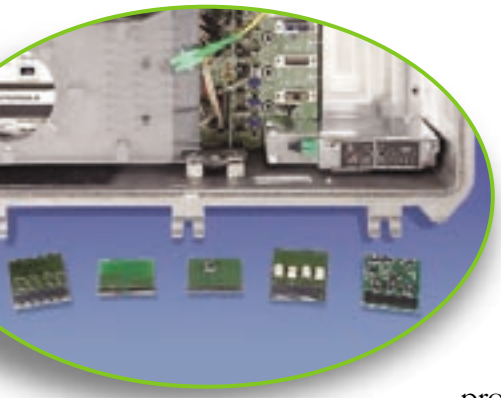
Starline® Scalable Optical Node SG2440

Allows customers to design networks with a truly scalable migration path without an upfront price penalty.

The Starline SG2440 Scalable Optical Node provides the capability for the system operator to independently and incrementally segment downstream and upstream sections of the node without discarding the initial platform investment. The Starline SG2440 provides an ideal solution for a wide range of networks – from traditional fiber-to-feeder to fiber-deep architectures – that must evolve with the implementation of advanced services such as telephony, Video-On-Demand (VOD) and IP data. The Starline SG2440 is a major upgrade of the capabilities of the SG2000, with a new electronics pack, lid motherboard and broadcast receiver.



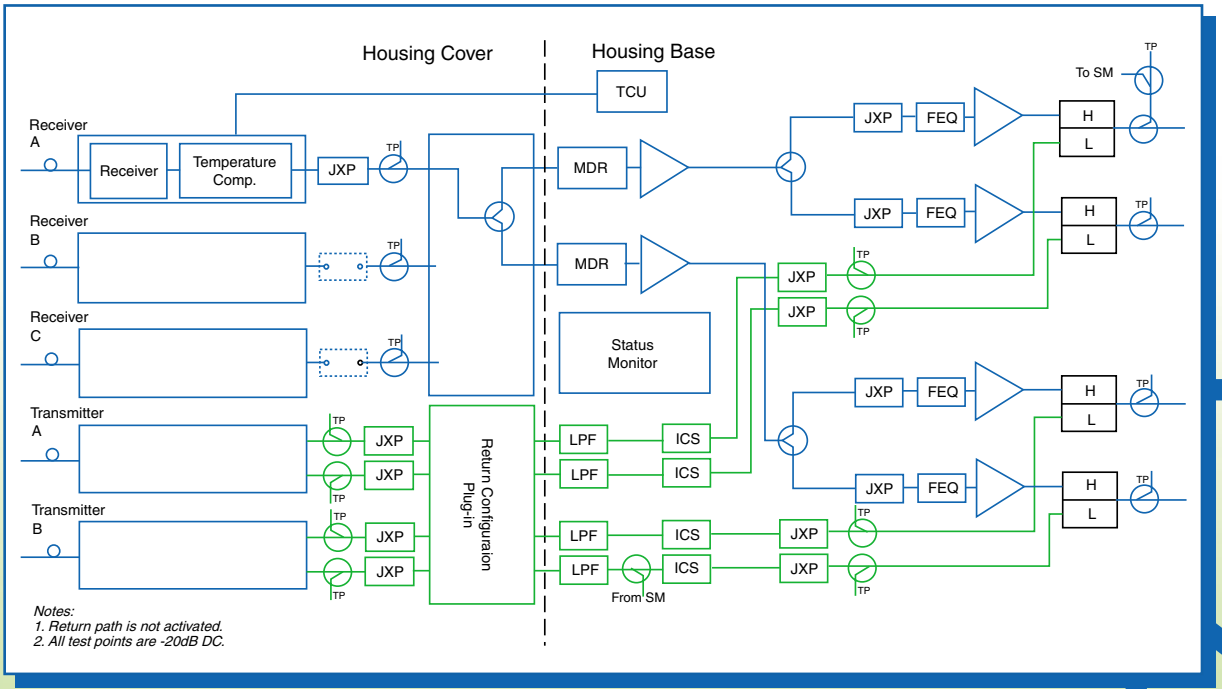
The flexibility of the Starline SG2440's forward path offers the system operator several options in providing targeted services and unique programming to smaller service areas. Splitting the node service area in half is accomplished by adding a second broadcast receiver and replacing the forward configuration plug-in board. The Starline SG2440 complements Motorola's Digital Return technology to achieve greater upstream bandwidth efficiency.

