CHAPTER 9

ANNEX

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ROHDE&SCHWARZ

Broadcasting Division

Interface Description

TRANSMITTER

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1 Interface Description

1.1 Front-Panel Interfaces

1.1.1 Q1 - AC Supply Input / Protective Earth

Signal name	Direction	Value range	Contact	Remark
PHASE L1	Input	400 V ±15%	Q1.T1	Three-phase current input L1
PHASE L2	Input	400 V ±15%	Q1.T2	Three-phase current input L2
PHASE L3	Input	400 V ±15%	Q1.T3	Three-phase current input L1
NEUTRAL N	Input	0 V	Q1.N	Neutral-conductor input N
PROTECTION EARTH PE	Input	0 V	X.PE	PE terminal
PROTECTION EARTH PE	Input	0 V	PE pin	PE station

1.1.2 X57 - Optional Connector Kit ZR800Z1

Signal name	Direction	Value range	Contact	Remark
PHASE L1	Input	230 V	X57.L1	Separate circuit
NEUTRAL N	Input	0 V	X57.N	
PROTECTION EARTH PE	Input	0 V	X57.PE	

1.1.3 X33 - External Fan (Optional): (Wago Plug-In Terminal)

Signal name	Direction	Value range	Contact	Remark
PHASE L1	Input	230 V	X33.1	Line protection F8 [3A]
NEUTRAL N	Input	0 V	X33.2	

Signal name	Direction	Value range	Contact	Remark
PROTECTION EARTH PE	Input	0 V	X33.3	

External fan for dummy antenna (optional): (Wago plug-in terminal)

Signal name	Direction	Value range	Contact	Remark
PHASE L1	Input	230 V	X33.4	Line protection F8 [3A]
NEUTRAL N	Input	0 V	X33.5	
PROTECTION EARTH PE	Input	0 V	X33.6	

1.1.4 X33 - External Absorber Cooling (Optional): (Wago Plug-In Terminal)

Signal name	Direction	Value range	Contact	Remark
PHASE L1	Input	230 V	X34.1	Line protection F8 [3A]
NEUTRAL N	Input	0 V	X34.2	
PROTECTION EARTH PE	Input	0 V	X34.3	

1.1.5 X41 - RF Loop: (Wago Plug-In Terminal)

Signal name	Direction	Value range	Contact	Remark
MAIN TX LOOP	Input	-12 V ±2 V	X41.1	-12 V floating
LOOP COM (+)	Output	+12 V ±2 V	X41.2	+12 V floating
RESERVE TX LOOP	Input	-12 V ±2 V	X41.3	-12 V floating
LOOP COM (+)	Output	+12 V ±2 V	X41.4	+12 V floating

1.1.6 X42 - Absorber Monitoring: (Wago Plug-In Terminal)

Signal name	Direction	Value range	Contact	Remark
FAULT SYSTEM ABSORBER	Input	TTL	X42.1	Jumper to 0 V
REF RACK SIGNALS	Output	0 V	X42.2	Reference 0 V
FAULT RACK ABSORBER	Input	TTL	X42.3	Jumper to 0 V
REF RACK SIGNALS	Output	0 V	X42.4	Reference 0 V

1.1.7 X43 - Absorber Monitoring: (Wago Plug-In Terminal)

Signal name	Direction	Value range	Contact	Remark
FAULT COOLING 2	Input	TTL	X43.1	Jumper to 0 V
REF RACK COOLING	Input	0 V	X43.2	Reference 0 V
FAULT COOLING 1	Input	TTL	X43.3	Jumper to 0 V
REF RACK SIGNALS	Input	0 V	X43.4	Reference 0 V
WARNING COOLING	Input	TTL	X43.5	Jumper to 0 V
REF RACK SIGNALS	Input	0 V	X43.6	Reference 0 V

1.1.8 X44 - Overcurrent Monitoring for External Fan: (Wago Plug-In Terminal)

Signal name	Direction	Value range	Contact	Remark
FAULT EXT: COOLING	Input	TTL	X44.1	Jumper to 0 V
REF RACK SIGNALS	Output	0 V	X44.4	Reference 0 V

1.1.9 X100A - Ethernet A Remote (Standard): (8-Pin Socket)

Signal name	Direction	Value range	Contact	Remark
TX+	Output	Ethernet	X100A.1	Transmitting line
TX-	Output	Ethernet	X100A.2	Transmitting line
RX+	Input	Ethernet	X100A.3	Receiving line
	Bidirect.	75 Ω termination	X100A.4	
	Bidirect.	75 Ω termination	X100A.5	
RX-	Input	Ethernet	X100A.6	Receiving line
	Bidirect.	75 Ω termination	X100A.7	
	Bidirect.	75 Ω termination	X100A.8	

1.1.10 X100B - Ethernet B Remote (Option N+1): (8-Pin Socket)

Signal name	Direction	Value range	Contact	Remark
TX+	Output	Ethernet	X100B.1	Transmitting line
TX-	Output	Ethernet	X100B.2	Transmitting line
RX+	Input	Ethernet	X100B.3	Receiving line
	Bidirect.	75 Ω termination	X100B.4	
	Bidirect.	75 Ω termination	X100B.5	
RX-	Input	Ethernet	X100B.6	Receiving line
	Bidirect.	75 Ω termination	X100B.7	
	Bidirect.	75 Ω termination	X100B.8	

