

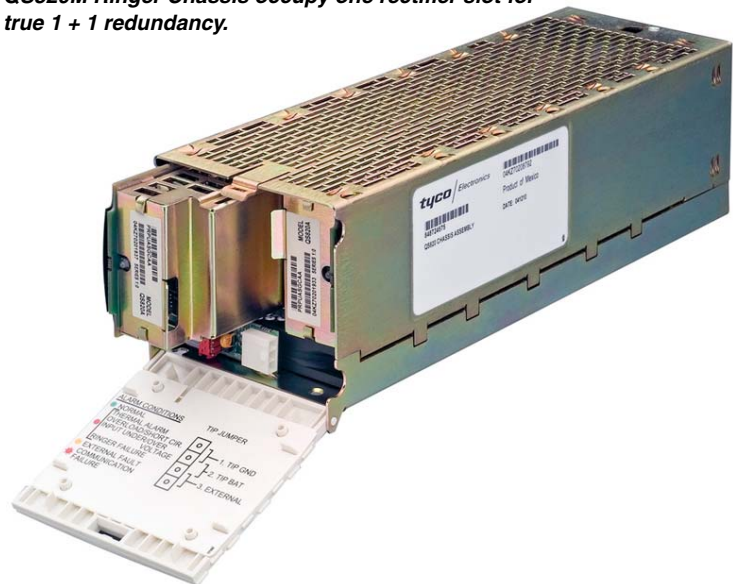
QS820A Ringer

100 VA Module for the CPS6000 System

Features

- True 1 + 1 redundancy
- Ringer Chassis holds two QS820A plug-in ringer modules
- Ringer Chassis occupies one rectifier slot
- Flexible Configuration:
 - via controller
 - Ring Voltage
 - Ring Frequency
 - Ring dc Offset
 - via chassis jumper or external connection
 - Ringing Signaling Type
- DSP control

The CPS6000 offers ringer generation with the addition of the QS820A 100 VA Ringer Module for the CPS6000 System. Two QS820A Ringer Modules housed in the QS820M Ringer Chassis occupy one rectifier slot for true 1 + 1 redundancy.



The QS820A Ringer Module has a 100 VA ringing output on ground or battery side of the phone line (Tip or Ring). The module also offers:

- DC reference connection in Ringer Chassis or customer wiring
- Ring output dc offset tracks dc power input voltage

- Provides 3 ring signaling types (See Figure 1).
 - Battery-Backed Ringing
 - Ground-Backed Ringing
 - Ground-Backed Ringing - No dc

The QS820A Ringer is managed by the QS840A and QS841A Controllers used in the CPS6000. They supply alarms, status, information, lamp test, operating parameters configuration, etc. The QS840A controller can monitor four QS820A Ringer Modules and the QS841A controller can monitor 16 QS820A Ringer Modules.

Ordering Information

Item	Description	Comcode
QS820 Ringer Kit	One Chassis and one QS820A Ringer (two ringers needed for redundancy)	108991337
QS820A Ringer	100 VA Ringer Module	108990082
QS820M Ringer Chassis Housing		108991262
Ringer Output Cable Assembly	15 ft	847922101
Ringer Output Cable Assembly	150 ft	CC848804765

QS820M Ringer Chassis

The QS820M Ringer Chassis plugs into a CPS6000 Rectifier Slot (no connection to slot ac connector). It supports two QS820A Ringers in true 1 + 1 redundancy. Within the housing are two fans with vertical airflow. The ringer output connector is at the front of the Ringer Chassis. Space is provided for output cables from additional Ringer Chassis to pass from left to right at the front.

The Ringers are powered by the CPS6000 plant bus and will generate their own bias and output

offset from the plant bus-voltage. The right Ringer position is Primary, the left is Spare. The Ringer in the Spare position is normally in Standby (not Enabled). During normal operation, the Ringer in the Primary position provides ringing power to the output. When the Primary is absent or failed, the Ringer in the Spare position provides ringing power.

