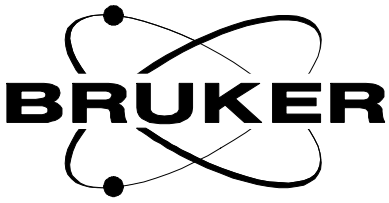

AQR

ASU2 / Local Oscillator & Tune
User Manual

Version 001

BRUKER

The information in this manual may be altered without notice.

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Manual P/N: Z31487
DWG-Nr: 1189001

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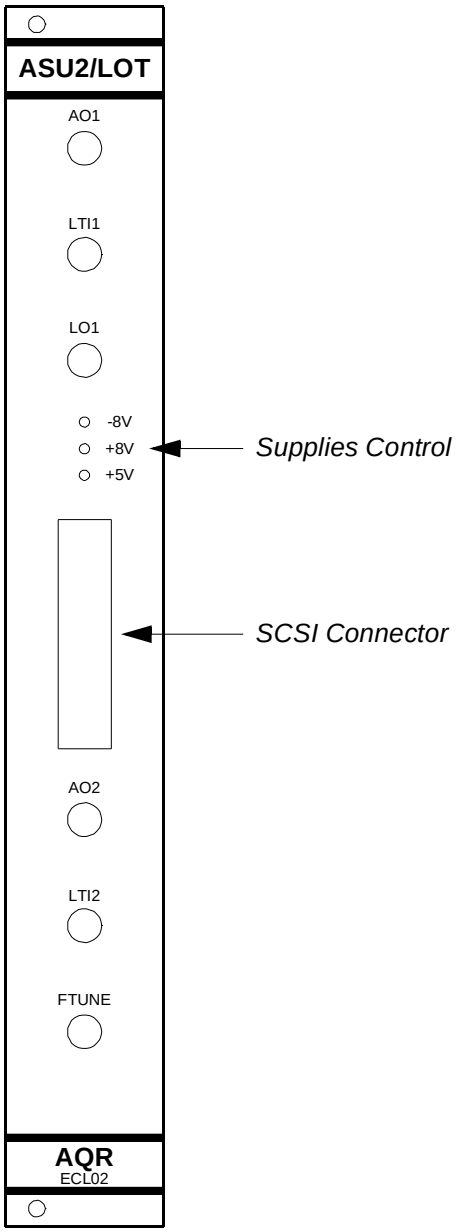
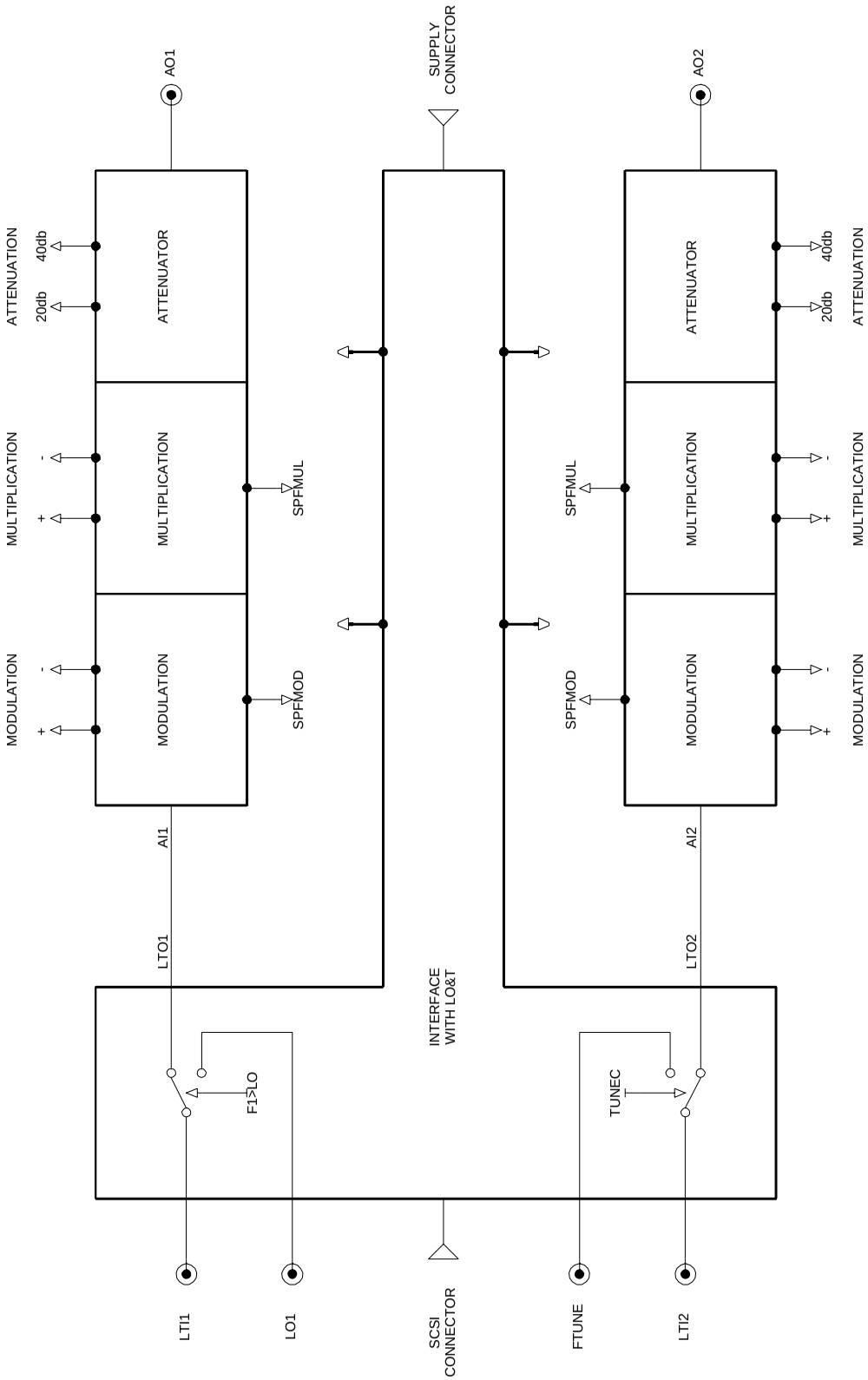
Front panel wiring 1.1

