Via Seminiato, 79
44031 Ambrogio (FE) Italy
www.stab-italia.com
Info@stab-italia.com

Stab ITALY® is a registered trademark of STAB in the USA.

The United States of America

CERTIFICATE OF REGISTRATION
PRINCIPAL REGISTER

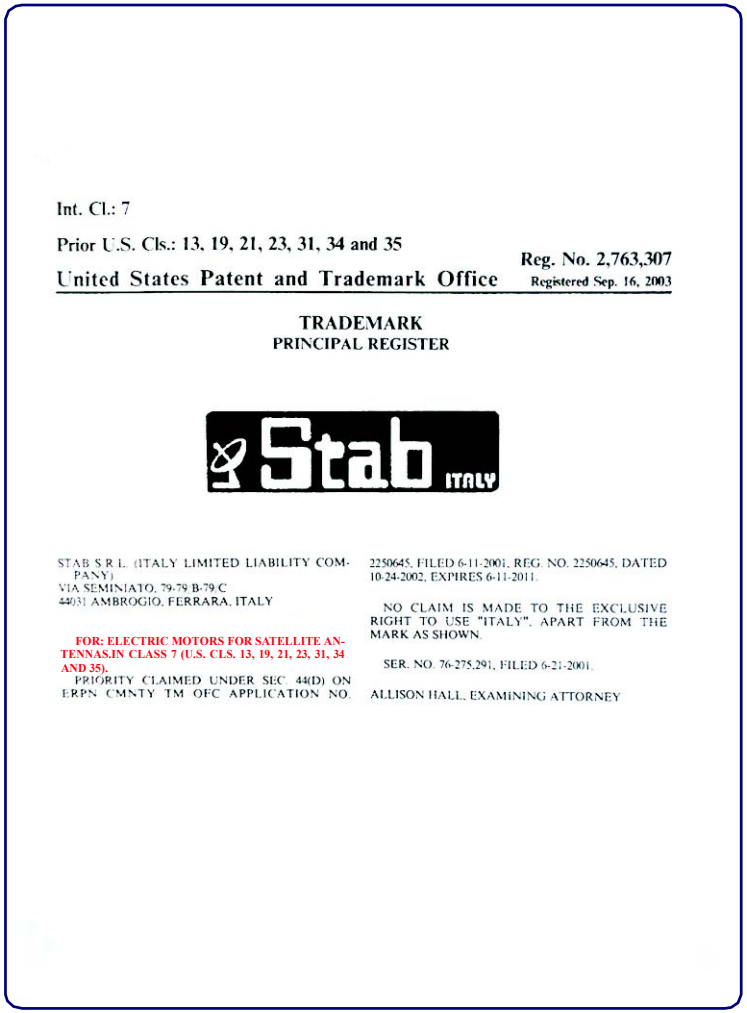
The Mark shown in this certificate has been registered in the United States Patent and Trademark Office to the named registrant.

The records of the United States Patent and Trademark Office show that an application for registration of the Mark shown in this Certificate was filed in the Office; that the application was examined and determined to be in compliance with the requirements of the law and with the regulations prescribed by the Director of the United States Patent and Trademark Office; and that the Applicant is entitled to registration of the Mark under the Trademark Act of 1946, as Amended.

A copy of the Mark and pertinent data from the application are part of this certificate.

This registration shall remain in force for TEN (10) years, unless terminated earlier as provided by law, and subject to compliance with the provisions of Section 8 of the Trademark Act of 1946, as Amended.

Director of the United States Patent and Trademark Office



Int. Cl.: 7

Prior U.S. Cls.: 13, 19, 21, 23, 31, 34 and 35

United States Patent and Trademark Office

Reg. No. 2,763,307
Registered Sep. 16, 2003

TRADEMARK
PRINCIPAL REGISTER

STAB S.R.L. (ITALY LIMITED LIABILITY COMPANY)
VIA SEMINIATO, 79-79 B-79/C
44031 AMBROGIO, FERRARA, ITALY

FOR: ELECTRIC MOTORS FOR SATELLITE ANTENNAS.IN CLASS 7 (U.S. CLS. 13, 19, 21, 23, 31, 34 AND 35).

PRIORITY CLAIMED UNDER SEC. 44(D) ON ERPN CMNTY TM OFC APPLICATION NO. 2250645, FILED 6-11-2001, REG. NO. 2250645, DATED 10-24-2002, EXPIRES 6-11-2011.

NO CLAIM IS MADE TO THE EXCLUSIVE RIGHT TO USE "ITALY", APART FROM THE MARK AS SHOWN.

SER. NO. 76-275,291, FILED 6-21-2001.

ALLISON HALL, EXAMINING ATTORNEY

Via Seminiato, 79
44031 Ambrogio (FE) Italy
www.stab-italia.com
Info@stab-italia.com

Basic characteristics to look for in a high quality motor:

1) WIND RESISTANCE (SHOULD WITHSTAND WIND SPEEDS UP TO 140Km/h).

2) RESISTANCE TO THE ENVIRONMENT (i.e., SALT CORROSION).

3) OPERATING TEMPERATURE OF AT LEAST -30°+70°C.

4) WATER-PROOF.

5) CONSISTANT PERFORMANCE - IT SHOULD ALWAYS STOPS IN THE SAME POSITION, ±0,05° PRECISION, EVEN AFTER 50,000 COMMANDS, IN BOTH CLOCKWISE AND COUNTER-CLOCKWISE ROTATIONS.

