



SWAPMYRIGS USER MANUAL

WELCOME & CONGRATULATIONS

Congratulations on your purchase of SWAPMYRIGS, the world's only patented, brand-universal, single-cable radio installation solution. We are very proud of our product, and we are committed to providing you with the best service possible.

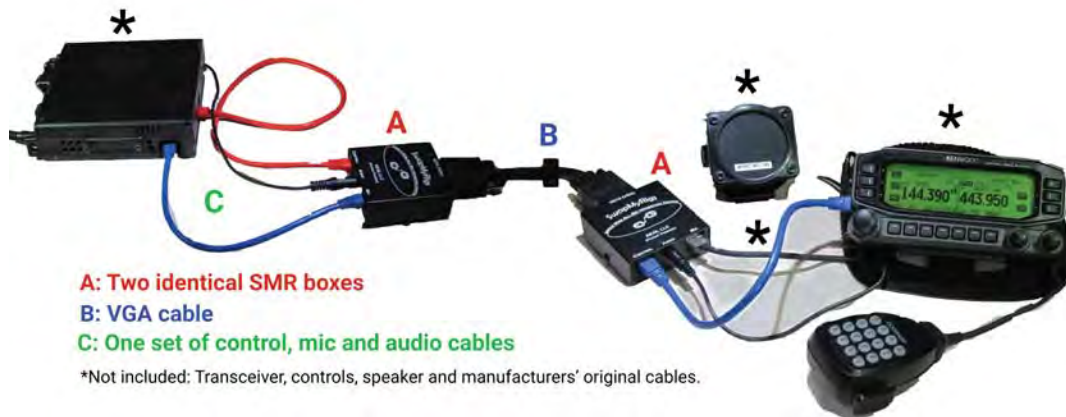
With our lifetime guarantee, rest easy knowing our products meet and exceed industry specifications. Each item is individually engineered by SMRs' creator, AE4S, and all cables and VGAs are fully tested for quality and reliability before leaving our warehouse.

INTRODUCTION

SWAPMYRIGS ("SMR") consists of two identical modules connected by a single 15-conductor IBM VGA (monitor) cable. One of the modules connects to the microphone, control, and external speaker jacks on the transceiver body; the other has jacks for the radio's remote microphone, control unit, and external speaker.

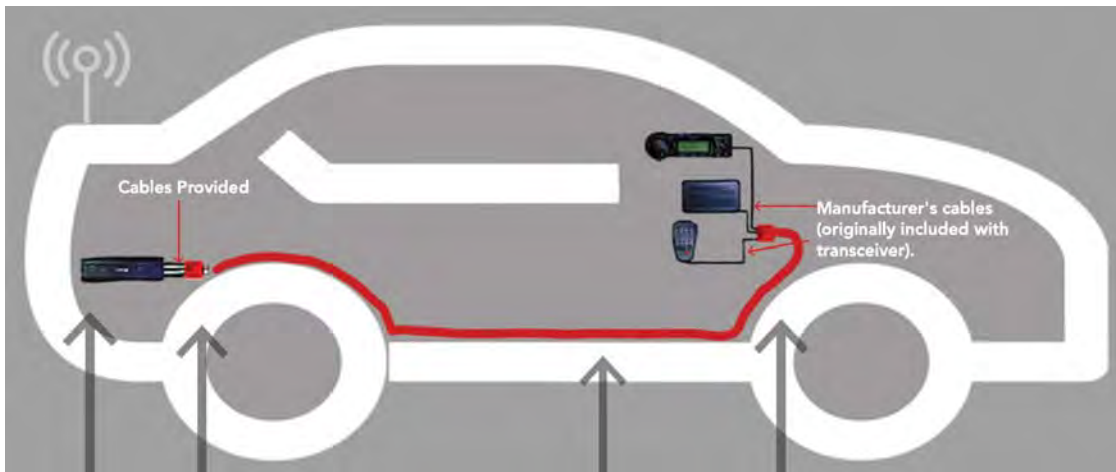
SMRs are compatible with all radios that use standard registered jacks ("modular jacks") to connect components.

PACKAGE CONTENTS - (RADIO, MIC & SPEAKER NOT INCLUDED)



1. SWAPMYRIGS includes two identical units (*see items marked "A"*), and a single 15-conductor, 15' VGA cable, connects SMRs (*see item B*). A 15' VGA is included, but you may also purchase a longer VGA, based on the length required for your customized installation. All SWAPMYRIGS cables meet IBM VGA standards and are available in lengths of 15, 25, 35, 50, 75, 100, and 150 feet.
2. We also include microphone, control, and audio cables you will use to connect your radio to the first SMR (*see item C cables pictured above left*).

INSTALLATION INSTRUCTIONS



- | | | | |
|--|--|--|---|
| 1) Install radio out of sight, near the antenna. | 2) Plug the mic, control and speaker cables into SMR Box 1 (in red), using cables we supply. | 3) Run our VGA cable (supplied), and connect the SMRs. | 4) Install controls, speaker and mic where you want them. Plug the manufacturer's cables into the |
|--|--|--|---|

- 1) Install your radio where it's out of sight, near the antenna. Mount one of the two SMRs near the radio body, and plug the cables provided into the SMR's audio, mic and control jacks.
- 2) Install the controls, microphone and speaker where you want them, then mount the second SMR nearby. Plug the manufacturers' cables (not included) into the SMR's jacks.
- 3) Run the VGA cable from the SMR at the radio to the other SMR, at the controls. **The VGA cable must be tight against the DB15 jack. Also, verify the jumper settings are correct for your radio, as shown on Page 9.**

