S2NA Control Panel (Package ME50)



GT120 & GT 220A Series Boiler Control Panel







Warning:

This control is approved for use with the De Dietrich GT120A or GT220A series boiler only.

Before you operate you install or use this boiler control, read this manual carefully and take extra precautions to all safety and warning symbols or important items. The operating manual is part of the documentation along with the boiler. The installer is required to explain the heating system and boiler operating instructions to the owner.



Notice:

Please read this manual and retain for future reference. Improper installation, adjustment, alteration, service or maintenance can cause injury, loss of life or property damage. Refer to this manual for assistance or additional information or consult a qualified installer, service agency or the gas supplier.









XXXX-XXXX R0

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Symbols used

	Caution danger	Risk of injury and damage to equipment. Attention must be paid to the warnings on safety of persons and equipment
i	Specific information	Information must be kept in mind to maintain comfort
Ĩ	Reference	Refer to another manual or other pages in this instruction manual

Important Items

WARNING:

For proper operation of the boiler these instruction must be flollowed excactly.

Any repair or service to this control must be done by a qualified and trained service person or company.

There are no owner serviceable parts on this control, the usage of Non-OEM parts void any product warranty and approvals.

The manufacturer is not responsible nor held liable for any improper use or failure to maintain this control is good operating condition.

Always Observe the power polarity

This control requires to be earth grounded (bonded)

If the control must be protected from water. If the control has been subjected to spray or ingest of water, the entire control must be replaced.

Before servicing this control, all wires must be labeled carefully to avoid wiring errors, wiring error may lead to personal and equipment damage including loss of life. Alays follow the safety instruction described below or labels addered to the boiler. failure to follow such instruction may result in personal injury, including loss of life or damage to the boiler and surronding property.

iNSTRUCTIONS & SAFETY WARNING LABELS: These instructions and labels must never be removed or covered. Replace damaged or illegible instructions and labels.

The boiler casing is not designed for structual support DO NOT STAND ON OR USE THE BOILER AS A LADDER.

IF YOU SMELL GAS OR COMBUSTION RELATED FUMES, PROCEED AS FOLLOWS:

- Do not smoke or generate fire or sparks
- Do not operate any electrical devices or switches
- Close the gas supply cock to the appliance
- Open doors and windows
- Warn those present to leave the building
- Do not use any phone in the building
- Call your local gas supplier once outside the building, if you cannot reach them call the local fire department.

DO NOT USE THE BOILER IF ANY PORTION OF THE CONTROL SYSTEM HAS BEEN SUBJECTED TO WATER, INGESTED WITH WATER OR SUBMERGED IN WATER.

IMMEDIATELY CALL YOUR SERVICE COMPANY TO INSPECT AND REPLACE ALL CONTROLS AND GAS COMPONENTS.

Boiler Modification and spare parts:

This boiler use specific original manufactured parts, the boiler must not be modified or use non OEM parts, without the written approval from DDR Americas Inc. De Dietrich Boilers.

Installation, servicing & maintenance of this boiler shall be completed by a licenced and trained individual, experinced in hot water boiler heating and gas & oil combustion. The installation must conform to all national and local codes having jurisdication:

- In Canada CSA B149.1 Gas Code & CSA B139 Oil Code
- In USA ANSI Z223.1 (NFPA 54) Gas Code, NFPA 31 Oil Code & ASME CSD-1 Automatically fired boilers.

If you have any technical questions or need assistance with this product, please call us toll free

1.800.943.6275 E.S.T. Monday thru Friday 08:00 - 17:00 EST

0.2 Description

S2NA control panel is designed specifically for the De Dietrich GT120-220A series cast iron sectional boilers, they are approved for use with the above mentioned boiler series, they are not approved to be used with any other boiler series or manaufacturers.