6) PRECISE CALIBRATION FOR MOVING TO 0 POSITION, IN BOTH CLOCKWISE AND COUNTER-CLOCKWISE DIRECTION, WITH AN INDEPENDENT TOLERANCE OF ±0,1° ENSURING THAT THE MOTOR WILL COVER THE WHOLE SATELLITE ARC.

7) EASY TO INSTALL.

8) EASY TO USE.

9) MANUFACTURED WITH STRONG MATERIALS IN ORDER TO LAST FOR A LONG TIME.

10) BACKED BY A REPUTABLE COMPANY.

Stab Will Meet All Your Demands For a High Quality Motor!

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Resistance to wind

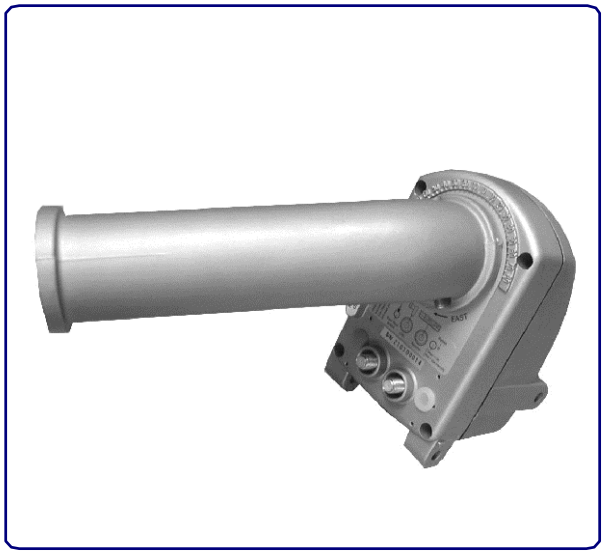
STAB model HH90

CLAIM:
140Km/h DECLARED WITH 95 cm DISH.

SATCONTROL model SM3D12

CLAIM:
140Km/h DECLARED WITH 85cm DISH.

MOTECK model SG2100 H-H Mount



CLAIM:
NO CLAIM MADE.

WITH THIS DECLARATION, THE MANUFACTURER UNDERTAKES THE RESPONSABILITY FOR DAMAGES TO GOODS AND/OR INJURIES TO PEOPLE.
STAB IS A TRADEMARK REGISTERED IN THE USA (SEE PAGE 1), THEREFORE, THEY ARE REGISTERED WITH THE GOVERNMENT, AND RESPONSIBLE FOR THE PRODUCT THEY MAKE. WITH THE OTHER MOTORS, THE RESPONSABILITY FALLS ON THE IMPORTERS ONLY.

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Resistance to environmental chemicals (i.e., salt corrosion)

STAB model HH90

- VARNISHED METAL WITH EPOX POWER
- ALL INOX SCREWS

SATCONTROL model SM3D12

- GALVANIZED PIPE 8μm
- IRON SCREWS

MOTECK model SG2100 H-H Mount

- VARNISHED METAL
- TREATED IRON SCREWS

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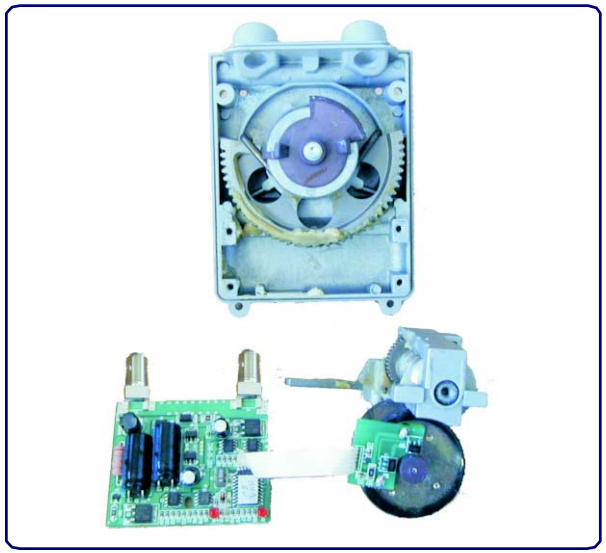
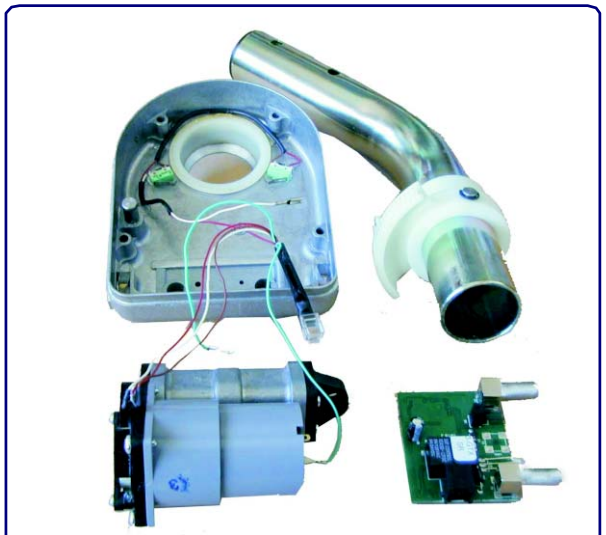
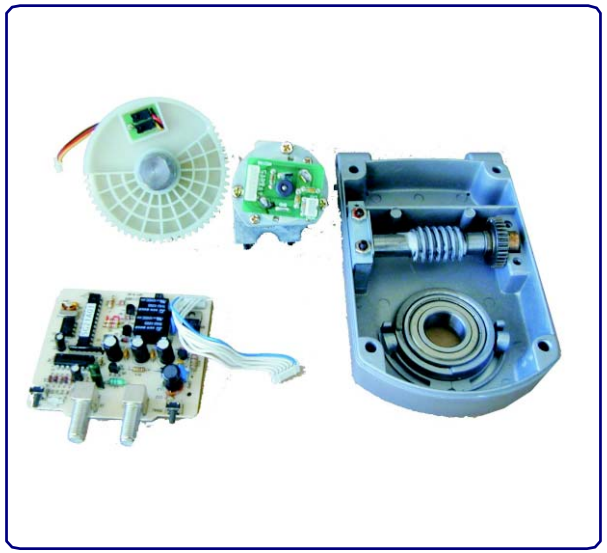
Operating temperature and water-proof