1.1.11 X232 RS232: (9-Pin D-Sub Socket)

Signal name	Direction	Value range	Contact	Remark
n.c.			X232.1	Transmitting line
RS232_TX	Output	RS-232	X232.2	Transmitting line
RS232_RX	Input	RS-232	X232.3	Receiving line
n.c.			X232.4	
GND	Bidirect.		X232.5	
n.c.			X232.6	
n.c.			X232.7	
n.c.			X232.8	

1.1.12 X101A - CAN Bus Rack Bus A: (9-Pin D-Sub Socket)

Signal name	Direction	Value range	Contact	Remark
12V_RED	Bidirect.	12 V ±1 V	X101A.1	Redundant 12 V supply
RC_A_CAN_L	Bidirect.	CAN-Level	X101A.2	CAN bus signal
CAN_GND	Bidirect.	0 V	X101A.3	CAN GND
12V_RED	Bidirect.	12 V ±1 V	X101A.4	Redundant 12 V supply
CAN_SHLD	Bidirect.	GND	X101A.5	Shield
GND	Bidirect.	GND	X101A.6	GND
RC_A_CAN_H	Bidirect.	CAN+Level	X101A.7	CAN bus signal
12V_ASI	Bidirect.	12 V ±1.5 V	X101A.8	
CAN_V+	Bidirect.	12 V ±1 V	X101A.9	

1.1.13 X101B - CAN Bus Rack Bus B: (9-Pin D-Sub Socket)

Signal name	Direction	Value range	Contact	Remark
12V_RED	Bidirect.	12 V ±1 V	X101B.1	Redundant 12 V supply

Signal name	Direction	Value range	Contact	Remark
RC_A_CAN_L	Bidirect.	CAN-Level	X101B.2	CAN bus signal
CAN_GND	Bidirect.	0 V	X101B.3	CAN GND
12V_RED	Bidirect.	12 V ±1 V	X101B.4	Redundant 12 V supply
CAN_SHLD	Bidirect.	GND	X101B.5	Shield
GND	Bidirect.	GND	X101B.6	GND
RC_A_CAN_H	Bidirect.	CAN+Level	X101B.7	CAN bus signal
12V_ASI	Bidirect.	12 V ±1.5 V	X101B.8	
CAN_V+	Bidirect.	12 V ±1 V	X101B.9	

1.1.14 X101C - CAN Bus Rack Bus C - Ext. Pump: (9-Pin D-Sub Socket)

Signal name	Direction	Value range	Contact	Remark
RS232_RxD0	Input	RS232	X101C.1	Internal serial interface, rack controller
C_CAN_L	Bidirect.	CAN-Level	X101C.2	CAN bus signal
CAN_GND	Bidirect.	0 V	X101C.3	CAN GND
BOOT	Input	TTL	X101C.4	Bootstrap mode key for rack controller
CAN_SHLD	Bidirect.	GND	X101C.5	Shield
GND	Bidirect.	GND	X101C.6	GND
C_CAN_H	Bidirect.	CAN+Level	X101C.7	CAN bus signal
RS232_TxD0	Output	RS232	X101C.8	Internal serial interface, rack controller
CAN_V+	Bidirect.	12 V ±1.5 V Imax = 0.1 A	X101C.9	Supply of external bus driver component from pump control

1.1.15 X102A - ANTENNA 1: (N Socket, 50 Ohm)

Signal name	Direction	Value range	Contact	Remark
ANTENNA 1	Input		X102A.1	Only for DTV TX level depending on application
GND	Bidirect.	0 V	X102A.2	

1.1.16 X102B - ANTENNA 2: (N Socket, 50 Ohm)

Signal name	Direction	Value range	Contact	Remark
ANTENNA 2	Input		X102B.1	Only for DTV TX level depending on application
GND	Bidirect.	0 V	X102B.2	

1.2 Interfaces on Transmitter Top

1.2.1 X121A - TS1 Exciter A: (BNC Socket, 75 Ohm)

Signal name	Direction	Value range	Contact	Remark
TS1	Input	ASI/SMPTE310M	X121A.1	TS1 Exciter A
GND	Bidirect.		X121A.2	GND/shield

1.2.2 X121B - TS1 Exciter B: (BNC Socket, 75 Ohm)

Signal name	Direction	Value range	Contact	Remark
TS1	Input	ASI/SMPTE310M	X121B.1	TS1 Exciter B
GND	Bidirect.		X121B.2	GND/shield

1.2.3 X122A - TS2 Exciter A: (BNC Socket, 75 Ohm)

Signal name	Direction	Value range	Contact	Remark
TS2	Input	ASI/SMPTE310M	X122A.1	TS2 Exciter A
GND	Bidirect.		X122A.2	GND/shield

1.2.4 X122B - TS2 Exciter B: (BNC Socket, 75 Ohm)

Signal name	Direction	Value range	Contact	Remark
TS2	Input	ASI/SMPTE310M	X122B.1	TS2 Exciter B
GND	Bidirect.		X122B.2	GND/shield