The panel is designed for to be used with a power burner

Application(s): Space heating only DHW heating possible with seperate control Single or 2 stage* burners 2 stage Modulating burner require a seperate control a single heating circuits non

0.3 Control overview

S2NA Panel overview

1. Wiring terminal strip



- 3. Safety (Fixed Hi-Limit) Limit (manual reset)
- 4. Fuse breaker 10A
- 5. 1st stage or operating limit adjustable
- 6. Provision for optional digital control offering
- 7. 2nd stage or aux operating limit adjustable
- 8. MAN/AUTO/STB switch
- Man = basic panel operation
- AUTO = digital control operation
- STB = safety test button (testing of fixed hi limit)
- 9. Illuminated main On/Off switch
- **10.** AUTO/O/MANU (pump control) not part of the safety or operating limits)
- AUTO = digital control pump operation
- O = pump off

0.4 Technical Info.

Power supply: 120VAC +/- 10% single phase with neutral and ground earth.

Maximum 10A operation, fuse breaker protected

Safety Hi Limit (Fixed Hi-Limit) 230°F [110°C] +/- 5%

1st stage or operating adjustable limit 104-212°F [40-100°C] dial increments of 4-10 $\,$

2nd stage or aux operating adjustable limit 104-212°F [40-100°C] dial increments of 4-10

Switches

Main illuminated ON/OFF switch = 250v 12A max MAN/AUTO/STB switch = 250v 12A max

0.5 Compliance

The S2NA (ME50 Package) complies with latest standards:

- CSA 22.2 No. 24
- UL 873
- UL 353
- ASME Section IV

0.6 Main electrical connections

AUTO/O/MANU switch = 250v 12A max

All Wiring CSA TEW/ UL 1015 18awg. 105°C

If burner load exceeds 120v 10A single phase a seperate disconnect power supply will be needed for the burner.

- CSA B51
- CSD-1
- Consult factory for other compliance requirements not mentioned.

Conly qualified and trained personell shall make electrical connections.

- All wiring must comply with the latest national and local electrical codes NEC NFPA70 & CSA 22.2
- Main fuse disconnect must be provided 15A max
- Suitable strain relief and wire protection must be provided
- All wiring UL/CSA approved type suitable for the installation and must be at least 18awg [0.75mm2] rated for 300v 90°C min.
- The equipment must be earth grounded (bonded)
- No modification to the internal panel wiring
- ▶

The main power is routed through the rear of the panel as shown, strain reliefs are provided in the accessories packaging with the panel.

- 1. Main power supply wires to panel
- 2. Optional sensors or building control wiring
- 3. Strain reliefs

Consult typical installation wiring diagrams as shown on the proceeding pages.

Always consult the supplied burner wiring diagram







GT 120A Series boilers

0.7 Panel - burner wiring

Application wiring method #1 (ON/OFF panel operation)

Main power provided to burner then through panel, using then 2nd stage limit control as a redundant operating limit.

ALL WIRING BETWEEN BURNER AND PANEL AS SHOWN INSTALLED BY OTHERS



- 1. Main power disconnect fuse 15A max
- 2. Service switch (located near boiler in an accessible location)
- 3. Low water cutoff control (2 possible wiring connections)
- 4. Vent safety device installed on venting
- Optional instead of vent safety device a jumper can be installed between 6-7 if the burner is equipped with a high gas or over pressure switch (manual reset)



Must be in the MAN position for the basic panel operation.

STB = Testing safety (fixed Hi-limit)

AUTO = Not used no function

Panel Internal Wiring Legend		
symbol	Description	
o To	ZG main power switch	
)	Earth Ground	
	DJ 10A Fuse breaker	
\$	TS – Safety limit (SPDT) manual reset	
1	Panel wire terminals	
AUTO . STB ZSTB	ZSTB switch Man/Auto/STB	
	TCH1 – 1 st stage or limit control	
	TCH2 – Aux Limit or 2 nd stage Limit (optional usage)	
IFF - NANTO ZP	ZP – Aux (pump) switch AUTO/OFF/MAN	
•	Common connection	
	Factory wiring Line (Hot or L1)	
	Factory wiring Neutral (N or L2)	
	Blocked vent safety interlock (jumper if burner equipped)	

Suitable wire protection and strain relief's are required (upstream & downstream) of

correctly and are adjusted correctly.

the control panel.

