| Position | Signal | Function |
|----------|--------|-------------------------------------|
| 1 | 3V3 | 3 V DC provided by the XS+ |
| 2 | In | Digital input |
| 3 | F + | Digital output + (max 50Vdc - 0,6A) |
| 4 | F - | Digital output - |





2 positions screw terminal : Shdsl

| Position | Signal | Function |
|----------|--------|--|
| 1 | Line | SHDSL line conductor (the two wires can be inverted) |
| 2 | Line | SHDSL line conductor (the two wires can be inverted) |

RJ45 connector : Ethernet

| Position | Signal | Function |
|----------|--------|----------------------|
| 1 | Tx + | Emission polarity + |
| 2 | Tx - | Emission polarity - |
| 3 | Rx + | Reception polarity + |
| 4 | N.C | - |
| 5 | N.C | - |
| 6 | Rx - | Reception polarity - |
| 7 | N.C. | - |
| 8 | N.C. | - |

6 Led indicators

| Led | Status | Description |
|---|------------------|--|
|  1 | ON green | The supply voltage is present |
|  2 | | Not used |
|  | ON green | The unit is ready |
| | ON red | At power on : The product is starting Otherwise : Product failure |
|  | | Not used |
| Shdsl | Flashing slowly | SHDSL connection |
| | ON | SHDSL connection established |
| | Flashing quickly | SHDSL connection established ; traffic across the line |

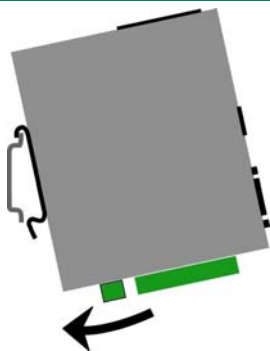
7 DIP switches

| | | | | |
|---|---|-----|------------------|------------------------------|
| SW1 | Management | | | |
| OFF | Operation without IP address | | | |
| ON | The IP address assigned to the product to reach the html server is the stored IP address The default IP address is 192.168.0.128 | | | |
| SW2 SW3 SW4 SW5 Shdsl connection profile | | | | |
| OFF | OFF | OFF | OFF | Mode STU_R |
| ON | OFF | OFF | OFF | STU_C - Auto - Standard |
| OFF | ON | OFF | OFF | STU_C - Auto - Endurance |
| ON | ON | OFF | OFF | STU_C - Auto - Performance |
| OFF | OFF | ON | OFF | STU_C - Auto - TurboShort |
| ON | OFF | ON | OFF | STU_C - Fixed - 256 kbit/s |
| OFF | ON | ON | OFF | STU_C - Fixed - 512 kbit/s |
| ON | ON | ON | OFF | STU_C - Fixed - 1024 kbit/s |
| OFF | OFF | OFF | ON | STU_C - Fixed - 1536 kbit/s |
| ON | OFF | OFF | ON | STU_C - Fixed - 3392 kbit/s |
| OFF | ON | OFF | ON | STU_C - Fixed - 4480 kbit/s |
| ON | ON | OFF | ON | STU_C - Fixed - 5696 kbit/s |
| OFF | OFF | ON | ON | STU_C - Fixed - 7168 kbit/s |
| ON | OFF | ON | ON | STU_C - Fixed - 9024 kbit/s |
| OFF | ON | ON | ON | STU_C - Fixed - 11292 kbit/s |
| ON | ON | ON | ON | STU_C - Fixed - 15288 kbit/s |
| SW 6 | | | Must be left OFF | |

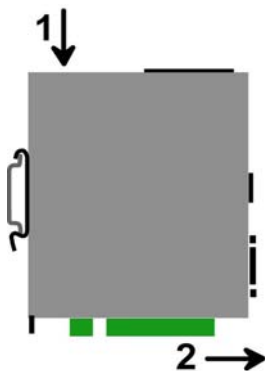
8 DIN rail mounting

Mounting the unit on the DIN rail

This unit should be mounted on 35 mm DIN-rail, horizontally mounted.



Removing the unit from the DIN rail



9 Cooling

To avoid obstructing the airflow around the unit, the spacing must be at least 25 mm above and below, and 10 mm left and right.

10 Supply voltage

The supply voltage must be strictly included between 10 and 60 VDC
The product is protected against the inversion of polarity.

11 Isolation and enclosure grounding

The enclosure of the product is metallic; It must be grounded.
The minus polarity of the supply voltage is common with the minus voltage of the electronic board – usually called 0 V - and is isolated from the enclosure.
Moreover, the Ethernet signal and the SHDSL signal are isolated through transformers.

It is why the XSLAN+140 is fully isolated. The common mode voltage must not exceed 1500 V.