1.2.5 X123A - TS3 Exciter A: (BNC Socket, 75 Ohm)

Signal name	Direction	Value range	Contact	Remark
TS3	Input	ASI/SMPTE310M	X123A.1	TS3 Exciter A
GND	Bidirect.		X123A.2	GND/shield

1.2.6 X123B - TS3 Exciter B: (BNC Socket, 75 Ohm)

Signal name	Direction	Value range	Contact	Remark
TS3	Input	ASI/SMPTE310M	X123B.1	TS3 Exciter B
GND	Bidirect.		X123B.2	GND/shield

1.2.7 X124A - TS4 Exciter A: (BNC Socket, 75 Ohm)

Signal name	Direction	Value range	Contact	Remark
TS4	Input	ASI/SMPTE310M	X124A.1	TS4 Exciter A

Signal name	Direction	Value range	Contact	Remark
GND	Bidirect.		X124A.2	GND/shield

1.2.8 X124B - TS4 Exciter B: (BNC Socket, 75 Ohm)

Signal name	Direction	Value range	Contact	Remark
TS4	Input	ASI/SMPTE310M	X124B.1	TS4 Exciter B
GND	Bidirect.		X124B.2	GND/shield

1.2.9 X131A - TS1/2 IN Monitoring Exciter A: (BNC Socket)

Signal name	Direction	Value range	Contact	Remark
TS1/2 IN Monitoring	Output	ASI/SMPTE310M	X131A.1	TS1/2 Monitoring Exciter A
GND	Bidirect.		X131A.2	GND/shield

1.2.10 X131B - TS1/2 IN Monitoring Exciter B: (BNC Socket)

Signal name	Direction	Value range	Contact	Remark
TS1/2 IN Monitoring	Output	ASI/SMPTE310M	X131B.1	TS1/2 Monitoring Exciter B
GND	Bidirect.		X131B.2	GND/shield

1.2.11 X132A - TS3/4 IN Monitoring Exciter A: (BNC Socket)

Signal name	Direction	Value range	Contact	Remark
TS3/4 IN Monitoring	Output	ASI/SMPTE310M	X132A.1	TS3/4 Monitoring Exciter A

Signal name	Direction	Value range	Contact	Remark
GND	Bidirect.		X132A.2	GND/shield

1.2.12 X132B - TS3/4 IN Monitoring Exciter B: (BNC Socket)

Signal name	Direction	Value range	Contact	Remark
TS3/4 IN Monitoring	Output	ASI/SMPTE310M	X132B.1	TS3/4 Monitoring Exciter B
GND	Bidirect.		X132B.2	GND/shield

1.2.13 X141A - 1PPS Exciter A: (BNC Socket, 50 Ohm)

Signal name	Direction	Value range	Contact	Remark
1PPS_EXTERN	Input	TTL level (pos.edge)	X141A.1	Seconds pulse from external GPS receiver, exciter A
GND	Bidirect.		X141A.2	GND/shield

1.2.14 X141B - 1PPS Exciter B: (BNC Socket, 50 Ohm)

Signal name	Direction	Value range	Contact	Remark
1PPS_EXTERN	Input	TTL level (pos.edge)	X141B.1	Seconds pulse from external GPS receiver, exciter B
GND	Bidirect.		X141B.2	GND/shield

1.2.15 X142A - 1PPS Monitoring Exciter A: (BNC Socket, 50 Ohm)

Signal name	Direction	Value range	Contact	Remark
1PPS Monitoring	Input	TTL level (pos.edge)	X142A.1	Monitor output of internally used 1PPS (exciter A)

Signal name	Direction	Value range	Contact	Remark
GND	Bidirect.		X142A.2	GND/shield

1.2.16 X142B- 1PPS Monitoring Exciter B: (BNC Socket, 50 Ohm)

Signal name	Direction	Value range	Contact	Remark
1PPS Monitor-ing	Input	TTL level (pos.edge)	X142B.1	Monitor output of internally used 1PPS (exciter B)
GND	Bidirect.		X142B.2	GND/shield

1.2.17 X143A - 10MHz REF.INPUT Exciter A: (BNC Socket, 50 Ohm)

Signal name	Direction	Value range	Contact	Remark
10 MHz REF INPUT	Input	-5.0 dB to 20 dBm or TTL	X143A.1	10 MHz reference for exciter A
GND	Bidirect.		X142A.2	GND/shield

1.2.18 X143B - 10MHz REF.INPUT Exciter B: (BNC Socket, 50 Ohm)

Signal name	Direction	Value range	Contact	Remark
10 MHz REF INPUT	Input	-5.0 dB to 20 dBm or TTL	X143B.1	10 MHz reference for exciter B
GND	Bidirect.		X142B.2	GND/shield

1.2.19 RF Transmitter Output: (EIA 1 5/8", Flange 50 Ohm)

Signal name	Direction	Value range	Contact	Remark
RF transmitter output	Output	P_{maxAVG} = 1950 W	RF	RF transmitter output
GND	Bidirect.		RF	GND/shield

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