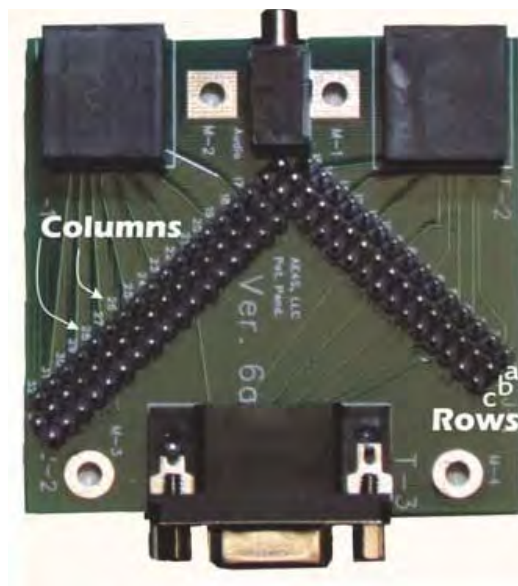


The SMR staking pins, (shown right) are arranged in a matrix of 32 Columns in 3 Rows plus one 2-pin Column. Rows are labeled a, b, and c. Columns are labeled 1 through 33. Each pin is assigned a Column number and a Row letter, such as "1a." Jumper and shunt settings are identified by the two pins connected, such as "12b-13b," indicating that Columns 12 and 13 are bridged at Row b.

Dimensions:

2.6" x 2.6" x 0.9"

For all installations, both SMRs are programmed identically. If you choose to swap rigs, compatible connecting cables may be ordered. (SMR RJ45 jacks do not require RJ45 plugs; any RJ plug with a lower number fits, e.g., RJ12.)



REGISTERED JACKS

Amateur radio manufacturers use one or more registered jacks, often called “modular jacks,” to connect transceivers to microphones and controls. Technically "RJ" refers to jacks, but it commonly applies to both plugs and jacks. The term "registered jack" (RJ) is a consequence of the Bell System's settlement with the Department of Justice in January, 1982, under which Bell was required to give local competitors access to standardized connections for use in home and office telephone systems. As a result, registered jacks soon became the standard for connecting data and telecommunications devices to service providers.

RJ connections are named RJ11, RJ12, RJ21, RJ41, etc. However, they differ only in the number of positions and conductors. SMRs use 8P8C jacks (RJ45s) because they are compatible with plugs with fewer positions; e. g., 4P4C, 6P6C, and 8P8C plugs and jacks are compatible with RJ45 jacks. Some control heads have jacks that, though technically not registered jacks, are used with telephone handsets. Occasionally, the jack is referred to as an RJ9, RJ22, or RJ25. Kenwood's TM-V71 and TM-D700, the Icom IC-2820, and Yaesu's FTM-400 and FTM-100 use this jack. ***Typically, these cables are provided by the manufacturers and if not, are included with SMRs, depending on the transceiver you use.***

SMR Specialty VGA Cables vs. Other VGA Cables



All VGA cables are NOT equal, especially those used with computer monitors. If you choose to use VGA cables not purchased and tested by us, we cannot guarantee the quality of our product. Our VGAs are fully shielded, built-tough, and stomp-proof, with three coaxial cables and 4 twisted pairs, perfect for isolating audio and digital signals, eliminating crosstalk, and interference. Enjoy quality sound whether your radio is 5' or 150' away.

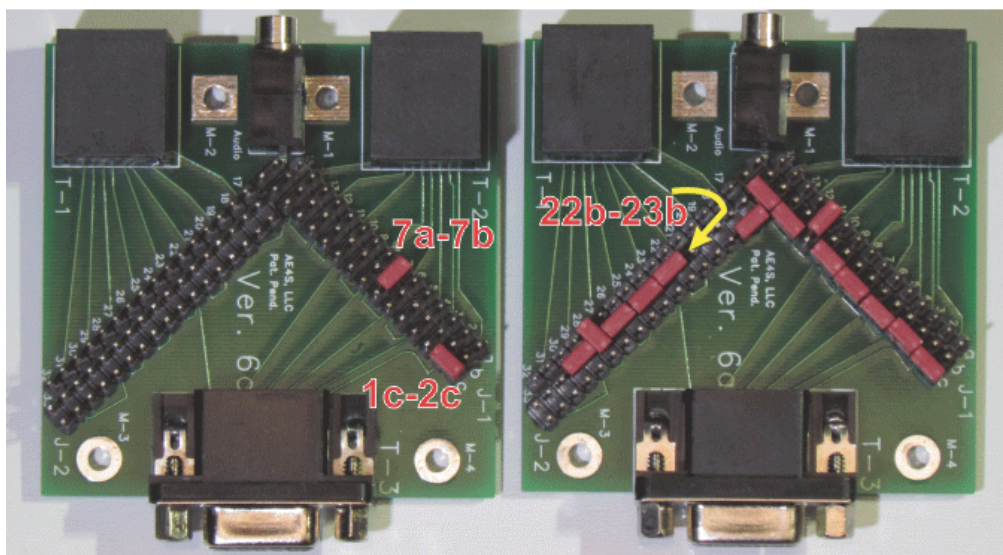
Our VGA cables are tested for quality and reliability before leaving the warehouse. Our

VGA standards include the following: (1) Sub-D 15-pin connectors, and (2) 15 separate and independent conductors. The 15 conductors are 4 twisted pairs, 3 coaxial cables (six conductors) and one additional conductor.