QS820S Ringer Shelf

In future development is a ringer only shelf for the CPS6000.

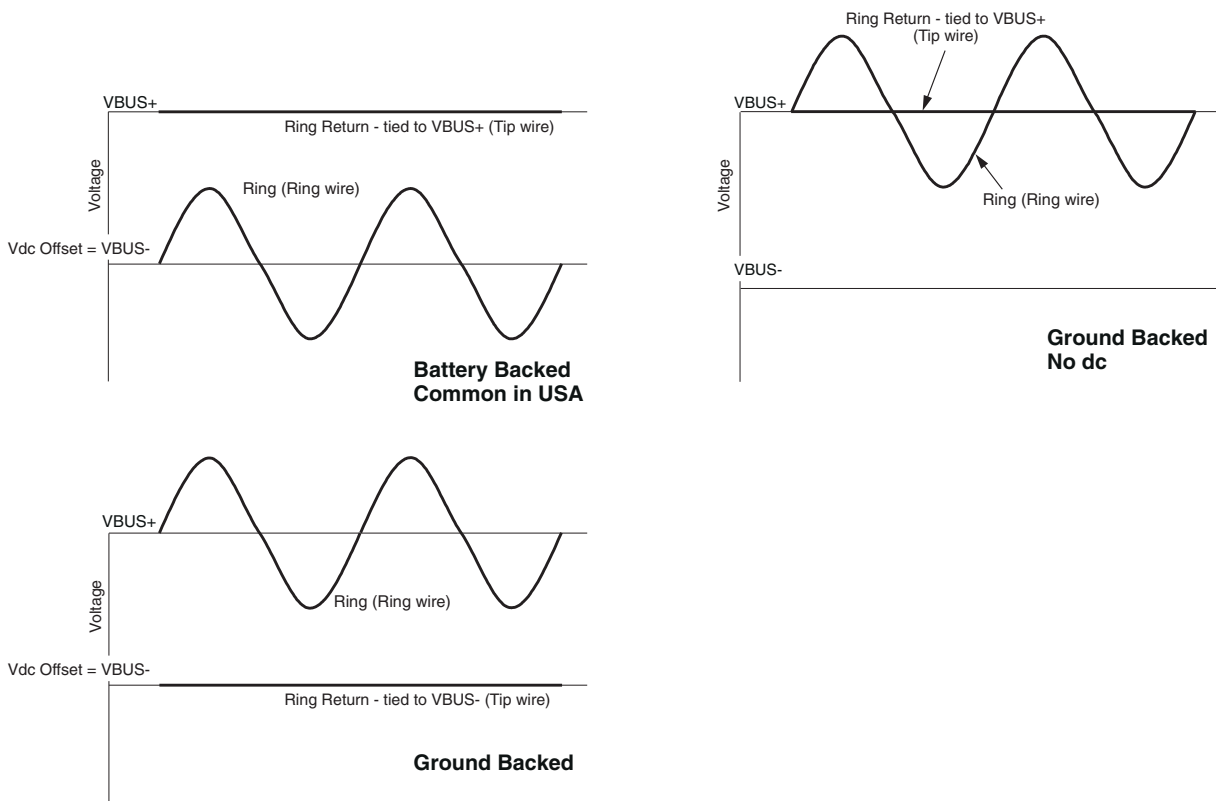


Figure 1: Ring Signaling Types

Specifications

Ringer Input Voltage Specifications

Parameter	Min	Max	Unit	Note
No Damage	0	-60	Vdc	No damage. No intervention to recover.
Reverse Polarity	0	+60	Vdc	No damage.
Operating	-40	-57	Vdc	
Low V Shutdown	-37	-40	Vdc	
Low V Turn-On	-40	-43	Vdc	

Specifications (continued)

Ringer Output Connector - Molex 39-30 type. Use Molex 39-01-4031 on cable.

