

Transponder for GainMaker® Amplifiers

Description

This full frequency agile transponder is designed to interface with Scientific-Atlanta's GainMaker® System Amplifier and Line Extenders. It is controlled by Scientific-Atlanta's ROSA™ Element Manager (EM) and Transmission Network Control System (TNCS) element management systems.

The transponder monitors the operational parameters of the amplifier station and allows remote control of certain amplifier functions. Communications to and from the transponder are accomplished via the built in forward RF data carrier receiver and reverse RF data carrier transmitter.

The transponder communicates with the ROSA EM and TNCS element management systems via the Phoenix™ RF Modem. The cutting-edge RF technology used in the Phoenix modem allows operation in networks that suffer from a high level of ingress noise in the return path.

The transponder monitors a wide range of operational parameters, including:

- Station temperature
- Station operational mode (AGC or Thermal)
- Amplifier type
- AC and DC power supply voltages

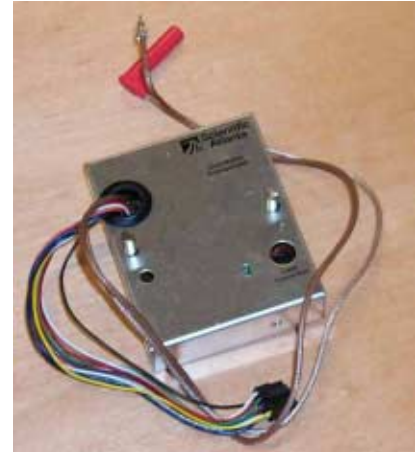
If the status of any monitored parameter is outside of established thresholds an alarm can be activated by the centrally located element management console. All alarm thresholds are remotely adjustable from the console. The transponder also enables remote control of the reverse "On/-6 dB/Off" RF switches (for remote isolation of ingress) and of the power supply.

The GainMaker transponder is packaged in an aluminum housing that mounts in the lid of the amplifier. The input, output, and power cables that interface between the transponder and amplifier are easily routed and plugged into quick connect sockets. A flat-blade screwdriver is the only tool required to mount the transponder. Once installed, LEDs on the transponder indicate; "Power On", "Receiving Data", and / or "Error" condition.

This transponder is easily configured for operation with the use of a Handheld Programmer Terminal. Configuration can be performed either on the bench or in the field, prior to installation.

Features

- "Plug-in" compatibility with the GainMaker amplifiers
- Frequency agile 5 to 65 MHz for reverse path
- Frequency agile 45 to 174 MHz for forward path
- Monitors all critical internal station parameters
- Controls all switches within the node
- Simple and efficient installation
- Wide operating temperature range



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Specifications

Agile Transmitter

Parameter	Specification	Units	Notes
Carrier frequency	5 - 65	MHz	Remotely adjustable
Frequency step size	50	kHz	
Modulation type	FSK	-	
Deviation	± 67	kHz	
Occupied bandwidth	400	kHz	
RF output level	24 to 50	dBmV	Remotely adjustable
Output level step size	2.0	dB	
Level stability	< ±2.0	dB	Over full temperature and frequency range
Frequency stability	± 7.5	kHz	Over full temperature and frequency range
Spurious and harmonics (5-2000 MHz)	> 55	dBc	
Extinction ratio	> 60	dBc	From operational output level

Agile Receiver

Parameter	Specification	Units	Notes
Receive carrier frequency	45-174	MHz	Remotely adjustable
Frequency step size	50	kHz	
RF input level range	-25 to 20	dBmV	
Selectivity at frequency offset of:			Specifies the amount an adjacent carrier's level can exceed the transponder receive carrier's level at the transponder input, without causing interference
200 kHz	+30	dBc	
400 kHz	+40	dBc	
800 kHz	+50	dBc	

Environmental Specifications

Parameter	Specification	Units	Notes
Operating Temperature	-40 to +85	°C	
Humidity	0 to 90	%	Non Condensing

Monitored Parameters

Device	Units	Parameter
Amplifier Temperature	°C / °F	Internal Temperature
Transponder Data Carrier	dBmV	RF Input Level
Station AGC Mode	-	Operational Mode (Auto or Thermal)
Power Supply	V AC	AC Input Voltage
Power Supply	V DC	DC Output Voltage
Tamper Switch	-	Housing Open or Closed
Amplifier Model Indicator	-	High Gain Dual, Low Gain Dual, High Gain Balanced Triple, Unbalanced Triple, or Line Extender

Controllable Parameters

Device	Control Variables
Main Reverse Switch	Normal/-6 dB/Off
Aux 1 Reverse Switch	Normal/-6 dB/Off
Aux 2 Reverse Switch	Normal/-6 dB/Off

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Ordering Information

Description	Part Number
GainMaker Transponder - one required per node	715980
Handheld Programmer Terminal – required to configure the transponder	A91200.10
Programmer Software Download Kit	A91210.10