Panel - Burner wiring **0.8**

Application Method # 2 (ON/OFF panel operation)

Main power provided to panel then to burner, for burner that do not require a constant uniterupted power.

ALL WIRING BETWEEN BURNER AND PANEL AS SHOWN



INSTALLED BY OTHERS

- 1. Main power disconnect fuse 15A max
- 2. Service switch (located near boiler in an accessible location)
- Low water cutoff control (2 possible wiring connections) 3.
- Vent safety device installed on venting 4.
- 5. Optional instead of vent safety device a jumper can be installed between 6-7 if the burner is equipped with a high gas or over pressure switch (manual reset) power disconnect fuse 15A max

Wiring does not show burner motor connections or firing controls needed for 2 stage or modulating burners. This control are not provided and are by others.

MAN/AUTO/STB Switch

Must be in the MAN position for the basic panel operation.

- STB = Testing safety (fixed Hi-limit)
- AUTO = Not used no function

symbol	Description
0 0 0 - 0	ZG main power switch
\neq	Earth Ground
	DJ 10A Fuse breaker
	TS – Safety limit (SPDT) manual reset
1	Panel wire terminals
AUTO O MAN ZSTB	ZSTB switch Man/Auto/STB
	TCH1 – 1 st stage or limit control
	TCH2 – Aux Limit or 2 nd stage Limit (optional usage)
off •—_° Auto ZP	ZP – Aux (pump) switch AUTO/OFF/MAN
•	Common connection
	Factory wiring Line (Hot or L1)
	Factory wiring Neutral (N or L2)
$-\nabla$	Blocked vent safety interlock (jumper if burner equipped)

correctly and are adjusted correctly.

the control panel.

It is the responsibility of the installer/owner to verify the controls are functioning

Suitable wire protection and strain relief's are required (upstream & downstream) of

Line voltage wiring and low voltage sensor wiring must use separate wire conduits. LABEL ALL WIRES PRIOR TO DISCONNECTING THEM FOR SERVICE.

All panels to be earth leakage test (Di-electric) and function test All components North American approved (see material listing)

0.9 Panel - burner wiring

Application Method # 3: 2 stage operation (L-H-L)

Main power provided to panel then to burner,

ALL WIRING BETWEEN BURNER AND PANEL AS SHOWN **INSTALLED BY OTHERS**



- 1. Main power disconnect fuse 15A max
- 2. Service switch (located near boiler in an accessible location)
- 3. Low water cutoff control (2 possible wiring connections)
- 4. Vent safety device installed on venting
- 5. Optional instead of vent safety device a jumper can be installed between 6-7 if the burner is equipped with a high gas or over pressure switch (manual reset) power disconnect fuse 15A max

Wiring does not show burner motor connections or firing controls needed for 2 stage or modulating burners. This control are not provided and are by others.



MAN/AUTO/STB Switch

Must be in the MAN position for the basic panel operation.

- STB = Testing safety (fixed Hi-limit)
- AUTO = Not used no function

Suitable wire protection and strain relief's are required (upstream & downstream) of the control panel. Line voltage wiring and low voltage sensor wiring must use separate wire conduits. LABEL ALL WIRES PRIOR TO DISCONNECTING THEM FOR SERVICE.