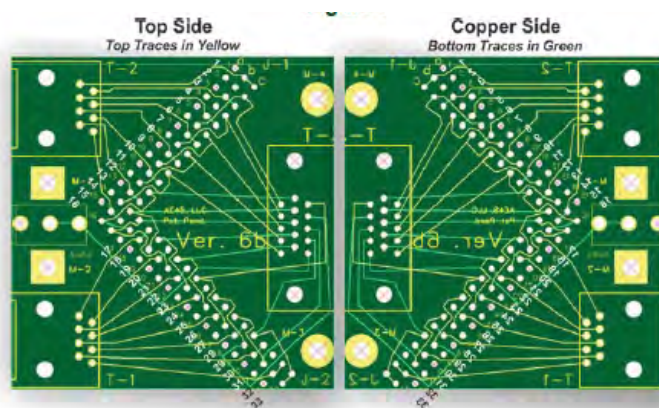
In general, VGA cables sold for monitors do not meet VGA standards. The usual failure is combining and grounding the coaxial conductors, pins 6, 7, and 8. Another is the omission of conductor 9, the single unpaired conductor, which is intended for +5 vdc, but not used for computer-to-monitor connections. Another problem with some cables is the use of aluminum instead of copper conductors. The resistance of aluminum cables exceeds the requirements of SMR installations.

SMR Circuit Board and Schematic



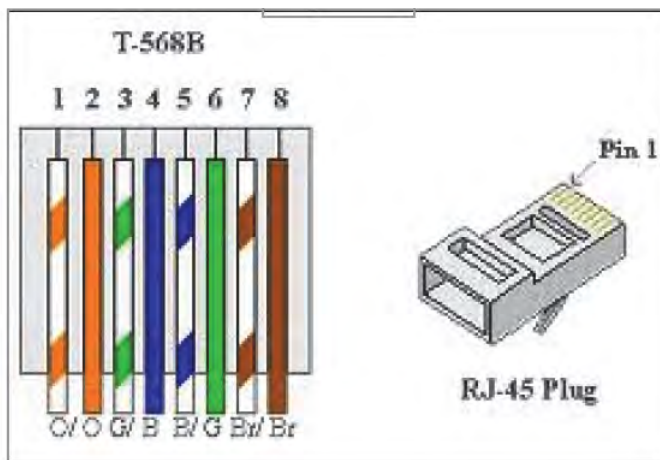
Row c, and Rows a and b at Column 7. The shunt shown above right connects Columns 22 and 23 at Row b and is identified 22b-23b. Jumper and shunt settings are available for most if not all current transceivers; the number will increase as new transceivers are released. The circuit is designed so that each RJ45 input conductor can be routed to as many as 4 VGA output conductors plus ground.

Perhaps the most difficult aspect of jumpering for a new rig is determining the radio's pinouts. Microphone pinouts are almost always shown in the operator's manual. However, the numbering of the conductors is inconsistent among manufacturers.



SMR Circuit Board and Schematic (continued)

Furthermore, it is hard to tell if the manual's depiction is from the inside looking out or the outside looking in. The same is true when researching a radio schematic for the control pinouts. Typically, both the main unit and the control head pinouts are shown, so the inside-outside problem becomes more complex; the main unit may be from the inside out and the control head from the outside in, increasing the potential for error.



The pin numbering is also problematic. Manufacturers, Kenwood in particular, number their RJ45 and RJ12 jacks opposite the industry standard (left).

Equipment damage is always a consideration if manufacturers' drawings are misinterpreted.

Bridge and Jumper Settings

															
1	1c-19c J	—	APRS †	††	—	1c-2c	—	—	2c-28c J	—	—	—	1c-2c	2c-3c	2c-3c
2	3c-4c	2c-3c	2c-3c	2c-3c	—	3a-3b	—	2c-3c	3c-4c	—	—	3c-4c	3c-4c	4c-5c	4c-5c
3	5c-6c	4c-5c	4c-5c	4c-5c	5c-14c J	4c-5c	5b-6b	5a-5b	5c-6c	4c-5c	5b-6b	5c-6c	5c-10c J	28c-6c J	7a-7b
4	7c-8c	7a-7b	6c-7c	7a-7b	7a-7b	6c-22c J	7b-8b	7a-7b	7a-7b	7a-7b	7a-7b	7a-7b	7c-8c	7c-8c	8c-9c
5	9c-10c	9b-10b	9a-9b	9b-10b	8c-9c	7c-8c	6c-22b	8b-9b	8c-9c	8c-9c	8b-9b	8c-9c	9c-17c J	9c-10c	10c-11c
6	11a-11b	11b-12b	11b-12b	11b-12b	11c-12c	9c-10c	9c-10c	10b-11b	10c-11c	10c-11c	10b-11b	10c-11c	10b-11b	11c-12c	12c-13c
7	12c-13c	13b-14b	13b-14b	13b-14b	—	11c-12c	11c-12c	12b-13b	13c-14c	—	—	13c-14c	13a-13b	13c-14c	—
8	14c-15c	—	—	—	—	13c-14c	—	—	5a-16b J	—	—	—	15b-16b	26c-16c J	—
9	17c-18c	17c-18c	—	17c-18c	18c-19c	15a-15b	—	17b-18b	15c-16c	18b-19b	17b-18b	17c-18c	18b-19b	18c-19c	18b-19b
10	—	19c-20c	19b-20b	19c-20c	20c-21c	17c-11a	17c-11a	19b-20b	18c-19c	20b-21b	—	—	19c-20c	20c-21c	19c-20c
11	2c-22c J	21c-22c	21b-22b	22c-23c	10b-22b	19c-20c	19b-20b	21b-22b	20c-21c	22b-23b	21b-22b	2c-22c J	21c-22c	22c-23c	21c-22c
12	24b-25b	23c-24c	24a-24b	24b-25b	21b-24b	24a-24b	24a-24b	23b-24b	22c-23c	24b-25b	23b-24b	12c-24c	23c-24c	24c-25c	23c-24c
13	26b-27b	25c-26c	10b-26c J	26c-27c	26b-27b	25c-26c	25b-26b	25b-26b	24c-25c	26b-27b	25b-26b	25c-26c	25c-26c	—	26c-16c J
14	28a-28b	27c-28c	27b-28b	28b-29b	28a-28b	27c-28c	27b-28b	27b-28b	26c-27c	28b-29b	28a-28b	28a-28b	27c-28c	30a-30b	28c-6c J
15	29b-30b	30a-30b	29b-30b	30a-30b	29b-30b	29c-30c	30b-31b	30a-30b	30a-30b	30a-30b	29b-30b	30b-31b	30a-30b	31b-32b	30a-30b
16	—	32c-33c	—	32c-33c	31b-32b	—	—	31b-32b	32c-33c	31b-32b	31b-32b	32c-33c	32c-33c	—	31b-32b
Tested Separation															
	75'	75'	100'	100'	100'	75'	90'	15' *	100'	25'	100'	100'	175'	100'	65'

