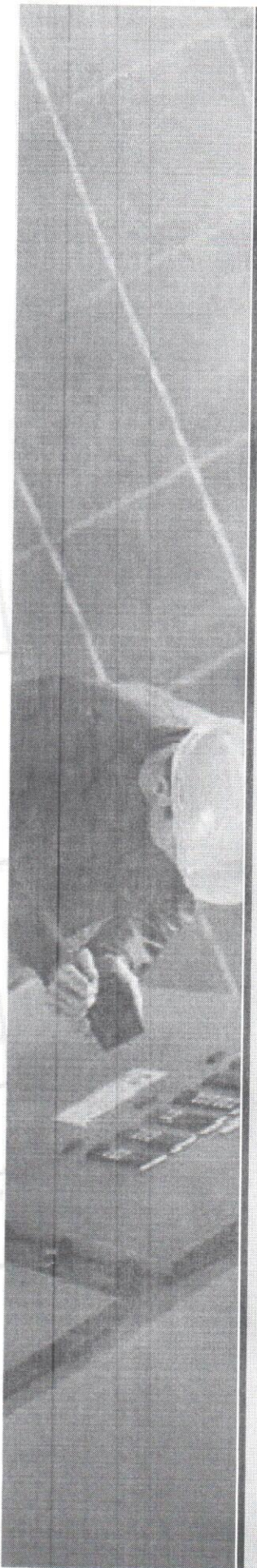




GE Jenbacher



ELECTRIC WIRING DIAGRAM

J D390

Waterous Stock Units 312

2 x JGS 312 GS-N.L




GE Jenbacher

Wiring diagram

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The wiring diagram includes: 15 sheets.



Waterous Stock Units 312

2 x JGS 312 GS-N.L

J D390

ATTENTION: PRE-VERSION

Ver.s.:	Date:	Rel.:	Mod.:
X	before manufacture
	after testrun
	after start up

Modific.	Date	Name	Date	18. Jan. 2006	2 x JGS 312 GS-N.L		GE Jenbacher	Cover sheet	Project	JD390	Group	+ U	Page	1
			Dessg.	Mitsch Stefan			974M 5	Wiring diagram	Suffix					
			Print	20. Jul 2006	Waterous Stock Units 312									
			Norm		DIR: J.V.A									

Over view

Parameters for the operation
of GE Jenbacher Engines
acc. TI.Nr.: 1100-0110

Modifications of Design
reserved.

Modification No.	Vers.	Date	Name
..

All Cables between the
Switchboards and the Engine
have to be in flexible mode.

Protection against electric shock hazard
(Grounding, Potential Compensation)
has to be provided by the Customer at
Installation according to local Standards !
At states of Delivery the Installation is
prepared for Protection Connection to
Zero Potential to and Current
Overload Protection in TN-Network
to IEC 60439 .

The Numbers in the circles are in
Relation with the Numbers in the
Interface-List J D390 4410 00

This Wiring Diagram is designed with
a CRE-System.
Modifications will be occupied by
GE Jenbacher

Hostfile:	Date	Date	2 x JGS 312 GS-N-L			GE Jenbacher	Over view	Project	Group	Page
	Name	Design	Material	DIR: J.V.V.						
	Name Norm	18. Jan. 2006	Kitsch Stefan	20. Jul. 2006		<i>EPAN 5</i>				

1

3

Diagram index

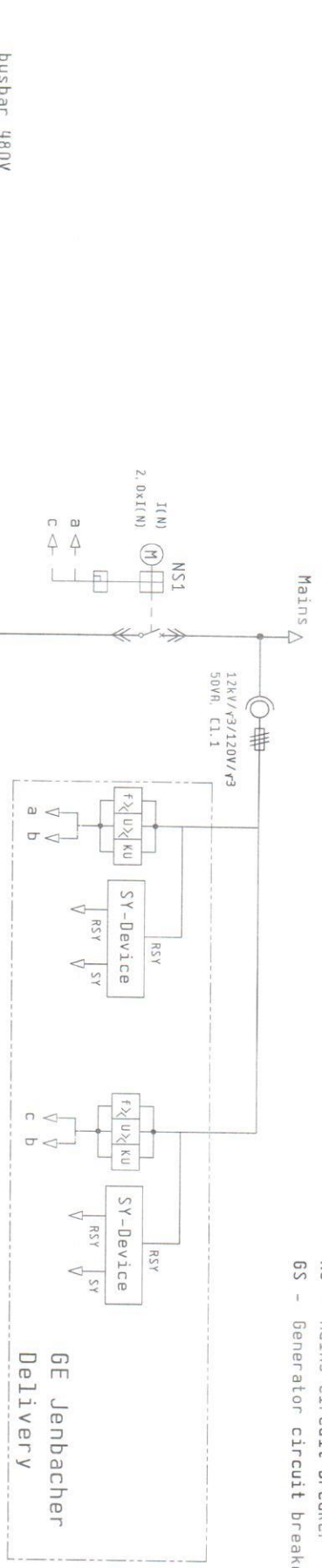
Page	Denomination	Modifications	Page	Denomination	Modifications
+U/1	Cover sheet Wiring diagram				
+U/2	Over view				
+U/3	Diagram index				
+U/4	E-Diagram				
+U/5	Over view groups				
+U/6	Panel Over view				
+U/7	Protection: Generator				
+U/8	Potential equalization				
+U/9	Bus diagram				
+U/10	Over view Software				
+U/11	Legend of Symbols				
+U/12	Legend of Symbols				
+U/13	Requirements for Cablings NEC				
+U/14	Cable with DIRNE				
+U/15	Over view cables				

