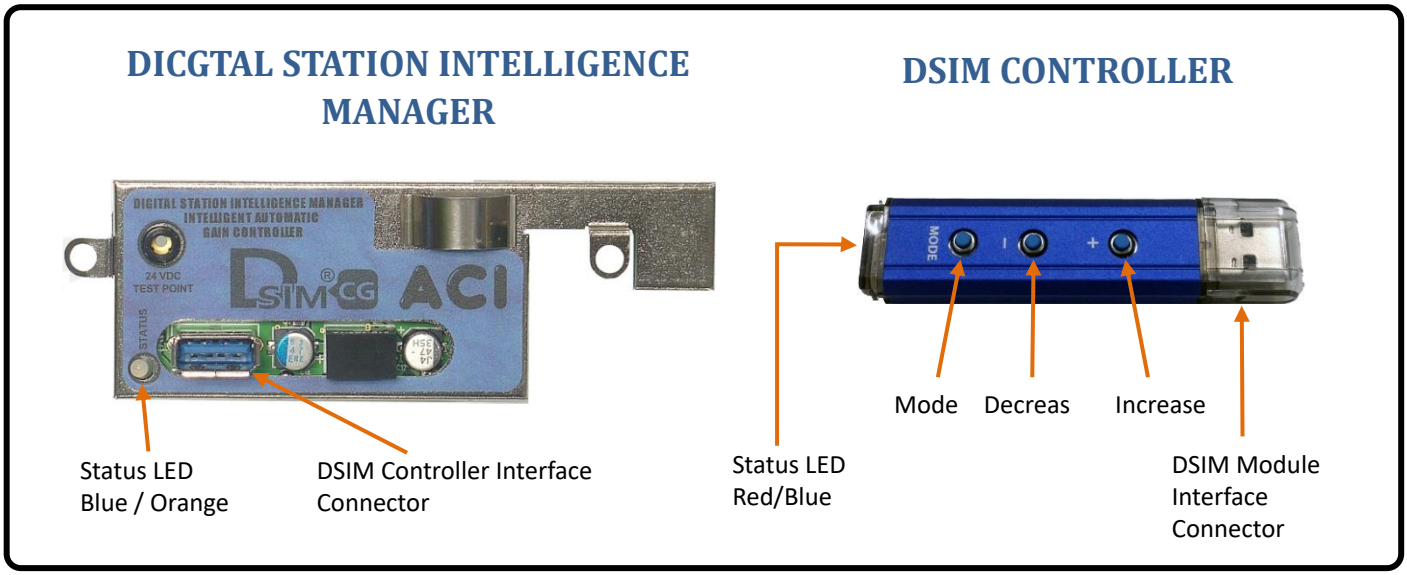
DSIM-CG
Installation Guide
Revision D

Instructions for Dual Pilot AGC Operation

1. Remove the RF module cover. If needed remove the 3 jumpers so the DSIM can be installed. There is no need to adjust the slope or gain POTs, these will be controlled by the DSIM after it is installed. Install the DSIM-CG AGC module into the amplifier. Then re-install the RF module faceplate.
2. Set the input levels to outside plant specifications with the input pad.
3. Plug the controller into the DSIM-CG.
4. The controller LED should be solid blue, indicating MGC-Gain Control Mode. If it is not solid blue press the mode button several times until it is solid blue.
    a. Use the “+” and '-' button to set the output level at 750 MHz, or the highest frequency to the correct output level.
5. Press the mode button once to go to manual slope control mode. In this mode the controller LED flashes purple every half second. Use this mode to set the amplifier low frequency level using the + and minus buttons again. The level at 750MHz shouldn't change more than 1dB. If it does, cycle back to manual gain control mode, by pressing the mode button 3 times, to readjust the gain.
6. From manual-slope control mode press the mode button once to start the align process.
    a. The align process takes 30 to 40 seconds.
    b. When done, the controller LED will flash blue every half second. This indicates that the DSIM is in AGC mode and the setup is complete.
7. Remove the controller from the cable and then the cable from the DSIM.

Table of Contents

2. DSIM-CG AGC Module & DSIM Controller Overview



The Digital Station Intelligence Manager (DSIM) product line is the next generation of automatic gain control modules that provides the outside plant maintenance team with station diagnostic tools that are unprecedented in the industry. The DSIM-CG AGC module is agile that allows the program settings to be modified at any time to change the pilot channel number and type from analog to digital or to change the operational mode into the AGC or manual modes of operation. Having this flexibility to reprogram the DSIM-CG modules is a huge cost savings when doing system pilot channel modifications over the fixed AGC since only the program settings need to be changed instead of having to change out the entire AGC fixed module.