STAB model HH90	**SATCONTROL** model SM3D12	**MOTECK** model SG2100 H-H Mount
		
- CLAIM -40°+80°C	- CLAIM -35°+70°C	- NO CLAIM MADE
- METAL GEAR	- PLASTICS GEAR	- PLASTICS GEAR
- 2 HERMETIC BEARINGS	- NO BEARING	- 1 HERMETIC BEARING
- NO ELECTRICAL CONTACT PLUG	- PLUG ELECTRICAL CONTACT	- PLUG ELECTRICAL CONTACT
- ALL SOLID CASING	- PCB NOT VARNISHED	- SPRAY PAINTED PCB
- DIPPING PCB	- 2 RELAYS	- 2 RELAYS
- ALL SENSORS TO HALL EFFECT	- 2 MICROSWITCHES	- 2 MICROSWITCHES

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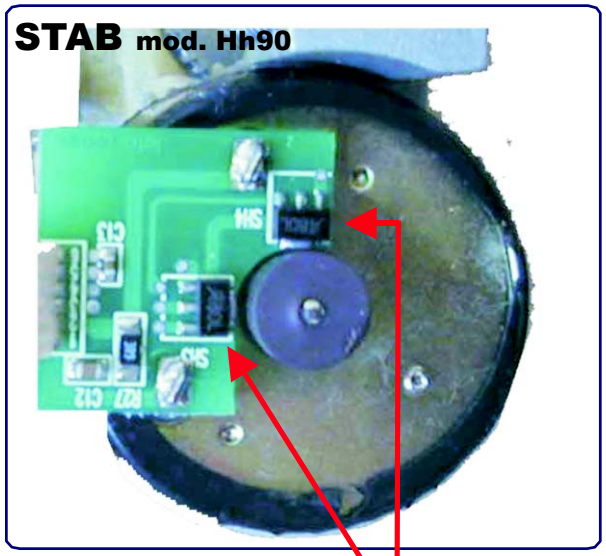
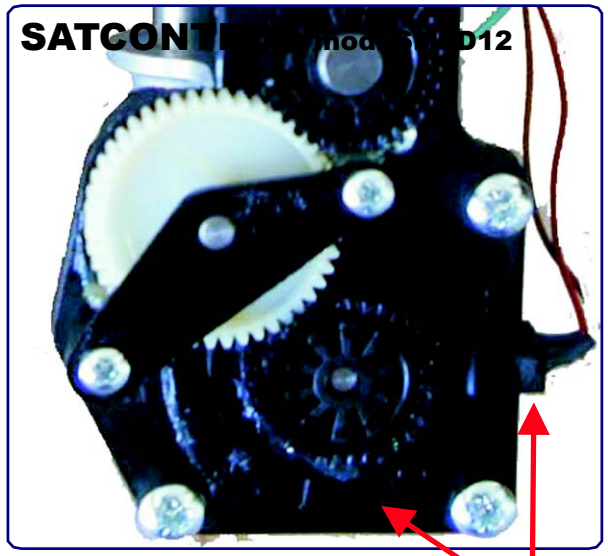
MaxIntelligence™ Percision Calibration (How precise is the moter in going to the correct position over time)

