

3DLinkPro

OPERATING INSTRUCTIONS



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1 About this document

The Operating Instructions Manual provides all the information required for mounting, connecting and setting-up the APM 3DLinkPro, as well as important guidelines for maintenance and fault rectification. Please read this information before putting the instrument into operation and keep this manual accessible in the immediate vicinity of the device.

1.1 Target group

The Operating Instructions Manual has been especially prepared for the benefit of trained personnel who will be working with the APM 3DLinkPro in conjunction with other APM products, including the APM 3DLevelScanner. It contains essential information and should be considered required reading prior to installing and operating the APM 3DLinkPro.

1.2 Symbols used



Information, tip, note.
This symbol indicates helpful additional information.



1. Caution: If this warning is ignored, faults or malfunctions can result.
2. Warning: If this warning is ignored, injury to persons and/or serious damage to the instrument can result.
3. Danger: If this warning is ignored, serious injury to persons and/or destruction of the instrument can result.



Ex applications.
This symbol indicates special instructions for Ex applications.

2 For your safety

2.1 Authorised personnel

All operations described in this Operating Instructions Manual must be carried out only by trained personnel authorised by the operator. During work on and with the device the required personal protection equipment must always be worn.

2.2 Appropriate use

Operational reliability is ensured only if the instrument is properly used according to the specifications in the Operating Instructions Manual as well as possible supplementary instructions.

Due to safety and warranty reasons, any invasive work on the device beyond that described in the Operating Instructions Manual may be carried out only by personnel authorised by the manufacturer to do so. Arbitrary conversions or modifications are explicitly forbidden.

The antenna of the inner GSM modem should never be mounted outside the 3DLinkPro box.

2.3 Warning about misuse

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

2.4 General safety instructions

This is a high-tech instrument requiring the strict adherence to standard regulations and guidelines. The user must take note of the safety instructions in this Operating Instructions Manual, the country-specific installation standards as well as all prevailing safety regulations and accident prevention rules. The operator is responsible for trouble-free operation of the instrument.



NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at own expenses.

**Warning!**

- Changes or modifications to this equipment not expressly approved by the party responsible for compliance (FCC ID: RI7GM862 TELIT Ltd.) could void the user's authority to operate the equipment.
- This product was tested with special accessories (shielded and twisted cables), which must be used with the unit to insure compliance.

3 Product description

Contents of the APM 3DLinkPro include:

- APM 3DLinkPro
- This Operating Instructions Manual

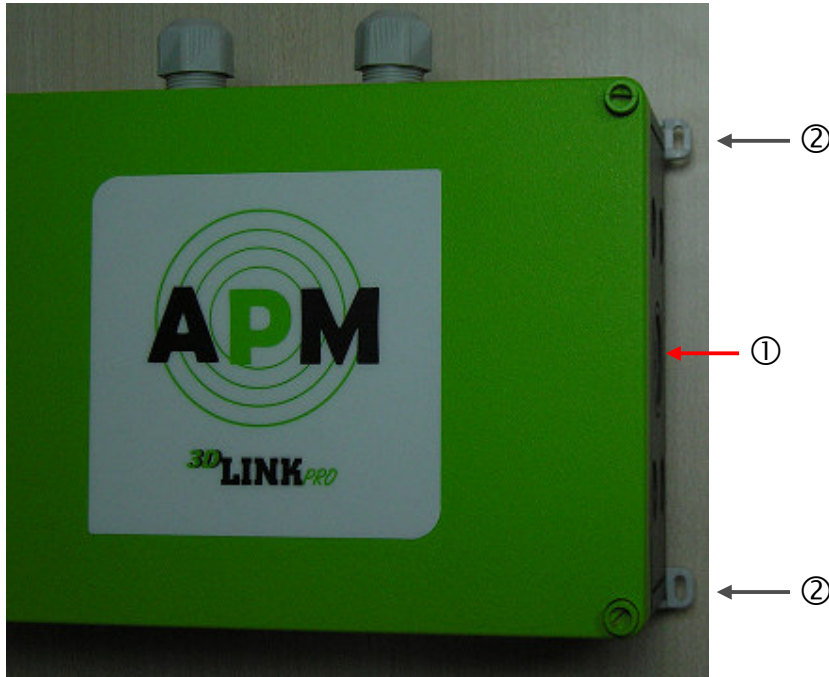


Figure 1 – Product and Brackets

1. APM 3DLinkPro
2. Brackets for mounting

3.1 Principle functions

The APM 3DLinkPro is used for easy bi-directional transfer of data between the APM 3DLevelScanner and a remote computer/system.