2

Modific.	Date	Name	Korn	Date	18. Jan. 2006	2 x JGS 312 GS-N-L		Diagram index	Project	JD390	Group	+ U	Page	3
	Design	Mitsch Stefan		Print	20. Jul. 2006	Waterous Stock Units 312	GE Jenbacher		Project	JD390	Group	+ U	Page	3
							PLAN 5		Project	JD390	Group	+ U	Page	3
									Project	JD390	Group	+ U	Page	3

4

NS - Mains circuit breaker
 GS - Generator circuit breaker



f <: 61 Hz
 f >: 59 Hz
 U <: 85 % UN
 U >: 110 % UN
 KU: 8 Grad

Generator 1
 480V +/-5% 60Hz
 786kVA 945R cos φ=0.8
 633kWh 762h cos φ=1

Indicator's s:


R	R	R	Ve
V	Hz	cos φ	
kWh	kVA	kVarh	

Generator 1
 480V +/-5% 60Hz
 786kVA 945R cos φ=0.8
 633kWh 762h cos φ=1

Indicator's s:

R	R	R	Ve
V	Hz	cos φ	
kWh	kVA	kVarh	

Over view groups

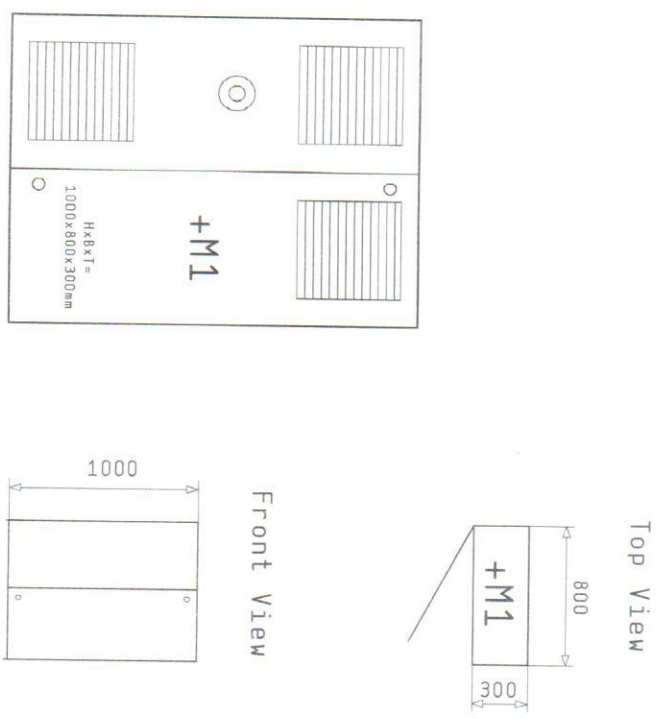
- +U Over view
 - +B Part reference list
 - +G1 Generator 1
 - +M1 Module interface panel 1
 - +R1 Module control cubicle 1
 - +DF HERMES
- 
 MIN SERVER installed
 Waterous Stock Units 312 +R1

