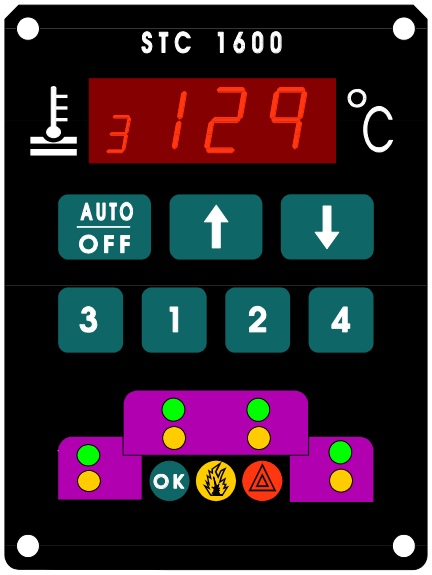
SCREED TEMPERATURE CONTROLLER STC 1600



TECHNOLOGIES
PAVING INNOVATION

Operating Manual

v. G703101

CONTENTS

INTRODUCTION

The STC 1600 has been developed to meet today's requirements for a safe and reliable control and monitoring system for the gas heating of screeds on asphalt pavers.

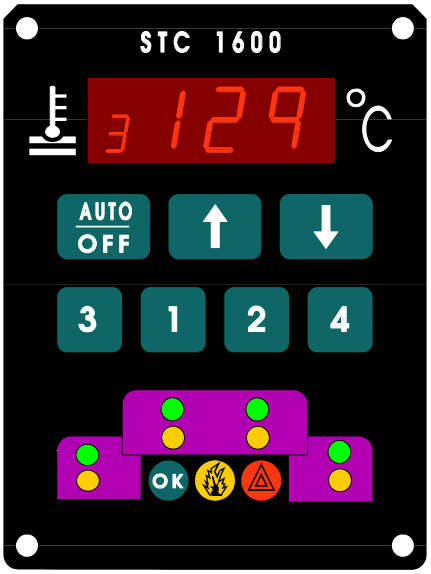
The STC 1600 controls and regulates the screed's temperature via four sensors, and monitors the starting and stopping of both blowers and burners via the TF-Technologies patented ignition box. When the STC 1600 is connected as instructed in this manual each of the individual burner's blowers, the magnetic valves and the ignition/combustion are also monitored.

The STC 1600 basically consists of two parts: the temperature monitoring and control and the ignition system.

The STC 1600 is mounted in a strong box, specially designed for use on asphalt pavers, the four TF-Technologies ignition boxes are wired up for immediate use, only connections required are to the connector block as per the drawing in the rear section of this manual.

The ignition section consists of TF-Technologies ignition boxes, gas solenoid valves, blower relay and fuse.

The system has a built in automatic “Restart” feature, should the burner flame be extinguished or not light on, the initial system start up, ignition will re-start on a continuous 3 minute time cycle, until the burner in question re-lights or the “OFF” button is operated.



OPERATING INSTRUCTIONS

The STC 1600 has a user-friendly interface and all operator functions are built up in a logical fashion.
The front panel has seven push-buttons and eight lamps, two lamps for each ignition.

The push-buttons are: **[AUTO/OFF], [↑], [↓], [1], [2], [3] and [4].**

[AUTO/OFF] Starts and stops the system. In the "OFF" position, "OFF" is shown on the display.

[1],[2],[3],[4] Selects the section of the screed for which the temperature is to be shown or adjusted. The small digit on the left of the display indicates the selected screed section.

[↑],[↓] Changes the adjustment of the screed's temperature between 30°C and 180°C.

The lamps are: Upper: "Green", "Yellow", "Red" or "Turned off".
Lower: "Yellow" or "Turned off".

Upper.

"Green"	Temperature OK.
"Green" flash	Temperature more than 5°C above setpoint.
"Yellow"/"Green" flash	Cooling of screed.
"Red"	Failure, channel stopped.
"Red" flash	Failure, temperature sensor defect.
"Turned off"	Temperature out of range.

Lower.

"Yellow"	Burner and blower switch on.
"Turned off"	Burner switch off and blower run-on.

Power On / Off
The power supply to the STC 1600 can only be switched off by switching off the asphalt paver's ignition key or a separate switch from the power supply.

Adjustment of temperature setting
After the screed section has been selected, the burner temperature is increased or decreased by pressing the appropriate button.
When the **[↑]** or **[↓]** is pressed, the current temperature setting is shown briefly, after which it moves in the desired direction.
Note that when the temperature setting is adjusted, four points are illuminated on the display.

Selecting temperature sensor.

The STC 1600 can be adjusted to drive from 1 to 4 burners, through the individual channels (total channels four).

(A) Example of normal operation (four channel and four sensor).