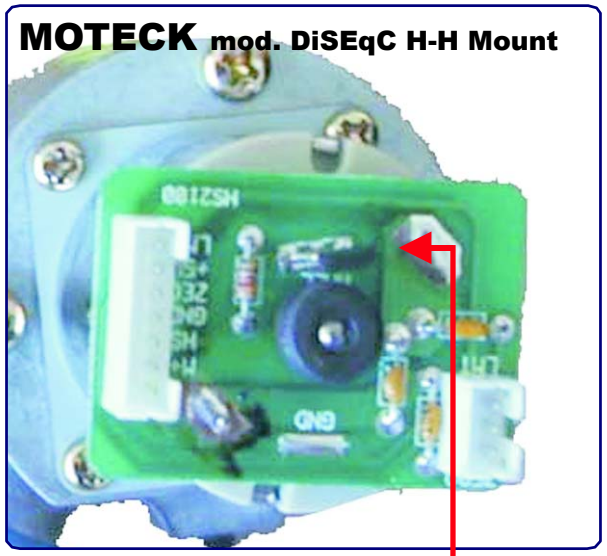
STAB mod. Hh90



SATCONT mod. D12



MOTECK mod. DiSEqC H-H Mount



SENSORS

- 2 EFFECT HALL COUNTERS
- NO ERROR IN THE CALCULATION
- COUNT'S PRECISION 0.0625°

SENSOR

- OPTICAL COUNTERS
- POSSIBILITY OF ERROR IN THE CALCULATION OVER TIME
- COUNT'S PRECISION 0.36°

SENSOR

- 1 EFFECT HALL COUNTER
- POSSIBILITY OF ERROR IN THE CALCULATION OVER TIME
- COUNT'S PRECISION 0.15°

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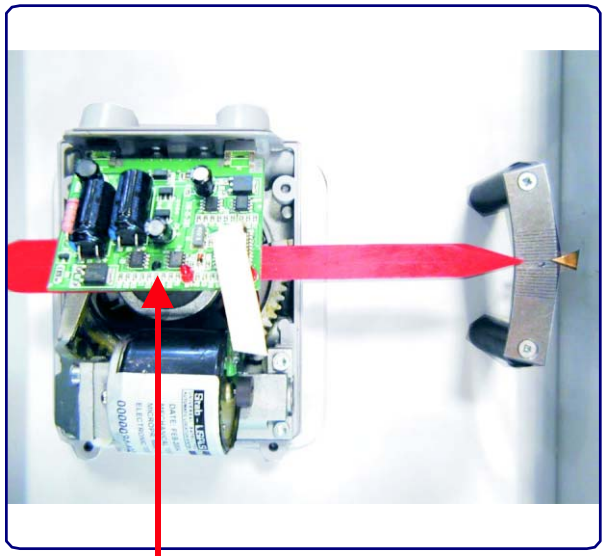
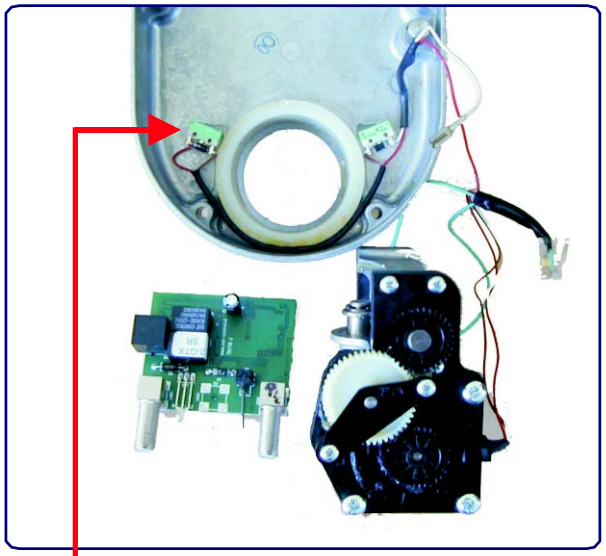
Precise Calibration for Moving to "0" Position

STAB model HH90



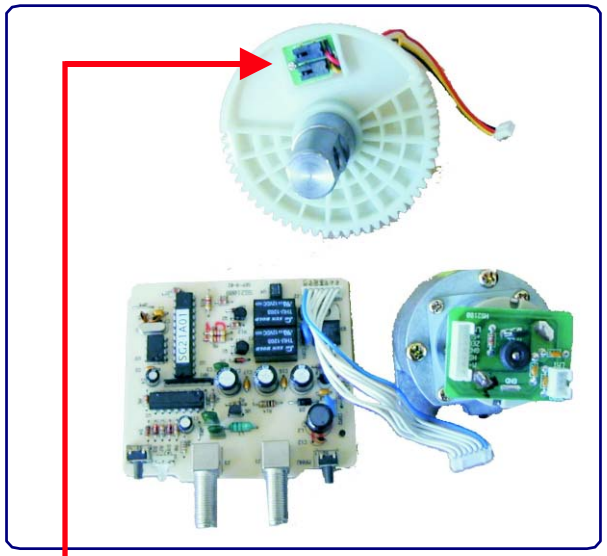
- HALL SENSORS
- ALL MOTORS ARE CALIBRATED WITH +/- 0,05° PRECISION

SATCONTROL model SM3D12



- MICROSWITCH
- TIGHT PRECISION OF 0 POSITION LIMITED TO THE MICROSWITCH'S LEVER PRECISION
- NO POSSIBILITY OF ADJUSTMENT

MOTECK model SG2100 H-H Mount



- MICROSWITCH
- TIGHT PRECISION OF 0 POSITION LIMITED TO THE MICROSWITCH'S BOTTOM PRECISION
- NO POSSIBILITY OF ADJUSTMENT

Using this technology, over time, these motors will be less precise in moving to the correct position!!

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Easy to install

BY MEANS OF THE USALS SYSTEM, WE BELIEVE THE STAB MOTORS ARE THE EASIEST MOTORS TO INSTALL!!

(SEE “FORTEC” INSTRUCTIONS MANUAL BELOW FOR DETAILS.)

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DEAR CUSTOMER,
Congratulations! You are now the owner of a STAB ROTOR.