Location

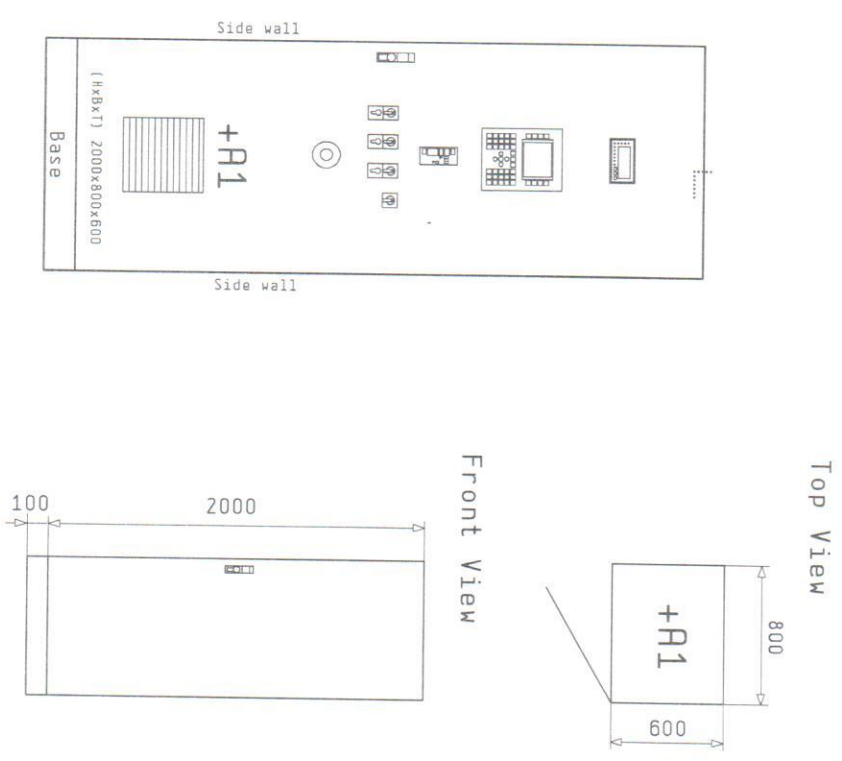
- +E1 Gas engine 1
- +P1 Periphery 1

Modific.	Date	Name	Norm	Date	Destig	Print	DIR	J.N.	GE Jenbacher	Over view groups	Product	Group	Page
				18. Jan. 2006	Mitsch Stefan	20. Jul. 2006	DIR	J. V. V	 GE Jenbacher	Over view groups	JD390	+ U	5
									<i>PLAN 5</i>				

Module interface cubicle (mounted on the genset)



Module control panel

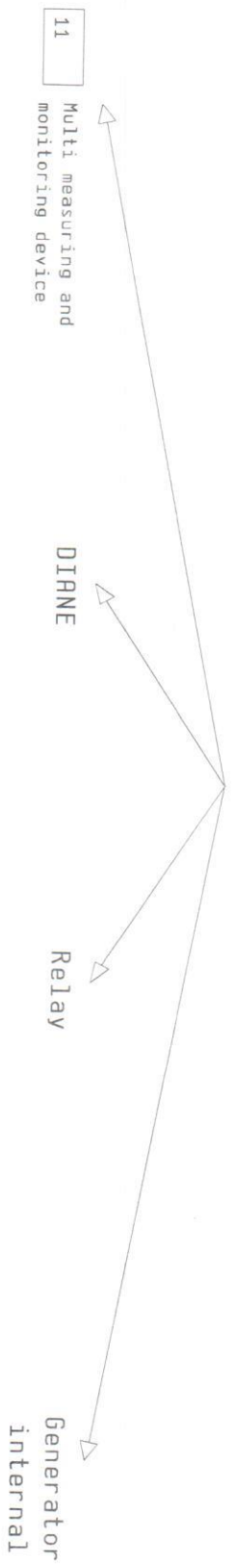


Modif.:	Date	Name	Norm	Date	18. Jan. 2008	2 x	JGS 312 GS-N. L	 GE Jenbacher ePLAN 5	Panel Over view	Project	JD390	Form	+ U	Page	6
				Desig.	Kitsch Stefan					Print	20. Jul. 2008				
				DIR:	J. V. V.										

