

CONTROL

400



VHF 100 to 163 MHz
UHF 225 to 400 MHz

Series 400U: Auxiliary Equipment

for ground-to-air and naval radio communications

A great variety of remote control possibilities is available for the Series 400U communication equipment, depending on the used interface options:

- V.24/RS-232-C/RS-485:
point-to-point or bus operation via separate control lines from GB406-type control units, system processor GR2000/GR2000X or other workstation
- DTMF (Dual Tone Multiple Frequency) code according to CCITT recommendation Q 23: point-to-point operation via private or public telephone (= AF) line, saving costs for leased lines
- V.11 (X.27)/RS-422-A:
symmetrical double-current serial F-type interface, known from radios like XT452F, thus backward compatibility with the Control Units GB408 and GB404
- Parallel (N-type) Interface:
thus backward compatibility with Control Units GB403 as used with the former Series 400 N-type radios such as XT452N or with automatic switchover units

To guarantee the backward compatibility to existing control units the Series 400U radios can be operated via the following interfaces, too:



ROHDE & SCHWARZ

Series 400U: Auxiliary Equipment



Control Unit GB406S1

Control Units GB406(.)

Uses, specifications

Control and monitoring units for operators or supervisors use for

- point-to-point operation (1 GB406 + 1 radio; $D \leq 2$ km)
- addressed operation (1 GB406 + n radios; $D \leq 2$ km)
- multiple bus operation (m GB406 + n radios; $D \leq 2$ km with $m + n \leq 10$); bus access acc. to CSMA/CD procedure (Carrier Sensed Multiple Access with Collision Detection).

Note 1: In this connection a »radio«

may be a TX/RX or separated transmitter plus receiver.

Note 2: DTMF-controlled radio systems require point-to-point operation.

Note 3: For $m + n > 10$ the Bus Coupler GV400 (see next page) is required!

Features and benefits

The GB406 offers illuminated keyboard, a 2 x 24 character LC display, AF facilities, standard NF7 type AF connector (suits to offered audio accessories); other specifications (eg LEMOSA connector) on request. Built-in tests for comfortable fault location:

- SBIT: Start Built-In Test (automatically, after switch-on)
- CBIT: Continuous Built-In Test (incl. radio)
- IBIT: Initiated Built-In Test

Installation:

- Desk-mount types
- Desk-top installation with cabinet KK406

DC supply:

- from the radio via the optional interface GI420U
- from a local DC source (19 to 31 V)

Application-specific types are available:

- for fixed frequency or ECCM (HAVE QUICK or SECOS) operation and
- for different interface standards

Radio interface legend for the list below:

- »V.24« = RS-232-C/RS-485 bus, V.10 or V.11 level
- »DTMF« = Dual Tone Multiple Frequency code to CCITT recommendation Q 23

In addition to the V.24 or DTMF interface there are:

- AF interfaces (transmit and receive)
- outputs for GO (radio CBIT), squelch/carrier and TX/RX status (relay output)
- serial interface for interconnection of DTMF type control units only

Designation	Type	Order No.	Uses, specifications, features and benefits
Control Units	GB406C1 GB406C3 GB406H1 GB406H3 GB406S1 GB406S3	6016.1497.14 6016.2241.14 6005.1255.14 6016.5240.14 0504.7010.14 6016.6499.14	Fixed-channel operation, »V.24« interface to radio Fixed-channel operation, »DTMF« interface to radio HAVE QUICK II, »V.24« interface to radio HAVE QUICK II, »DTMF« interface to radio SECOS, »V.24« interface to radio SECOS, »DTMF« interface to radio
Cabinet	-	0657.4017.06	For variable desktop installation of GB406... ; due to its swivel-type mounting holder the KK406 offers a fine-graded adaptability to an optimum of sight to the operator
Control Software	GB406-S DS110	6051.0993.xx 6083.8419.yy	Application-specific and factory-loaded software (EPROM for GB406-types). Note: The GB406-S has to be ordered as extra order item together with the control units (equal quantities) xx = 20: for GB406S1; xx = 41: for GB406C1/H1; xx = 60: for GB406S3; xx = 80: for GB406C3/H3 Project-specific radio remote control (RRC) software for XK, EK, XT etc. radios and modems (dedicated selection); for fixed-channel or dedicated EPM applications; for control and monitoring
Control Cable	GB406Z1	6009.8948.xx	For the connection of Control Unit GB406C1/H1/S1 to Series 400U radio (via GI413U and GI420U), xx = 10: for 10 m; xx = 50: for 50 m



