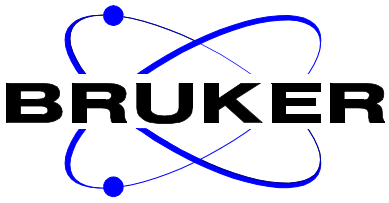



# BLAXH100/50 P

## Amplifier 200-400MHz
## User Manual

**Version 001**

BRUKER

The information in this manual may be altered without notice.

BRUKER accepts no responsibility for actions taken as a result of use of this manual. BRUKER accepts no liability for any mistakes contained in the manual, leading to coincidental damage, whether during installation or operation of the instrument. Unauthorised reproduction of manual contents, without written permission from the publishers, or translation into another language, either in full or in part, is forbidden.

This manual describes the units as they are at the time of printing. On request, the manufacturer shall supply circuit diagrams, lists of components, descriptions, calibrating instructions and any other information for use by qualified personnel of the user, in charge of repairing the parts of the unit which have been stated by the manufacturer to be "repairable". Such supply shall in no event constitute permission to modify or repair the units or approval of the same.



This unit is not designed for any type of use which is not specifically described in this manual. Such use may be hazardous.

This manual was written by

OTT Charles



Wissembourg, France

Manual P/N: Z31611
DWG-Nr: Drawing 1322.001

# Contents

## Contents

# Index

# Index

# General Information 1

## Introduction 1.1

This unit (P/N : W1301869) is composed of 2 amplifiers (X Amplifier P/N:W1345100 and H Amplifier P/N:W1345101) that can deliver 100W from 6 to 162 MHz for the X channel and 50W from 180 to 400MHz for the H channel.

Each channel has its own RF and Blanking inputs. The output of each amplifier is dispached on three panel outputs «1H / 19F / XQNP». These outputs are routed through these two following routing inputs «SEL X/$\overline{F}$ and SEL H/$\overline{X}$».

A connector SUB-D 15 pins located on the front panel allows to connect a BSMS Keyboard where the indications Forward and Reflected are displayed.

## Description of the unit 1.2

The amplifier is mounted in a rack 19" x 2U x 460mm and is fitted with following sub-assemblies:

| | | |
|---|---|---|
| 1. RF power module X | BLMX100 | W1345100 |
| 2. RF power module H | BLMH50 | W1345101 |
| 3. RF switch | SWITCH X/H/19F | W1346177 |
| 4. RF switch | PIN DIODE SWITCH | W1301931 |
| 5. BSMS controller | BSMS DISPLAY ADAPTER | H9275 |
| 6. status display | RF PULSE DISPLAY | W1301909 |
| 7. power supply | BLA POWER SUPPLY 2 | W1345110 |
| 8. cooling tower | FAN ASSEMBLY 2 | W1345109 |

## Output router configuration 1.3

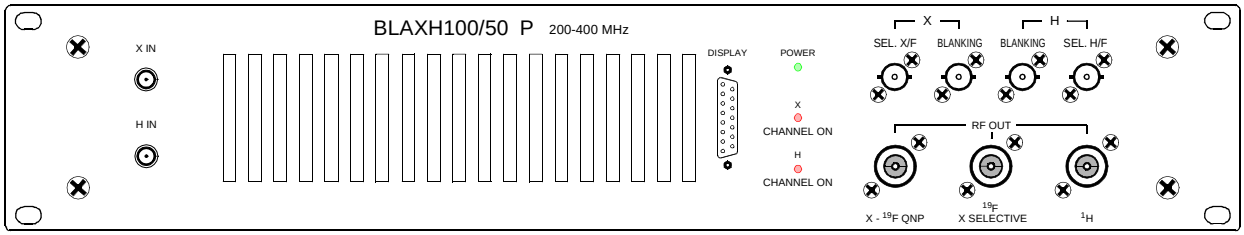
In absence of control signals, the default value is high level for the both input selection.