5

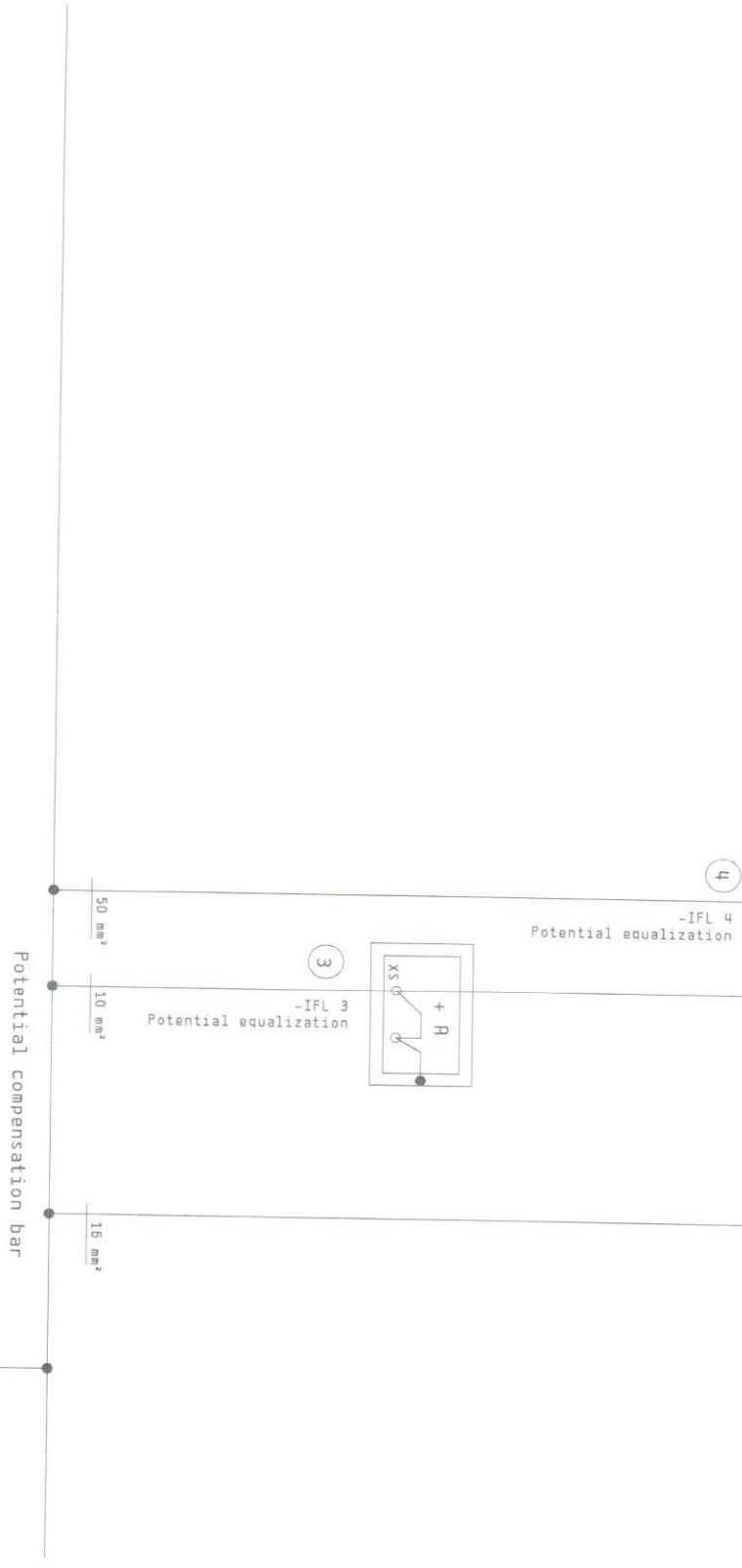
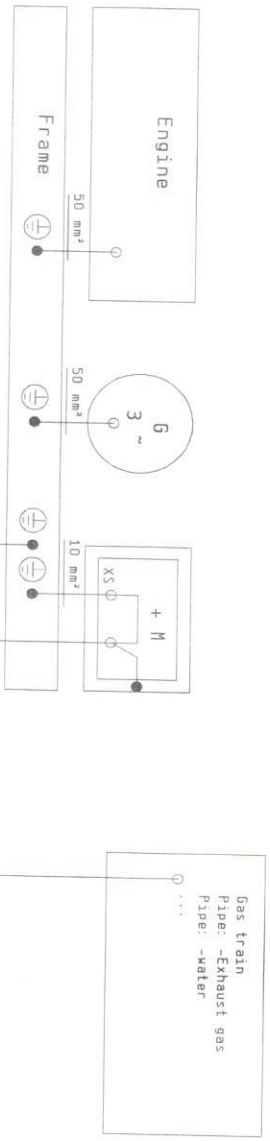
7