Bus Coupler GV400 (model 13 with 3 bus converters)

Bus Coupler GV400

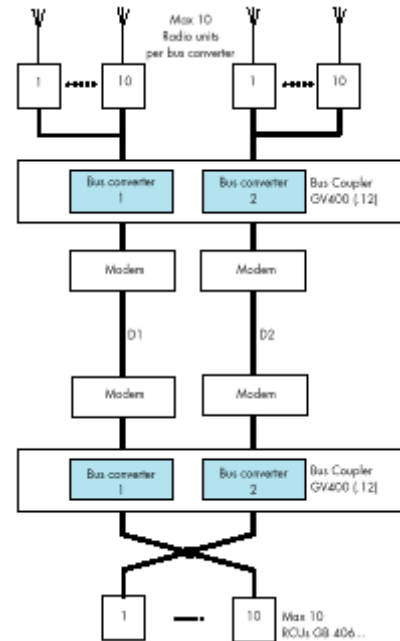
For the configuration of complex radio systems with several (m) Control Units GB406 and several (n) radios:

- Increased »fan-out« (increased no. of loads):
- Interface load/system capacity: GV400 models are available with 1, 2 or 3 bus converters, each converter with an interface capacity for 10 loads; thus up to 99 radios can be addressed and operated individually in a multiple system or simultaneously in broadcasting mode (address 00) using the corresponding number and models of GV400¹⁾.
- Remote control distances ≤20 m (RS-232-C), ≤100 m (RS-485), ≤2 km (RS-422) or unlimited (with modems)
- Data conversions between the standards RS-232-C, RS-422 and RS-485

Interface parameters (internally switchable):

- Level standards: V.10 (unbalanced)/V.11 (balanced)

- CTS and RTS signals with/without tristate
- Bit rate: 100 to 9600 bps (Bd)
- Operation mode/signal routing: depending on the required application the internally programmable switching matrix can be set to 4 possible operating modes which characterize the signal routing.
- AF distribution: via a separate voice switching system (audio matrix)
- PTT or other time-critical functions: their separate transmission and distribution (eg via the voice switching system) is advised if unaccepted long transmission periods are calculated due to series transmission and high quantity of radio units.
- Indicators: LEDs indicate the active signals per converter
- Power supply: AC: 115/230 V +10/-15%, 50/60 Hz, typ. 15 VA, <30 VA
DC: 24 V, typ. 500 mA (<1A); 15 to 32 V; AC/DC: automatic switchover with AC priority
- Dimension, weight: 19" 1 HU rack plug-in; W x H x D = 483 mm x 44 mm x 329 mm (seated depth); 4 kg