Figure 1.1. ASU2 / LO&T Front panel location



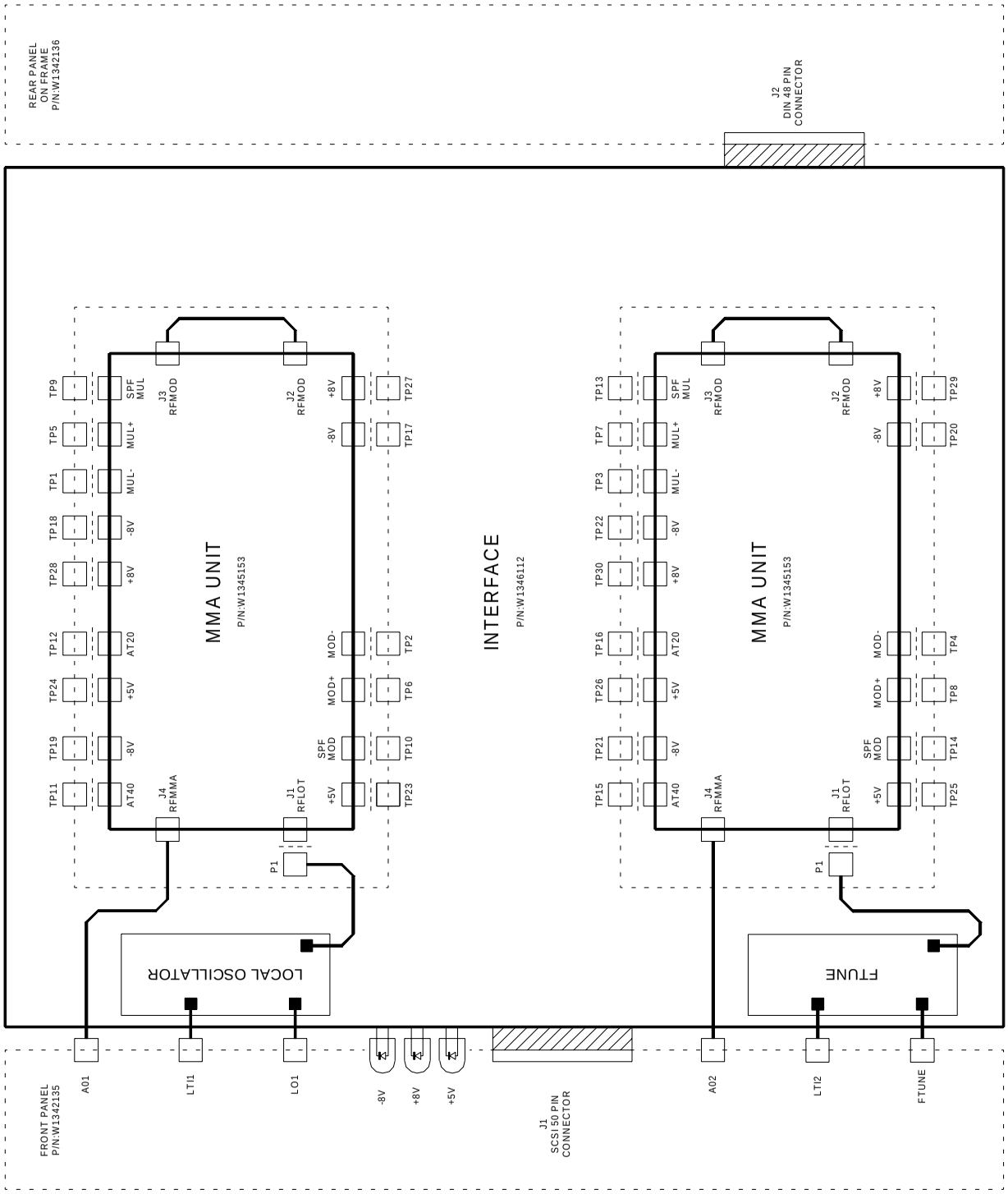
Fonctional diagram *1.2*

Figure 1.2. ASU2 / LO&T fonctional block diagram



RF Wiring diagram *1.3*

Figure 1.3. ASU2 / LO&T RF Wiring diagram



Interface inputs / outputs connectos *1.4*

Table 1.1. Front Panel Connector J1

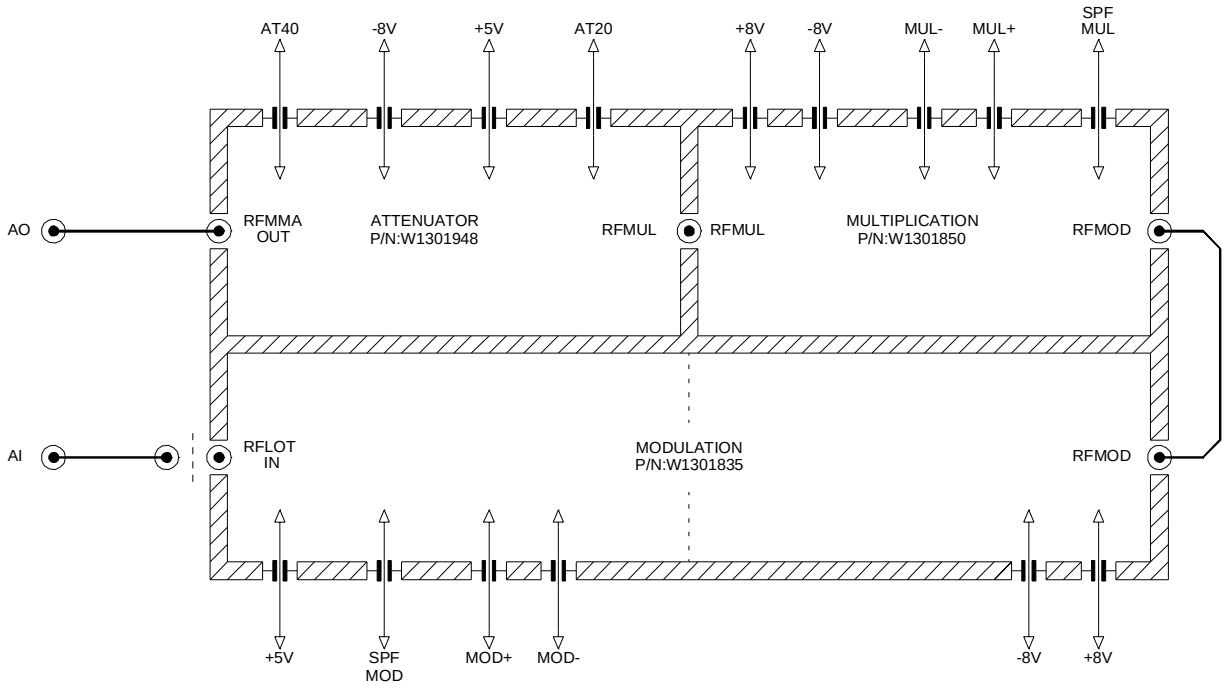
Pins	Descriptions	Pins	Descriptions
01	NC	26	NC
02	NC	27	NC
03	NC	28	NC
04	AGND	29	AGND
05	MULF1-	30	MULF1+
06	AGND	31	AGND
07	MODF1-	32	MODF1+
08	AT20F1	33	DGND
09	AT40F1	34	DGND
10	BLKF1	35	DGND
11	SPFF1	36	DGND
12	OBSF1	37	DGND
13	AGND	38	AGND
14	MULF2-	39	MULF2+
15	AGND	40	AGND
16	MODF2-	41	MODF2+
17	AT20F2	42	DGND
18	AT40F2	43	DGND
19	BLKF2	44	DGND
20	SPFF2	45	DGND
21	OBSF2	46	DGND
22	NC	47	DGND
23	TUNE ON	48	DGND
24	NC	49	DGND
25	NC	50	DGND

