



Sertel Electronics Ltd

Experts in Time Synchronisation and Embedded Engineering Solutions Worldwide



www.sertel.com

**SERTEL ELECTRONICS
PVT LTD
AN ISO 9001:2000 COMPANY**

Introduction

Our Expertise & Solutions

Sertel's Range of Solutions include:

1. Time Synchronization - All Industry Protocols (IRIG,NTP,IEC61850 etc.)
2. The Time and Frequency Display
3. Alarm Annunciator (Modern and Advanced Features)
4. Signal Isolators - Supports all the Interfaces
5. Innovative SMPS solutions for Niche applications (SMPS ICs Available)
6. Video Time Inserter for Industrial Security Applications
7. RTDs, Thermocouples, Temperature and Pressure Meters
8. Remote Data Monitoring and Transmission
9. Boiler and Furnace Viewing Television Systems
10. Automatic Vehicle Locator

Sertel is an ISO 9001:2008 certified company and is committed to the highest standards of quality.

Sertel is committed towards delivering the world-class standards in engineering with its key resources of skilled manpower and equipments.

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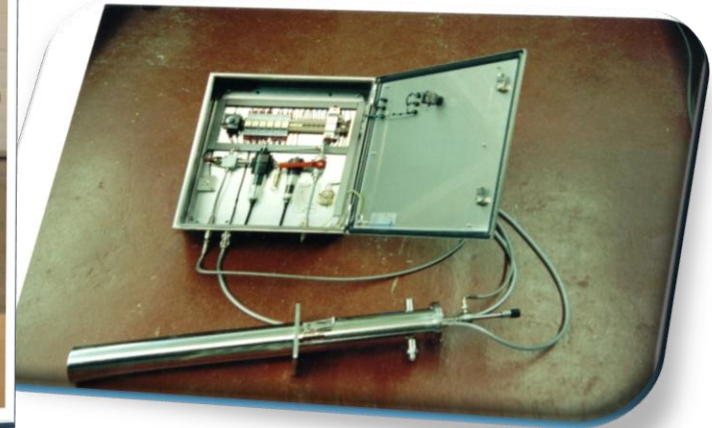
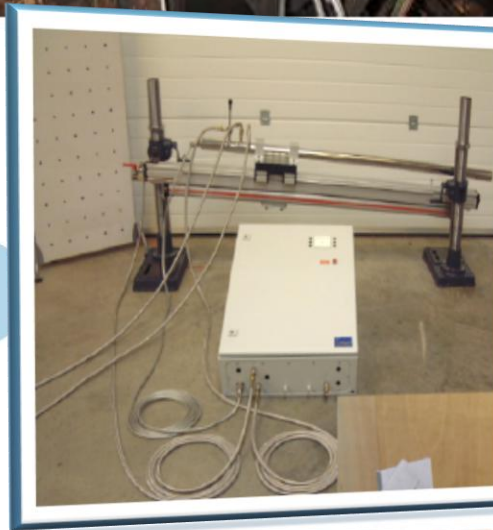


Our Capabilities

- Expertise in Embedded Engineering
- Ability to Design, Test and Manufacture electronic equipments complying to international standards
- Sertel has always been the key supplier to all its OEMs and End-users. (Huge repeat orders bookings)
- Global Market Presence – Oman, UAE, Mauritius, South Africa, South East Asia
- Sertel can provide a cost-effective solution to integrate with any manufacturers boilers and DCS segments.

