

Telecommunication Peripheral Products

Technical Practice

SQRG-12

Sequential Ring Generator

June 28, 2000

Allow Multiple Attendants to Answer Sequenced Calls While Eliminating Call Crashing



The **SQRG-12** Sequential Ring Generator is designed for applications where more than one person answers incoming calls and those persons may be in locations where the **TMS-6X** or **TMS-12A** is not visible.

The **SQRG-12** eliminates confusion about which line to answer next by displaying the oldest call as a ringing line on all phones in the phone system.

http://www.VikingElectronics.com

E-mail...Sales@VikingElectronics.com

Features

- Compatible with ground or loop start lines
- Re-rings calls held by Viking's TMS-6X or TMS-12A Call Sequencers
- Selectable ring cadence
- 10 REN load total

Sales...(715) 386 - 8861

Made in the U.S.A.

Applications

- Generate automatic oldest call notification for the TMS-6X
- Generate automatic oldest call notification for the TMS-12A
- Eliminates call crashing on outbound calls when used with Viking's TMS-6X or TMS-12A Call Sequencers

Specifications

Power: 120V AC/13.8V AC 1.25A UL listed adapter provided **Dimensions:** 210mm x 160mm x 44mm (8.25" x 6.25" x 1.75")

Shipping Weight: 1.36 Kg (3 lbs)

Environmental: 0°C to 32°C (32°F to 90°F) with 5% to 95% non-

condensing humidity

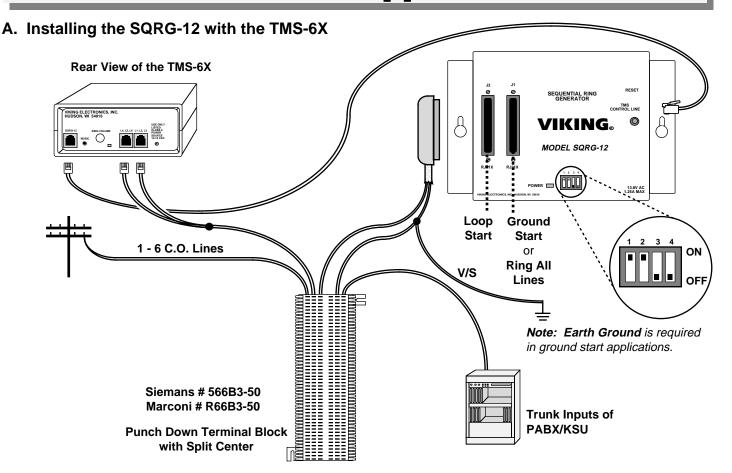
REN: 10.0

Connections: (2) RJ21X jacks, (1) RJ14 jack

Maximum Run: 305 m (1000 ft) between SQRG-12 and

sequencer

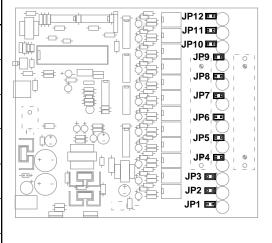
Installation/Applications



1. Wiring Table for the TMS-6X

Row 1 Loop/Ground Start C.O. Lines	Row 2 TMS-6X	Row 3 SQRG-12 Pin, Color	Row 4 Open	Row 5 SQRG-12 Pin, Color	Row 6 Loop/Ground Start Trunk Inputs
1T	L1, G	26, W/BL		38, BK/G	1T
1R	L1, R	1, BL/W		13, G/BK	1R
2T	L2, BK	27, W/O		39, BK/BN	2T
2R	L2, Y	2, O/W		14, BN/BK	2R
3T	L3, W	28, W/G		40, BK/S	3T
3R	L3, BL	3, G/W		15, S/BK	3R
4T	L4, G	29, W/BN		41, Y/BL	4T
4R	L4, R	4, BN/W		16, BL/Y	4R
5T	L5, BK	30, W/S		42, Y/O	5T
5R	L5, Y	5, S/W		17, O/Y	5R
6T	L6, W	31, R/BL		43, Y/G	6T
6R	L6, BL	3, BL/R		18, G/Y	6R
*Earth Ground		50, V/S			