Table 1.2. Rear Panel Connector J2

Pins	Descriptions	Pins	Descriptions	Pins	Descriptions
1A	NC	1B	NC	1C	NC
2A	NC	2B	NC	2C	NC
3A	Adresse 1	3B	Adresse 2	3C	Adresse 3
4A	NC	4B	NC	4C	NC
5A	NC	5B	NC	5C	NC
6A	SDA	6B	NC	6C	SCL
7A	NC	7B	NC	7C	I2CGND
8A	NC	8B	NC	8C	EP
9A	SPENAB	9B	SPENABGND	9C	EPGND
10A	+5V	10B	+5V	10C	+5V
11A	GND	11B	GND	11C	GND
12A	NC	12B	NC	12C	NC
13A	NC	13B	NC	13C	NC
14A	+15V	14B	+15V	14C	+15V
15A	GND	15B	GND	15C	GND
16A	-15V	16B	-15V	16C	-15V

MMA Unit *1.5*

Figure 1.4. Modulation, Multiplication & Attenuator Block Diagram



Specifications 2

Characteristics of ASU2, Local Oscillator & Tune 2.1

The specifications below fit with the last upgrading of the unit. (Febuary 1997)

RF specifications 2.1.1

Frequency range	5 to 500 MHz
Gain	1 dB ± 1 dB
Input power	4 dBm ± 0,5 dB
Output power	5 dBm ± 1 dB for 4 dBm IN
Input VSWR	1.4
Output VSWR	1.5
Power out 1 dB Compression	6 dBm
Output harmonics H2	- 30 dBm
Output harmonics H3	- 30 dBm

Amplitude control 2.1.2

	from 0 to +1V/-1V 100Ω balanced load (MOD & MULT)
	Square law for modulation
	Linear law for multiplication
	Digital input for 20dB & 40dB Attenuation
	(1 : through - 0 : active)
SPF & BLK	(0 : through - 1 : blanked)

Safety switch 2.1.3

SPENAB digital input (1 : RF Off)
(0 : RF On)

Dynamics 2.1.4

Dynamic range	110 dB
Modulation dynamic	50 dB
Multiplication dynamic	30 dB
Attenuators	20 dB (± 1dB) + 40 dB (± 1dB) @ 500 MHz

Phase shift *2.1.5*

Modulation @ 50 dB Range (25°C)	<10° for 400 MHz
Multiplication @ 30 dB	<7° for 400 MHz
Typical thermal stability (25°C to 50°C)	$\frac{\Delta\varphi}{\Delta T}$ = -F x 2.10^{-3} degree.K^{-1}
(example : F = 400 MHz, T from 300 to 315k	$\Delta\varphi = -12°$)

Isolation (SPENAB CMD), (MOD & MULT at max. level) *2.1.6*

Isolation input / output	> 70 dB
Isolation input / output + ATT : 60 dB	> 110 dB
Isolation input1 / output2 channel 2 (Off)	> 110 dB
Isolation input2 / output1 channel 1 (Off)	> 110 dB
Channel 1 / Channel 2 isolation	> 110 dB

Output noise level *2.1.7*

Unblanked (MOD, MULT = 0V)	< -135 dBm (1 Hz)
Unblanked (MOD, MULT = 2,5V)	< -124 dBm (1 Hz)
Blanked (ATT = 60 dB, SPF = 0V)	Thermal noise

Switching time *2.1.8*

Rise Time	200 ns
DC Ringing	150 mV
Fall Time	100 ns
DC Ringing	10 mV
Propagation Time	40 ns

Local Oscillator & Tune section specifications *2.1.9*

Isolations

LO1 / LTI1 (signal ON AO1)	LO1 measured > 30 dB
AO1 / LTI1 (signal ON LO1)	AO1 measured > 40 dB
AO2 / LTI2 (signal ON FTUNE)	AO2 measured > 40 dB
FTUNE / LTI2 (signal ON AO2)	FTUNE measured > 55 dB

Flatness

LO1 / LTI1	± -0,5 dB (+4dBm out typical)
FTUNE / LTI2	± -0,5 dB (-1dBm out typical)

DC requirements *2.1.10*

Supply +15V	700 mA
Supply -15V	300 mA
Supply +5V	120 mA

Operating temperature *2.1.11*

Ambiance temperature range	+20°C @ +40°C

Specifications

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