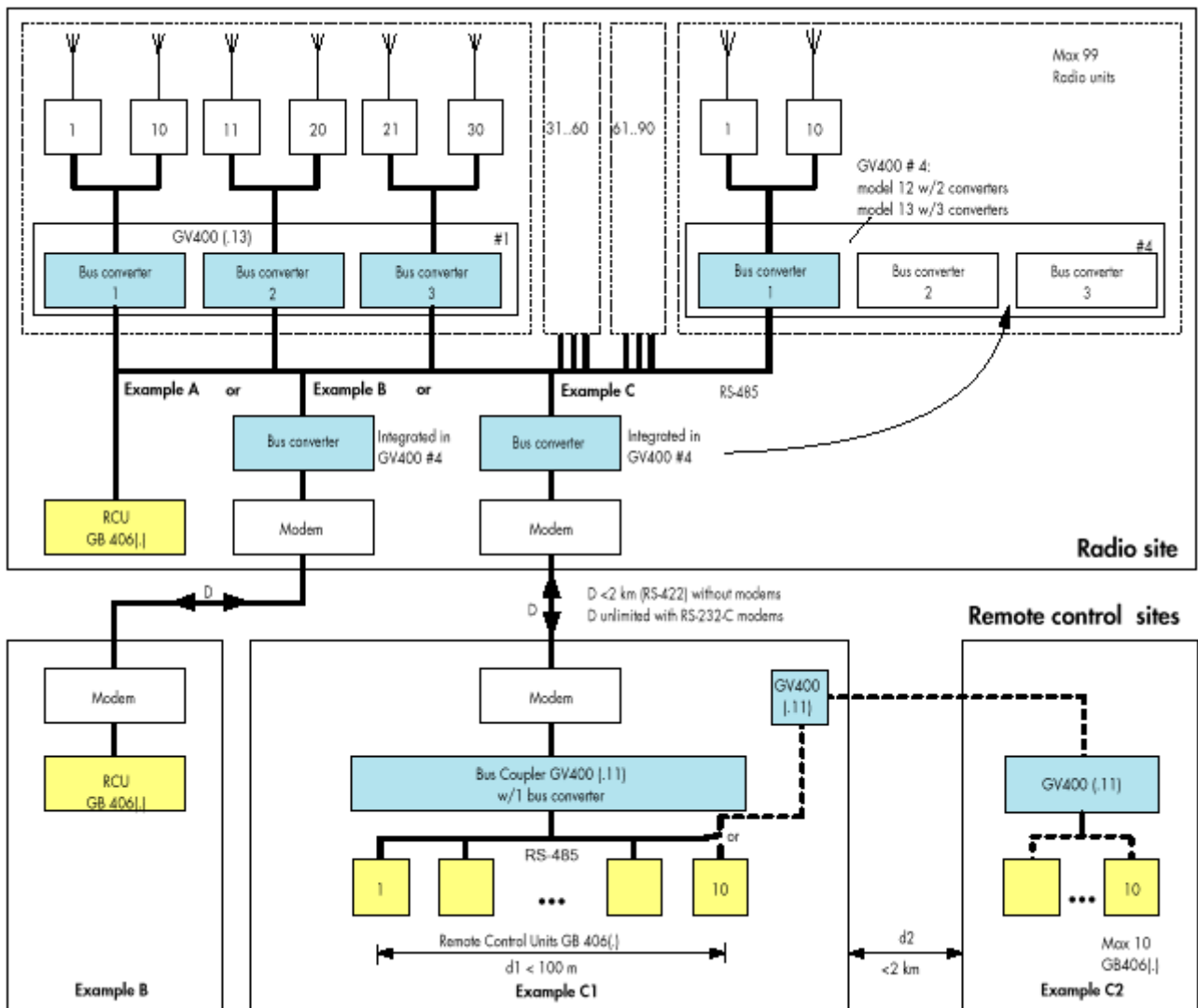


Application examples for Bus Coupler GV400 with 100% link and radio redundancy

¹⁾ ie for 99 radios 11 bus converters are required on the radio station (compare the block diagram overleaf, Example C).

Designation	Type	Order No.	Use, specifications, features and benefits
Bus Coupler	GV400	6049.7942.xx	xx = 11: with 1 bus converter xx = 12: with 2 bus converters xx = 13: with 3 bus converters

Application examples for Bus Coupler GV400 and Control Units GB406



Example A: 1 GB406(.) in Radio Station (eg for local operation/service)
 Example B: 1 GB406(.) in Remote Control Site B

Example C1: 10 GB406(.) in Remote Control Site C1
 Example C2: 10 GB406(.) in Remote Control Site C1 and C2 in sum;
 Solution for $d_2 > 2$ km: on request.

Certified Quality System
ISO 9001
 DQS REG. NO 1954-04



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