Attention:

- **To connect the motor without an Interface, it is necessary that your receiver include USALS® or DiSEqC1.2 protocol. All FORTEC receivers are compatible with USALS® and DiSEqC1.2 protocol.**
- **Please read carefully this instruction manual before installing and using the rotor.**
- **For more information regarding the commands, see the receiver's instructions manual.**

Stab guarantees the complete compatibility of receivers in the USALS® mode only when the receiver has this logo::

INDEX

MAPS

Technical Data

ROTOR SAT HH90

Communication protocol	DiSEqC1.2® Level
Maximum dish diameter	95 cm
Maximum dish weight	10 Kg
Diameter of support pole	ø (35 to 68) mm
Dish support length	145 mm
Dish support diameter	ø 42 mm
Rotation angle	±65°
Rotation speed	2,4°/s (18V) 1,5°/s (13V)
Operating power supply	13/18 Vdc
Consumption in stand-by mode	40 mA
Consumption in operating mode	180 mA
Starting movement consumption (max)	350 mA
Operating temperature	-40°C +80°C
Maximum relative humidity	100%
Programmable positions (DiSEqC1.2®)	49 satellites
Preset positions (DiSEqC1.2®)	28 satellites
Programmable positions (USALS®)	no limits
Connectors	F type
Connection	Coaxial cable
Mechanical limits	±72°
Programmable electrical limits	from 5° to 65°
Fine rotation	by impulses of 0,1°
Inclination of the rotor on the pole	from 10° to 70°
Rotor weight	2,6 Kg

Accessories for assembly

1 Bracket for anchoring the pole

2 U Bolts

2 Clamps

1 Key (13mm)

8 Nuts (8 MA)

1 Nut 8 MA +
1 Screw M8x35 mm
(*mounting of rotor's pole*)

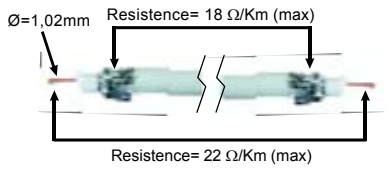
2 Male F Connectors

2 Connectors covers

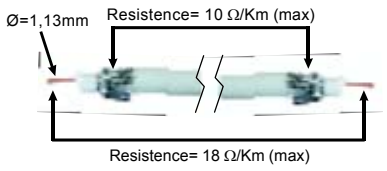
2 Screws

Characteristics of the coaxial cable

Length: to 30 meters *(100 feed)*



Length: from 30m to 60m *(100-200 feed)*



USALS®

In 1998, thanks to EUTELSAT-STAB collaboration, the DiSEqC1.2® protocol was developed, which can drive all sat motors directly from the receiver. This system, recognized as a standard by all sat. receiver manufacturers, needs many adjustments to obtain correct installation of the dish (correct pointing to the South, manual research and memorisation of all satellites positions, setting of limits, etc). Since 1999, the main goal of STAB research has been to solve all possible problems connected to installation of the motor and to enable users to buy the STAB motor from their retailer and to install it easily everywhere in the world. With the new USALS® program we can confirm with certainty the achievement of this aim. But what is the USALS® system (Universal Satellite Automatic Location System)? It is a calculation system developed by STAB, and given free to all manufacturers of sat receivers or PC cards, which enables the receiver to calculate the position of all satellites in orbit with a precision lower than 1 meter with reference to the place of installation. All this in a completely automatic mode and with no specific technical knowledge required, either during installation or use.

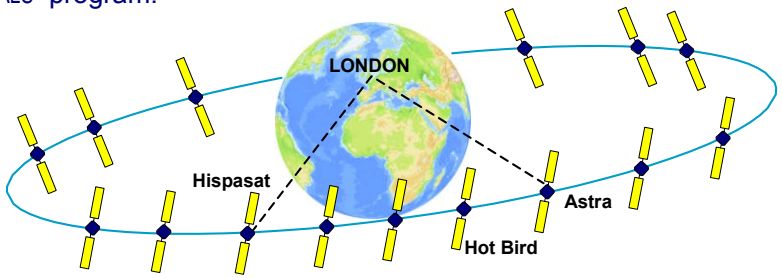
How to recognise if your receiver is compatible with "**USALS®**" standard:

1. On the box and on the receiver there must be the Stab - USALS® UNIVERSAL SATELLITES AUTOMATIC LOCATION SYSTEM logo.

2. "Motor setting" menu must include the "**USALS®**" mode.

For further details, please consult the web site: "**www.stab-usals.us**"

Example of calculation of the satellites position with reference to London performed automatically by a receiver implemented with USALS® program:



London: Latitude **51,5°N** - Longitude **0,0°**

- Astra 19,2°E ***Real angle with reference to London*** **= 21,0° counter-clockwise**

- HotBird 13°E ***Real angle with reference to London*** **= 14,2° counter-clockwise**

- Hispasat 30°W ***Real angle with reference to London*** **= 32,7° clockwise**

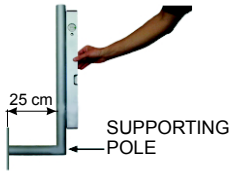
Dish elevation with Rotor Sat HH90: 37,6°

You can get all information about any place in the world only visiting the web-site : "**www.stab-usals.us**"

Mounting Instructions in USALS® mode

1

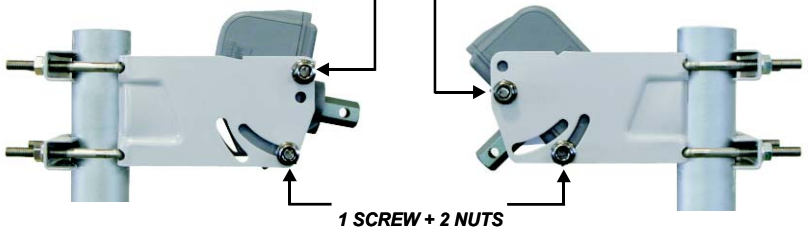
In order to obtain a correct pointing of the satellites, all systems must be in a perfect plumb line.