The DSIM-CG module is programmed to operate as a dual pilot AGC. In the AGC mode the primary pilot can be programmed to either analog or digital pilot signal from channels 52 to 142. The secondary pilot can be ether analog or digital from channels 2 to 25. In AGC mode the DSIM-CG remembers the output control values for operational temperatures, so if one of the pilots channels are lost the DSIM-CG recalls what the control values are for the current temperature. The DSIM-CG will operate on memory until both pilot channels have been restored. The DSIM-CG incorporates a bi-colored blue and orange LED that indicates the different operational modes and settings of the DSIM-CG during setup and operation.

The DSIM controller is used to set the DSIM-CG module's pilot channel and to change into the different operational modes during the amplifier setup. The bi-colored blue and red LED indicator's blinking patterns will denote the current optional mode setting.

The DSIM-CG modules has a default primary pilot channel 88 digital (609.00 MHz) and secondary pilot channel 3 digital (63.00 MHz). The DSIM controller is used to set the DSIM-CG modules to the customer selected pilot channel. In the setup of the DSIM-CG module the pilot channels that are programmed into the controller are downloaded into the memory of the DSIM-CG module. The pilot channel settings in the DSIM-CG module can be changed in the future by simply using a controller programmed with the new desired pilot channels.

3. DSIM Mode Definitions

Operation Mode	Definition
MGC- Gain Control Mode	Gain Control Mode is for manually setting the inter-stage gain.
MGC- Slope Control Mode	Slope Control Mode is for manually setting the inter-stage slope.
AGC	In Automatic Gain Control (AGC) mode will make gain adjustments to the station based on the level changes that occur on the pilots channel.
TGC	Direct Thermal Gain Control (TGC) is not active for the DSIM-CG. The DSIM-CG does have active thermal fall back, in case one or both of the pilot are lost.

4. DSIM Controller Operation Instruction Guidelines

Switch	Function	Description
+	Increase	In MGC Gain Mode, Click to increase the inter-stage RF level.
		MGC - Slope Mode, Click to increase inter-stage slope
		In AGC Mode, no function
		In TGC Mode, Click to increase cable length value
-	Decrease	In MGC Mode, Click to decrease the inter-stage RF level
		In MGC Slope Mode, Click to decrease the inter-stage slope.
		In AGC Mode, no function
		In TGC Mode, Click to decrease cable length value
Mode	Mode Change	In MGC mode, Click to go to Align Mode to load controller channel setting, DSIM module will then automatically switch to AGC mode
		In AGC Mode, Click to return to TGC Mode
		In TGC Mode, Click to go to MGC Mode

5. DSIM Controller Status LED Essentials

LED Blinking Pattern	Indications
Quick Blue / Red Blinks	DSIM controller to module syncing process - Occurs when controller is installed into the DSIM module.
	Aligning process: in progress
Steady on Blue	In MGC Gain Control Mode
Series of Purple Blinks	In MGC Slope Control Mode
Series of Blue Blinks	In AGC Mode
Steady on Purple	In TGC Mode

6. DSIM-CG Module Status LED Essentials

Operation Blinking Patterns for DSIM-CG Module

LED Blinking Pattern	Indications
Steady Repeating Blue Dashes	MGC - Gain Control & Slope Control
Series of Blue Blinks	Pilot Channel Number - See tables in section 10 at the end of the guide for blinking sequences
Single Blue Long Dash Between Series of Blue Blinks	IRC Analog channel is set
2 Blue Long Dashes Between Series of Blue Blinks	Digital channel is set
3 Blue Long Dashes Between Series of Blue Blinks	TGC Mode - The default cable length setting for TGC mode is 27 dB of cable in front of the amplifier
Quick Blue / Orange Blinks	Pilot paste in progress - Wait or Pilot channel not found or lost

LED Fault Conditions Blinking Patterns

LED Blinking Pattern	Indications
Steady on Pink	24 volt input into DSIM-CG module is out of the operational range of 21.5 to 26.5 VDC. If this occurs, check for correct AC voltage input to the amplifier and for correct output DC voltage of internal power supply to the RF module
Steady Repeating Orange Blinks	Temperature in DSIM-CG module is too high / low (above 221ºF/105ºC or below -40ºF/-40ºC)
Quick Blue / Orange Blinks	Pilot Lost; DSIM-CG automatically switches to Thermal (TGC) mode until Pilot channel is restored

Note: The DSIM-CG LED blinks after the pilot channel count will be orange during programming and blue when in operation.