Panel Internal Wiring Legend	
symbol	Description
0°	ZG main power switch
}	Earth Ground
	DJ 10A Fuse breaker
\$	TS – Safety limit (SPDT) manual reset
1	Panel wire terminals
AUTO O O MAN ZSTB	ZSTB switch Man/Auto/STB
,	TCH1 – 1 st stage or limit control
	TCH2 – Aux Limit or 2 nd stage Limit (optional usage)
off •—° auto ZP	ZP – Aux (pump) switch AUTO/OFF/MAN
•	Common connection
	Factory wiring Line (Hot or L1)
	Factory wiring Neutral (N or L2)
$-\nabla$	Blocked vent safety interlock (jumper if burner equipped)
All wiring min 18awg. (16 strd) CSA TEW or UL1015 (rated fo All panels to be earth leakage All components North America	type r at least 300v - 90°C) test (Di-electric) and function tested n approved (see material listing)

0.10 Panel - Burner Wiring

<u>Application wiring:</u> 2 Stage operation (L-H-L) main power provided to panel then to burner.



ALL WIRING BETWEEN BURNER AND PANEL AS SHOWN INSTALLED BY OTHERS

- 1. Main power disconnect fuse 15A max
- 2. Service switch (located near boiler in an accessible location)
- 3. Low water cutoff control (2 possible wiring connections)
- 4. Vent safety device installed on venting
- Optional instead of vent safety device a jumper can be installed between 6-7 if the burner is equipped with a high gas or over pressure switch (manual reset) power disconnect fuse 15A max

Wiring does not show burner motor connections or firing controls needed for 2 stage or modulating burners. This control are not provided and are by others.



MAN/AUTO/STB Switch

Must be in the MAN position for the basic panel operation.

STB = Testing safety (fixed Hi-limit)

AUTO = Not used no function

- All wining and panels must be snielded from spray of ingestion of water.
 Any portion of the control which has been subject to spray or ingestion of water, the entire control must be replaced.
- It is the responsibility of the installer/owner to verify the controls are functioning correctly and are adjusted correctly.
- Suitable wire protection and strain reliefs are required (upstream & downstream) of the control panel.
- Line voltage wiring and low voltage sensor wiring must use separate wire conduits
 LABEL ALL WIRES PRIOR TO DISCONNECTING THEM FOR SERVICE.

symbol	Description
o - o	ZG main power switch
\rightarrow	Earth Ground
	DJ 10A Fuse breaker
\$	TS – Safety limit (SPDT) manual reset
1	Panel wire terminals
AUTO O STB ZSTB	ZSTB switch Man/Auto/STB
	TCH1 – 1 st stage or limit control
	TCH2 – Aux Limit or 2 nd stage Limit (optional usage)
off •— Alito ZP	ZP – Aux (pump) switch AUTO/OFF/MAN
	Common connection
	Factory wiring Line (Hot or L1)
	Factory wiring Neutral (N or L2)
	Blocked vent safety interlock (jumper if burner equipped)

<u>Application wiring:</u> Typical Riello or Weishaupt Burner, 2 Stage operation (L-H-L) main power provided to panel then to burner.

ALL WIRING BETWEEN BURNER AND PANEL AS SHOWN INSTALLED BY OTHERS



- 1. Main power disconnect fuse 15A max
- 2. Service switch (located near boiler in an accessible location)
- 3. Low water cutoff control (2 possible wiring connections)
- 4. Vent safety device installed on venting
- Optional instead of vent safety device a jumper can be installed between 6-7 if the burner is equipped with a high gas or over pressure switch (manual reset) power disconnect fuse 15A max

Wiring does not show burner motor connections or additional burner wiring required. 2 stage operation requires a 2 stage firing relay as shown in the diagram, this firing relay is sold as an option and is not provided with the standard panel, unless specifically ordered.



MAN = position for the basic panel operation.