Such data can be 4...20mA signals, HART commands or proprietary data for different purposes such as software upgrade for example

3.2 Area of application

An easy and reliable standard GSM connection (using standard GSM frequencies) is available by using regular SIM cards for the APM 3DLinkPro connection.



Figure 2 – GSM Connection Illustration

3.3 The Technical concept of APM 3DLinkPro

The APM 3DLinkPro was developed for wireless GSM communication with APM products. It enables APM to give excellent service to its customers, upgrade units at the request of the customers at the click of a button, and is advantageous in situations where traditional wiring would require considerably more work and expense.

The APM 3DLinkPro is easy to install and offers great flexibility in adjustment, configuration, and remote diagnosis. By connecting the APM 3DLinkPro to one of the units from the APM 3DLevelScanner family it is not only possible to remotely receive data but to control it, change the unit's parameters, and upgrade the APM 3DLevelScanner from "S" to "M" models or any other version at the click of a button.

3.4 Operation:

The adjustment of parameters can be carried out for the instrument via a Windows-based PC (with the appropriate version of the APM 3DLevel Manager software installed). A GSM modem (EZ10 GSM modem), GSM antenna, power supply, and a USB to RS-232 converter to connect to the PC are required.



Figure 3 – Operation – Adjusting Parameters

3.5 Packaging, transport and storage

3.5.1 Packaging

Environmentally-friendly recyclable cardboard materials are used to protect instrument during transport.

3.5.2 Transport

Transport must be carried out in accordance with the transport packaging instructions (below). Non-observance of these instructions can damage the device.

3.5.3 Transport inspection

The delivery must be checked for completeness and possible damage in-transit damage should be immediately reported to the supplier. Ascertained transit damage or concealed defects must be appropriately dealt with.

3.5.4 Storage

Following inspection re completeness and in-transit damage, the unit should be resealed and stored until installation according to the orientation and storage markings on the outside. Unless otherwise indicated, the packages must be stored only under the following conditions:

1. Not in the open exposed to the elements
2. Dry and dust-free
3. Not exposed to corrosive media
4. Protected against solar radiation
5. Avoiding mechanical shock and vibration

3.5.5 Storage and transport temperature

1. Storage and transport temperature see "Supplement - Technical Data - Ambient Conditions"
2. Relative humidity: 20 to 85 %

4 Mounting – General Instructions

4.1 Installation position

Select an installation position that can be easily reached for mounting and connecting. Wiring instructions are also located on a label on the inside of the unit's front cover

Mount the instrument to insure optimum GSM reception. Think of the APM 3DLinkPro as a standard mobile phone that needs service. Do not mount it in a closed metallic box/rack/container. For convenience the antenna was designed to be internal and that is the reason the housing of the APM 3DLinkPro is made from plastic

4.2 Moisture

Use the recommended cables ("Connecting to the power supply", below) and tighten the cable gland.

The instrument can be further protected against moisture by leading the connection cable downward in front of the cable entry. Rain and condensation water can thus drain off naturally without affecting the connection.

4.3 Mounting steps – Wall Mounting

Step 1: Mark the holes according to the drilling template (Figure 4).



Figure 4 – Drilling Template

Step 2: Mount the 4 external brackets onto the APM 3DLinkPro as illustrated in Figure 5.



Figure 5 – Mounting External Brackets

Step 3: Depending on the mounting surface, fasten the APM 3DLinkPro to the wall with 4 screws according to the drilling template (Figure 4).



Tip: Mount the APM 3DLinkPro so that the cable entry of the socket housing points downward.

5 Connections

5.1 Preparing the connection

Note the following safety instructions:

- Connect only in the complete absence of line voltage
- If over-voltage surges are expected, over-voltage arresters should be installed



In hazardous areas you should observe appropriate regulations, acquire the necessary approvals and permits for the sensors and power supply units.

5.2 Power supply

You can find detailed information on the power supply in "Technical Data" in the "Supplement".

5.3 Selecting connection cable

The APM 3DLinkPro power supply is connected with standard cable according to national installation standards.

