TELEDYNE
PARADISE DATACOM
A Teledyne Technologies Company

RCP Controllers
Redundant/Phase Combined System Controller

CONTROLLER CONFIGURED FOR 1:1 REDUNDANT SYSTEM

CONTROLLER CONFIGURED FOR 1:2 PHASE COMBINED SYSTEM

Description:

The Teledyne Paradise Datacom family of Redundant System Controllers is used to monitor and control amplifiers configured in 1:1 and 1:2 redundant and phase combined systems.

The controller features a front panel color touchscreen and intuitive menu structure. The controller can be configured for use with the following system configurations:

- 1:1 Redundant System (2 HPAs; 1 switch)
- 1:2 Redundant System (3 HPAs; 2 switches)
- 1:1 Phase Combined System (2 HPAs; 2 switches)
- 1:2 Phase Combined System (3 HPAs; 2 switches)
- Maintenance Switch Controller (1 HPA; 1 switch)

The controller can be used in LNA, LNB, and SSPA systems as well as frequency converter systems.

Completely redundant power supplies are incorporated with universal input and power factor correction. System control is available through the front panel (local mode), or through the rear panel parallel I/O remote, or serial I/O remote modes.

The use of flash memory allows easy field programmable firmware updating.

FEATURES

- Menu Driven display for user friendly monitor and control
- Front Panel Touchscreen
- Parallel I/O; Form C Contact Closure Outputs & Opto-Isolated Inputs
- 1 Rack Unit height to maximize cabinet space
- RS-232/485 Serial Interface for Remote M&C
- Audible alarms
- Removable power supplies
- Field programmable firmware
- Windows®-based remote M&C Software
- Ethernet Port

OPTIONS

- Remote Control Panel
- Adapter cables for compatibility with previous generation systems
- DC Operation

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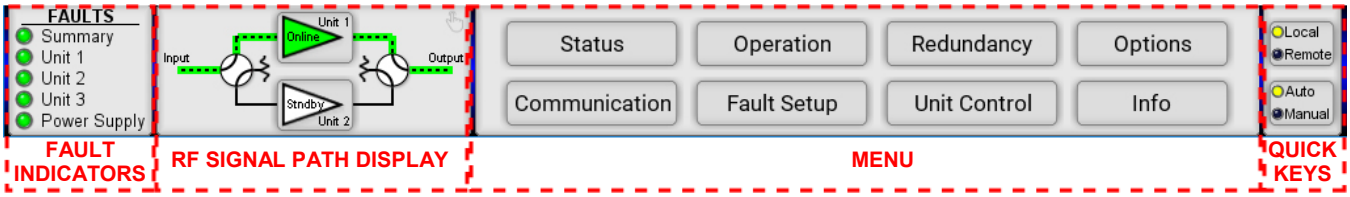
Front Panel Description

All versions of the system controller are available with a front panel touchscreen, from which the user can control the connected amplifier system, and obtain information about the operational status of the connected amplifiers.

There are four main areas on the touchscreen display: Fault Indicators, RF Signal Path Display, Menu and Quick Keys.



General Specifications

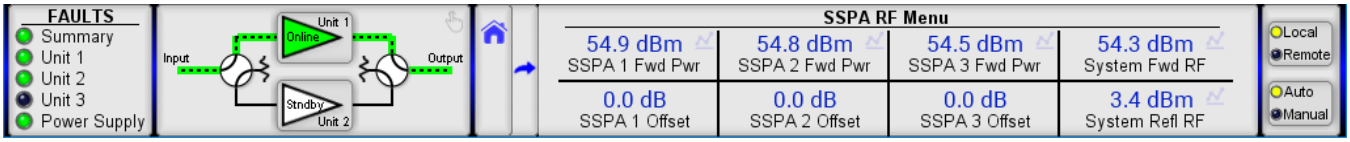
Characteristic	Specification
Configurations	1:1 Redundant System
	1:2 Redundant System
	1:1 Phase Combined System
	1:2 Phase Combined System
	Maintenance Switch Controller
Switch Time	Fault Detection, 20 - 50 msec
	Total Switchover (including mechanical switch) - 100 msec maximum
Switch Drive	26 VDC @ 5 Amps
Alarm Input	Closure to Ground, (Ground=OK / Open=Fault)
Serial Communication	RS232 / RS485 4 wire
Parallel I/O	
Status Outputs	Form C Relay Contacts (10 sets)
Control Inputs	Contact Closure to Ground
AC Input Power	85-265 VAC, 47-63 Hz, 1 A max, > 0.93 power factor
DC Input Power (48 VDC Input Option)	36-72 VDC, Maximum DC Input current @ 48V - 2 Amps
Mechanical	
Dimensions	1.75 in. H x 19.0 in. W x 13.3 in D [1RU] 44.5 mm H x 483 mm W x 338 mm D
Weight	5 lbs. (2.3 kg)
Temperature	0 to 50 °C operating
Relative Humidity	95% non-condensing