Phoenix RF Modem	Part Number
Tx (1), Rx (1)	
Phoenix 110/220 V AC EU, Tx (1) and Rx (1)	V9528341
Phoenix 110/220 V AC UK, Tx (1) and Rx (1)	V9528342
Phoenix 110/220 V AC AUS, Tx (1) and Rx (1)	V9528343
Phoenix 110/220 V AC US, Tx (1) and Rx (1)	V9528082
Tx (1), Rx (2)	
Phoenix 110/220 V AC EU, Tx (1) and Rx (2)	V9528344
Phoenix 110/220 V AC UK, Tx (1) and Rx (2)	V9528345
Phoenix 110/220 V AC AUS, Tx (1) and Rx (2)	V9528347
Phoenix 110/220 V AC US, Tx (1) and Rx (2)	V9528346
Tx (1), Rx (4)	
Phoenix 110/220 V AC EU, Tx (1) and Rx (4)	V9528348
Phoenix 110/220 V AC UK, Tx (1) and Rx (4)	V9528349
Phoenix 110/220 V AC AUS, Tx (1) and Rx (4)	V9528351
Phoenix 110/220 V AC US, Tx (1) and Rx (4)	V9528350
Tx (1), Rx (8)	
Phoenix -48 V DC, Combicon, Tx (1) and Rx (8)	V9523551
Phoenix -48 V DC, Mate-N-Lock, Tx (1) and Rx (8)	4002043
Phoenix 110/220 V AC EU, Tx (1) and Rx (8)	V9523552
Phoenix 110/220 V AC UK, Tx (1) and Rx (8)	V9528338
Phoenix 110/220 V AC AUS, Tx (1) and Rx (8)	V9528340
Phoenix 110/220 V AC US, Tx (1) and Rx (8)	V9528339
Phoenix Options	Part Number
Phoenix Receiver Kit (one receiver)	4002230

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Ordering Information, continued

ROSA EM – North and Latin America	Part Number
ROSA EM – AC Version	
ROSA EM, 100 - 240 V AC US, DCL Class 1 (0-10 devices)	4005326
ROSA EM, 100 - 240 V AC US, DCL Class 2 (0-25 devices)	4005370
ROSA EM, 100 - 240 V AC US, DCL Class 3 (0-50 devices)	4005371
ROSA EM, 100 - 240 V AC US, DCL Class 4 (0-100 devices)	4005372
ROSA EM, 100 - 240 V AC US, DCL Class 5 (0-250 devices)	4005373
ROSA EM, 100 - 240 V AC US, DCL Class 6 (0-500 devices)	4005374
ROSA EM, 100 - 240 V AC US, DCL Class 7 (0-750 devices)	4005375
ROSA EM, 100 - 240 V AC US, DCL Class 8 (0-1000 devices)	4005376
ROSA EM – DC Version	
ROSA EM, -48 V DC US, DCL Class 1 (0-10 devices)	4006322
ROSA EM, -48 V DC US, DCL Class 2 (0-25 devices)	4007210
ROSA EM, -48 V DC US, DCL Class 3 (0-50 devices)	4007211
ROSA EM, -48 V DC US, DCL Class 4 (0-100 devices)	4007212
ROSA EM, -48 V DC US, DCL Class 5 (0-250 devices)	4007213
ROSA EM, -48 V DC US, DCL Class 6 (0-500 devices)	4007214
ROSA EM, -48 V DC US, DCL Class 7 (0-750 devices)	4007215
ROSA EM, -48 V DC US, DCL Class 8 (0-1000 devices)	4007216

ROSA EM – EMEA (Europe, Middle-East, Asia)	Part Number
ROSA EM Headend	
ROSA EM Headend, 100 – 240 V AC EU DCL Class 5 (0-250 headend devices)	4005317
ROSA EM Headend, 100 – 240 V AC UK DCL Class 5 (0-250 headend devices)	4005320
ROSA EM Headend, 100 – 240 V AC AUS DCL Class 5 (0-250 headend devices)	4005323
ROSA EM Headend, -48 V DC DCL Class 5 (0-250 headend devices)	4007217
ROSA EM Hub & HFC	
ROSA EM Hub & HFC, 100 – 240 V AC EU DCL Class 6 (0-500 Hub & HFC network devices)	4005318
ROSA EM Hub & HFC, 100 – 240 V AC UK DCL Class 6 (0-500 Hub & HFC network devices)	4005321
ROSA EM Hub & HFC, 100 – 240 V AC AUS DCL Class 6 (0-500 Hub & HFC network devices)	4005324
ROSA EM Hub & HFC, -48 V DC DCL Class 6 (0-500 hub & HFC network devices)	4007218
ROSA EM Transmitter sites	
ROSA EM Tx Site, 100 – 240 V AC EU DCL Class 1 (0-10 devices in transmitter sites)	4005319
ROSA EM Tx Site, 100 – 240 V AC UK DCL Class 1 (0-10 devices in transmitter sites)	4005322
ROSA EM Tx Site, 100 – 240 V AC AUS DCL Class 1 (0-10 devices in transmitter sites)	4005325
ROSA EM Tx Site, -48 V DC DCL Class 1 (0-10 devices in transmitter sites)	4007219

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Ordering Information, continued

ROSA EM Upgrades	Part Number
ROSA EM Device Count License (DCL) Upgrade	4005377
Class Info DCL Class 1 : 0-10 devices DCL Class 2 : 0-25 devices DCL Class 3 : 0-50 devices DCL Class 4 : 0-100 devices DCL Class 5 : 0-250 devices DCL Class 6 : 0-500 devices DCL Class 7 : 0-750 devices DCL Class 8 : 0-1000 devices	

ROSA EM Options	Part Number
ROSA EM external temperature sensor, maximum 2 per ROSA EM (cable length 15 m / 50 ft)	4005382



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