Channel 1	Sensor 1
Channel 2	Sensor 2
Channel 3	Sensor 3
Channel 4	Sensor 4

Note: 0 Channel is inactive.

(B) Example of four channel with one sensor.

Channel 1	Sensor 1
Channel 2	Sensor 1
Channel 3	Sensor 1
Channel 4	Sensor 1

Setup of channels and temperature sensors.

1. To setup the system the ignition/supply switch must be **"ON"** and the **[AUTO/OFF]** button set to**"OFF"** position in the display.
2. Press **[1]** until the display indicate "-1-".
3. Press **[↑]** or **[↓]** for adjustment of channel 1.
4. Repeat the adjustment for channel 2, 3 and 4 by pressening the corresonding buttons.

The setup is saved automatically and the STC 1600 will power up with these new settings afteerwards.

Verification of the setup can be done by repeating 1 and 2 for the wanted channels.

DESCRIPTION OF FUNCTIONS

When the STC 1600 is set to "Auto", the temperatures in all the screed sections are measured simultaneously and regulated individually. In order to see the temperature in a specific screed section, press the appropriate button, i.e., [1], [2], [3] or [4].
If the system is connected according to the instructions in these manual the channel will correspond to the sreed sections as follows:

[3]: The left screed extension
[1]: The left side of the main screed
[2]: The right side of the main screed
[4]: The right screed extension

Monitoring of the temperature sensors.

The STC 1600 is designed to operate on only one sensor in the event of a 3 sensor failure.

Mode of Operation.

If a sensor on the main screed go down, the STC 1600 will switch the matching burner to the other sensor on the main screed. The function is similar for the extensions of the screed.
The STC 1600 will still regulate as long as one temperature sensor is still operating. When a temperature sensor is defected, the channel number and error code will be displayed and the red lamp will flash.

SAFETY:

The burner will immediately stop if one of the following errors occurs in the gas burner or the gas burner control system.

The STC 1600 can monitor the following:

1 - No gas (no flames).
2 - No flames (Ignition box return signal).
3 - Power supply too low.
4 - No power supply to the ignition (blown fuse).
5 - Temperature sensor disconnected.
6 - Temperature sensor short-circuited.
7 - Defective cable to ignition.
8 - Plug to ignition not connected.
9 - Defect in the blower relay.

When an error occurs, the red lamp for the malfunctioning burner/screed will light up and the burner will shut down.
The display shows a reference number for the type of error that has occurred. When an error occurs, the STC 1600 indicates which channel is malfunctioning. If several errors occur, the last occurring error will be indicated in the display, while the previous errors can be displayed by pressing the appropriate button. To remove an error message first correct the malfunction and then press the channel button until the red lamp switches off.

Error codes:

10 Burner malfunction (no gas / no flames after 7 secs.).
50 Temperature sensor defect.
90 Excessive power supply to burner output (blower / ignition).

Blower run-on: (On machine screed fitted with blowers).

The blowers will continue to run for 60 seconds after the burners have been shut down, regardless of whether this is due to the screed's having reached the correct temperature, or to a malfunction in the temperature sensor or ignition.

Cooling of the screed

When **[Auto/Off]** is set to "Off", the blowers will continue operating if the temperature is 5°C under the set temperature or higher.
Cooling will continue until the power supply to the STC 1600 is interrupted, or **[Auto/Off]** is activated for approx. 1.5 seconds so that regulation is resumed. If **[Auto/Off]** is activated only briefly, the screed's temperature will be displayed.
Measure range.

0 - 250°C ±2°C

Temperature regulating range.

30 - 180°C, hysteresis -2°C.

Blower run on.

60 sec. after burner turnoff.

Inputs.

4 pcs. for Pt 100 temperature sensors.

Output.

4 channels, each consisting of 1 pcs. blower- and 1 pcs. burner output.
Max 0,5A continues pr. channel.
Short circuit protected by µprocessor.

Power supply.

11 - 30 Volt DC.

Power consumption.

Temperature range.

Operation: +5 to +60°C
Stock : -20 to +70°C

Humidity.

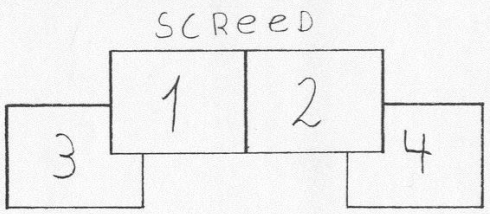
max. 95% r.h., non-condensation.

