SIEMENS

SIMOREG CM

6RA70 Series

Microprocessor-Based Converters
for Variable-Speed DC Drives

Application
CM for more than three
thyristors in parallel



Edition 01

NOTE

This application documentation does not purport to handle or take into account all of the equipment details or versions or to cover every conceivable operating situation or application.
If you require more detailed information, or if special problems occur, which are not handled in enough detail in this document, please contact your local Siemens office.

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WARNING



These converters contain hazardous electrical voltages and control rotating mechanical components (drives). Death, serious bodily injury or substantial damage to property will occur if the instructions in the relevant operating manuals are not observed.

Only qualified personnel who are thoroughly familiar with all safety notices contained in the operating instructions as well as erection, operating and maintenance instructions must be allowed to work on these devices.

Successful and safe operation of this equipment is dependent on careful transportation, proper storage and installation as well as correct operation and maintenance..

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We have checked that the contents of this publication agree with the hardware and software described herein. Nonetheless, differences might exist and therefore we cannot guarantee that they are completely identical. The information given in this publication is reviewed at regular intervals and any corrections that might be necessary are made in the subsequent printings. Suggestions for improvement are welcome at all times.

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1 General

The SIMOREG CM is an autonomous unit which contains all the components required to control and drive power sections in a B6C or (B6)A(B6)C connection.

Using the pulse amplifiers on the A7042 power interface of the CM, it is possible to drive up to 3 thyristors in parallel by employing additional A7043 pulse transformer boards on the CM.

Supplementary pulse amplifiers and an external P24 power supply are required for a configuration with more than 3 parallel thyristors.

The SA31 pulse amplifier can be used for this purpose. A separate SA31 is needed for each torque direction.

Up to 8 pulse transformers of the A7043 board can be connected to each pulse output on the SA31 to drive up to 8 parallel thyristors. By using additional SA31s (up to 8 per torque direction), it is possible to drive up to a total of 64 parallel thyristors.

(See block diagram on page 9 of SA31 Operating Manual.)

Use the SA31 in the shipped state.

List of components required for use of SA31:

SIMOREG CM:	Order number 6RA7000-0MV62-0
SA31 pulse amplifier:	Order number 6DD2920-0AR3
A7043 pulse transformer board:	Order number 6RY1703-0CM01
CM Operating Manual:	Order number 6RX1700-0BD00
SA31 Operating Manual:	Order number 6DD2921-3AR74
External 24 V power supply	

Using the pulse transformer board 6QN1022-3AD

The pulse transformers on the A7043 board of the CM can be used for power section line voltages up to 1000 V (+10%) maximum. The pulse transformer board 6QN1022-3AD is suitable for voltages up to 1500 V. Voltages higher than 1500 V available on request.

One board contains two pulse transformers with transistor amplifier at the input for controlling two thyristors. The extra transistor amplifier on the 6QN1022-3AD board allows up to 12 parallel thyristors to be driven directly from X21A, X22A on the A7042 board of the CM. A separate pulse transformer is required for each thyristor.

When more than 12 thyristors are connected in parallel, the SA31 pulse amplifier can be used additionally.

2 Connection between A7042 power interface on CM: Connector X21A, X22A and SA31 pulse amplifier: Connector X2

A7042: X21A, X22A	Signal	SA31: X2
X21A.20	Imp.1.1	X2.d4
X21A.22	M	X2.b4
X21A.5	Imp.1.2	X2.d20
X21A.7	M	X2.b20
X21A.17	Imp.1.3	X2.d8
X21A.19	M	X2.b8
X21A.11	Imp.1.4	X2.d28
X21A.13	M	X2.b28
X21A.14	Imp.1.5	X2.d12
X21A.16	M	X2.b12
X21A.8	Imp.1.6	X2.d24
X21A.10	M	X2.b24
X22A.20	Imp.2.1	X2.d30
X22A.22	M	X2.b30
X22A.5	Imp.2.2	X2.d14
X22A.7	M	X2.b14
X22A.17	Imp.2.3	X2.d26
X22A.19	M	X2.b26
X22A.11	Imp.2.4	X2.d6
X22A.13	M	X2.b6
X22A.14	Imp.2.5	X2.d22
X22A.16	M	X2.b22
X22A.8	Imp.2.6	X2.d10
X22A.10	M	X2.b10
Ground	Shield	X2.z2