System Level Features

- 750 & 870 MHz forward bandwidth
- Standard Silicon technology 48.5 dBmV @ 870 MHz with -3 dBm optical input power
- New SG2-R temperature-compensating receiver
- Independent upstream and downstream migration
- Digital return technology with TDM multiplexing and multiple wavelength options allowing passive-hub multiplexing
- Return path ingress switching via headend control
- Status monitoring capable of monitoring received optical power, bias current and receiver status
- User-friendly fiber management with room for WDM mux/demux devices
- 60/90 volt powering with two dedicated AC power ports and 15 Amp power passing
- Single, Redundant or Split-Power Factor Corrected (PFC) supplies
- Custom configured for unique system requirements

MOTOROLA
intelligence everywhere™

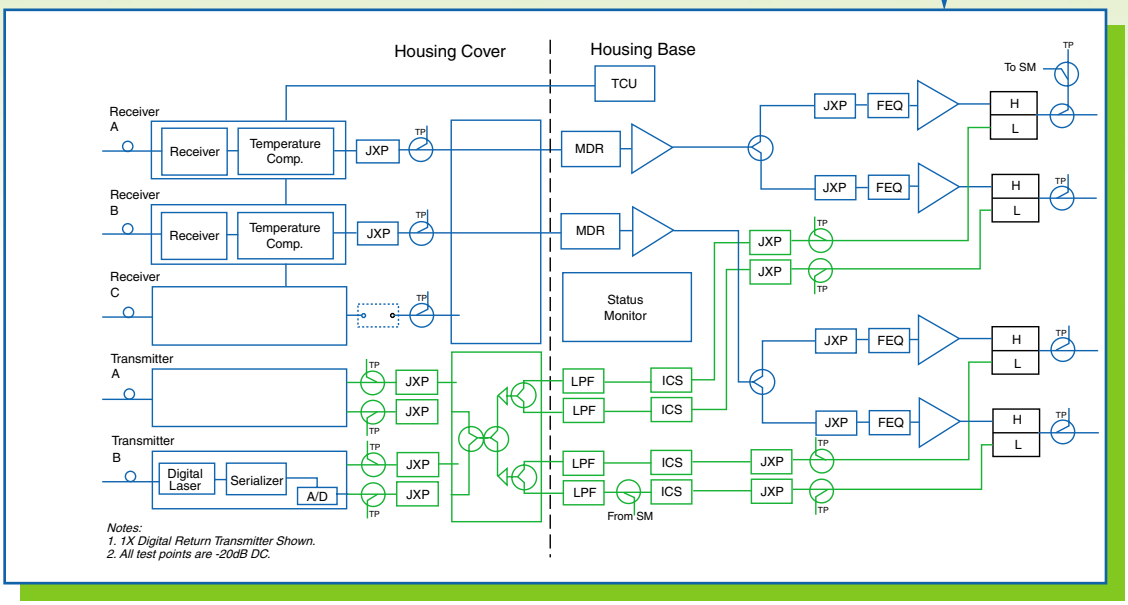
1Bc x 0R



2Bc x 1R

Split Downstream and Add Upstream

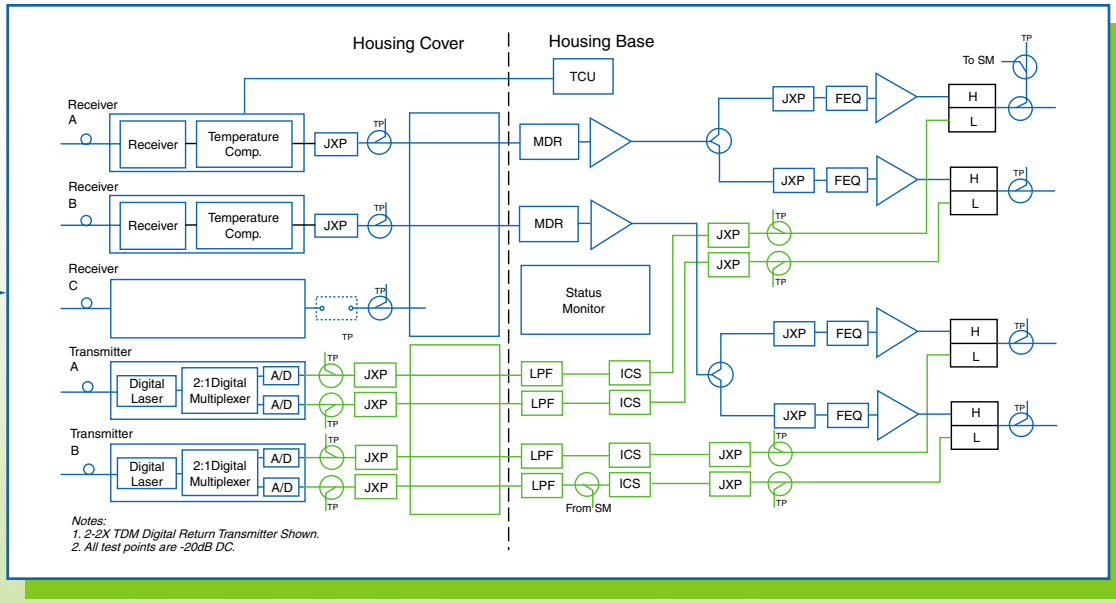
- 1 SG2-R/SC Receiver 481195-001
- 1 Forward Segment Board 480637-005
- 1 SG2-DRT/A 1310 DFB/SC 468691-002
- 1 Return Combiner Board 480637-006



2Bc x 4R

Split Downstream and Completely Segment Upstream

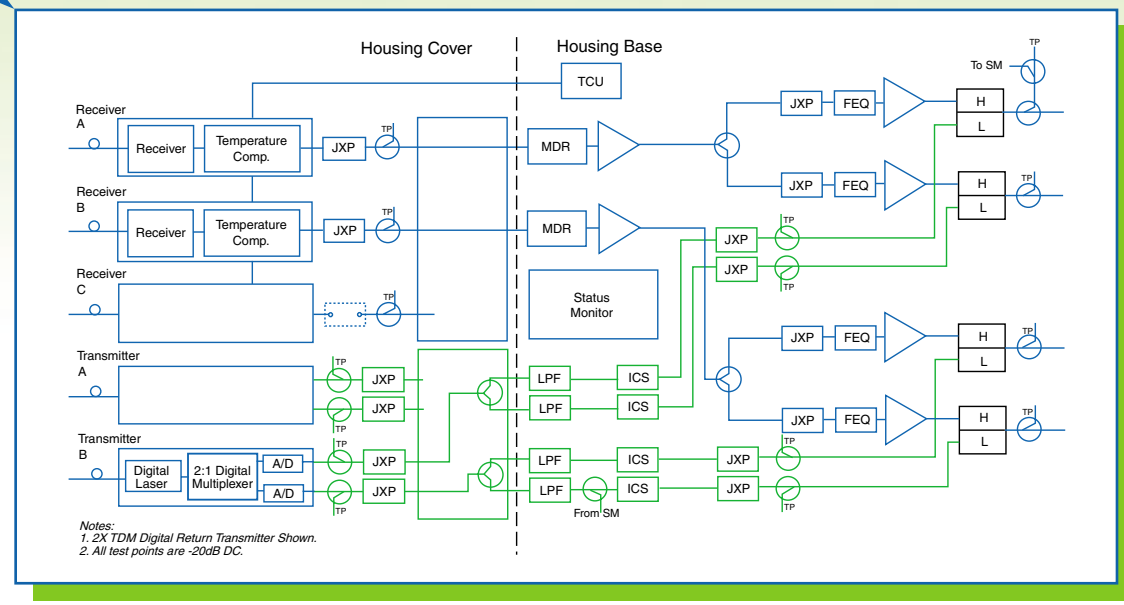
- 1 SG2-R/SC Receiver 481195-001
- 1 Forward Segment Board 480637-005
- 2 DS SG2-DRT-2X-1550-DFB/SC 468552-003
- 1 Return Segment Board 480637-009



2Bc x 2R

Split Downstream and Upstream

- 1 SG2-R/SC Receiver 481195-001
- 1 Forward Segment Board 480637-005
- 1 DS SG2-DRT-2X-1550-DFB/SC 468552-003
- 1 Return Split Board 480637-007