Protection: Generator



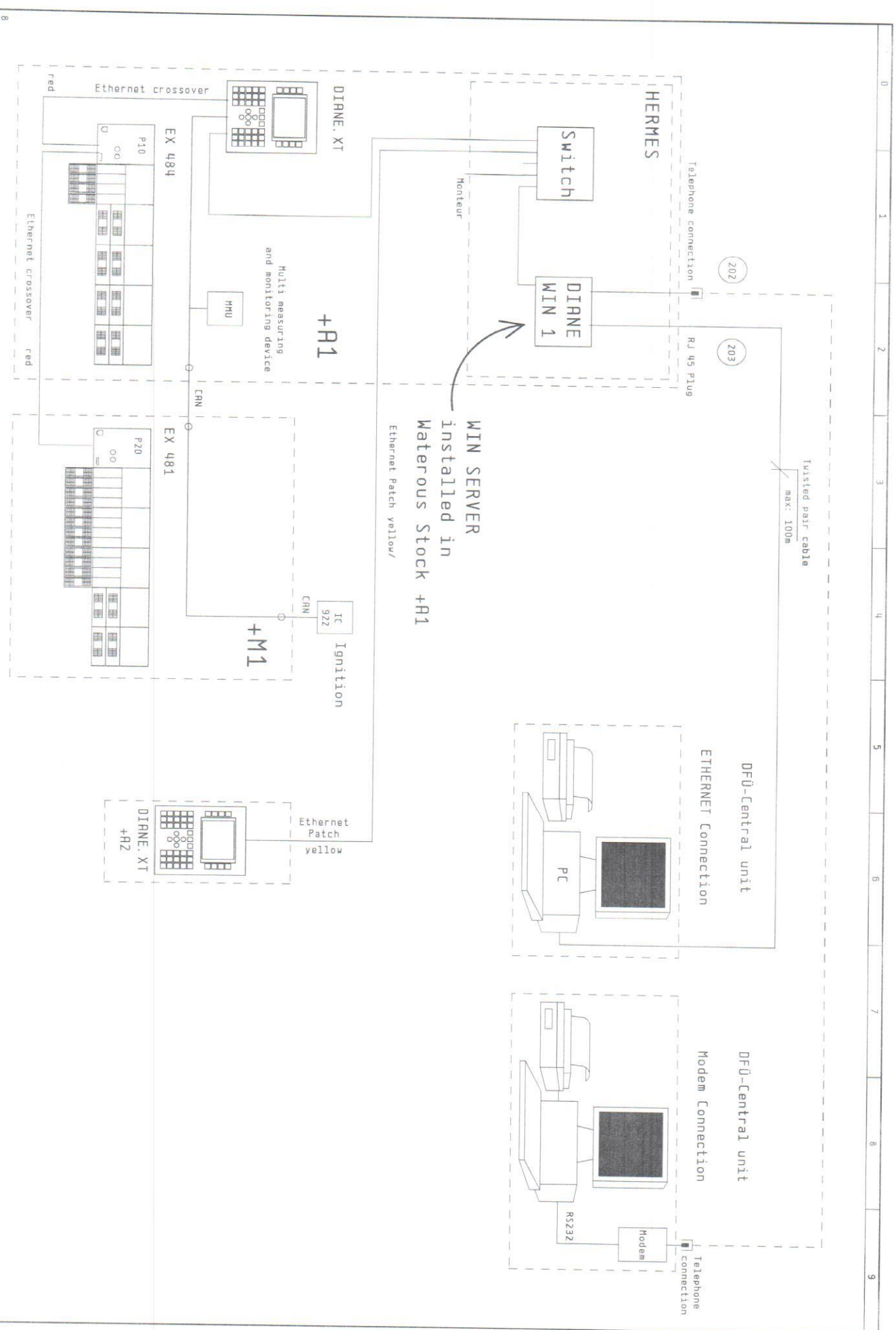
- 11 Multi measuring and monitoring device
- 27 Under voltage
- 59 Over voltage
- 50/51 Overload/Short circuit
- 64/59N Unbalance - Voltage
- 46 Unbalance - Current
- 40 Failure Excitation
- 81 > Over frequency
- 81 < Under frequency
- 49 Windings temperature
- 53 Excitation voltage low
- 32 Reverse power
- 37 Power <
- P> Power >
- 50/51 Overload/Short circuit
- Mains failure:
- 27/59 Voltage < >
- 81 <> Frequency < >
- 78 KU
- 24 Voltage/Frequency Function
- 56 Excitation >

Modif.:	Date	Name	Date	Destig.	Print	DIR:	J.V. V	Material	Stock Units	312	GE Jenbacher	EPVAN 5	Protection:	Generator	Project	JD390	Group	+ U	Page	7
			18. Jan. 2006	Kitsch Stefan	20. Jul. 2006			2 x JGS 312 GS-N.L												



* according
 VDE 0100 Teil 540
 (IEC 364-5-54)

Modific.	Date	Date	16. Jan. 2006	2 x JGS 312 GS-N. L	GE Jenbacher GPLAV 5	Potential equalization	Project	J0390	Group	+ U	Page	8
		Design:	Kitsch Stefan	Material: Materious Stock Units 312			DIR: J-V. V	SubTitle				



0	1	2	3	4	5	6	7	8	9																												
<table border="1"> <tr> <td>Modific.</td> <td>Date</td> <td>Name</td> <td>Norm</td> <td>Date</td> <td>Desig</td> <td>Print</td> <td>DIR</td> <td colspan="2"> GE Jenbacher EPAN 5 </td> <td>Bus diagram</td> <td>Project</td> <td>Group</td> <td>Page</td> </tr> <tr> <td></td> <td>18. Jan. 2006</td> <td>Mitsch Stefan</td> <td></td> <td>20. Jul. 2006</td> <td>2 x JGS 312 GS-N. L</td> <td>Waterous Stock Units 312</td> <td>J.V.V.</td> <td colspan="2"></td> <td></td> <td>JD390</td> <td>+ U</td> <td>9</td> </tr> </table>										Modific.	Date	Name	Norm	Date	Desig	Print	DIR	 GE Jenbacher EPAN 5		Bus diagram	Project	Group	Page		18. Jan. 2006	Mitsch Stefan		20. Jul. 2006	2 x JGS 312 GS-N. L	Waterous Stock Units 312	J.V.V.				JD390	+ U	9
Modific.	Date	Name	Norm	Date	Desig	Print	DIR	 GE Jenbacher EPAN 5		Bus diagram	Project	Group	Page																								
	18. Jan. 2006	Mitsch Stefan		20. Jul. 2006	2 x JGS 312 GS-N. L	Waterous Stock Units 312	J.V.V.				JD390	+ U	9																								
<table border="1"> <tr> <td>Project</td> <td>Group</td> <td>Page</td> </tr> <tr> <td>JD390</td> <td>+ U</td> <td>9</td> </tr> </table>										Project	Group	Page	JD390	+ U	9																						
Project	Group	Page																																			
JD390	+ U	9																																			

