



# Hardware Configuration Guide

## SCOUT PRO mini acquisition system USB



**Advanced Logic Technology sa**

ZAE Solupla  
Route de Niederpallen 30H  
L-8506 Redange-sur-Attert  
Luxembourg

Phone : +352 28 56 15-1  
Fax : +352 28 56 15 40  
Email : support@alt.lu  
Web : www.alt.lu

**Mount Sopris Instruments Co., Inc.**

4975 E. 41st Ave.  
Denver, CO 80216  
USA

Phone : +1 303 279 3211  
Fax : +1 303 279 2730  
Email : tech.support@mountsopris.com  
Web : www.mountsopris.com

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# 1 INTRODUCTION

The **SCOUT PRO** acquisition system is based on a modern electronics design in which software control techniques have been used to the best advantage. The hardware incorporates the latest electronic components with embedded systems controlled via the specially developed **LOGGER SUITE** Windows interface program.

The basic system design criteria are as follows:

- Compatibility with ALT standalone tools and ALT/MSI Quick Link tools
- Compatibility with Geovista and Kuster probe lines
- Windows operating system platform
- Rugged enclosure, heavy duty, and fault tolerant electronics
- Easy to use, on-screen graphical user interface -The Dashboard - with self-diagnostics features, system configurable through screen dialog boxes, with minimal technical knowledge needed by the user
- Modular design for ease of maintenance
- High speed USB connection to computer
- Programmable power supply
- Wireline and winch flexibility - runs on coax, mono or multi conductor wireline
- High speed up hole telemetry system and automatic telemetry tuning
- Shaft encoder flexibility - compatible with any 12V or 5V AB shaft encoder, and configurable for any combination of wheel-shaft PPR
- Wireline tension monitoring. Tension adapter compatible with any tension sensors-gauges.

## 2 SYSTEM OVERVIEW



Figure 2-1 SCOUT PRO

### 2.1 Technical specifications

<b>Dimension (W x L x H)</b>	17 x 31.5 x 12.5 cm 7 x 12.4 x 4.9 in
<b>Weight</b>	3.5 Kg
<b>Input Voltage</b>	90 – 240 VAC, 50 – 60 Hz inverter compatible
<b>Tool Power</b>	24 – 160 V / 40 Watts max.
<b>PC Connection</b>	High Speed USB
<b>Logging Cable</b>	Standard single, four, seven conductor and coax
<b>Tools / Telemetry</b>	ALT Standalone Tools and ALT/MSI QL Probe Line Geovista and Kuster Probe Lines
<b>Upgradeability</b>	User upgradeable firmware
<b>Software</b>	Logger Suite V 13.0 or later

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### 3 HARDWARE CONFIGURATION

#### 3.1 Front panel – Connector wiring



Figure 3-1 SCOUT PRO front panel

Winch – PT07A14-18S	
A	Wireline1
B	Wireline2
C	Wireline3
D	Wireline4
E	Wireline Armor
F	Encoder PWR
G	Encoder A
H	Encoder A-
J	Encoder B
K	Encoder B-
L	Encoder GND
M	Tension PWR
N	Tension + Signal
P	Tension - Signal
R	Tension GND
S	Chassis GND
T	Wireline 5
U	Wireline 6

Mud Plug – PT07A8-2S	
A	Mud Plug
B	System Ground

POWER – PT07A12-3P	
A	Live
B	Neutral
C	Earth

USB – PT07A10-6S	
A	V Bus
B	Data N
C	Data P
D	Ground
E	Shield
F	nc

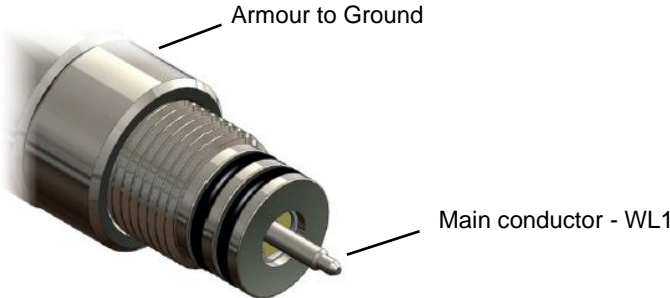
The SCOUT PRO-PRO acquisition system supports a wide range of wireline types; coax, mono, multi-conductor are possible.