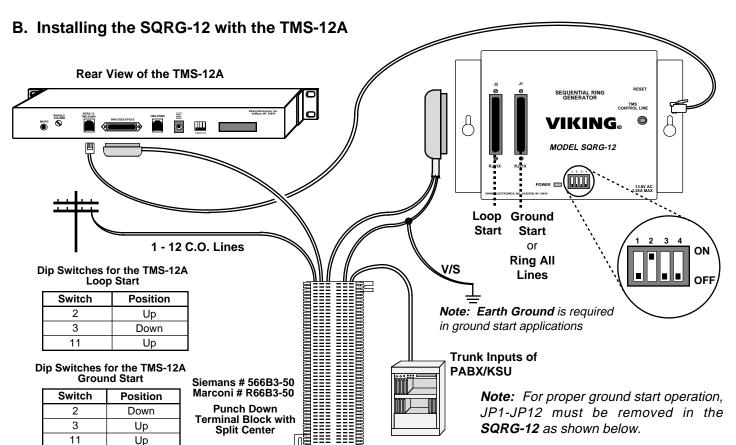
Note: For proper ground start operation, JP1-JP12 must be removed in the **SQRG-12** as shown below.



2. Notes

- **a.** If the PABX does not recognize lines on the **TMS-6X** as busy and call crashing is observed, set up those lines as "incoming only trunks" on the PABX. If those lines must be used for inbound and outbound calls, you must use the special software **TMX-PRAL**. Contact product support at (715) 386-8666 for more information.
- **b.** Do not install bridging clips on any connections which connect the two halves of the punch down terminal block. Bridge clips should only be installed as a method of bypassing equipment.
- c. In order for the SQRG-12 to work properly, the four-wire modular jack must be installed between the TMS CONTROL LINE on the SQRG-12 and the SQRG jack on the TMS-6X or TMS-12A.

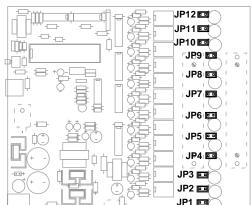
^{*} Earth ground is only required in ground start applications.



1. Wiring Table for the TMS-12A

		1			
Row 1 Ground/Loop Start C.O. Lines	Row 2 TMS-12A Pin, Color	Row 3 SQRG-12 Pin, Color	Row 4 Open	Row 5 SQRG-12 Pin, Color	Row 6 Ground/Loop Start Trunk Inputs
1T	26, W/BL	26, W/BL		38, BK/G	1T
1R	1,BL/W	1,BL/W		13, G/BK	1R
2T	27, W/O	27, W/O		39, BK/BN	2T
2R	2, O/W	2, O/W		14, BN/BK	2R
3T	28, W/G	28, W/G		40, BK/S	3T
3R	3, G/W	3, G/W		15, S/BK	3R
4T	29, W/BN	29, W/BN		41, Y/BL	4T
4R	4, BN/W	4, BN/W		16, BL/Y	4R
5T	30, W/S	30, W/S		42, Y/O	5T
5R	5, S/W	5, S/W		17, O/Y	5R
6T	31, R/BL	31, R/BL		43, Y/G	6T
6R	6, BL/R	6, BL/R		18, G/Y	6R
7T	32, R/O	32, R/O		44, Y/BN	7T
7R	7, O/R	7, O/R		19, BN/Y	7R
8T	33, R/G	33, R/G		45, Y/S	8T
8R	8, G/R	8, G/R		20, S/Y	8R
9T	34, R/BN	34, R/BN		46, V/BL	9T
9R	9, BN/R	9, BN/R		21, BL/V	9R
10T	35, R/S	35, R/S		47, V/O	10T
10R	10, S/R	10, S/R		22, O/V	10R
11T	36, BK/BL	36, BK/BL		48, V/G	11T
11R	11, BL/BK	11, BL/BK		23, G/V	11R
12T	37, BK/O	37, BK/O		49, V/BN	12T
12R	12, O/BK	12, O/BK		24, BN/V	12R
*Earth Ground	44, Y/BN	50, V/S			

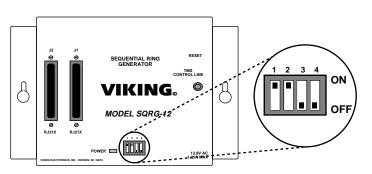
^{*} Earth Ground is only required in ground start or "mast/slave" applications.