Over view Software

DIA. NE WIN: Server functions

File:

D390

Module control

RPS V2.1x

DIA. NE WIN - DEFAULT V1.1. x

Generate application(s)

J- Number:

D390

Server:

1

Number of engines

1

Start

D390M_A_01

DIA NE WIN

Modific.	Date	Name	Date	18. Jan. 2006	2 x J6S 312 GS-N.L		Over view Software	Product	JD390	Group	+ U	Page	10
			Destg.	Mitsch Stefan									
			Print	20. Jul. 2006	Waterous Stock Units 312								
					DIA: J.V.V								

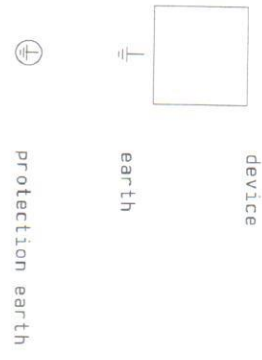
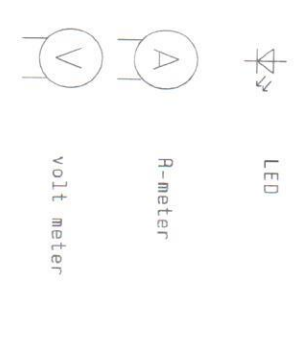
0	1	2	3	4	5	6	7	8	9
	NO Contact		Emergency push button extern (interface)		coil for relay/ contactor				
	NC Contact		flow switch NC extern (interface)		coil for coupling relay				
	push button NO		pressure switch COC extern (interface)		electromagnetic valve				
	push button NC		temperature switch COC extern (interface)		terminal				
	camshaft switch lockable NO		miniature circuit breaker		fuse clip				
	Emergency push button		fuse		diode				
	temperature switch NC		temperature sensor thermo couple		three-phase motor				
	pressure switch NO		temperature sensor PT100		battery				
	pressure switch NC		temperature sensor PTC		measuring transducer (pressure/current)				
	NO Contact extern (interface)		resistor		pick up				
	NC Contact extern (interface)		potentiometer		coil				

10

Modific.	Date	Kategorie	Norm	Date	18. Jan. 2006	2 x JGS 312 GS-N.L	Waterous Stock Units 312	DIR: J.V.V.	Legend of Symbols	Project	JD390	Group	+ U	Page	11
				Desig:	Mitsch Stefan					Project	JD390	Group	+ U	Page	11
				Print	ZO. Jul. 2006					Project	JD390	Group	+ U	Page	11

12

Single Line Diagram

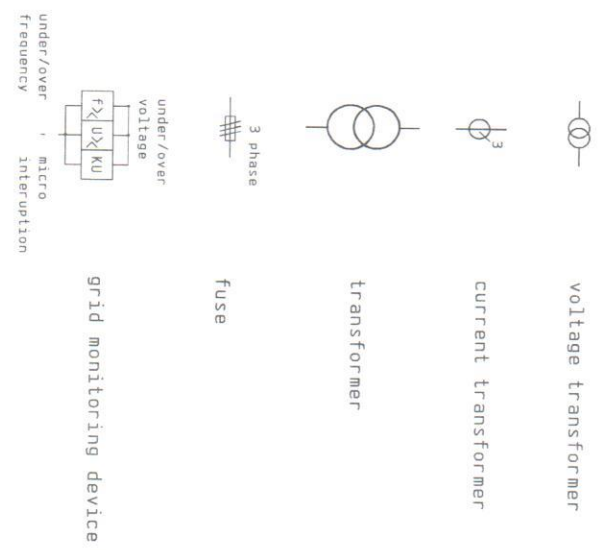
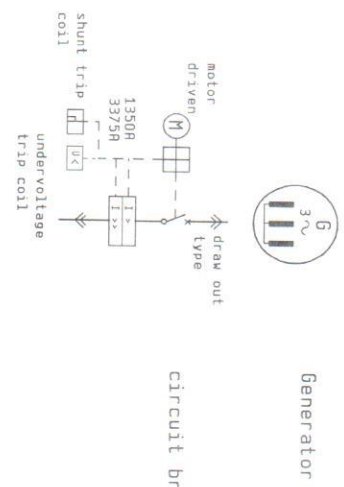


$\text{NNN-S TTTT-IT ZxC, Cmm}^2$
 Cable
 NNN = Cable Number
 S = Cable Group (A, B, C)
 TTTT-IT = Cable Type
 Z = number of wires
 C = cross section

IFC... = Interface Cable
 Cable specification by others
 IFL... = Interface
 see Interface List
 NO = Normal open contact
 NC = Normal closed contact
 COC = change over contact