SG2440 CHARACTERISTICS

OPTICAL

Optical Wavelength . . 1310 (+/-20) to 1550 (+/-30) nm

Received Optical Input Power Range . . -3 to +2 dBm

Optical Input Return Loss. . . . . 45 dB Minimum

Receiver Typical Output Level with 0 dBm Receiver Input Power:
77 Channel Load . . . . 25 dBmV

STATION

Output Level. . . . . 48.5 dBmV Minimum

Virtual Output Level at F_{maxfwd} with -3 dBm Optical Power at 1550 nm Applied to Broadcast Receiver Optical Input, 4% OMI per Channel

GENERAL

AC Input Voltage . . . . . 44-90 Vac Clipped Sine or Quasi Square

AC Bypass Current . . . . 15 A

Hum Modulation . . . . . -70 dB @ 15 A Bypass Current

Operating Temperature . . . . . -40° to +60°C (-40° to +140°F)

Housing Dimensions . . 21.6" L x 10.6" W x 11.0" D (54.86 cm x 26.92 cm x 27.94 cm)

Weight. . . . . Min. 36 lbs. – Max. 42 lbs. (16.31 to 19.03 kgs)

RF

Forward Passband Frequency .....47 to 870 MHz
Dependent upon Split

Return Passband, Each Port.....5 to 80 MHz
Dependent upon Split

Flatness .....+/- 0.75 dB F_{minfw} to F_{maxfw}

Return Loss .....16 dB Minimum

Output Slope .....10, 12, 14 & 16 dB
Straight Line Slope

PERFORMANCE

12.5 dB Slope 77 Channel NTSC Plus 300 MHz Compressed Data 6 dB below Analog Channel Level .....870/550/55 MHz
45/46/38.5 dBmV

Composite Triple Beat.....65 dBc Minimum

Composite Second Order.....62 dBc Minimum

Cross Modulation....60 dB Maximum

Carrier to Composite Noise.....50 dB Minimum

SG2440 SCALABLE OPTICAL NODE

KEY 8	FORWARD PATH CONFIGURATION INCLUDING REQUIRED SG2/R RECEIVER(S)	NUMBER OF RECEIVERS
N	None; Available Only when E-Pack Only Option is Selected; No Receiver	0
X	Standard Forward Board; Used with a Single Receiver to Provide 4 Common RF Outputs	1
A	Redundant Standard Forward Board; Used with Two Receivers to Provide 4 Common RF Outputs; Requires Status Monitor or MCB Option	2
B	Forward Segment Board; Used with Two Receivers, each Receiver Drives a Pair of RF Outputs	2
D	Frequency Band Split (450 MHz); Two Receivers; One Bc, One Nc above 450 MHz, Combine to Provide 4 Common RF Outputs	2
E	Frequency Band Split (450 MHz) with Redundant Narrowcast; Three Receivers; One Bc, Two Nc above 450 MHz, Combine to Provide 4 Common RF Outputs; Requires s/m or MCB	3

KEY 9	RETURN PATH CONFIGURATION DOES NOT INCLUDE TRANSMITTERS
X	None
A	Single Combined Return; One Analog or 1X Digital Transmitter
B	Redundant Single Combined Return; Two Analog or Two 1X Digital Transmitters of the Same Wavelength
C	Redundant Single Combined Return; Two 1X Digital Transmitters with Adjacent Wavelenths
D	Split Return; Two Analog or Two 1X Digital Transmitters of the Same Wavelength
E	Split Return; Two 1X Digital Transmitters with Adjacent Wavelengths
F	Split Return; One 2X TDM Digital Transmitter
G	Split Redundant Return; Two 2X TDM Digital Transmitters of the Same Wavelength
H	Split Redundant Return; Two 2X TDM Digital Transmitters with Adjacent Wavelengths
J	4 Separate Returns; Two 2X TDM Only with the Same Wavelengths
K	4 Separate Returns; Two 2X TDM Only with Adjacent Wavelengths