STB = Testing safety (fixed Hi-limit)

AUTO = Not used no function

Panel In	ternal Wiring Legend
symbol	Description
0	ZG main power switch
<u>}</u>	Earth Ground
	DJ 10A Fuse breaker
	TS – Safety limit (SPDT) manual reset
1	Panel wire terminals
AUTO CONTRACT STB	ZSTB switch Man/Auto/STB
	TCH1 – 1 st stage or limit control
	TCH2 – Aux Limit or 2 nd stage Limit (optional usage)
off •—— ° Auto ZP	ZP – Aux (pump) switch AUTO/OFF/MAN
	Common connection
	Factory wiring Line (Hot or L1)
	Factory wiring Neutral (N or L2)
$-\nabla$	Blocked vent safety interlock (jumper if burner equipped)

It is the responsibility of the installer/owner to verify the controls are functioning

Suitable wire protection and strain relief's are required (upstream & downstream) of

Line voltage wiring and low voltage sensor wiring must use separate wire conduits

LABEL ALL WIRES PRIOR TO DISCONNECTING THEM FOR SERVICE.

correctly and are adjusted correctly.

the control panel.

0.12 Optional Panel - Burner wiring with BMS

<u>Application wiring:</u> Example burner wiring 2 stage (L-H-L) operation, main power provided to panel then to burner.

ALL WIRING BETWEEN BURNER AND PANEL AS SHOWN INSTALLED BY OTHERS

- 1. Main power disconnect fuse 15A max
- 2. Service switch (located near boiler in an accessible location)
- 3. Low water cutoff control (2 possible wiring connections)
- 4. Vent safety device installed on venting
- Optional instead of vent safety device a jumper can be installed between 6-7 if the burner is equipped with a high gas or over pressure switch (manual reset) power disconnect fuse 15A max

Wiring does not show burner motor connections or additional burner wiring required. 2 stage operation requires a 2 stage firing relay as shown in the diagram, this firing relay is sold as an option and is not provided with the standard panel, unless specifically ordered.

symbol	Description
Ŧ.	ZG main power switch
<i></i> ₩	Earth Ground
	DJ 10A Fuse breaker
4	TS - Safety limit (SPDT) manual reset
1	Panel wire terminals
- ZATB sealed	ZSTB switch Man/Auto/STB
	TCH1 – 1 st stage or limit control
1	TCH2 - Aux Limit or 2 ^{re} stage Limit (optional usage)
—: ZP	ZP - Aux (pump) switch AUTO/OFF/MAN
•	Common connection
	Factory wiring Line (Hot or L1)
	Factory wiring Neutral (N or L2)
$\neg \neg -$	Blocked vent safety interlock (jumper if burner equipped)

MAN/AUTO/STB Switch

MAN = Position for the basic panel operation.



STB = Testing safety (fixed Hi-limit)

<u>AUTO = Position remote BMS operation</u>

ATTENTION - WARNING

FAILURE TO FOLLOWING THIS WIRING DIAGRAM MAY RESULT IN PROPERTY DAMAGE OR PERSONAL INJURY INCLUDING DEATH.

- Wiring must be in strict compliance with CSA C22.2 and NEC/NFPA 70.
- All wiring shown supplied and wired by others.
 Panel 2nd Stage output used 2-stage limit control or as a auxiliary limit works with the
- 1st limit.
- This equipment must be earth bonded or grounded.
- All wiring (field or replacement) must be min 18AWG type CSA TEW/ UL 1015 rated 300v - 90°C minimum.
- All wiring and panels must be shielded from spray or ingestion of water.
- Any portion of the control which has been subject to spray or ingestion of water, the entire control must be replaced.
- It is the responsibility of the installer/owner to verify the controls are functioning correctly and are adjusted correctly.
- Suitable wire protection and strain relief's are required (upstream & downstream) of the control panel.
- Line voltage wiring and low voltage sensor wiring must use separate wire conduits.
 LABEL ALL WIRES PRIOR TO DISCONNECTING THEM FOR SERVICE.



0.13 Principle wirig diagram





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In the interest of customers, DE DIETRICH & DDR Americas are continuously endeavouring to make improvements in product quality. All the specifications stated in this document are therefore subject to change without notice