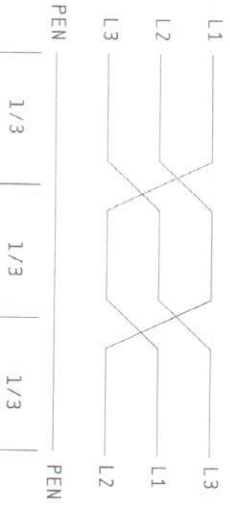
CONVERSION TABLE:

mm ²	inch ²	kcmil	MWG
0,75	0,00116	1,4775	18
1,5	0,00232	2,955	14
2,5	0,003875	4,925	12
4	0,0062	7,88	10
6	0,0093	11,82	8
10	0,0155	19,7	6



Requirements for Cablings

ACCORDING NEC, article 310 and 318, as well as,
TR. NO. : 1000-0505



TI-No. : 1000-0505

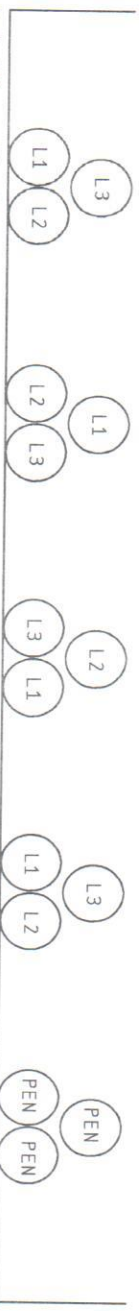
Cable groups:

- CU1 Cable group A : Shielded analog cables
 - Cables unshielded AC/DC ≤60 V
 - Cable shielded AC/DC ≤277 V
- CU2 Cable group B : Cable unshielded AC/DC >60 V, ≤277 V
- CU3 Cable group C : Cable unshielded AC/DC >277 V, ≤1 kV
 - Cables shielded AC >230 V, ≤1 kV

! Bus cables must be laid separately !

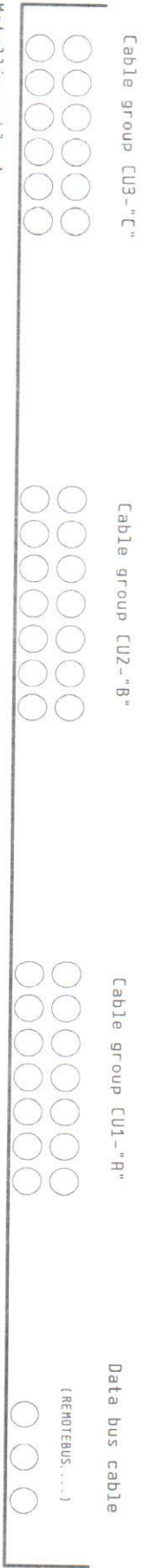
Cable configuration according NEC 318-11-b.

D=Cable diameter



20mm	2xD	2.15xD	2xD	2.15xD	2xD	2.15xD	2xD	2.15xD	2xD	2.15xD
------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------

Cable:	Diameter:
XHHW 250kcmil	0,7"
XHHW 300kcmil	0,75"
XHHW 350kcmil	0,8"
XHHW 400kcmil	0,85"
XHHW 500kcmil	0,93"
XHHW 600kcmil	1,04"



Data bus cable

>100mm, 4" | >100mm, 4" | >100mm, 4"

Date	18-Jan-2006	Date	2 X JGS 312 6S-N.L	 Requirements for Cablings for Cablings NEC		
Desty:	Mitsch Stefan	DIR:	Materous Stock Units 312			
Print	20-Jul-2006	DIR:	J.V. \			
Modific.	Date	Name	Mom	Product	Group	Page
				JD390	+ U	13