3 Connection SA31: X1, X6 to external power supply

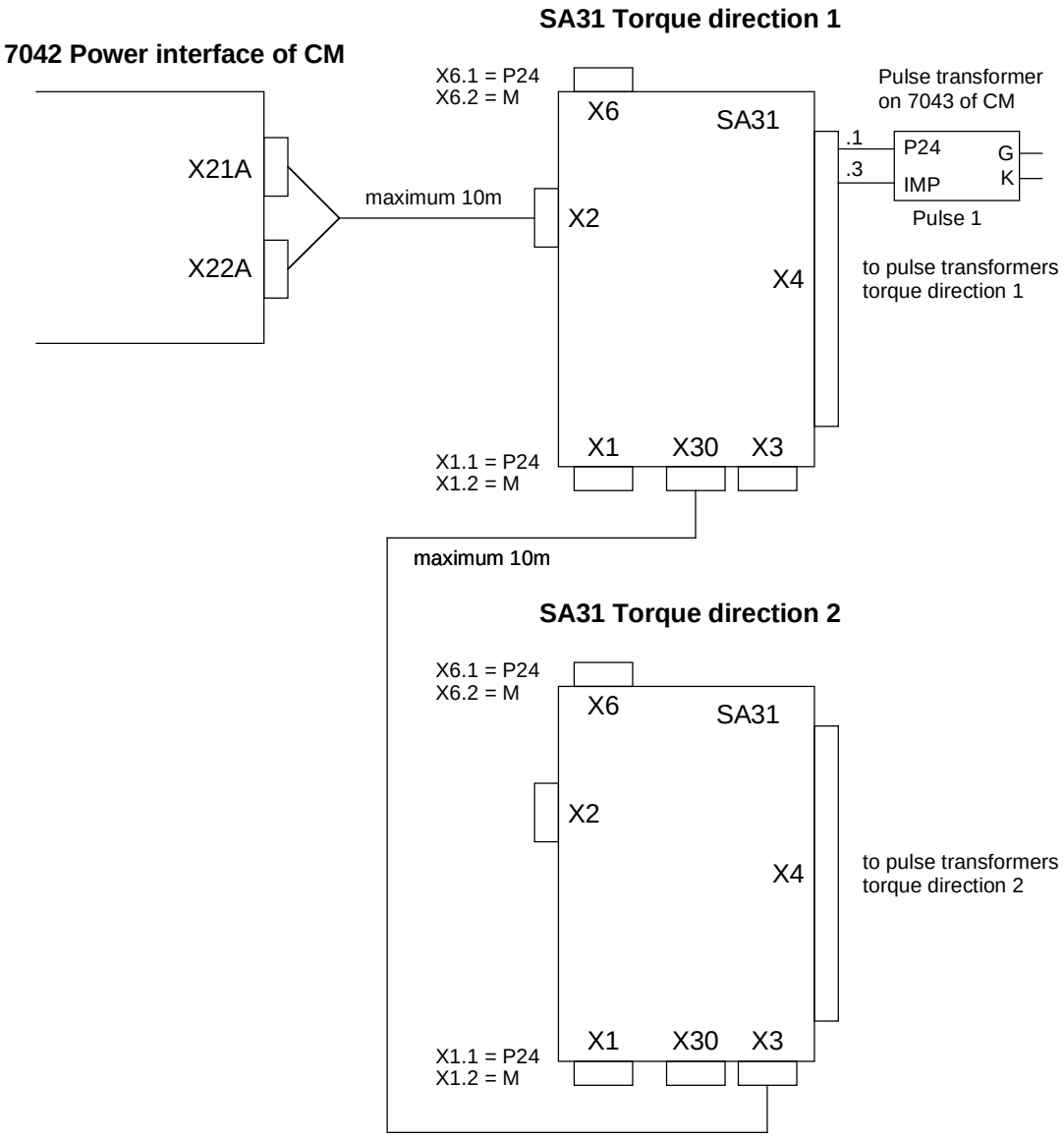
Electronics power supply:
X1.1: + 24 V
X1.2: M

Pulse amplifier power supply:
X6.1: +20 to 48 V (maximum 60 V); +24 V when CM pulse transformers are used
X6.2: M

