Module and Application Description

PROCONTROL P
Modules of the Turbine Control System
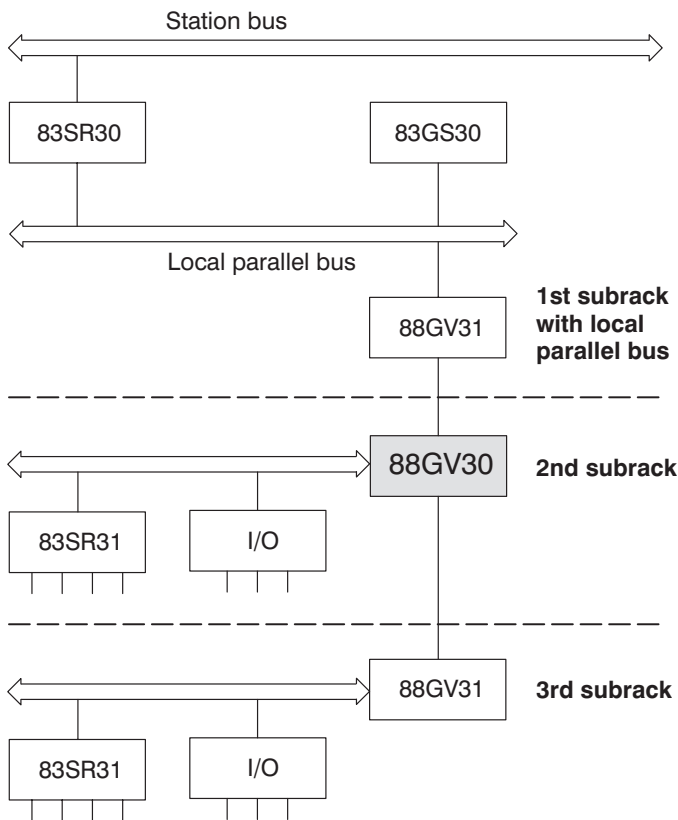
Module Link
(Central Module)

88GV30 – E/R1110

Application

Module 88GV30 serves as a central local – parallel – bus control module in case more than two SR modules are used.

In cooperation with the (passive) 88GV31 coupling modules, the 88GV30 ensures that the data are forwarded to the subracks of the connected local parallel bus.

Use

The 88GV30 module shall be installed only on the far right on a subrack.

The 88GV3x module combination is intended to couple a maximum of three bus subracks (local parallel bus). The module combination consists of a central module (88GV30) on the second bus subrack and of one or two coupling modules (88GV31) which are each connected to the central module via a connecting cable.

The 88GV30 central module may also be required on the first subrack (basic subrack). As a rule, bus access release is granted upon request of the individual SR modules (master). If more than two master modules are used, bus assignment might cause some time problems. In that case, the 88GV30 is recommended to be used as a central bus control module. Whenever 2 or 3 bus subracks are used, the 88GV30 always takes care of the central bus management for all local parallel bus participants.

The 88GV31 modules are connected to the 88GV30 central module via 89IT31 cables.

On the local parallel bus, module 88GV30 acts like a slave unit. There is no active interference with the interrupt lines.

Technical data

In addition to the system data, the following values apply:

Operating voltage: +5 V
Power consumption: 2.5 A

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Initialization

For all module busses connected, module 88GV30 generates the INIT signal. This signal is triggered by:

Duration of INIT signal:

- Actuation of RST pushbutton
  of the module   approx. 4 sec
- Connecting supply voltage Ud   approx. 0.3 sec
- Failure of supply voltage Ud   approx. 0.3 sec

Bus clock

The bus clock is generated on the central 88GV30 module. The frequency can be adjusted by means of jumpers X5, X9 and X10:

	X5				X9	X10	
	1−2	3−4	5−6	7−8	1−2	1−2	
250 kHz	−	−	−	ON	ON	−	
500 kHz	−	−	ON	−	ON	−	
1 MHz	−	ON	−	−	ON	−	
2 MHz	ON	−	−	−	ON	−	*)
4 MHz	ON	−	−	−	−	ON	**)

ON = Jumper closed
−   = OFF
*)   Default setting/as−delivered condition
**)   only for testing

Access assignment

Access to the local parallel bus is given by a system of rotating priority assigned to the individual SR master modules connected. For each one of the three subracks (at the most), a maximum of eight SR master modules may be used. As experience has shown, for one or four master modules the 88GV30 does not necessarily have to be used. Provided the I/O load is small, serial priority assignment will suffice. It requires the following control signal connections:

Module (master) with:

Highest priority   Lowest priority

For an (evenly distributed) rotating priority for all bus participants, the use of a 88GV30 module is recommended.

The appropriate control signals ($\overline{BPRN}$ and $\overline{BREQ}$) need to be wired to the appropriate slots of the SR master modules (see connector). The $\overline{BPRO}$ signal is not wire−connected in the case of rotating priority (88GV30 application).