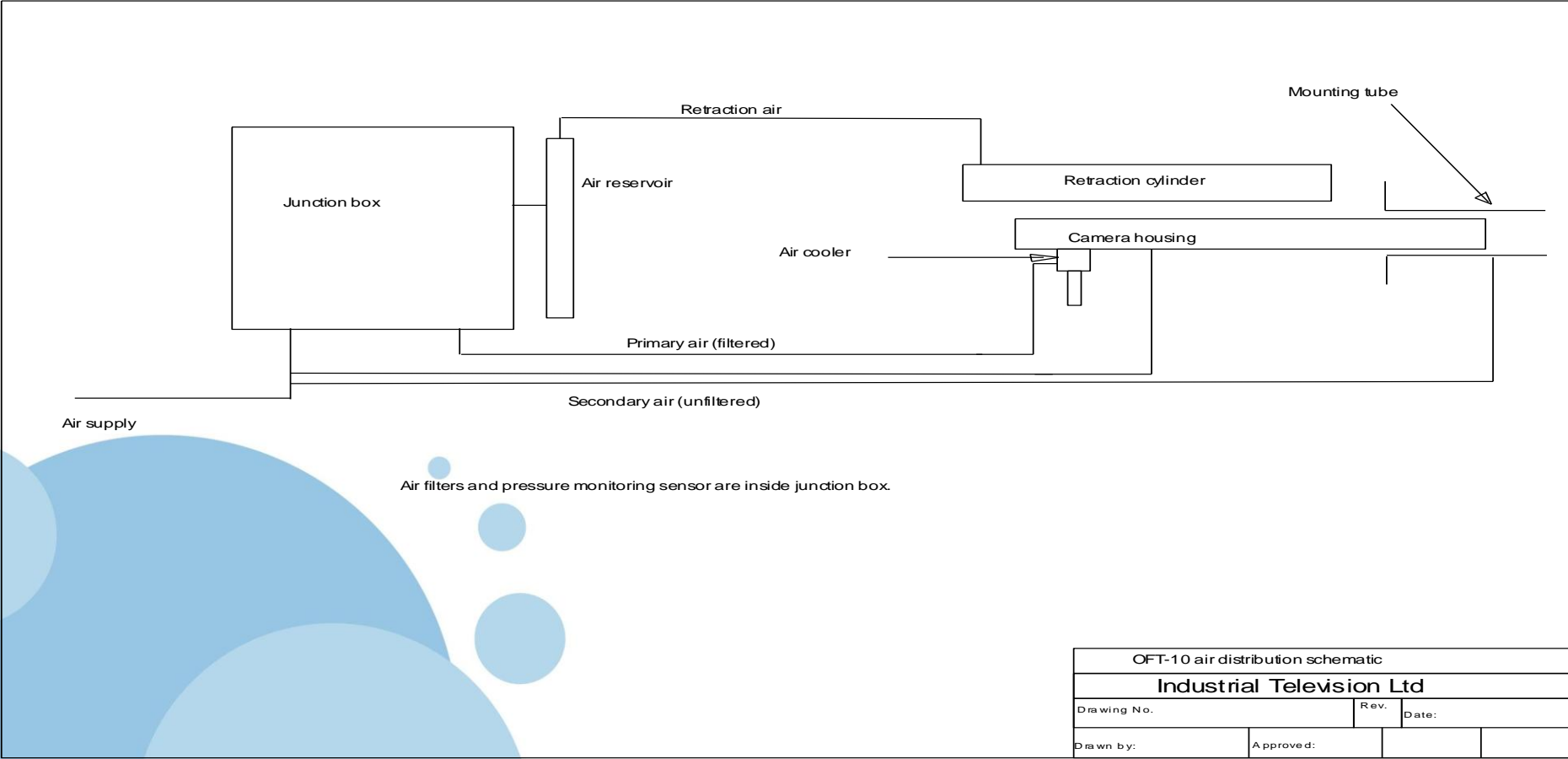


Cameras Installed – Picture from Working Environment





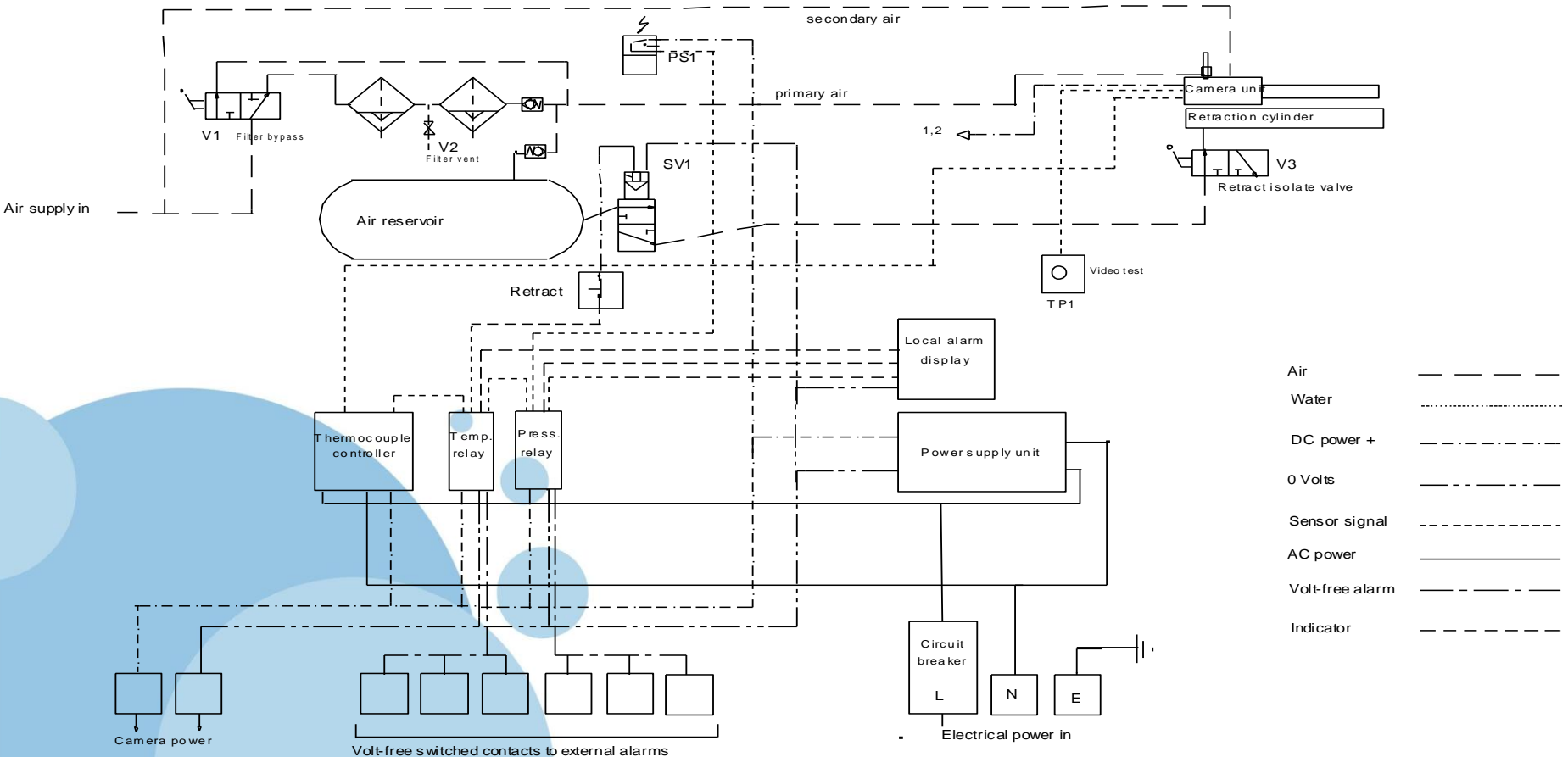
Schematic Camera System Configuration





Zooming in – Camera Assembly and Junction Box

OFT-10 FURNACE VIEWING CAMERA - COMPLETE SYSTEM SCHEMATIC



| | |
|-----------------|-----------|
| Air | --- |
| Water | |
| DC power + | ---- |
| 0 Volts | _____ |
| Sensor signal | - - - - - |
| AC power | ————— |
| Volt-free alarm | ————— |
| Indicator | ----- |