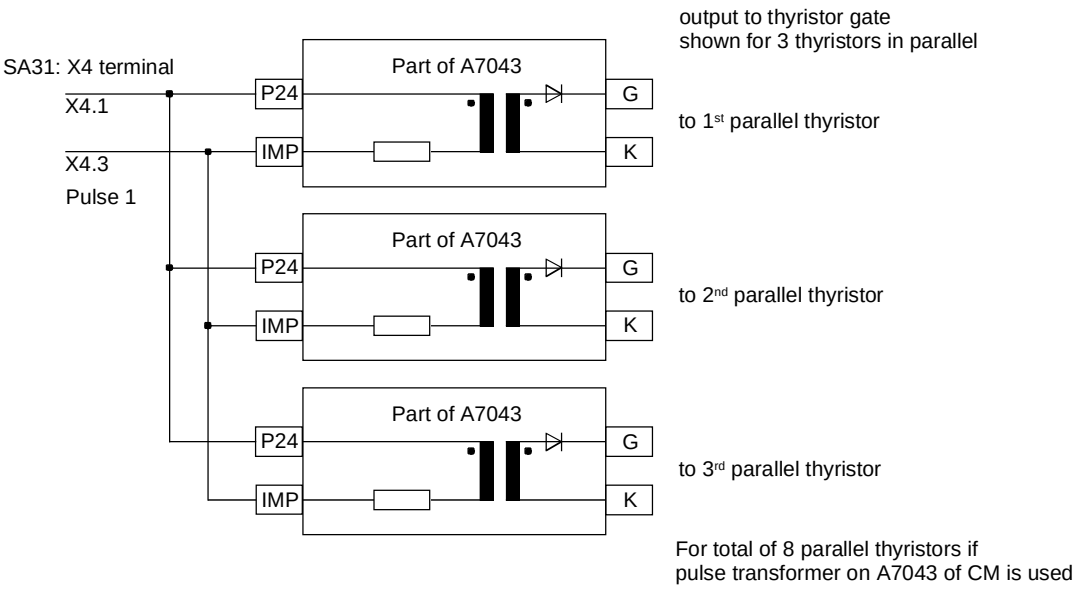
Ground terminals on connector X4 of SA31

Terminal numbers: 4, 9, 14, 19, 24, 29

4 Typical connections between CM and SA31



5 Connection of pulse transformers to SA31

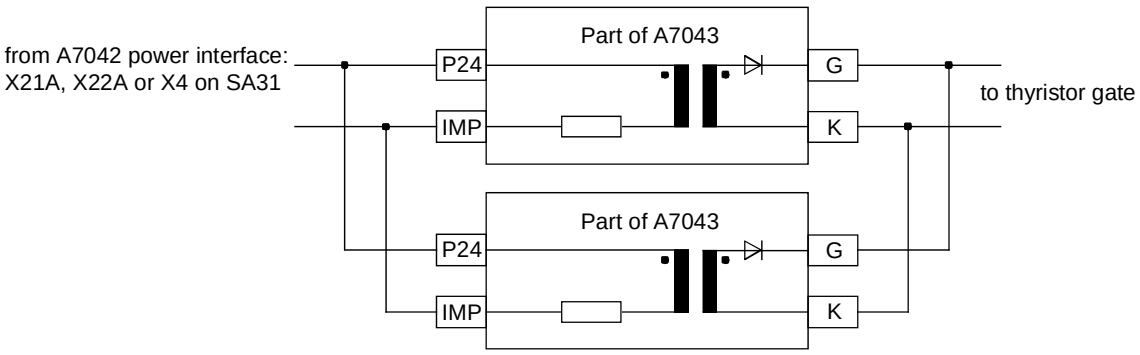


SA31		
	X4.1	P48
	X4.3	IMP1
	X4.26	P48
	X4.28	IMP2
	X4.6	P48
	X4.8	IMP3
	X4.16	P48
	X4.18	IMP4
	X4.11	P48
	X4.13	IMP5
	X4.21	P48
	X4.23	IMP6

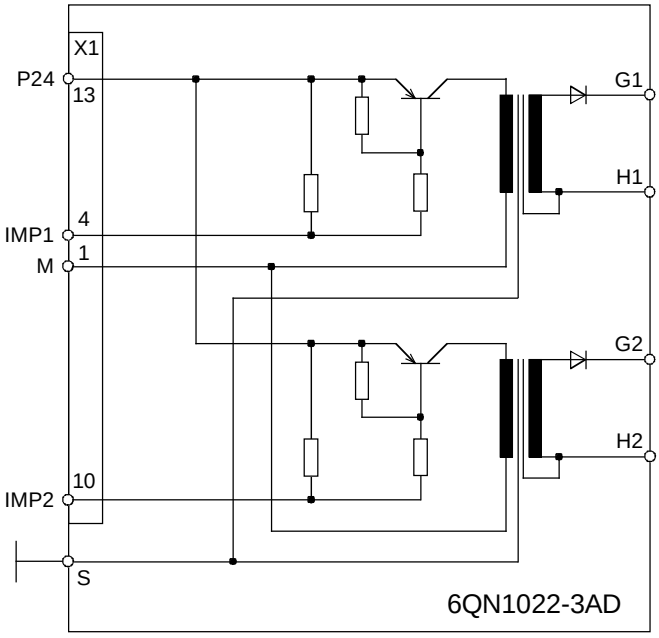
to pulse transformers

Order number of pulse transformer card
A7043 of CM: 6RY1703-0CM01

6 Using paralleled pulse transformers for gating currents higher than 1A



7 Block diagram of pulse transformer board 6QN1022-3AD



P24 / M: External 24V power supply

IMP1 / M: to X21A / X22A of A7042 on CM or X4 of SA31, pulse input channel 1

G1 / H1: Output channel 1 to thyristor gate

S: Connect shield to ground

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