2

LATITUDE
FROM 10° TO 45°
1 SCREW + 2 NUTS

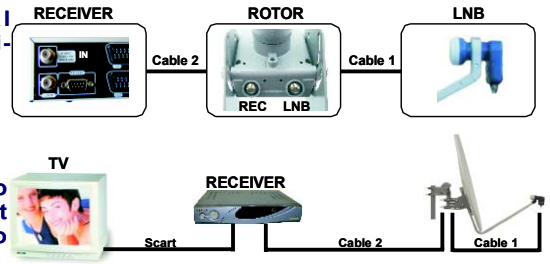
LATITUDE
FROM 45° TO 70°
1 SCREW + 2 NUTS



Install the motor only (not the tube at the moment) on the fixing bracket.

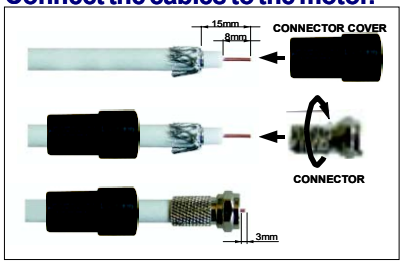
3

On a coaxial cable approximately 1,5 m long, set up 2 F-connectors and connect the LNB to the rotor's LNB plug. Fit an F-connector on each end of the cable going to the receiver and connect the rotor's REC plug to the plug of the receiver.



4

Connect the cables to the motor.



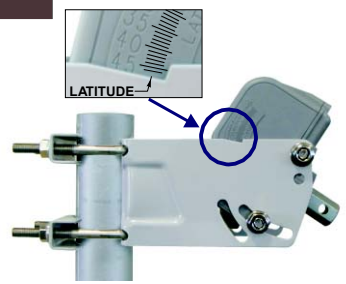
TO LNB

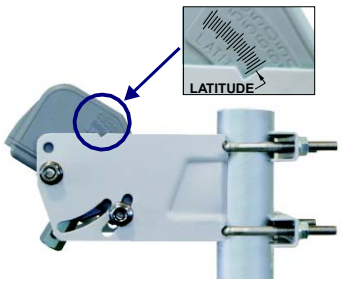
FROM RECEIVER

Mounting Instructions in USALS® mode

The USALS installation procedure is extremely simple. If you are not absolutely certain of the coordinates and the degrees of elevation of the antenna for your installation location, consult the site: *www.stab-usals.us* or the maps at pages 71-88. STAB will provide you with all the data of: **Latitude**, **Longitude**, **Dish Elevation.**

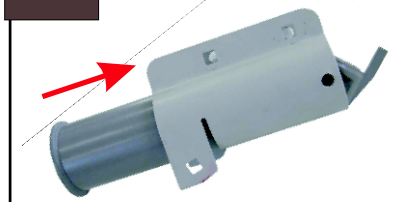
5





Adjust the rotor inclination to your **Latitude** and tighten the fixing screws.

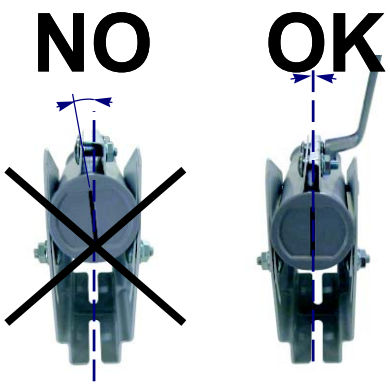
6



7

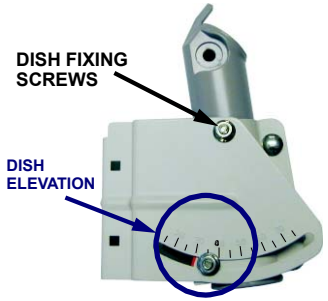
8

9



Mounting Instructions in USALS® mode

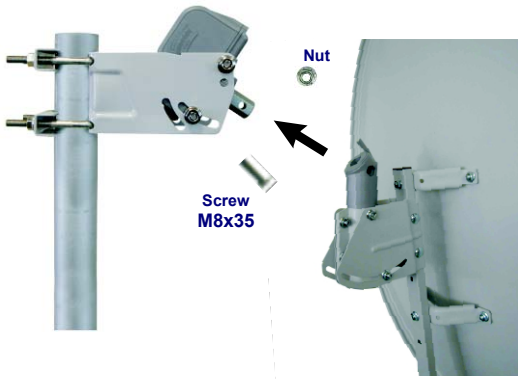
Align the **Dish Elevation** and tighten the fixing screws.
Consult the site: *www.stab-usals.us* or the maps at pages 71-88.



11

12

Insert the tube in its own position on the motor and fix it with the provided screw and nut.