Cable GE Jenbacher

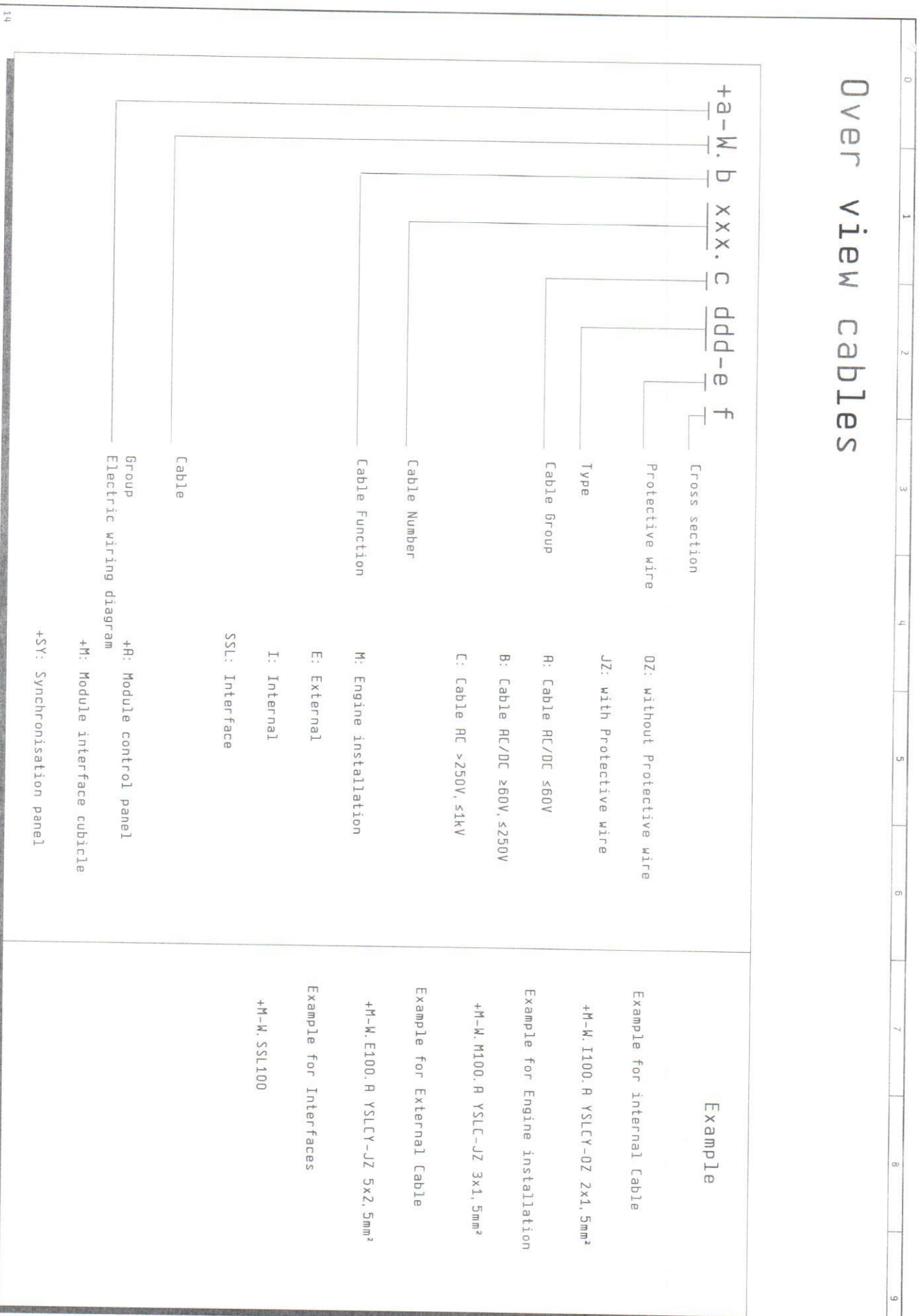
Cable GE Jenbacher Electric wiring diagram		VDE / IEC		USA	Ital. CEI 20-22	Spain
YSLY-0Z	NYSLYö-0Z VDE 250	H05VV5-F. X.	SIHF Sillikon	THWN		RV-K 0,6/1kV
YSLY-JZ	NYSLYö-JZ VDE 250	H05VV5-F. G.	SIHF Sillikon	THWN		RV-K 0,6/1kV incl. PE
YSLCY-0Z	NYSLCYö-0Z VDE 250	H05VVC4V5-K. X.		1PR16S		RV-K 0,6/1kV apantallado
YSLCY-JZ	NYSLCYö-JZ VDE 250	H05VVC4V5-K. G.		1PR16S		RV-K 0,6/1kV incl. PE y apantallado
NYV	NYV 1x185 cm 0,6/1kV-VDE 271	NYV 1x185 cm 0,6/1kV -VDE 271		THWN up to 600V	NIVVK	RV-K 0,6/1kV
H07RNF		H07RNF VDE 0282			H07RNF	H07RNF
H07V-K		H07V-K VDE 0281			H07V-K	H07V-K
NICRNI-gesch. für Thermoelemente	90 N ... DIN IEC 584			RNSI MC 96.1 for thermocouples	90 N ... DIN IEC 584	90 N ... DIN IEC 584
NSGRFÖU-3kV		NSGRFÖU-3kV		MV-90 >5KV		
NYV 0,6/1kV					Tutti i cavi con fili fini cavi di potenza almeno di fino multipolare	Todos los cables con hilos finos cables de potencia por lo menos de hilos multiples
Cable for Middle voltage generator (>1kV)		Cable according Generator-Manufacturer f. e. SIEMENS PROTOLON-NITMCGCWÜ		see Technical specification of the control D390 4440 00 Part 4		

13

Date	18 Jan. 2006	Z x JGS 312 6S-N. L		Cable with DIANE	Project	JD390	Group	+ U	Page	14
Design	Mitsch Stefan	Waterous Stock Units 312	GE Jenbacher		Subfix					
Date	20 Jul. 2006	DIR: J.V.V.	GPAN 5							

15

Overview cables



Modif.:	Date	Name	Date	Destg.	Prat	DIR	Material	Units	Product	Group	Page
			18. Jan. 2006	Mitsch Stefan	20. Jul. 2006	DIR	Z x JGS 312 GS-N. L	Material Stock Units 312	GE Jenbacher	+ U	15
									Overview cables		
									Product	Group	Page
									JD390	+ U	15