Fault Condition Monitoring

The controller's touchscreen display features a comprehensive fault panel, which shows the status of each unit or set of units in the configured system, as well as RCP power supply status and auxiliary fault status.

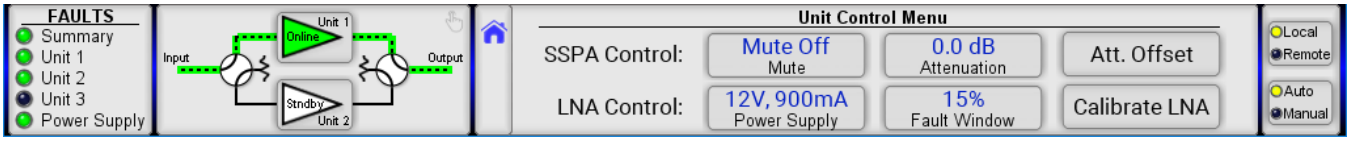
Forward/Reflected Power Monitoring

The controller monitors the forward RF power of each SSPA in the system, as well as the total system forward RF power. If the system includes a reflected power monitor, that value is also displayed.



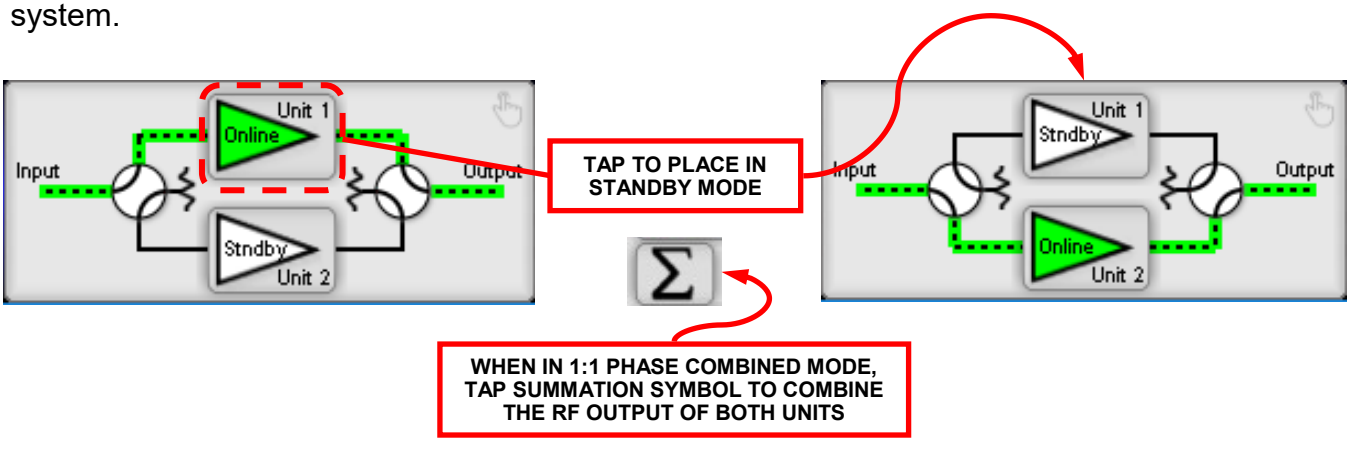
SSPA Mute and Attenuation Control

In addition, mute and attenuation control of the SSPA system can be handled from the controller touchscreen.