*Table 1.1. Commutation configuration*

| SEL X/$\overline{F}$ | SEL H/$\overline{F}$ | X -19F QNP | 19F - X SELECTIVE | 1H |
|---|---|---|---|---|
| 0 | 0 | H - 19F In | X In | |
| 0 | 1 | | X In | H -19F In |
| 1 | 0 | X In | H - 19F In | |
| 1 | 1 | X In | | H - 19F In |

## *Wiring* *1.4*

*Figure 1.1. BLAXH100/50 P Front panel*



# Safety 2

## Labels 2.1

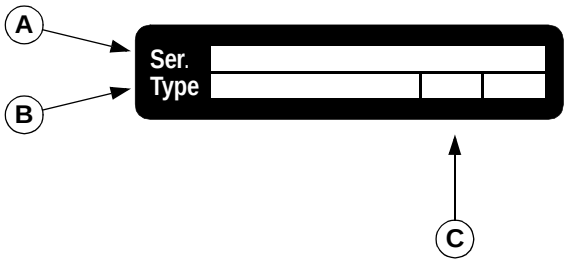
Labels are provided to alert operating and service personnel to conditions that may cause personal injury or damage to the equipment from misuse or abuse. Please read the labels and understand their meaning.

### Dangerous Area 2.1.1

**WARNING** ! High Voltage.


### Name Plate 2.1.2

Amplifiers BLAX serie can be identified by a name plate at the front panel of the unit which has information as follows :




- **(A) Ser.**
  This line contains an assembly number which identifies the Part and the Serial number of the product.
- **(B) Type**
  This line contains the designation of the product.
- **(C) Revision**
  This cell indicates the revision number which identifies the product configuration. The initial revision is 00.