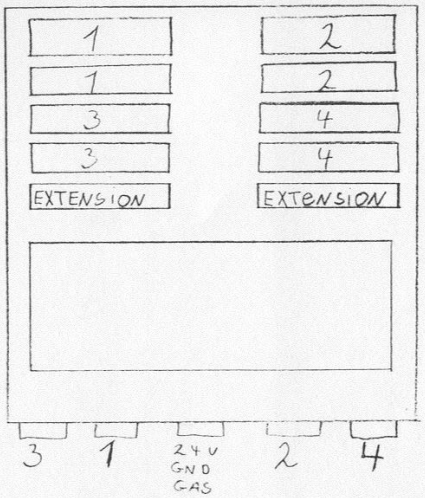
Dimensions.

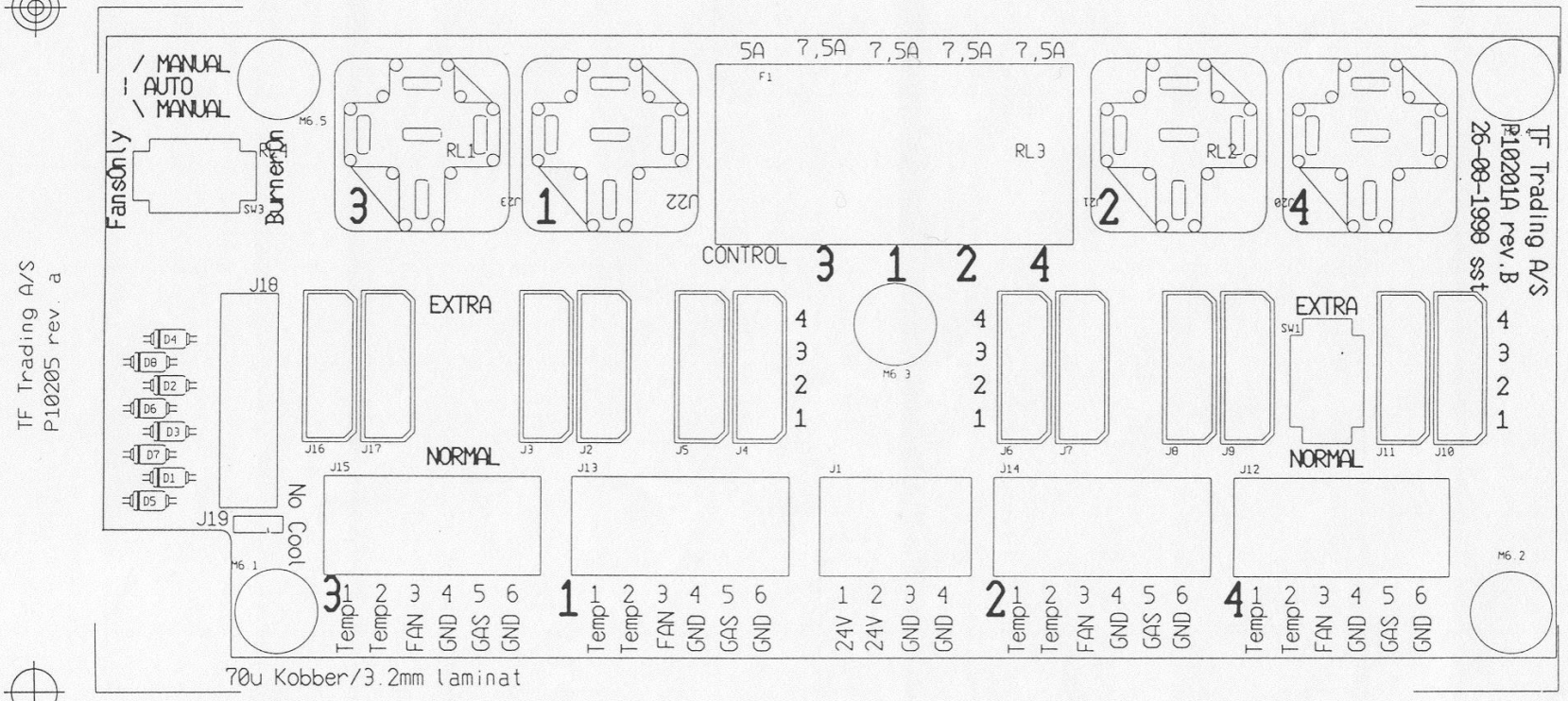
Cabinet.	Height:	130 mm.	Module	Height:	121 mm.
with	Width:	105 mm.		Width:	91 mm.
module	Depth:	75 mm.		Depth:	30 mm.
	Weight:	950 g.		Weight:	148 g.

Accessories.

S-50002 Yellow robust cast metal cabinet (IP55).
S-50019 Temperature sensor PT-100, max. 200EC.
S-50005 Flame control unit (ignition) FC-12, 12 Volt
S-50006 Flame control unit (ignition) FC-24, 24 Volt







p10201aB, Silkscreen Component Side (Aug. 26, 1998) (14:48) (PCB) SCALE: 100% ROTATED
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