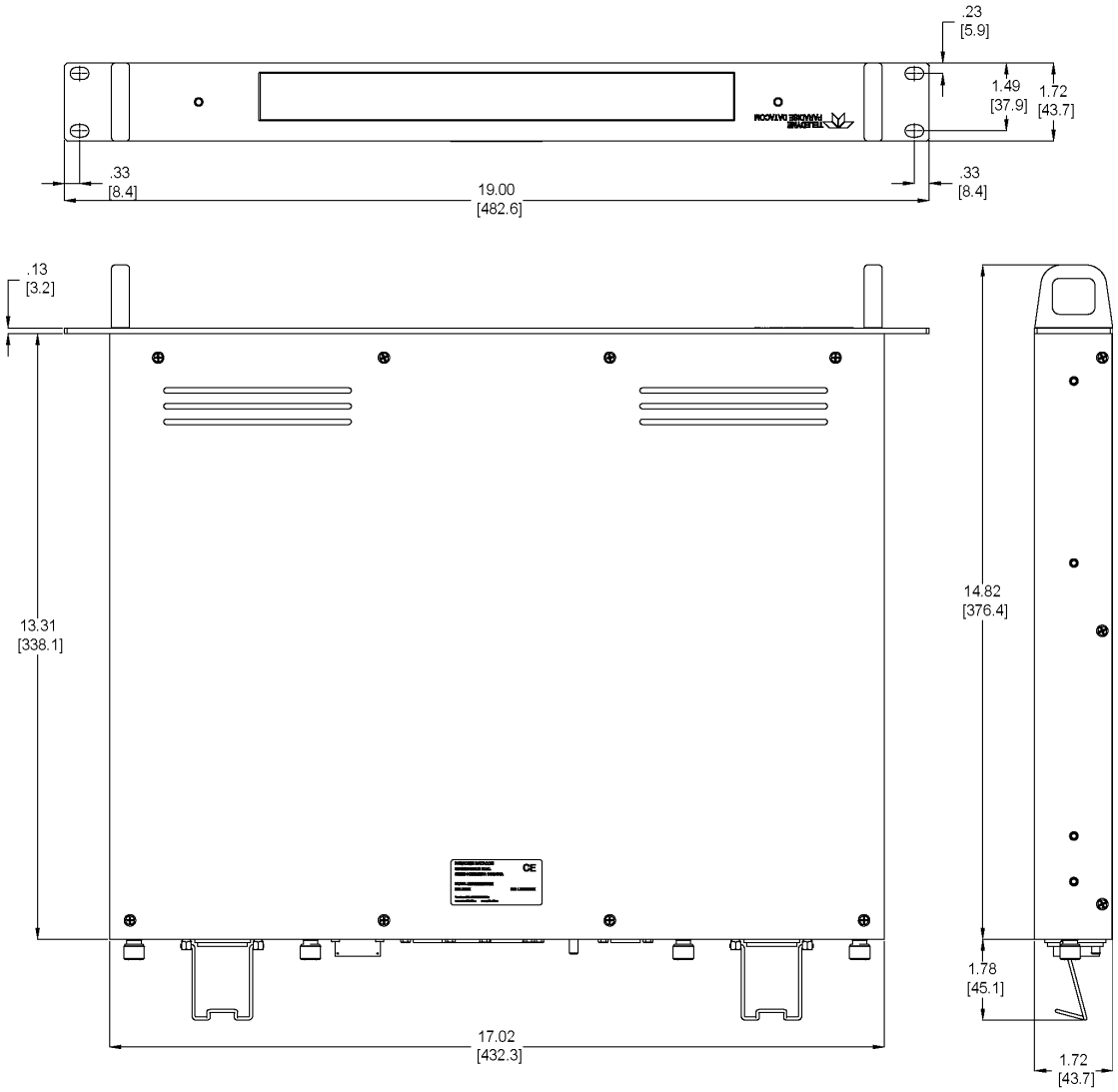


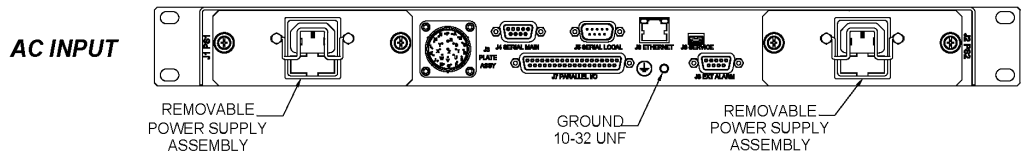
Standby Amplifier Selection

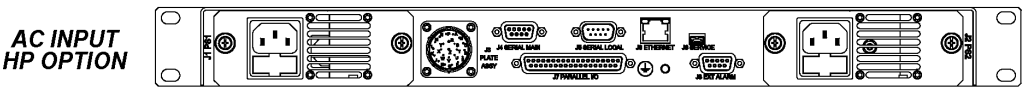
The user can select the standby unit by tapping the Unit # icon in the RF Signal Path Display. The selected unit will be assigned the Standby status in the redundant or phase combined system.

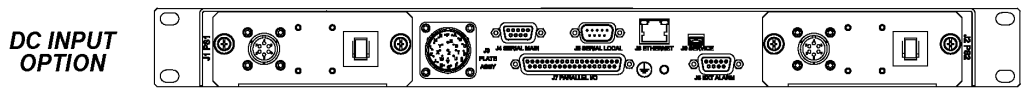


Outline Drawing





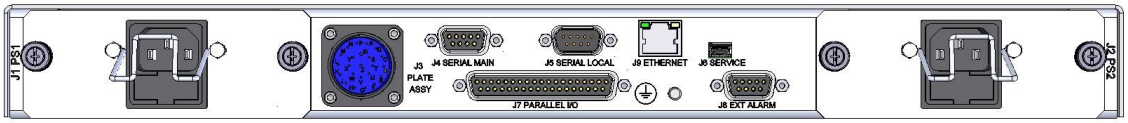




NOTES:

1. DIMENSIONS ARE IN INCHES [mm].

Rear Panel Connectors and Pin Identification

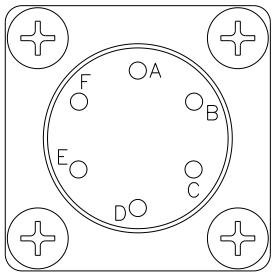


J1, J2 - Power Supply Requirements

ID	Input Voltage Range	Line Frequency	Input Power	Power Factor
J1	85-265 VAC	47-63 Hz	100 W	.93
J2	85-265 VAC	47-63 Hz	100 W	.93