J Jumper

* Tested only at 15'

† With optional cables, connects directly to Argent and Byonics APRS units.

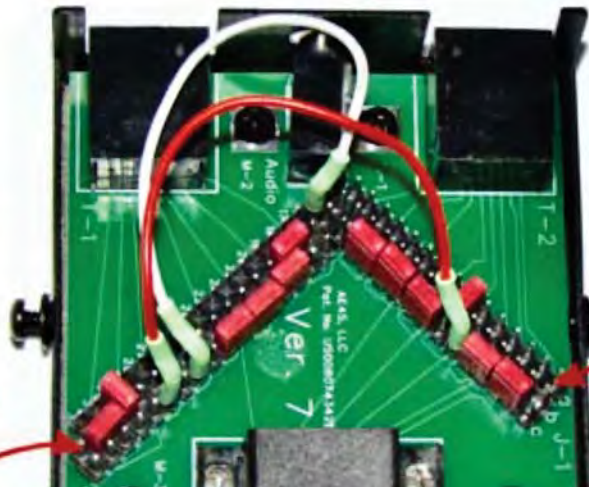
†† IC-7100 can be jumpered to extend the USB port to a remote computer.

ID-4100

Microphone

18b - 19b
19c - 20c
21c - 22c
23c - 24c
26c - 16c **J**
28c - 6c **J**
30a - 30b
31b - 32b

Col. 33



Control

2c - 3c
4c - 5c
7a - 7b
8c - 9c
10c - 11c
12c - 13c

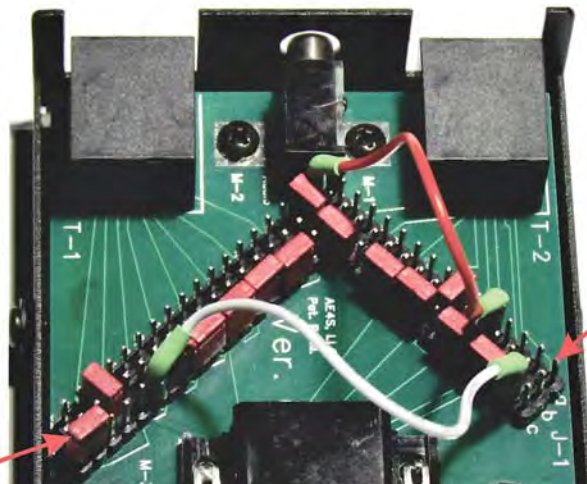
Col. 1

IC-2720H, IC-2730H

Microphone

2c - 28c (**J**)
18c - 19c
20c - 21c
22c - 23c
24c - 25c
26c - 27c
30a - 30b
32c - 33c

Col. 33



Control

3c - 4c
5a - 16b (**J**)
5c - 6c
7a - 7b
8c - 9c
10c - 11c
13c - 14c
15c - 16c

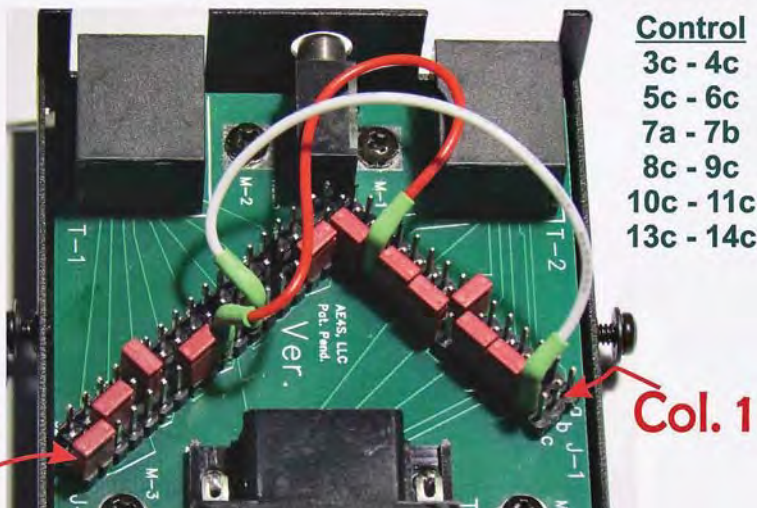
Col. 1

TS-480

Microphone

17c - 18c
2c - 22c (**J**)
12c - 24c (**J**)
25c - 26c
28a - 28b
30b - 31b
32c - 33c