7. LED Secondary Pilot Channel Frequancies

Channel	IRC	DIGITAL	Channel	IRC	DIGITAL
	MHz	MHz		MHz	MHz
2	55.25	57.00	28	247.25	249.00
3	61.25	63.00	29	253.25	255.00
4	67.25	69.00	30	259.25	261.00
7	175.25	177.00	31	265.25	267.00
8	181.25	183.00	32	271.25	273.00
9	187.25	189.00	33	277.25	279.00
10	193.25	195.00	34	283.25	285.00
11	199.25	201.00	35	289.25	291.00
12	205.25	207.00	36	295.25	297.00
13	211.25	213.00	37	301.25	303.00
14	121.25	123.00	38	307.25	309.00
15	127.25	129.00	39	313.25	315.00
16	133.25	135.00	40	319.25	321.00
17	139.25	141.00	41	325.25	327.00
18	145.25	147.00	42	331.25	333.00
19	151.25	153.00	43	337.25	339.00
20	157.25	159.00	44	343.25	345.00
21	163.25	165.00	45	349.25	351.00
22	169.25	171.00	46	355.25	357.00
23	217.25	219.00	47	361.25	363.00
24	223.25	225.00	48	367.25	369.00
25	229.25	231.00	49	373.25	375.00
26	235.25	237.00	50	379.25	381.00
27	241.25	243.00	51	385.25	387.00

8. LED Primary Pilot Channel Blink Series Overview

Channel	IRC	DIGITAL	Set 1	Set 2	Set 3	Set 4
	MHz	MHz	Blue	Blue	Blue	Blue-Operation Orange-Programming
52	391.25	393.00	5-Dits	2-Dits		1 IRC / 2 DIGITAL Long dash
53	397.25	399.00	5-Dits	3-Dits		
54	403.25	405.00	5-Dits	4-Dits		
55	409.25	411.00	5-Dits	5-Dits	–	
56	415.25	417.00	5-Dits	6-Dits	–	
57	421.25	423.00	5-Dits	7-Dits	–	
58	427.25	429.00	5-Dits	8-Dits	–	
59	433.25	435.00	5-Dits	9-Dits	–	
60	439.25	441.00	6-Dits	1-Dash	–	
61	445.25	447.00	6-Dits	1-Dits	–	
62	451.25	453.00	6-Dits	2-Dits	–	
63	457.25	459.00	6-Dits	3-Dits	–	
64	463.25	465.00	6-Dits	4-Dits	–	
65	469.25	471.00	6-Dits	5-Dits	–	
66	475.25	477.00	6-Dits	6-Dits	–	
67	481.25	483.00	6-Dits	7-Dits	–	
68	487.25	489.00	6-Dits	8-Dits	–	
69	493.25	495.00	6-Dits	9-Dits	–	
70	499.25	501.00	7-Dits	1-Dash	–	
71	505.25	507.00	7-Dits	1-Dits	–	
72	511.25	513.00	7-Dits	2-Dits	–	
73	517.25	519.00	7-Dits	3-Dits	–	

Channel	IRC	DIGITAL	Set 1	Set 2	Set 3	Set 4
	MHz	MHz	Blue	Blue	Blue	Blue-Operation Orange-Programming
74	523.25	525.00	7-Dits	4-Dits		1 IRC / 2 DIGITAL Long dash
75	529.25	531.00	7-Dits	5-Dits		
76	535.25	537.00	7-Dits	6-Dits	–	
77	541.25	543.00	7-Dits	7-Dits	–	
78	547.25	549.00	7-Dits	8-Dits	–	
79	553.25	555.00	8-Dits	9-Dits	–	
80	559.25	561.00	8-Dits	1-Dash	–	
81	565.25	567.00	8-Dits	1-Dits	–	
82	571.25	573.00	8-Dits	2-Dits	–	
83	577.25	579.00	8-Dits	3-Dits	–	
84	583.25	585.00	8-Dits	4-Dits	–	
85	589.25	591.00	8-Dits	5-Dits	–	
86	595.25	597.00	8-Dits	6-Dits	–	
87	601.25	603.00	8-Dits	7-Dits	–	
88	607.25	609.00	8-Dits	8-Dits	–	
89	613.25	615.00	8-Dits	9-Dits	–	
90	619.25	621.00	9-Dits	1-Dash	–	
91	625.25	627.00	9-Dits	1-Dits	–	
92	631.25	633.00	9-Dits	2-Dits	–	
93	637.25	639.00	9-Dits	3-Dits	–	
94	643.25	645.00	9-Dits	4-Dits	–	
100	649.25	651.00	1-Dits	1-Dash	1-Dash	