J1, J2	36-72 VDC	Max. DC Input Current @ 48V - 2A		

J1, J2 - DC Input Option Pin Outs

Pin	Function
A	+ 48 VDC
B	+ 48 VDC
C	- 48 VDC
D	- 48 VDC
E	Ground
F	Ground



MS3112E10-6P
Mates to MS3116F10-6S

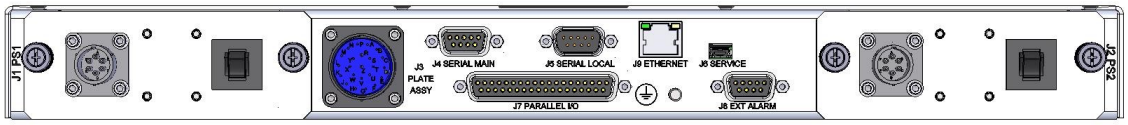
J3 - Switch Connector, MS3112E16-23S

Pin	Function
L	Power Supply #1 +13-17 VDC, 900mA or +24V, 1.5A (-HP models only)
J	Power Supply #2 +13-17 VDC, 900mA or +24V, 1.5A (-HP models only)
G	Power Supply #3 +13-17 VDC, 900mA or +24V, 1.5A (-HP models only)
E,D	Switch Common, +26 VDC, 5A max
W,U	Switch #1 Position 1 (Tx)
P,S	Switch #1 Position 2 (Tx)
F,H	Switch Common, +26 VDC, 5A max
T,V	Switch #2 Position 1 (Rx)
N,R	Switch #2 Position 2 (Rx)
A,B,C	AMP Support GND
K,M	Switch Common, +26 VDC, 5A max