The following are examples of the Mount Sopris and Gearhart Owen standard cable head connectors:

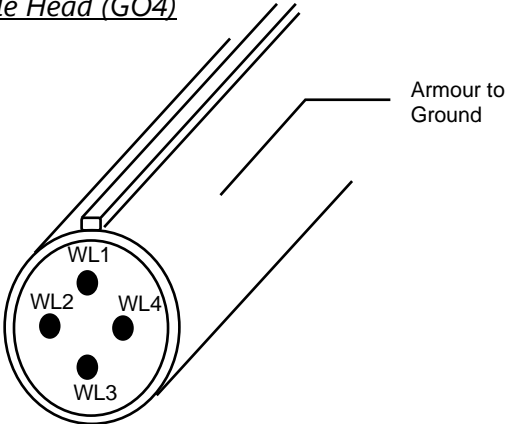
Mount Sopris Mono Conductor Cable Head (MS1)



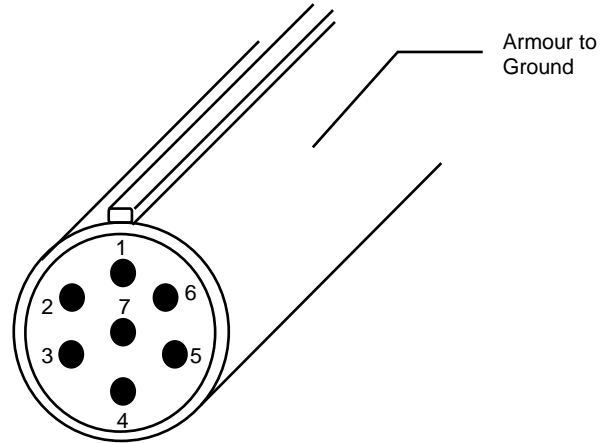
Gearhart Owen Mono Conductor Cable Head (GO1)



Gearhart Owen 4 Conductor Cable Head (GO4)



Gearhart Owen 7 Conductor Cable Head (GO7)



The **ALT** reference **wiring modes** are listed in the table below as a guideline:

T0 – Mono conductor	
<b>WL1</b>	COM+
T1 – 4 conductor	
<b>WL1</b>	COM+
<b>WL2</b>	AUX1 (mud plug)
<b>WL3</b>	COM-
<b>WL4</b>	AUX2
T2 – 4 conductor	
<b>WL1</b>	COM+
<b>WL2</b>	COM+
<b>WL3</b>	COM-
<b>WL4</b>	COM-
T3 – 7 conductor	
<b>WL1</b>	COM+
<b>WL2</b>	COM+
<b>WL3</b>	AUX1 (mud plug)
<b>WL4</b>	COM-
<b>WL5</b>	COM-
<b>WL6</b>	AUX2
<b>WL7</b>	nc
T5 – 7 conductor	
<b>WL1</b>	COM+
<b>WL2</b>	COM-
<b>WL3</b>	AUX1 (mud plug)
<b>WL4</b>	COM+
<b>WL5</b>	COM-
<b>WL6</b>	AUX2
<b>WL7</b>	nc



**WARNING:** Check your cable head and wireline with a continuity meter before wiring the cable plug connected to SCOUT PRO.

**Note:**

The signals transmitted through the wireline conductors are controlled by the ALT MODEM implemented in the SCOUT PRO system. The ALT MODEM configures and assigns the power, comms and auxiliary lines based on the probe top wiring and cable head wiring defined by the user in Logger Suite application.

## 3.2 SCOUT PRO-PRO components

### 3.2.1 Back Plane

The SCOUT PRO acquisition system includes 3 adapters connected to a Back Plane via Eurocard connectors.



Figure 3-2 Back Plane 2G Interface

The Back Plane routes the MAIN AC to the Rack Interface and ensures good isolation of the USB port.

A **3.15A-250VAC Slow fuse** is installed on the Back Plane Interface to protect the system from power surge or short circuit (Figure 3-2).

### 3.2.2 ALT MODEM

As standard the **ALT MODEM** is designed to operate tools using the **ALT standalone, ALT/MSI Quick Link, Geovista** and **Kuster** telemetry protocols.

All signals transmitted through the wireline conductor(s) are controlled by the ALT MODEM.

The ALT MODEM main functions are listed hereafter:

- It drives and assigns automatically the power, communication and auxiliary lines based on the probe top and cable head wiring defined by the user in Logger Suite application.
- It tunes automatically the telemetry on any wirelines and applies **Equalizer** and **Train** processes to optimize the telemetry performance on long wirelines<sup>1</sup>.
- It offers multiple display options (Analysis info and Scope views) for checking and fine-tuning the telemetry settings.