Assignments as shown below:

Basic connector X21 of the 88GV30

Contact	a	b	c
1	$\overline{BREQ11}$	$\overline{BREQ21}$	$\overline{BREQ31}$
2	$\overline{BPRN11}$	$\overline{BPRN21}$	$\overline{BPRN31}$
3	$\overline{BREQ12}$	$\overline{BREQ22}$	$\overline{BREQ32}$
4	$\overline{BPRN12}$	$\overline{BPRN22}$	$\overline{BPRN32}$
5	$\overline{BREQ13}$	$\overline{BREQ23}$	$\overline{BREQ33}$
6	$\overline{BPRN13}$	$\overline{BPRN23}$	$\overline{BPRN33}$
7	$\overline{BREQ14}$	$\overline{BREQ24}$	$\overline{BREQ34}$
8	$\overline{BPRN14}$	$\overline{BPRN24}$	$\overline{BPRN34}$
9	$\overline{BREQ15}$	$\overline{BREQ25}$	$\overline{BREQ35}$
10	$\overline{BPRN15}$	$\overline{BPRN25}$	$\overline{BPRN35}$
11	$\overline{BREQ16}$	$\overline{BREQ26}$	$\overline{BREQ36}$
12	$\overline{BPRN16}$	$\overline{BPRN26}$	$\overline{BPRN36}$
13	$\overline{BREQ17}$	$\overline{BREQ27}$	$\overline{BREQ37}$
14	$\overline{BPRN17}$	$\overline{BPRN27}$	$\overline{BPRN37}$
15	$\overline{BREQ18}$	$\overline{BREQ28}$	$\overline{BREQ38}$
16	$\overline{BPRN18}$	$\overline{BPRN28}$	$\overline{BPRN38}$
17			
18			
⋮	$\overline{BREQxy}$ = Bus request module y, subrack x		
32	$\overline{BPRNxy}$ = Release		

Basic connector X21 of a 83SR30/31

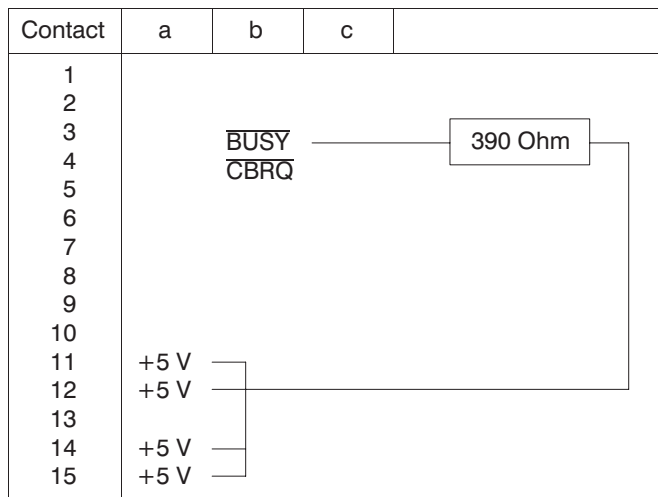| Contact	a	b	c
1			
2			
3	$\overline{BPRN}$		
4	$\overline{BPRO}$		$\overline{BREQ}$
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
⋮	$\overline{BREQ}$ = Bus request		
	$\overline{BPRN}$ = Bus priority IN		
32	$\overline{BPRO}$ = Bus priority OUT		

Other wired connections required for rotating priority assignment

In addition to the wiring for priority assignment, the following connections need to be established on the bus backplane (local parallel bus):

a) Interconnecting the $\overline{CBRQ}$ signals (terminal b4) of all local parallel bus subracks used.

b) In addition, connecting the $\overline{BUSY}$ signal (terminal b3) per local parallel bus subrack with 390 Ohm to +5 V (terminal a11, a12, a14 or a15).

Basic connector X11 of a 88GV30 (local parallel bus)

Contact	a	b	c	
1				
2				
3		$\overline{BUSY}$		390 Ohm
4		$\overline{CBRQ}$		
5				
6				
7				
8				
9				
10				
11	+5 V			
12	+5 V			
13				
14	+5 V			
15	+5 V			

Operating elements

• Pushbutton STOP/RESTART

On the front plate, a STOP pushbutton for interrupting the bus cycle for approx. 5 sec is installed. Within this period of time, the unit can be unplugged in energized condition without causing any data loss or memory access errors. After expiration of 5 sec, the module is ready for operation again.

The STOP pushbutton is effective only if the local parallel bus is not busy at the moment of pushbutton actuation (no BUSY signal present).

Repeated actuation of the pushbutton (within those 5 sec) will effect immediate restart of the procedure.

Annunciation elements

• Light−emitting diode ZYK (green)

On the front plate, a green light−emitting diode "ZYK" indicates the proper sequence of bus accesses. The LED goes off in order to indicate an interruption of the bus cycle (see also STOP pushbutton).