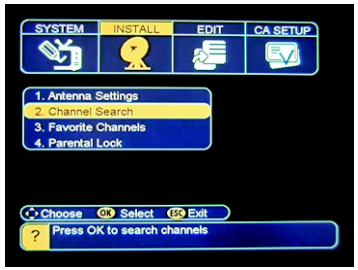
13

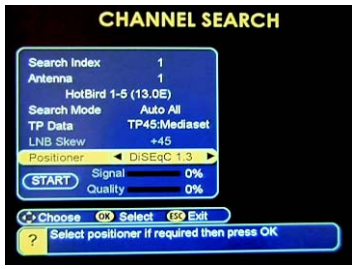
Connect the motor to LNB (see fig.3)

Mounting Instructions in USALS® mode

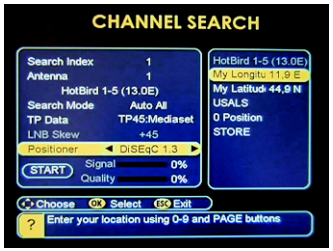
14

- See your receiver's instructions manual and select the type of installation in USALS mode(DiSEqC 1.3).



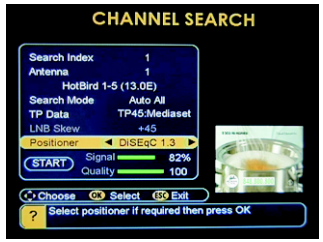


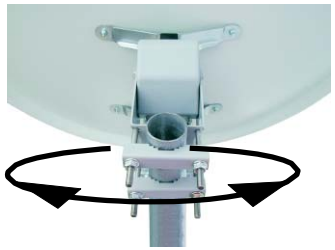
15



- Choose a satellite the nearest to your South if you lie in the northern hemisphere or choose a satellite the nearest to your North if you lie in the southern hemisphere.
- Fill in the empty spaces in the receiver's menu with the **Latitude** and **Longitude** values previously provided by the web site www.stab-usals.us or by the maps on pages 71-88. When the values have been correctly received, the receiver drives the motor to the calculated position.

16





Wait until the motor stops. Slightly rotate clockwise or anticlockwise the dish and the motor locked together until you find an image on the TV-screen connected to the receiver or the signal on the strength field meter. Tighten the fixing screws.

CONGRATULATIONS!!!
Installations and pointing of all satellites
have just been completed

Information

For further information and advice about installation and uses, contact

YOUR LOCAL DEALER or

FORTEC Communications Inc.
2780 SKYMARK Ave - Unit 8 - L4W 5A7 MISSISSAUGA, ON - CANADA
Phone +1-905-6020313 Fax +1-905-6025289

www.fortecstar.com

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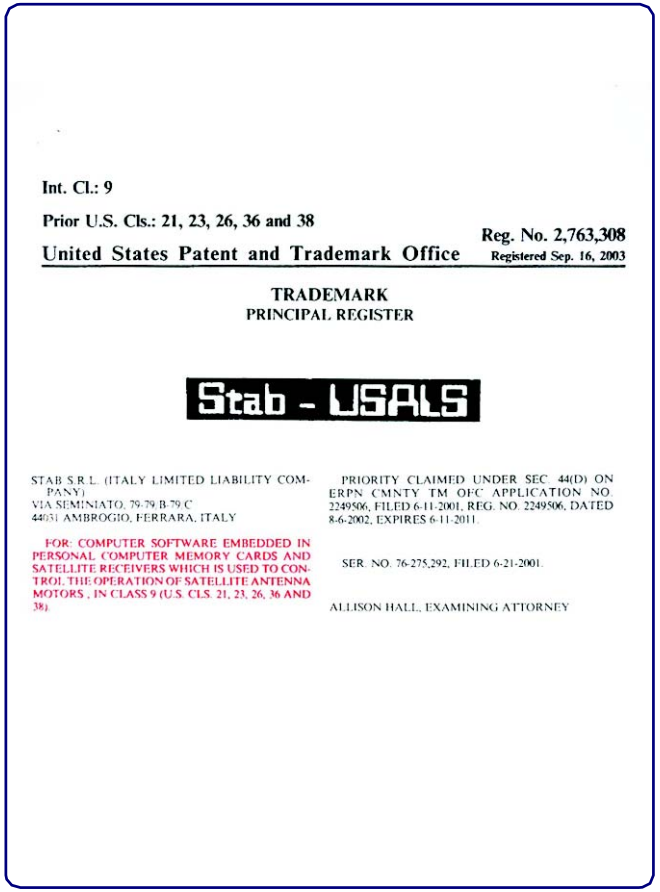
Director of the United States Patent and Trademark Office



Int. Cl.: 9

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STAB S.R.L. (ITALY LIMITED LIABILITY COMPANY)
VIA SEMINIATO, 79-79/B-79/C
44031 AMBROGIO, FERRARA, ITALY

FOR: COMPUTER SOFTWARE EMBEDDED IN PERSONAL COMPUTER MEMORY CARDS AND SATELLITE RECEIVERS WHICH IS USED TO CONTROL THE OPERATION OF SATELLITE ANTENNA MOTORS ; IN CLASS 9 (U.S. CLS. 21, 23, 26, 36 AND 38).

PRIORITY CLAIMED UNDER SEC. 44(D) ON ERPN. CMNTY. TM. OFC. APPLICATION NO. 2249506, FILED 6-11-2001, REG. NO. 2249506, DATED 8-6-2002, EXPIRES 6-11-2011.

SER. NO. 76-275,292, FILED 6-21-2001.