Channel	IRC	DIGITAL	Set 1	Set 2	Set 3	Set 4
	MHz	MHz	Blue	Blue	Blue	Blue-Operation Orange-Programming
101	655.25	657.00	1-Dits	1-Dash	1-Dits	1 IRC / 2 DIGITAL Long dash
102	661.25	663.00	1-Dits	1-Dash	2-Dits	
103	667.25	669.00	1-Dits	1-Dash	3-Dits	
104	673.25	675.00	1-Dits	1-Dash	4-Dits	
105	679.25	681.00	1-Dits	1-Dash	5-Dits	
106	685.25	687.00	1-Dits	1-Dash	6-Dits	
107	691.25	693.00	1-Dits	1-Dash	7-Dits	
108	697.25	699.00	1-Dits	1-Dash	8-Dits	
109	703.25	705.00	1-Dits	1-Dash	9-Dits	
110	709.25	711.00	1-Dits	1-Dits	1-Dash	
111	715.25	717.00	1-Dits	1-Dits	1-Dits	
112	721.25	723.00	1-Dits	1-Dits	2-Dits	
113	727.25	729.00	1-Dits	1-Dits	3-Dits	
114	733.25	735.00	1-Dits	1-Dits	4-Dits	
115	739.25	741.00	1-Dits	1-Dits	5-Dits	
116	745.25	747.00	1-Dits	1-Dits	6-Dits	
117	751.25	753.00	1-Dits	1-Dits	7-Dits	
118	757.25	759.00	1-Dits	1-Dits	8-Dits	
119	763.25	765.00	1-Dits	1-Dits	9-Dits	
120	769.25	771.00	1-Dits	2-Dits	1-Dash	
121	775.25	777.00	1-Dits	2-Dits	1-Dits	
122	781.25	783.00	1-Dits	2-Dits	2-Dits	

Channel	IRC	DIGITAL	Set 1	Set 2	Set 3	Set 4
	MHz	MHz	Blue	Blue	Blue	Blue-Operation Orange-Programming
123	787.25	789.00	1-Dits	2-Dits	3-Dits	1 IRC / 2 DIGITAL Long dash
124	793.25	795.00	1-Dits	2-Dits	4-Dits	
125	799.25	801.00	1-Dits	2-Dits	5-Dits	
126	805.25	807.00	1-Dits	2-Dits	6-Dits	
127	811.25	813.00	1-Dits	2-Dits	7-Dits	
128	817.25	819.00	1-Dits	2-Dits	8-Dits	
129	823.25	825.00	1-Dits	2-Dits	9-Dits	
130	829.25	831.00	1-Dits	3-Dits	1-Dash	
131	835.25	837.00	1-Dits	3-Dits	1-Dits	
132	841.25	843.00	1-Dits	3-Dits	2-Dits	
133	847.25	849.00	1-Dits	3-Dits	3-Dits	
134	853.25	855.00	1-Dits	3-Dits	4-Dits	
135	859.25	861.00	1-Dits	3-Dits	5-Dits	
136	865.25	867.00	1-Dits	3-Dits	6-Dits	
137	871.25	873.00	1-Dits	3-Dits	7-Dits	
138	877.25	879.00	1-Dits	3-Dits	8-Dits	
139	883.25	885.00	1-Dits	4-Dits	9-Dits	
140	889.25	891.00	1-Dits	4-Dits	1-Dash	
141	895.25	897.00	1-Dits	4-Dits	1-Dits	
142	901.25	903.00	1-Dits	4-Dits	2-Dits	

ACI Communications, Inc.
23307 66th Avenue South
Kent, Washington 98032

Tel: (253) 854-9802
Fax: (253) 813-1100
Toll Free: (800) 336-3526
www.acicomms.com

ACI Communications, Inc.
23307 66th Avenue South
Kent, WA 98032

Rev D 04-08-2021 Printed in U.S.A.