Pin	Signal	Description
1	Ring	Ringer Chassis output terminal with ac ringing waveform - Ring
2	Ring Rtn	Ringer Chassis output terminal without ac ringing waveform - Tip
3	Gnd	Chassis ground (not VBUS+)

Ringer Output Specifications

The ringer automatically sets the polarity of Vdc offset based on the external connection of RING_RTN to VBUS+ or VBUS-.

Parameter	Min	Max	Unit	Note
Output Voltage*, Vac*	65	100	Vrms	ac component only*
Output Voltage Tolerance, Vac ¹	±5		Vrms	
Set Point Resolution	1		Vac	
Factory Default, Vac*	100		Vrms	
Vdc* Offset RING_RTN to VBUS-	+40	+57	Vdc	dc component only*. Tracks input voltage when enabled.
Vdc* Offset Tracking Error	±3		Vdc	Ring dc Offset tracks dc input voltage when enabled via QS840 series controller. Default: Offset enabled.
Vdc* Offset Disabled	0±3		Vdc	Ring dc Offset when disabled via QS840 series controller.
Voltage Total Harmonic Distortion**	--	5%		Voltage THD of ac portion of output
Output Frequency	15	50	Hz	
Output Frequency Tolerance	±1		Hz	Due to all causes over all operating conditions
Output Frequency Set Point Resolution	1		Hz	
Output Frequency Factory Default	20		Hz	
Output VA Limit - Continuous	100	115	VA	Over all conditions of load and overload other than shutdown. $VA = (I_{dc}^2 + I_{ac}^2)^{1/2} * (V_{ac}^2 + V_{dc}^2)^{1/2}$ Vac reduced to meet VA limit
Regulation	--	5%		Line and load combined at any output frequency. Input voltage: Operating min to max. Load: 0 to 100 VA.
Efficiency	67%	--		Typical at nominal input voltage and 75W resistive load. Fan output power included.

* Output voltage and its regulation are specified as separate ac and dc (offset) components. Vac refers only to the ac component. Vdc refers only to the dc component.

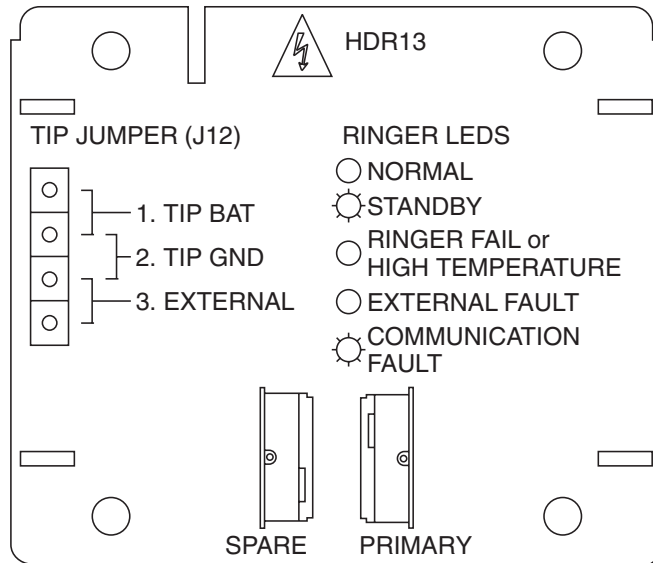
** Crest factor is applicable only to the ac portion of the output voltage waveform. Use peak and rms measurements that do not contain the dc offset voltage.

Specifications (continued)

Tip Jumper (J12) selects the ringing type:

- Battery Backed (TIP GND)
- Ground Backed (TIP BAT)

If in the EXTERNAL position, the external connection of TIP to Battery (-48Vdc) or Ground (0Vdc) is required for the selection.



Mechanical

Parameter	QS820M	QS820A
Height	3.4 in. (86 mm)	2.4 in. (61 mm)
Width	3.2 in. (81 mm)	1.5 in. (38 mm)
Depth	11.0 in. (280 mm)	9.9 in. (252 mm)
Weight	2.15 lb (0.98 kg)	1.15 lb (0.52 kg)