Standard wire cable with screening can be used for connecting the sensors. The screening is necessary to ensure interference-free operation with HART sensors.

5.4 Cable screening and grounding

The cable screen on both ends must be grounded. If a screened cable is used the screen must be connected directly to the reserve socket "5" in the APM 3DLinkPro. Socket "5" should be short-circuited to socket "6" and this socket should directly be connected to the internal ground terminal of the APM 3DLevelScanner.

5.5 Connection steps – Power supply

Proceed as follows:

1. Loosen the four screws of the housing with a screw driver.
2. Remove the housing cover.
3. Unscrew the power supply lines from the left green connector of the APM 3DLevelScanner.
4. Remove the cable from the APM 3DLevelScanner through the gland
5. Insert the cable through the left gland of the APM 3DLinkPro.
6. Open the terminals with a screwdriver.
7. Connect the wires to sockets "1" and "2" according to the diagram. Note of the polarity.
8. Close the terminals.
9. Tighten the compression nut of the cable entry. The seal ring must completely encircle the cable.
10. Screw the housing cover back on.
11. If the cable is screened please follow the procedure in the "cable screening and grounding" paragraph.
12. Tighten the compression nut of the cable entry. The seal ring must completely encircle the cable.

The electrical connection is finished.

5.6 Wiring plan

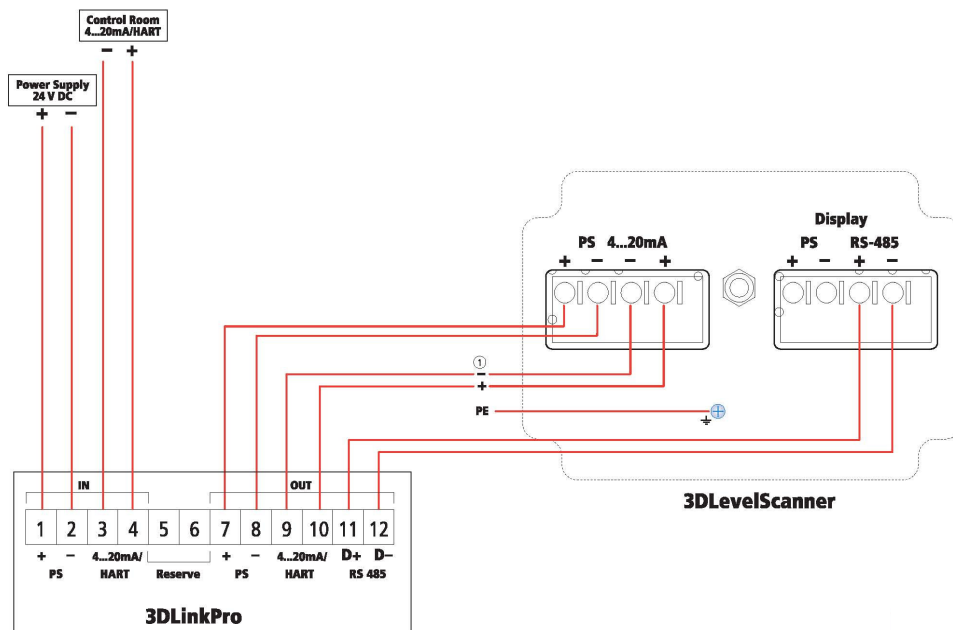


Figure 6 – Wiring Diagram

5.7 Connecting the Communication (4...20mA/HART) to the APM 3DLinkPro

1. Unscrew the communication lines (2W of 4...20mA/HART) from the left green connector of the 3DLevelScanner.
2. Remove the cable from the 3DLeveScanner through the gland.
3. Insert the cable through the left gland of the APM 3DLinkPro.
4. Connect the wires to sockets "3" and "4" according to the diagram in Figure 6.

5.8 Connecting the RS-485 wires to the APM 3DLinkPro

Connect two wires to sockets "11" and "12" according to the diagram in Figure 6.

5.9 Connecting the outputs of the APM 3DLinkPro back to the APM 3DLevelScanner

Connect two wires to sockets "7" and "8" for the power supply of the APM 3DLevelScanner and two wires to sockets "9" and "10" for the 4...20mA/HART communication of the APM 3DLevelScanner according to the above diagram. See Figure 6.