KEY 10	DIGITAL RETURN PATH TRANSMITTERS
X	No Transmitter
01	DS-SG2-DRT-2x/A-1310-FP/SC
02	DS-SG2-DRT-2x/A-1310-DFB/SC
03	DS-SG2-DRT-2x/A-1550-DFB/SC
04	DS-SG2-DRT-2x/A-1510c-DFB/SC
05	DS-SG2-DRT-2x/A-1530c-DFB/SC
06	DS-SG2-DRT-2x/A-1550c-DFB/SC
07	DS-SG2-DRT-2x/A-1570c-DFB/SC
30	DS-SG2-DRT-2X/A-1470c-DFB/SC
19	DS-SG2-DRT-2X/A-1490c-DFB/SC
20	DS-SG2-DRT-2X/A-1590c-DFB/SC
21	DS-SG2-DRT-2X/A-1610c-DFB/SC
10	DS-SG2-DRT/A-1310-FP/SC
11	DS-SG2-DRT/A-1310-DFB/SC
12	DS-SG2-DRT/A-1550-DFB/SC
13	DS-SG2-DRT/A-1510c-DFB/SC
14	DS-SG2-DRT/A-1530c-DFB/SC
15	DS-SG2-DRT/A-1550c-DFB/SC
16	DS-SG2-DRT/A-1570c-DFB/SC
22	DS-SG2-DRT/A-1470c-DFB/SC
23	DS-SG2-DRT/A-1490c-DFB/SC
24	DS-SG2-DRT/A-1590c-DFB/SC
25	DS-SG2-DRT/A-1610c-DFB/SC

KEY 10	DIGITAL RETURN ADJACENT WAVELENGTH PAIRS
08	DS-SG2-DRT-2x/A-1510c and 1530c-DFB/SC
09	DS-SG2-DRT-2x/A-1550c and 1570c-DFB/SC
26	DS-SG2-DRT-2x/A-1470c and 1490c-DFB/SC
27	DS-SG2-DRT-2x/A-1590c and 1610c-DFB/SC
17	DS-SG2-DRT/A-1510c and 1530c-DFB/SC
18	DS-SG2-DRT/A-1550c and 1570c-DFB/SC
28	DS-SG2-DRT/A-1470c and 1490c-DFB/SC
29	DS-SG2-DRT/A-1590c and 1610c-DFB/SC

KEY 11	ANALOG RETURN PATH TRANSMITTERS
X	No Transmitter
B	SG-2-DFBT/* (1mW)
C	SG-2-DFBT3/* (2mw)
D	SG2-FPT/* (0.4mW)
E	SG2-EIFPT/* (1mW)
F	SG2-IFPT/* (0.4mW)

SG2440 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | X* | X* | X* | X* | X* | X*

KEY 1	BANDPASS
75	750MHz
87	870MHz

KEY 2	BANDPASS SPLIT
S	5-40/52-870MHz
J	5-55/70-870MHz
A	5-65/85-870MHz
K	5-42/54-870MHz
E	5-30/47-870MHz
M*	5-80/108-870MHz

KEY 3	TILT
A	6dB
B	8dB
L	10dB
S	12.5dB
H	14dB
U	16dB

KEY 4	RF CONFIGS.
D	4 Bridger

KEY 5	HYBRID TECHNOLOGY
S	Silicon
G	GaAs

KEY 6	CONTROL
T	Thermal Compensation Unit (TCU)

KEY 7	SURGE PROTECTION
X	Surge Arrestors
F	One FTEC Crowbar
G	Two FTEC Crowbars for Dual AC Powering

KEY 12	CONNECTORIZATION
S	SC/APC
F	FC/APC

KEY 13	SERVICE CABLE
X	None
06	6 Fiber Service Cable
08	8 Fiber Service Cable SC/APC Only

KEY 14	STATUS MONITORING
X	None
H	LL-AM-SG2 Freq Agile
J	LL-TG-SG2 Freq Agile
M	MCB w/SIC

KEY 15	INGRESS SWITCH
X	None
B	Ingress Switch

NOTES
M-Split is limited to Return Path option Analog C.
Digital Return is available in SC/APC connectorization only.
Analog and Digital Transmitters cannot be mixed.
Analog Transmitter styles cannot be mixed.
Redundant Receiver configurations require status monitor or MCB option.

KEY 16	POWER SUPPLY
N	None E-Pack Only
X	Single
D	Dual

KEY 17	HOUSING ASSEMBLY & FINISH
X	Standard, None
C	Standard, Chromate
E	Electronic Pack Only
F	Hsg Lid w/2 Fiber Entries; Add/Drop Port Option
G	Hsg Lid w/2 Fiber Entries; Add/Drop Option; Chromate

KEY 18	MOUNTING
N	None E-Pack Only
X	Pedestal
Y	Strand

KEY	RESERVED
X*	Reserved

MOTOROLA

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