12 Configuration

The XSLAN+140 is configured by using the DIP switches located under the lid on the top of the product.

It is not necessary to assign an IP address to the product; however an IP address can be assigned to the XSLAN+140 to reach the diagnosis server.

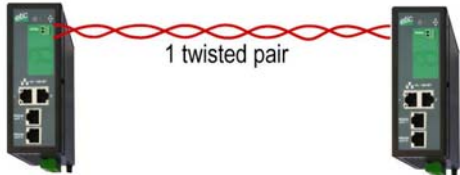
12.1 Principle

When two shdsl switches are connected through a twisted pair, one has the function to initiate the connection, to analyse the connection quality, and to negotiate the data rate; the other SHDSL switch can only accept.
The SHDSL switch which initiates the connection is called the STU-C, while the one which accepts the connection is called the STU-R switch.

It is why, a line must be connected on the one hand to an XSLAN+140 set as an STU-C switch and the other one set as an STU-R switch.

The STU-C switch negotiates the data rate

The STU-R switch automatically adapts



To make the configuration simple, the configuration is carried-out by selecting a connection profile using the DIP switches.

Five profiles can be selected :

Auto STU-R profile :

That connection profile has to be assigned to the XSLAN+ which has to wait for the connection (see the drawing above).

Endurance STU-C profile :

The XSLAN+ to which that profile is assigned will initiate the connection up to 5,6 Mb/s.

The value of the SNR margin of that profile is maximum; it means that the connection will be set at a low data rate to decrease the disconnection probability.

That profile is convenient when the conditions are poor because the noise level varies or is important, and or because the distance is important, and or because the quality of the twisted pair is poor.

That profile has to be advised also if disconnections are observed when using the standard profile or the performance profile.

That profile can be advised, also, when the frequency of the disconnections must be as low as possible.

Standard STU-C profile :

The XSLAN+ to which that profile is assigned will initiate the connection.

The value of the SNR margin is medium; it is why, the connection will be set at a medium data rate.

Disconnections may appear but only in case of strong signal disturbances.

That profile is convenient in usual conditions when the noise level is stable, and or the distance is not too close from the limit, and or when the quality of the line is good.

Performance STU-C profile :

The XSLAN+ to which that profile is assigned will initiate the connection.

The value of the SNR margin is low; it is why, the connection will be set at a high data rate.

Disconnections may appear in case of disturbances.

That profile is convenient when the highest data rate is wished.

That profile is convenient when the noise level is stable and low, and or the distance is far from the limit, and or when the quality of the line is good.

Turbo-short STU-C profile :

The XSLAN+ to which that profile is assigned will initiate the connection.

That profile makes possible to get a high data rate – up to 10 Mb/s – over a short distance (typically shorter than 1 Km).

Remark :

In some particular cases, the data rate can be forced with the DIP switch : [See the DIP switches table.](#)

12.2 Configuration steps

- Step 1 : Setting-up the « STU-R » XSLAN+140
- Step 2 : Setting-up the « STU-C » XSLAN+140
- Step 3 : Testing the connection

12.3 Step 1 : Setting-up the « STU-R » XSLAN+140

- Set the SW1 DIP switch OFF if no IP address is assigned to the XSLAN+ or ON if an IP address is assigned to the XSLAN+.
- Set the DIP switches SW2 to SW5 as shown below :

| SW2 | SW3 | SW4 | SW5 | Shdsl connection profile |
|-----|-----|-----|-----|--------------------------|
| OFF | OFF | OFF | OFF | STU_R mode |

12.4 Step 2 : Setting-up the « STU-C » XSLAN+140

- Set the SW1 DIP switch OFF if no IP address is assigned to the XSLAN+ , or ON if an IP address is assigned to the XSLAN+.
- Select the connection profile

| SW2 | SW3 | SW4 | SW5 | Shdsl connection profile |
|-----|-----|-----|-----|----------------------------|
| ON | OFF | OFF | OFF | STU_C - Auto - Standard |
| OFF | ON | OFF | OFF | STU_C - Auto - Endurance |
| ON | ON | OFF | OFF | STU_C - Auto - Performance |
| OFF | OFF | ON | OFF | STU_C - Auto - TurboShort |

12.5 Step 3 : Testing the connection

- Connect the XSLAN+ switches to the line (see the paragraph further). The shdsl line led flashes and is ON after 30 seconds.
- Connect a PC to the STU-C switch.
- Transmit periodical PINGs through the line to a device connected to the other XSLAN+ switch.
- Check each PING receives a response.
- If defects or disconnections occur, select a more secure profile; for

instance, select the Endurance profile instead of the Standard profile or the Performance profile instead of the Turbo-short profile.