### 3.2.3 Jazz

The JAZZ board is the main interface between the user's computer and SCOUT PRO-PRO components. Its functions comprise:

- Collecting, controlling and digitizing information coming from other adapters: ALT MODEM; Rack Interface (depth encoder, tension)
- driving USB communication to the computer
- managing the data flow

### 3.2.4 Rack Interface

The Rack Interface can be divided in three sub-sections:

#### **1. Programmable Power Supply**

The Programmable Power Supply delivers:

- o 24-160VDC (40 Watts max.) through the wireline(s) to power the logging tool
- o +12V output to digital circuitry
- o +15V and -15V outputs to analog circuitry

#### **2. Depth Encoder Circuitry**

The Rack Interface - Depth Encoder Circuitry provides the facility for operating most quadrature encoders.

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<sup>1</sup> These processes are applicable in conjunction with ALT/MSI tools implementing the QLMODEM-PSU telemetry board

It has four input channels available and requires a minimum of two square wave inputs, A and B, differing by 90° of phase to determine the direction. With a four channel output encoder the inverted A-, B- are also present and give increased reliability of the depth counting.

Both **5V** and **12V** units are supported.

### 3. Tension Circuitry

The Rack Interface - Tension Circuitry can support three types of tension sensors to monitor the wireline tension:

- Tension sensor with **0-10V** signal output
- Tension sensor with **0-20 mA** signal output
- Strain gauge

As standard the SCOUT PRO is delivered with no tension measurement.

The activation of the tension measurement is optional and is only configured upon request at ordering time.

## 3.3 Depth encoder configuration

### Note:

Before connecting any depth encoder to SCOUT PRO it is recommended to verify the depth encoder specifications with the winch manufacturer or supplier. A wrong depth encoder configuration may damage the depth encoder!

The depth encoder settings are defined through LoggerSettings application (depth encoder page – Figure 3-3) and must be configured to suit the depth encoder specifications.

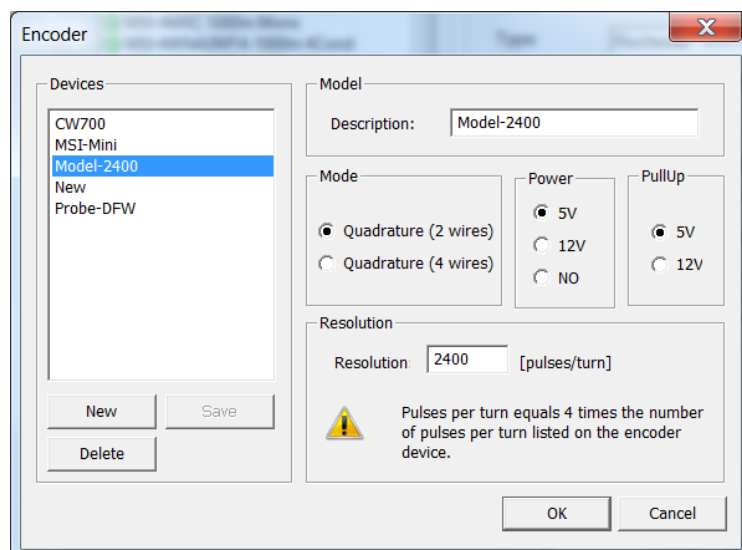


Figure 3-3 Depth encoder configuration dialog box – LoggerSuite

	Description
<b>Mode</b>	Depth encoder wiring mode: <i>Quadrature (2 wires): two channel output encoder A , B</i> <i>Quadrature (4 wires): four channel output encoder A , B and inverted A- , B-</i>
<b>Power</b>	Power Voltage selection: 5 or 12V <i>To Disable Power – select NO</i>
<b>PullUP</b>	Pull-up voltage selection: 5 or 12 V

### 3.4 SCOUT PRO - Winch Setup

The SCOUT PRO enclosure is delivered with two mounting rails that may be used to secure the system on MSI MX or MINI winch models (Figure 3-4).



Figure 3-4 SCOUT PRO mounting rails

Mount the SCOUT PRO console on the metal brackets by aligning the mounting pins with the receptacle holes on the bottom of the console. Then slide the console onto the mounting pins while pulling out on the latch pin ring. Once the SCOUT PRO console is fully mounted release the latch pin (Figure 3-5).