6 Connecting to the PC

6.1 Getting connected and parameter adjustment with 3DLevel Manger

The APM 3DLinkPro does not need to be adjusted.

The APM 3DLevelScanner can be adjusted using the APM 3DLinkPro installed a Windows PC running APM 3DLevel Manager software connected to a local GSM unit.

6.1.1 To get connected to APM 3DLevelScanner that is connected to a APM 3DLinkPro:

Via GSM cellular communication:

- 1) Run the APM 3DLevel Manager Software. (The most up-to-date basic APM 3DLevel Manger version is available as a free download from the APM Home Page www.apm-solutions.com).
- 2) In the connection method form choose the GSM radio button.
- 3) Set the serial COM port the GSM modem is connected to.
- 4) Set the polling address of the scanner you wish to get connected to.
- 5) Set the scanner name and the SIM card number (the one in the 3DLinkPro connected to the scanner) in the right pane of the connection frame.
- 6) Then press the Connect button.

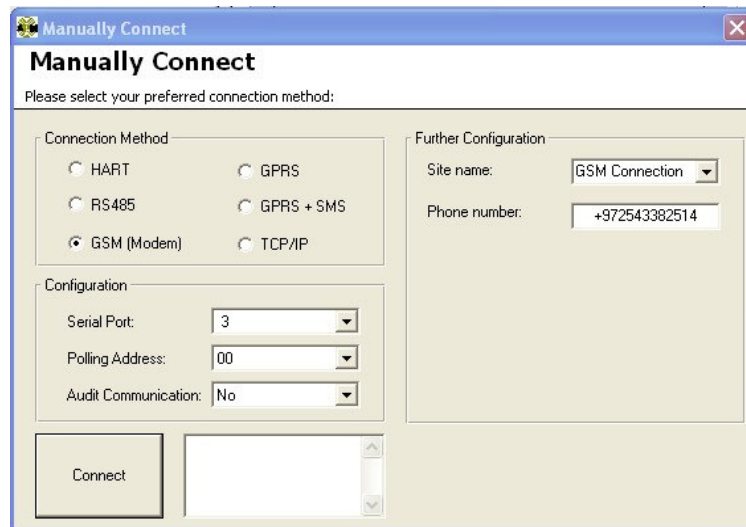


Figure 7 – GSM Manually Connect window

Via GPRS:

- 1) Select in the Manually Connect window the GPRS radio button (see image below).
- 2) Set the local IP address of the PC from in which the connection is made from.
- 3) Set the polling address of the scanner you wish to get connected to.
- 4) Then press the Connect button.
- 5) Send the following SMS message to the number of SIM card in the 3DLinkPro:

"CALLAPM,212.235.27.113,7040,internet.t-mobile,"



Important: the SMS message should be in the exact same format as above (case sensitive, no spaces and commas).

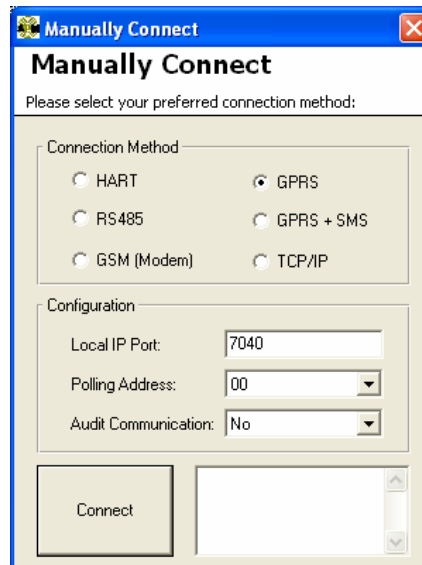


Figure 8 – GPRS Manually Connect window

You are now connected to the APM 3DLevelScanner using the APM 3DLinkPro and can fully control it, change the unit's parameters, upgrade software versions in the APM 3DLevelScanner and read log files and other types of requested parameters.

7 Maintenance and fault rectification

7.1 Maintenance

When used as directed in normal operation the APM 3DLikPro is completely maintenance free.

7.2 Fault clearance

7.2.1 Reaction in case of failures

The operator of the system is responsible for taking suitable measures to remove interferences.