J4 - Serial Port (Main) Pin Out

Pin	Function
1	RS485 TX+
2	RS232 Out or RS485 TX-
3	RS232 In or RS485 RX-
4	RS485 RX+
5	Signal Ground
6	Service Request 1
8	Service Request 2
7	Service Request Common
9	Termination (120 Ohm)

Rear Panel Connectors and Pin Identification, DC Option



J5 - Serial Local Pin-out (For Remote SSPA Control)

Function	Pin	Notes
RS485 RX+	1	
RS485 RX-	2	
RS485 TX-	3	
RS485 TX+	4	
Ground	5	
Termination (120 Ohm)	9	Connect to pin 1 to terminate unit on end of bus

J8 - External Alarm Pin-out

Function	Pin	Notes
External Alarm 1	1	Closure to Ground, 5mA max short circuit current, 5 VDC open circuit voltage
External Alarm 2	2	
External Alarm 3	3	
Ground	4,8,9	
Auxiliary Alarm 1	5	Closure to Ground, 5mA max short circuit current, 5 VDC open circuit voltage
Auxiliary Alarm 2	6	
Auxiliary Alarm 3	7	

J9 - Ethernet Port Pin-out

Pin	Notes
1	TX+
2	TX-
3	RX+
6	RX-
4,5,7,8	GND

Configuration Matrix — System Controllers

				-	1		0	0			

Unit Type
RCP2 - Redundant Controller
FPRC - Fixed Phase Combined Redundant Controller

Redundancy
1 - 1:1 Operation
2 - 1:2 Operation

Options
-48 - +48V DC Input
-HP - High Power Option
[blank] - None

Configuration Matrix — Maintenance Switch

R	C	P	2	-	S	W	I	T	C	H			

Option
-48 - +48V DC Input
[blank] - None

COMMENTS:

J7 - Parallel I/O Connector Pin-out

Identification	Signal	Pin	Function	Notes
Amp 1 Alarm	Output	1	Closed on Fault	Relay Contacts: 30 VDC @ 0.5 A
		20	Common	
		2	Open on Fault	
Amp 2 Alarm	Output	21	Closed on Fault	Relay Contacts: 30 VDC @ 0.5 A
		3	Common	
		22	Open on Fault	
Amp 3 Alarm	Output	4	Closed on Fault	Closed on Phase Combined Mode
		23	Common	
		5	Open on Fault	Open on Phase Combined Mode
Auto/Manual Mode	Output	24	Closed on Manual	
		6	Common	
		25	Closed on Auto	
Local/Remote Mode	Output	7	Closed on Local	
		26	Common	
		8	Closed on Remote	
Switch #1 Position	Output	27	Switch #1, Position #1	
		9	Common	
		28	Switch #1, Position #2	
Switch #2 Position	Output	10	Switch #2, Position #1	
		29	Common	
		11	Switch #2, Position #2	
Power Supply #1 Alarm	Output	30	Closed on Fault	
		12	Common	
		31	Open on Fault	
Power Supply #2 Alarm	Output	13	Closed on Fault	
		32	Common	
		14	Open on Fault	
Priority Setting	Output	33	Closed on Priority 2	
		15	Common	
		34	Closed on Priority 1	
Auxiliary Input	Input	16	Ground to Activate	5mA max current on all inputs
Priority Select	Input	17	Ground to Activate	Toggle Function
Auto/Manual	Input	18	Ground to Activate	Toggle Function
Amp 3 Standby	Input	35	Ground to Activate	
Amp 2 Standby	Input	36	Ground to Activate	
Amp 1 Standby	Input	37	Ground to Activate	
Input Ground	Common	19		(isolated)