Col. 33

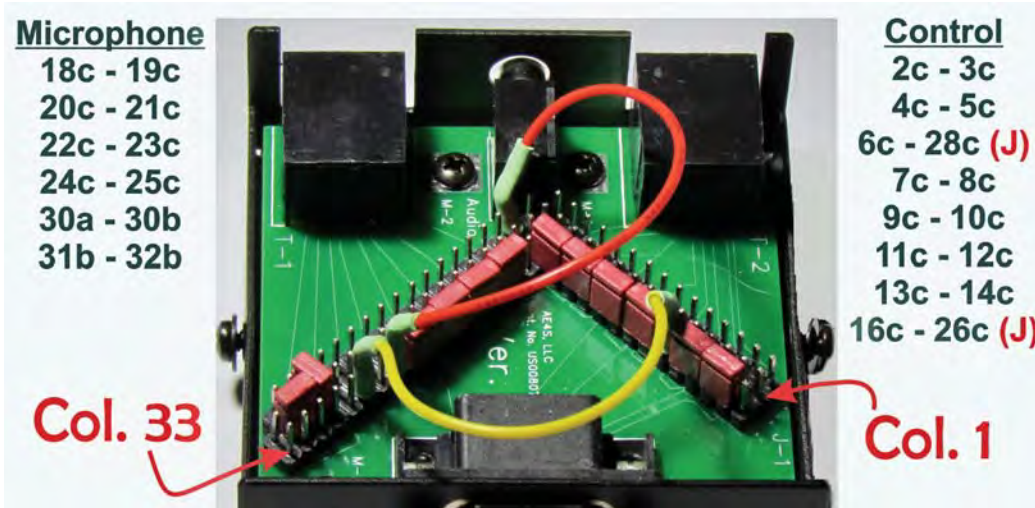


Control

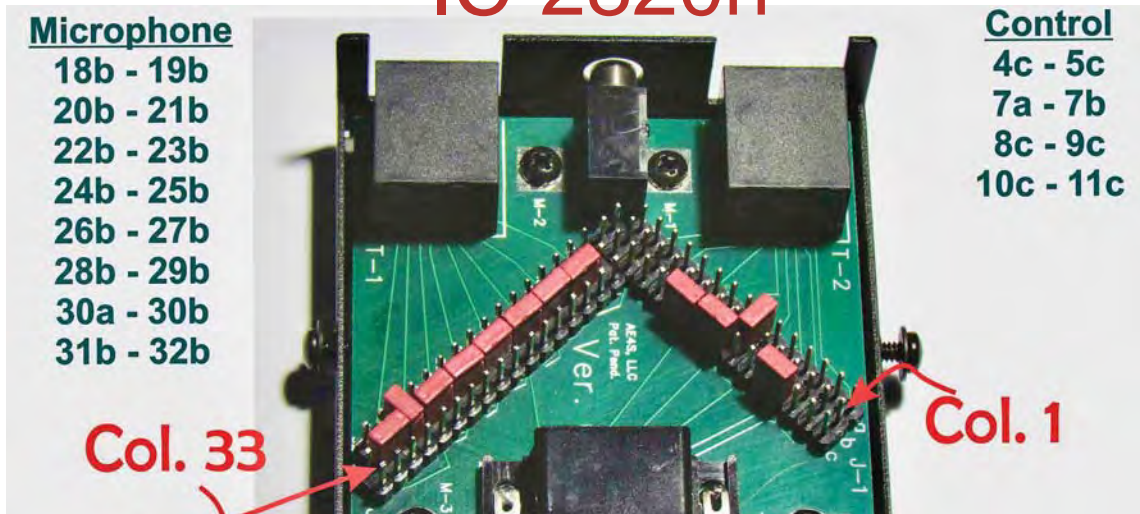
3c - 4c
5c - 6c
7a - 7b
8c - 9c
10c - 11c
13c - 14c