• Light−emitting diode ST (red)

The red light−emitting diode "ST" indicates module disturbances according to the diagnosis concept, e.g. simultaneous activation of more than one subrack.

Plug−in jumpers

Jumper	No.	State	Function
X6	1−2	−	
	3−4	−	
	5−6	ON	Reset time (Ud <4.5 V) = 0.3 sec
	7−8	−	
	9−10	−	
	11−12	−	
	13−14	−	
	15−16	−	
X7	1−2	−	
	3−4	ON	Reset time (STOP) = 4 sec
	5−6	−	
	7−8	−	
X8	1−2	ON	Central clock ON

## Front plate earthing

The front plate is not electrically connected with the module. Appropriate front−plate earthing for shielding against electromagnetic interferences is done by means of the subrack/ module fixing bolts.

Pull−out tool

Pull−out tool XN 400 776 is required for withdrawing the module (part of the scope of supplies).

Jumper positioning on the 88GV30
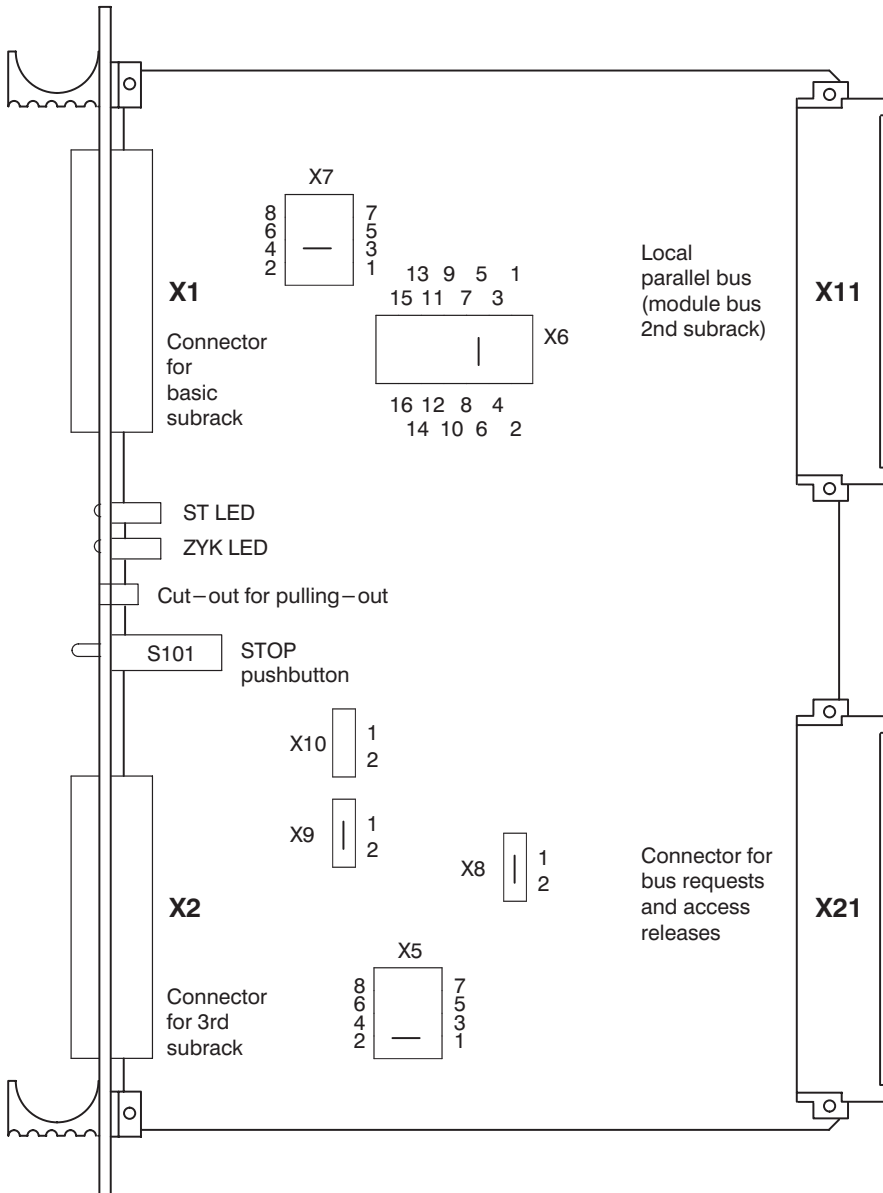
— Jumpers in as−delivered position

Mechanical design

Board size: 6 units, 1 division, 160 mm deep
Connector: to DIN 41612
                    4 x 96−pole edge connector, type C
                    for 89IT31 cable (connector X1 and X2)
                    for local parallel bus (connector X11)
                    for bus requests and access release
                    (connector X21)
Weight: approx. 0.32 kg

ORDERING DATA

Order no. for complete module:
Type designation: 88GV30−E/R1110   Order number: GJR2371600R1110

Technical data subject to change without notice!

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