ALLISON HALL, EXAMINING ATTORNEY

ONLY STAB CAN GARANTEE BY MEANS OF THE STAB-USALS TRADEMARK THAT THE RECEIVER IS IN CONFORMITY WITH THIS COMMUNICATION PROTOCOL. STAB AUTHORIZES THE APPLICATION OF THE MARK ON THE RECEIVER ONLY AFTER HAVING TESTED IT.
OTHER MOTORS THAT CLAIM TO HAVE A STAB-USALS SYSTEM AND GO BY OTHER NAMES, SUCH AS "GOTO X FUNCTION", VIOLATE OUR PATENT RIGHTS UNDER USA LAW.

Via Seminiato, 79
44031 Ambrogio (FE) Italy
www.stab-italia.com
Info@stab-italia.com

Manufactured with the best materials in order to last a long time.

1) STAB MANUFACTURING ENSURES A LONG-LIFE, RELIABLE MOTOR.

2) THE DESIGN AND CONSTRUCTION IS MORE EXPENSIVE, BUT ENSURES YOU GET THE VERY BEST PERFORMANCE A MOTOR CAN PROVIDE (SEE CONSUMPTION DIAGRAM page 19).

3) AS PREVIOUSLY SEEN, THE SCREWS ARE INOX MATERIAL.
ALL METAL IS STOVE ENAMELLED.

4) CHOICE OF “F” CONNECTORS WITH GOLD CENTRAL PIN AND BRASS BODY IN ORDER TO AVOID THE LOSS OF THE SIGNAL, AND TO PROVIDE A GOOD, AND LASTING ELECTRICAL CONTACT.

STAB ALWAYS WELCOMES YOUR COMMENTS AND SUGGESTIONS FOR IMPROVING THEIR MOTORS.

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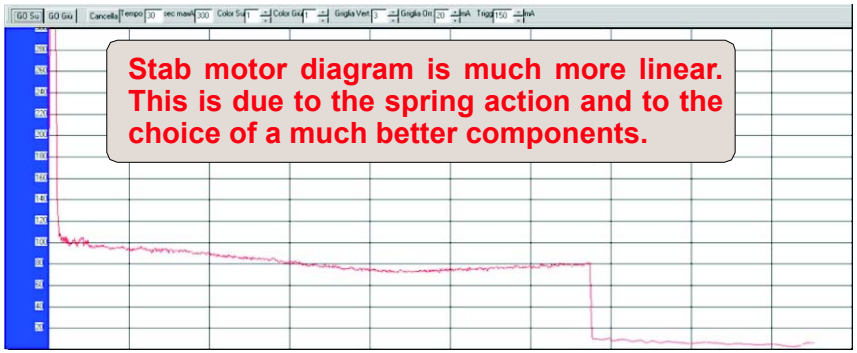
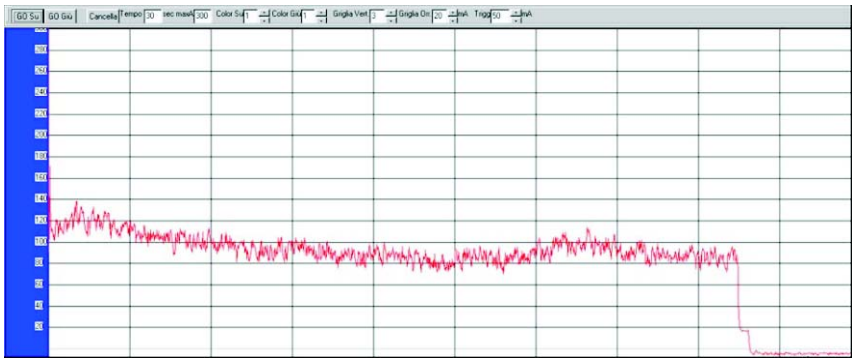
Consumption test of the motors with: 85 cm dish - latitude 30°- inclination 40°



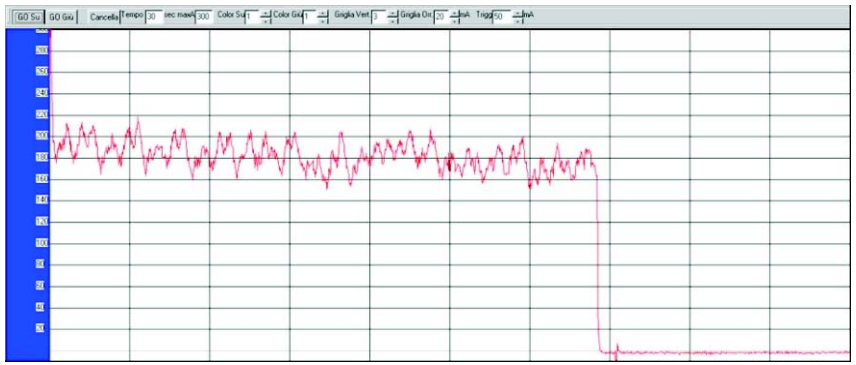
STAB
Model HH90

Rotation angle: 65°-0-65°
Operating power supply: 18 V
Rotation time: 67 sec.
Rotation speed: 130°/67sec.= 1.95°/sec.
Consumption: 83mA



SATCONTROL
Model SM3D12

Rotation angle: 50°-0-50°
Operating power supply: 18 V
Rotation time: 85 sec.
Rotation speed: 100°/85sec.= 1.17°/sec.
Consumption: 90mA



MOTECK
Model SG2100 Mount

Rotation angle: 70°-0-70°
Operating power supply: 18 V
Rotation time: 68 sec.
Rotation speed: 140°/68sec.= 2.05°/sec.
Consumption: 180mA **(HIGH CONSUMPTION)**