7.2.2 Causes of malfunction

APM 3DLinkPro offers maximum reliability. Nevertheless faults can occur during operation. These may be caused by the following:

- Voltage supply
- Interference on the cables

7.2.3 Fault rectification

The first measures to be taken are to check the input and output signals. Further comprehensive diagnostics can be carried out on a PC running APM 3DLevel Manager software. In most cases causes of faulty operation can be determined in this way and faults can be rectified.

7.2.4 24-hour service hotline

Should the above measures are not successfully resolve the problem, phone the APM service hotline +972 3 6488891. Since we offer this service worldwide, the support is only available in the English language. The service is free-of-charge, and the customer only the pays for the phone call.

7.2.5 Reaction after fault rectification

Depending on the fault and the remedial measures taken, the "Set-up" procedure may need to be carried out again.

7.2.6 Instrument repair

If a repair is necessary, please proceed as follows:

Download a return form (20 KB) from the APM Home Page (www.apm-solutions.com – Services > Downloads > Repair Form).

By doing this you help us carry out the repair quickly and without having to call back for needed information.

1. Print and fill out one form per instrument
2. Clean the instrument and pack it damage-proof

3. Attach the completed form and, if need be, also a safety data sheet outside on the packaging
4. Please ask the reseller or distributor serving you for the address to which the unit should be returned. You can find the respective reseller/distributor on the APM website www.apm-solutions.com under Contact -> Worldwide.

8 Technical Data

Materials	polystyrene
Weight	1.420 kg
Dimensions	250X180X9 mm
<u>Voltage Supply</u>	
Operating Voltage	5...30 V DC
Avg. Power consumption (Idle mode)	1.5W
Peak Power consumption (transmit mode)	18W
Power Source Limitation	2A
<u>Connection Cable</u>	Standard screened cable
<u>Ambient Conditions</u>	
Ambient, storage and transport temperature:	-30 ... +70 °C (-22 ... +158 °F)
<u>Protection</u>	IP66
<u>FCC Approval</u>	FCC 47 CFR part15:2007, subpart B, class A
<u>Electromechanical Data</u>	
Cable entry/plug:	2 x cable entry M20x1.5 (cable-o5...9mm)
<u>Dimensions</u>	250X180X90 mm

3DLinkPro

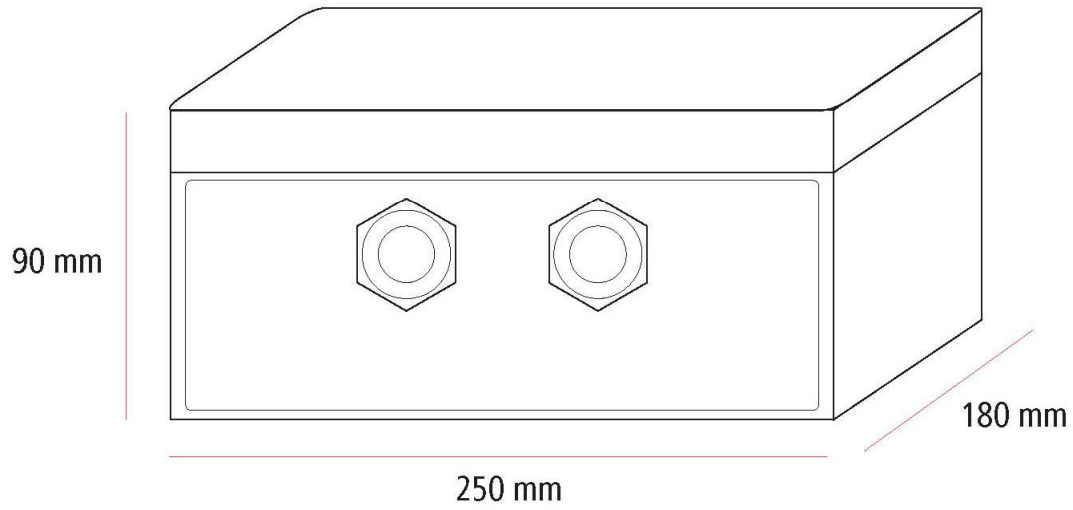


Figure 9 – Product Dimensions

OPERATING INSTRUCTIONS

3DLinkPro

You can find at

www.apm-solutions.com

downloads of the following:

- **Brochures**
- **Data Sheets**
- **Operating instructions manuals**
- **Software**
- **Certificates**
- **Product information**

and much, much more



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