13 Connecting the XSLAN+ to the line

13.1 Type of cable

Twisted pair

The XSLAN+ shdsl switch is designed to be connected to one or several telephone grade twisted pairs.

The conductor diameter must be included between 0.4 mm and 1 mm.

Shielded cable

It is better to use a shielded cable.

The shield must be connected to the earth at one of its ends.

The shield decreases the influence of the electromagnetic ambient noise on the shdsl signal.

Moreover, the shield protects the XSLAN+ shdsl switch against lightning.

Electrical power cable

Two power conductors can be used instead of a twisted pair to set an shdsl connection.

However, because the two wires are not twisted, the ambient electrical noise may disturb the transmission.

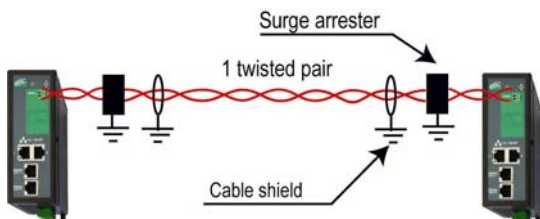
Compared to the transmission over a twisted pair, the maximum distance between two SHDSL switches is decreased.

13.2 Cross talk

If the cable is made of several pairs, each pair can be used to transmit a particular shdsl connection ; however the shdsl signal transmitted in one pair may disturb the shdsl signal transmitted in another one, and, in some cases, may decrease the effective data rate of both shdsl connections.

13.3 Protecting the shdsl switch from lightning

if the line is exposed to lightning, we advise to use an surge arrester at each end of the line and to connect the shield of the cable to the earth.

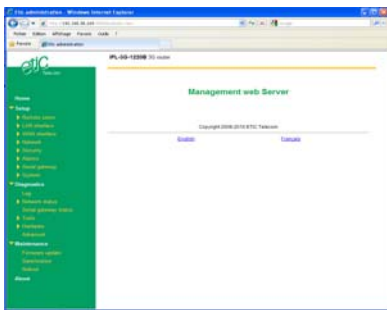


13.4 Connecting the shdsl switch to the line

The SHDSL signal is not polarised ; it is why the two conductors of the line can be inverted.

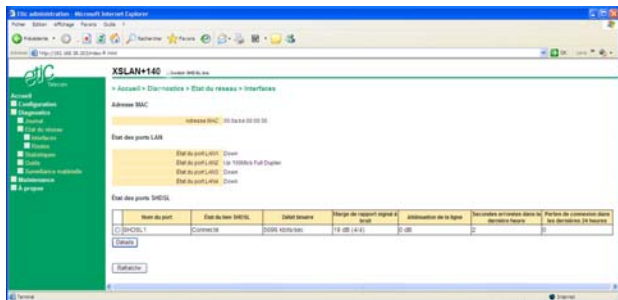
14 Assigning an IP address to the XSLAN+

- Set the SW1 DIP switch ON.
 - Connect a PC to the XSLAN+ switch.
 - Assign to the PC an IP address in accordance with the XSLAN+ IP address. Coming from factory, the default IP address of the XSLAN+ is 192.168.0.128.
 - Launch Internet explorer 8 or a further version and enter the IP address of the XSLAN+.
- The homepage of the html diagnosis server is displayed.
- Select « Set up > IP address ».
 - Enter the new IP address assigned to the XSLAN+ and save.



15 Diagnostic

- Select “Diagnostic > Network status > Interfaces” to check the shdsl connection quality.



The signal to noise ratio margin must be $4/4$ or $3/4$ or $2/4$.

If the signal to noise ratio margin (SNR margin) is also $1/4$, the connection quality is not sufficient; In that case,

- select a more secure profile using the DIP switches; for instance, select the Endurance profile instead of the Standard profile or the Performance profile instead of the Turbo-short profile.

If the SNR margin does not improve, in spite of that modification, or if disconnections persist,

- Check that each wire of the line, including intermediate screw terminals along the line, is correctly squeezed.
- By pass temporarily the surge arresters.
- Check the cable shield is correctly connected to the ground.

16 Restoring the factory default configuration

A push-button is located at the top of the product.

Restoring temporarily the factory default configuration

When the push-button is pressed while the unit is running, the factory default configuration is temporarily restored : The IP address of the html server is 192.168.0.128.

However, the current configuration is not lost. The parameters of the current configuration are displayed as usually.

Deleting the current configuration and restoring the factory default configuration

When the power is switched ON while the push-button is pressed, the current configuration is deleted and the factory default configuration is restored.

The XSLAN+ SHDSL switch is designed and manufactured by

ETIC TELECOM

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