Col. 1

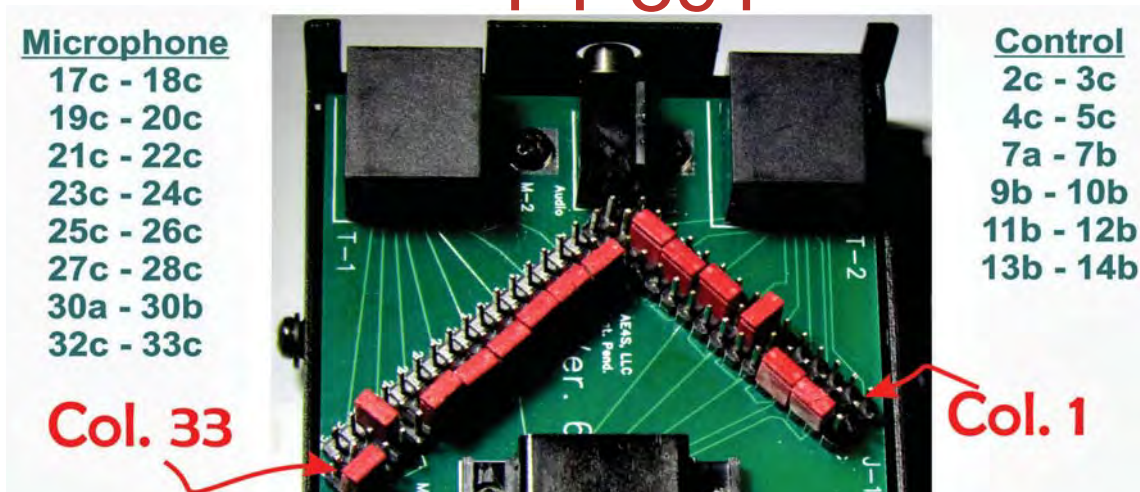
ID-5100



IC-2820h



FT-891



ID-880H

Microphone

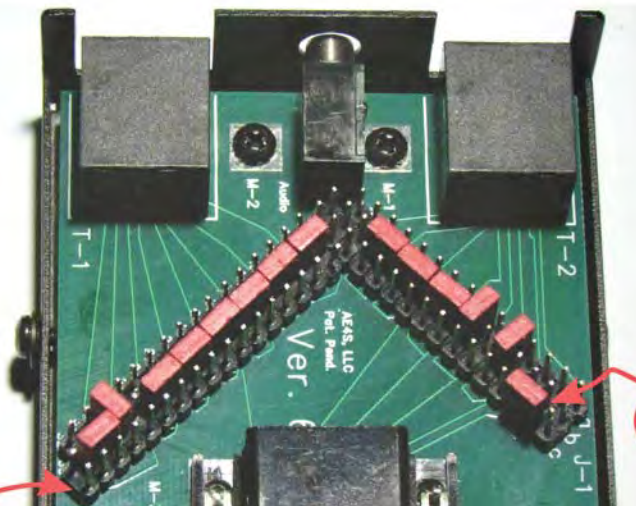
17b - 18b
19b - 20b
21b - 22b
23b - 24b
25b - 26b
27b - 28b
30a - 30b
31b - 32b

Control

2c - 3c
4c - 5c
7a - 7b
8b - 9b
10b - 11b
12b - 13b

Col. 33

Col. 1



FTM-400

Microphone

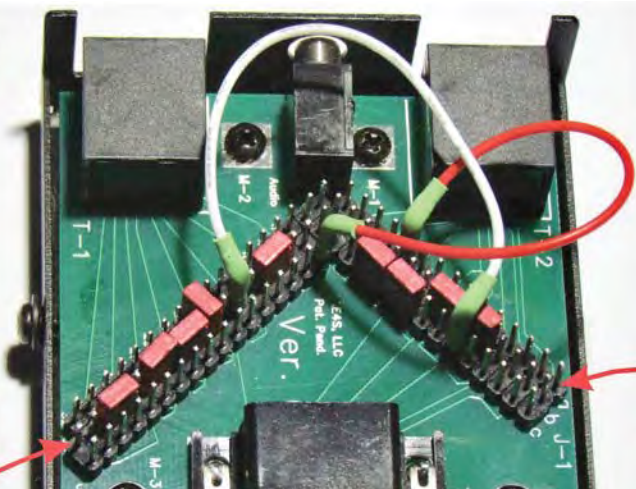
17c - 11a (J)
19b - 20b
24a - 24b
25b - 26b
27b - 28b
30b - 31b

Control

5b - 6b
6c - 22b (J)
7b - 8b
9c - 10c
11c - 12c

Col. 33

Col. 1



TM-D700

Microphone

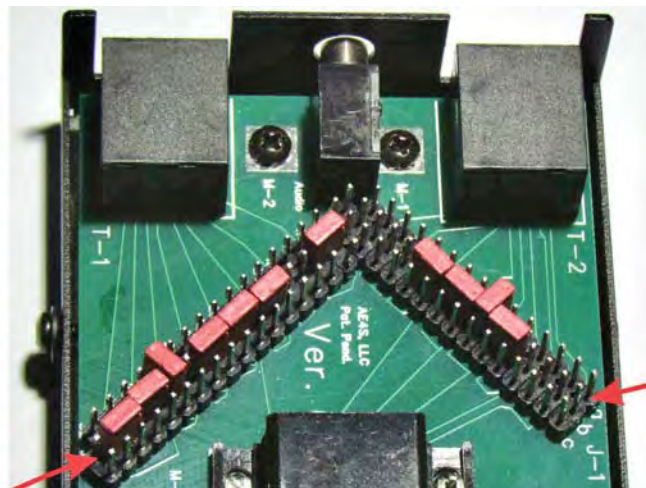
17b - 18b
21b - 22b
23b - 24b
25b - 26b
28a - 28b
29b - 30b
31b - 32b

Control

5b - 6b
7a - 7b
8b - 9b
10b - 11b

Col. 33

Col. 1



*SMR to control head requires an RJ45 to RJ22 Cable (supplied).

FT-891

Microphone

17c - 11a (J)

19c - 20c

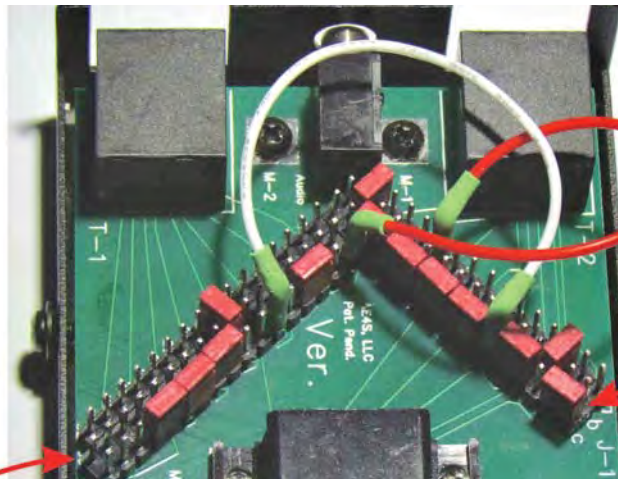
24a - 24b

25c - 26c

27c - 28c

29c - 30c

Col. 33



Control

1c - 2c

3a - 3b

4c - 5c

6c - 22c (J)

7c - 8c

9c - 10c

11c - 12c

13c - 14c

15a - 15b

Col. 1

FT-7/8xxx

Radio DIN Ext.