2. Notes

- a. If the PABX does not recognize lines on the TMS-12A as busy and call crashing is observed, set up those lines as "incoming only trunks" on the PABX. If those lines must be used for inbound and outbound calls, set DIP switch 3 to on and switch 2 to off, on the TMS-12A.
- b. Do not install bridging clips on any connections which connect the two halves of the punch down terminal block. Bridge clips should only be installed as a method of bypassing equipment.
- c. In order for the SQRG-12 to work properly, the four-wire modular jack must be installed between the TMS CONTROL LINE on the SQRG-12 and the SQRG jack on the TMS-12A.

Programming



Switch	Position	Description
1	ON	Receive line status data from the TMS-6X
	OFF	Receive line status data from the TMS-12A
2	ON	Ring cadence: 1 sec on, 3 sec off
	OFF	Ring cadence: 2 sec on, 4 sec off
3	ON	Unused
	OFF	Unused (Leave in OFF position)
4	ON	Unused
	OFF	Unused (Leave in OFF position)

Operation

The **SQRG-12** is a sequential ring generator option for use with the **TMS-6X** and **TMS-12A**. The **SQRG-12** will re-ring lines for the KSU/PABX based on line status information from the **TMS-6X** or **TMS-12A**.

The **SQRG-12** is designed for applications where more than one person answers incoming calls, or in locations where the **TMS-6X** or **TMS-12A** front panel display is not visible. The **SQRG-12** eliminates confusion about which line to answer next by only ringing the oldest call to the key system or PABX.

In some applications, it is desirable to have the **SQRG-12** re-ring all calls that are ringing or holding within the call sequencer. This is required in many PABX applications and some key system applications to prevent call crashing (glare) problems when the C.O. lines connected to the **TMS-6X** or **TMS-12A** are also used for outgoing calls by the PABX or KSU. The **SQRG-12** is capable of this mode of operation when **DIP** switch **3** on the **TMS-12A** is in the on position, or the **TMS-6X** has special software "**TMS-PRAL**" installed.

A. SQRG-12 Operation when Ringing Calls in Sequence

When the SQRG-12 is used with loop start C.O. lines, and you want the calls to ring through to the telephones in sequence (one at a time), use J2 to block C.O. ringing from passing to the PABX or KSU. As a call rings in, the TMS-6X or TMS-12A detects the ringing, and tells the SQRG-12 to ring that line through to the PABX or KSU (only if this line is the oldest call). If a live operator does not answer, the TMS-6X or TMS-12A will answer the call, play the message and put the caller on hold, while continuously commanding the SQRG-12 to re-ring that line into your system. As new calls ring in on other lines, the SQRG-12 blocks these calls from ringing through to the PABX or KSU until they have become the oldest call. Once an operator answers the oldest ringing call, the TMS-6X or TMS-12A will begin ringing the next oldest call through to the PABX or KSU. This process of ringing calls through one at a time will continue until the operators have answered all holding or ringing calls.

B. SQRG-12 Operation when Ringing All Calls

When the **SQRG-12** is used with either loop or ground start C.O. lines, and you want all holding or ringing calls rerang through to the telephones, use **J1** to pass tip ground (for ground start trunks), and ringing through to the PABX or KSU. Note that the internal jumpers **J1** through **J12** must be removed any time you use the **J1** jack. The **J1** jack is a straight through jack, so in the idle state, the C.O. tip and ring are passed straight through to the PABX or KSU. When the **TMS-6X** or **TMS-12A** recognize that there is an incoming call on a line, the call sequencer commands the **SQRG-12** to re-ring that line along with any other lines that are ringing or holding. While the **SQRG-12** is ringing a given line position of the PABX or KSU, the **SQRG-12** constantly maintains a grounded tip condition (for ground start lines), supplies -48V DC battery on the ring side of the phone line and superimposes its high voltage ringing on this -48V DC. This is purposely part of the **SQRG-12** design to give the ground trunk card in the PABX or KSU the impression that the line is a ringing line that has never been answered, even though the **TMS-6X** or **TMS-12A** may be holding a call on that line. All calls will continue to ring through to the PABX or KSU until the call is answered by a live operator, or the caller hangs up (abandons).

Although the **J1** jack was designed for ground start C.O. lines, it also works properly for loop start C.O. lines when using the "ring all lines" mode.

Product Support Line...(715) 386-8666

Fax Back Line...(715) 386-4345

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