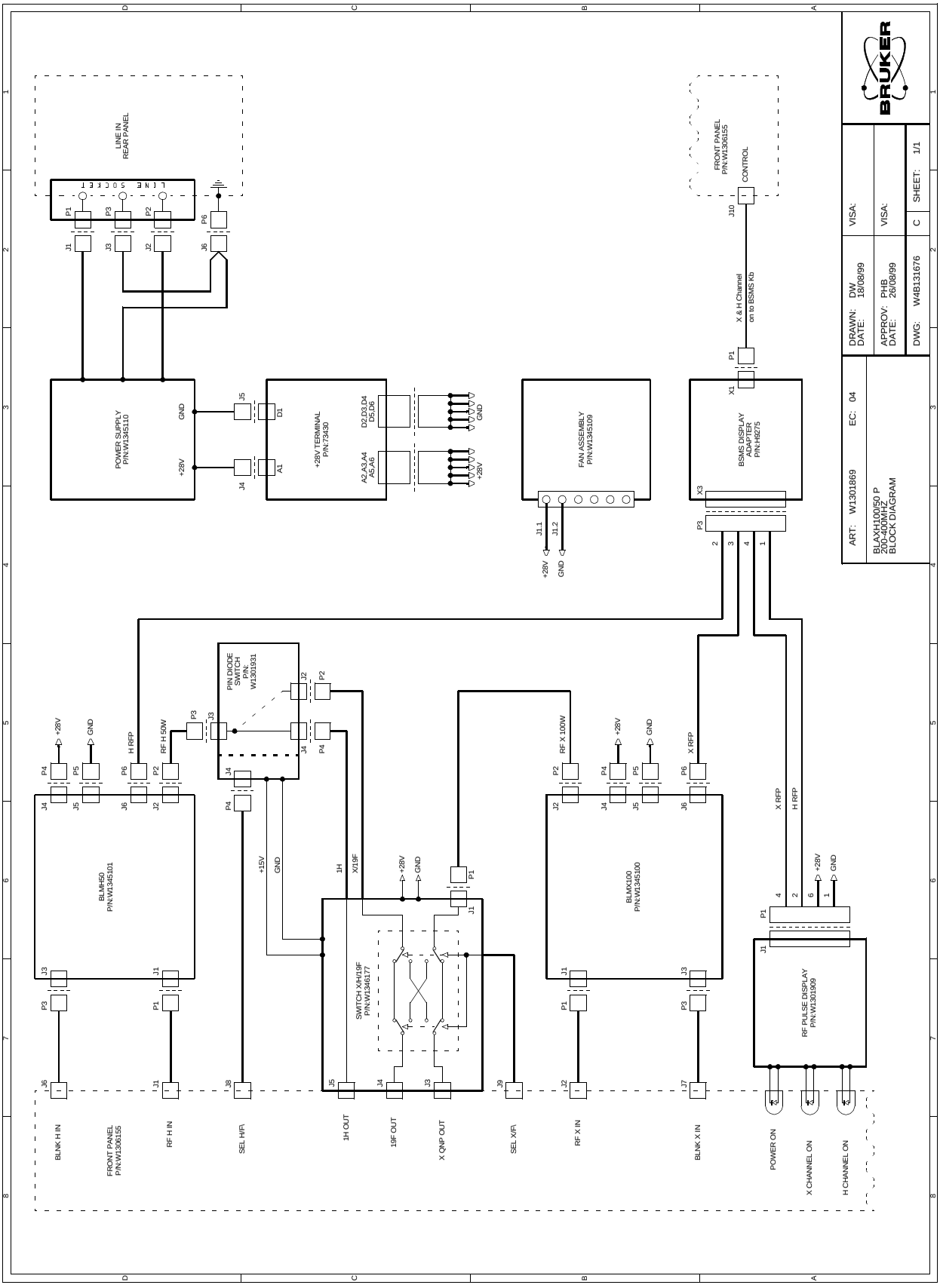
# Technical description

# 3

## System Overview 3.1

The BLAXH100/50 amplifier provides a RF Output Power of 100W in the 6-162MHz frequency range, for the X channel, and a RF Output Power of 50W in the 180 to 400MHz frequency range.

*Figure 3.1. BLAXH100/50 P System Block Diagram*



# Specifications 4

## General specifications 4.1

*Table 4.1. BLAXH100/50 P general specifications channel X100*

| | |
|---|---|
| **Frequency range** | 6 to 162MHz |
| **Linear Gain** | 47dB ± 1 |
| **Gain Flatness** | ± 1 dB max. |
| **Peak Pulse Power** | 100W typ. (at nominal input + 4dBm) |
| **CW Power** (limited) | 25W (no protection) |
| **Linear Output Power** | 80W min. @ 1dBm compression |
| **Amplifier biasing** | Class AB Operation |
| **Input / output Impedance** | 50Ω |
| **RF Rise Time** | < 100ns |
| **RF Fall Time** | < 50ns |
| **Blanking Delay Time** | < 1µs typical |
| **Noise Figure** | 7dB max. |
| **Output Noise Power**(unblanked)<br>(blanked) | -120dBm @ 1Hz<br>-157dBm @ 1Hz |
| **Pulse Width** (limited) | 10ms @ 100W (no protection) |
| **Duty Cycle** (limited) | 25% @ 100W (no protection) |
| **Amplitude Droop** | < 2% @ 100W for 1ms Pulse Width |

*Table 4.2. BLAXH100/50 P general specifications channel H50*

| | |
|---|---|
| **Frequency range** | 180 to 400MHz (3H on request) |
| **Linear Gain** | 46dB ± 1 |
| **Gain Flatness** | ± 1,5dB max. |
| **Peak Pulse Power** | 50W typ. (at nominal input + 4 dBm) |
| **CW Power** (limited) | 10W (no protection) |
| **Linear Output Power** | 40W min. @ 1 dBm compression |
| **Amplifier biasing** | Class AB Operation |
| **Input / output Impedance** | 50Ω |
| **RF Rise Time** | < 100ns |
| **RF Fall Time** | < 50ns |
| **Blanking Delay Time** | < 1µs typical |
| **Noise Figure** | 7dB max. |
| **Output Noise Power**(unblanked)<br>(blanked) | -124dBm @ 1Hz<br>-150dBm @ 1Hz |
| **Pulse Width** (limited) | 10ms @ 50W (no protection) |
| **Duty Cycle** (limited) | 25% @ 50W (no protection) |
| **Amplitude Droop** | < 2% @ 50W for 1ms pulse width |

## *Common Characteristics* *4.2*

| | |
|---|---|
| RF Input Connectors | SMA (F) |
| RF Output Connectors | N (F) |
| Blanking Pulse Connector | BNC (F) |
| RF Switch Control Signal | BNC (F) |
| Display Connector | Mini D 15pin (F) |
| Switched Mode Power Supply | 400 Watts / 28V |

# Figures

# Figures

# Tables

# Tables