19b - 20b

21b - 22b

23b - 24b

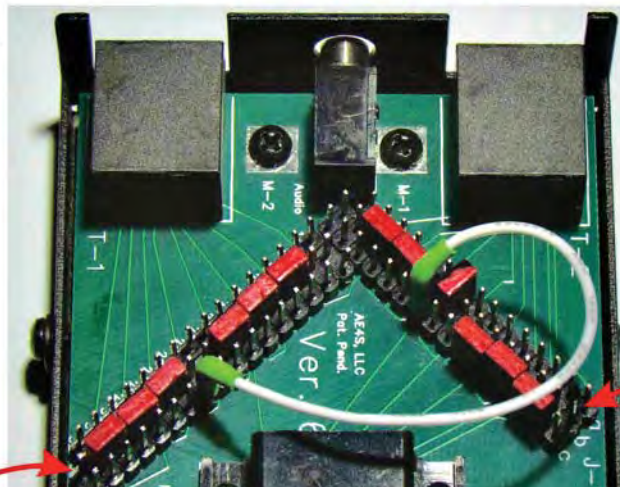
26c - 10b (J)

27b - 28b

29b - 30b

31b - 32b

Col. 33



Control

2c - 3c

4c - 5c

6c - 7c

9a - 9b

11b - 12b

13b - 14b

Col. 1

TS-2000

Microphone

18c - 19c

20c - 21c

10b - 22b (J)

21b - 24b (J)

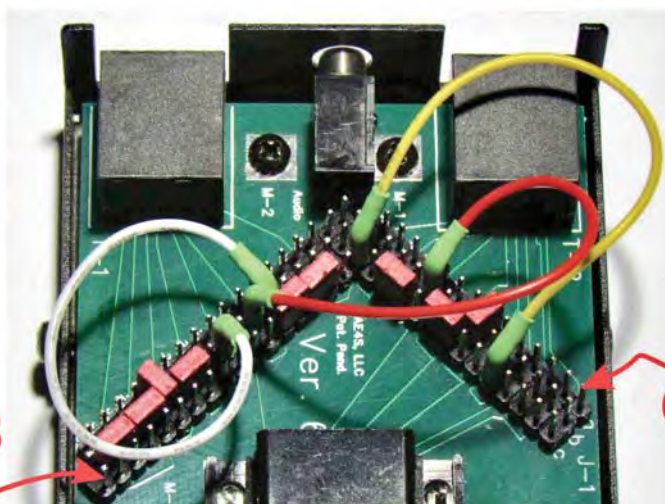
25b - 26b

28a - 28b

29b - 30b

31b - 32b

Col. 33



Control

5c - 14c (J)

7a - 7b

8c - 9c

11c - 12c

Col. 1

TM-D710, TM-D710G, TM-V71

Microphone

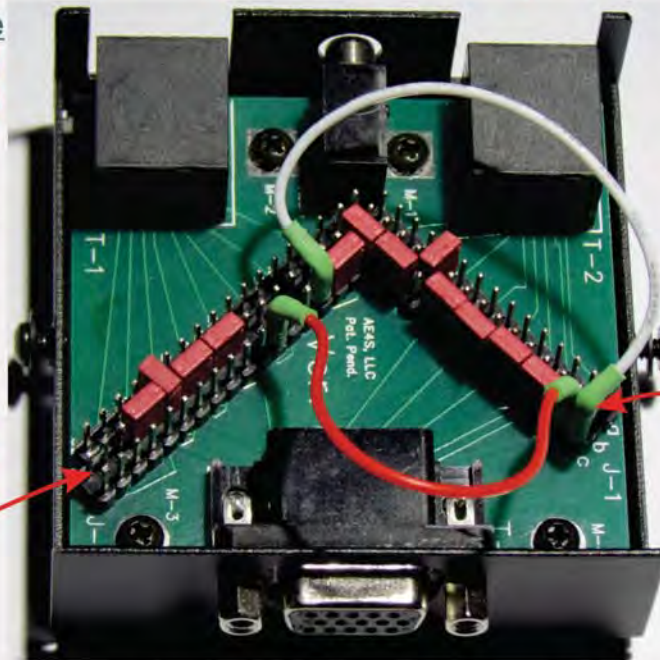
1c - 19c (J)
2c - 22c (J)
17c - 18c
24b - 25b
26b - 27b
28a - 28b
29b - 30b

Control

3c - 4c
5c - 6c
7c - 8c
9c - 10c
11a - 11b
12c - 13c
14c - 15c

Col. 33

Col. 1



All Kenwood TM-D710 and TM-V71s have the same transceiver body; only the controls differ. Accordingly, their SMRs are identical. However, the control connections differ. The TM-V71 has a unique 4-conductor RJ-22 phone handset jack. SMRs ordered for TM-V71s include an additional 5-foot cable for connecting the control's RJ22 jack to the SMR's RJ45. (To upgrade to a TM-D710 just substitute the RC-D710's RJ45 connecting cable for the 5-foot one included with the SMR.)

FTM-350

Microphone

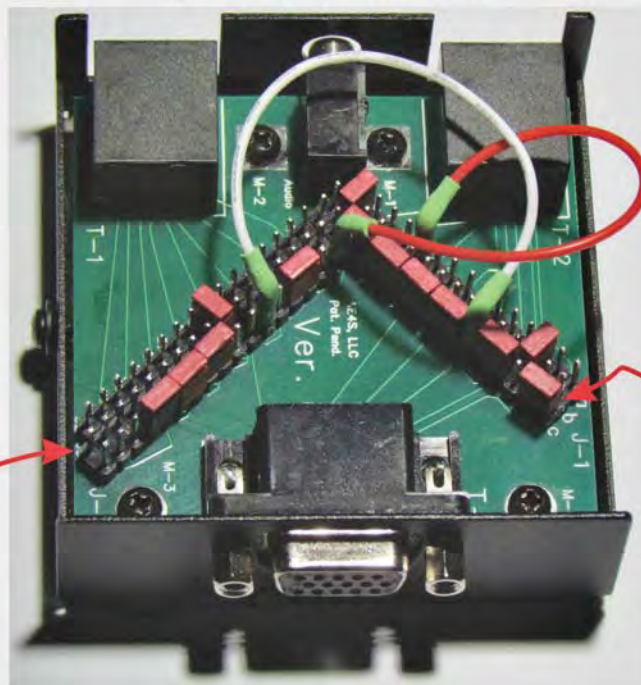
17c - 11a (J)
19c - 20c
24a - 24b
25c - 26c
27c - 28c
29c - 30c