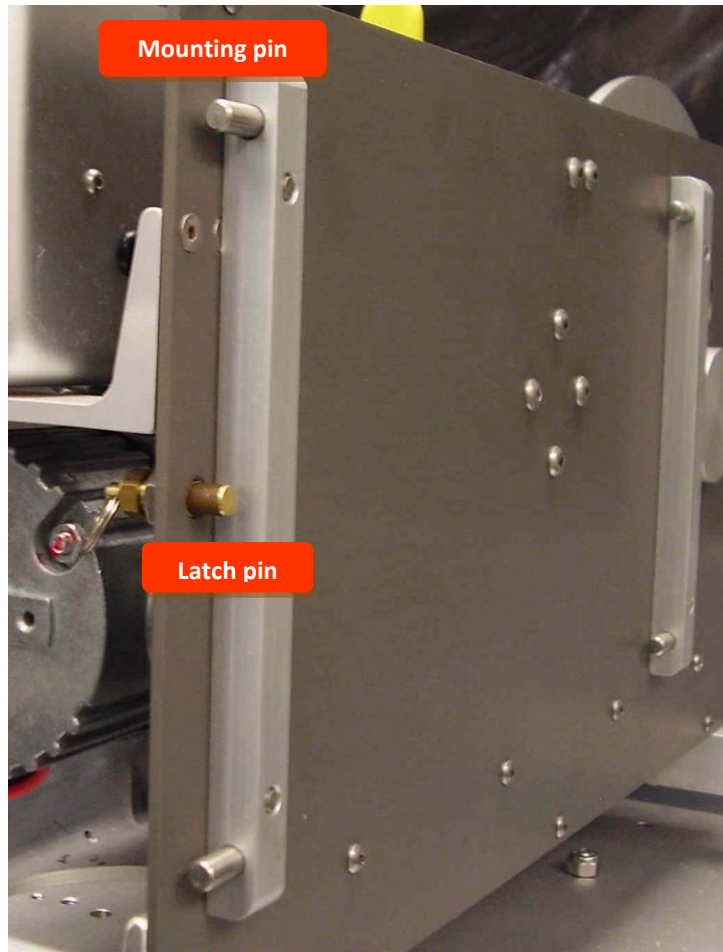


Figure 3-5 Mounting SCOUT PRO on a MINI winch

## 4 APPENDIX

### 4.1 SCOUT PRO-PRO – Connector references

Function	Front Panel Connector References	Counter Plug References
<b>MUD PLUG</b>	PT07A8-2S	PT06E8-2P(SR)
<b>WINCH</b>	PT07A14-18S	PT06E14-18P(SR)
<b>USB</b>	PT07A10-6S	PT06E10-6P(SR)
<b>POWER</b>	PT07A12-3P	PT06E12-3S(SR)

## 4.2 TROUBLESHOOTING

Observations	To Do
<i>SCOUT PRO Power Switch is ON. The red light on SCOUT PRO front panel is OFF. No power is supplied to the system.</i>	<ol style="list-style-type: none"> <li>1. Check Main AC source (power generator, inverter, power outlet).</li> <li>2. Check the integrity of the power cord</li> <li>3. Check fuse on Back Plane Interface – refer to §3.2.1 - page 8 for more details.</li> </ol>
<i>No depth is read by the system.</i>	<ol style="list-style-type: none"> <li>1. Check the depth encoder configuration in LoggerSettings</li> <li>2. Check the wiring of the depth encoder to SCOUT PRO.</li> <li>3. Verify the functionality of the depth encoder using an external power supply and scope.</li> </ol>
<i>No tension is read by the system.</i>	<ol style="list-style-type: none"> <li>1. Verify that the SCOUT PRO tension configuration is compatible with the tension sensor signal output.</li> <li>2. Check the wiring of the tension sensor to SCOUT PRO.</li> <li>3. Check the functionality of the tension sensor.</li> </ol>
<i>LOGGER software always starts in demo mode. The green light on SCOUT PRO front panel is OFF.</i>	<ol style="list-style-type: none"> <li>1. Check the USB cable</li> <li>2. Check the USB link between PC and SCOUT PRO.</li> <li>3. Check that SCOUT PRO USB drivers are properly installed. USB drivers should be visible in the computer's Control Panel/System &amp; Security/System/Devices manager directory. Re-install the USB drivers if necessary.</li> </ol>
<i>Analysis info and scope are not displayed in the "Telemetry and Equalizer" dialogs.</i>	<ol style="list-style-type: none"> <li>1. Check the green light on SCOUT PRO front panel. It must flash when telemetry is established with the tool.</li> <li>2. Close LOGGER software. Turn OFF/ON SCOUT PRO main power switch. Re-start LOGGER software</li> </ol>