Control

1c - 2c
3a - 3b
4c - 5c
6c - 22c (J)
7c - 8c
9c - 10c
11c - 12c
13c - 14c
15a - 15b

Col. 33

Col. 1

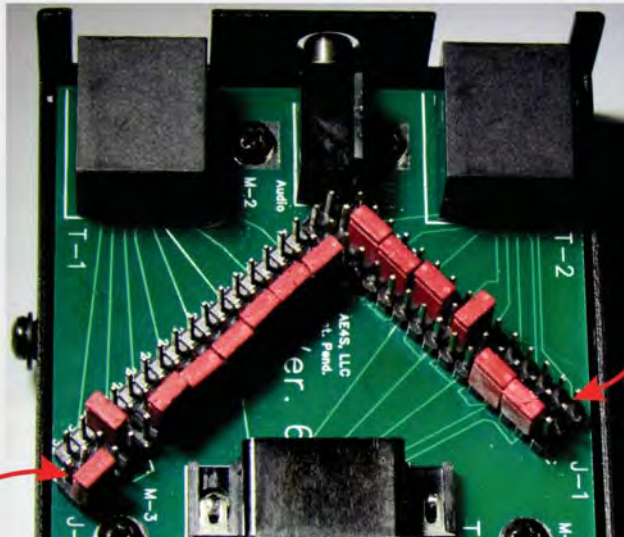


FT-857

Microphone

17c - 18c
19c - 20c
21c - 22c
23c - 24c
25c - 26c
27c - 28c
30a - 30b
32c - 33c

Col. 33



Control

2c - 3c
4c - 5c
7a - 7b
9b - 10b
11b - 12b
13b - 14b

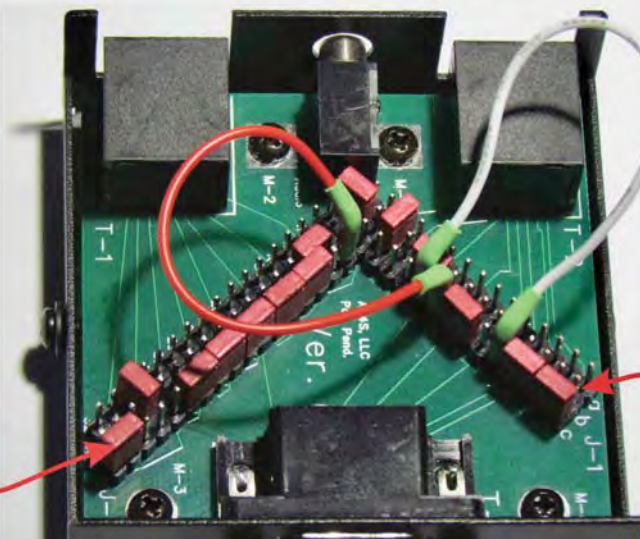
Col. 1

IC-7100

Microphone

18b - 19b
19c - 20c
21c - 22c
23c - 24c
25c - 26c
27c - 28c
30a - 30b
32c - 33c

Col. 33



Control

1c - 2c
3c - 4c
5c - 10c (J)
7c - 8c
9c - 17c (J)
10b - 11b
13a - 13b
15b - 16b

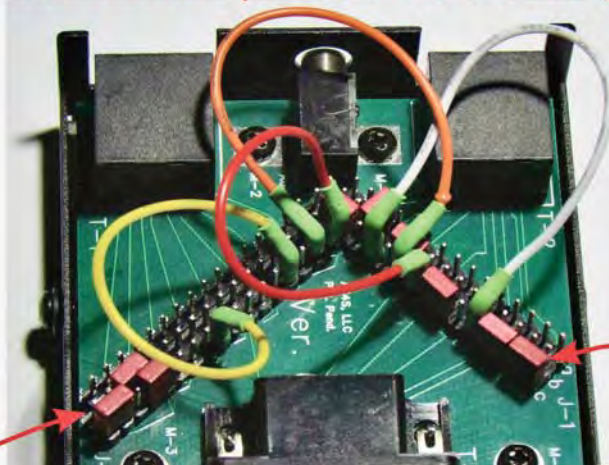
Col. 1

IC-7100 (USB Extension)

USB Ext.

18c - 10c (J)
20c - 25c (J)
28a - 28b
29c - 30c
30b - 31b
32c - 33c

Col. 33



Control

1c - 2c
3c - 4c
5c - 12c (J)
7c - 8c
9c - 17c (J)
10b - 11b
13a - 13b
14c - 15c

Col. 1

ABOUT AE4S



SWAPMYRIGS was created by Bill Jordan, AE4S, a lifelong electronics devotee. Years ago, he saw the need for a simpler, more efficient way to install and manage radios with remote controls.

Manufacturers' kits were incompatible with other brands, and, sometimes, even within their own product lines. Couldn't one device do it all? Researched, engineered, and built in his office, SWAPMYRIGS is the only universal, patented, single-cable separation kit. Invented, designed, and MADE IN THE USA.

AE4S graduated from Cornell University and retired from the United States Navy as a Captain. He has a Ph.D., is a CPA, and Emeritus Professor at Florida State University in Tallahassee, Florida.



Questions, problems, need help?

Contact www.swapmyrigs.com or info@swapmyrigs.com