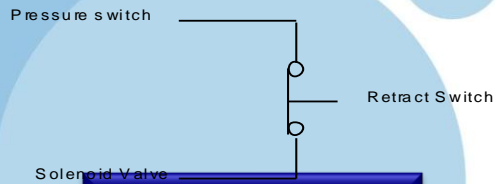
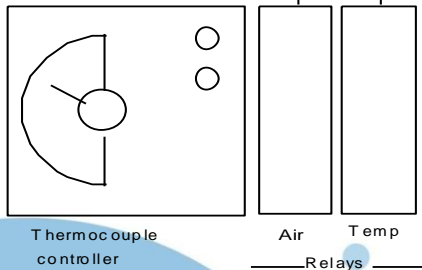
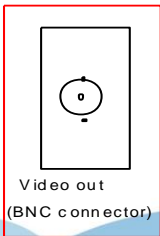


Terminal Connections Schematic

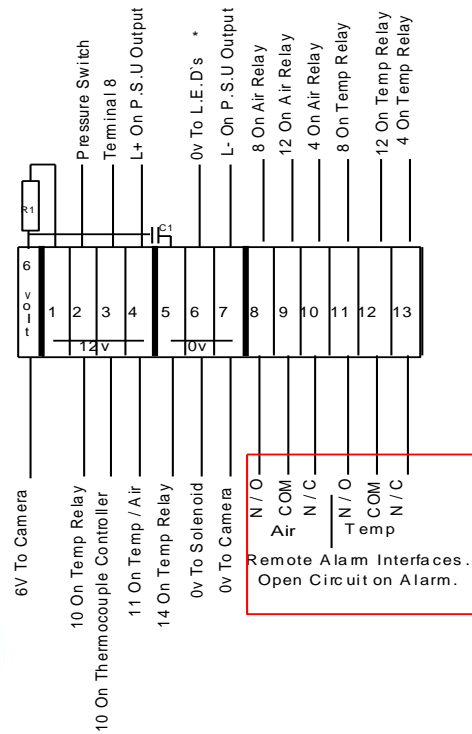
OFT-10 Electrical connections.

Schematic diagram.

Refer Figure 1.1
For Relay Connections

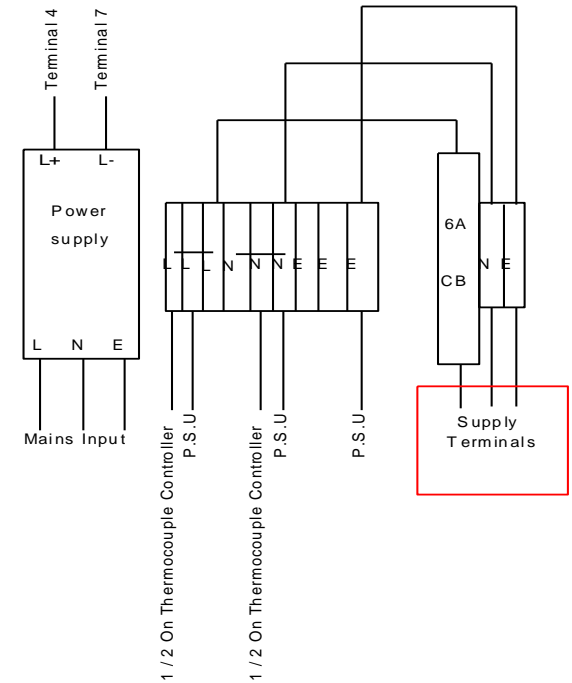


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Remote Alarm Interfaces.
Open Circuit on Alarm.

(* = Refer figure 1.2 for L.E.D Wiring schematic)



USER INTERFACE
CONNECTIONS IN
RED BOX



Large Furnace Reference List in Steel Industry

Tata Steel, Scunthorpe works.

Heavy plate mill
Heavy section mill
Plate mill

Tata Steel, Teesside works.

Coke ovens
BOS plant

Tata Steel, Rotherham works

Thrybergh bar mill
Primary mill
Melting shop
Vacuum degassing plant

Tata Steel, Skinningrove works

Reheating furnace

Tata Steel, South Wales

CAPL plant
BOS plant

CELSA, Cardiff works

Reheating furnace

Outokumpu, Sheffield works

Rod mill

SSAB, Sweden

Reheating furnace

All the above systems were supplied directly to the end user.

Equipment has also been supplied to furnace manufacturers for installation in furnaces supplied to steel industry customers in the following countries:

Norway
The Philippines
Argentina
Germany
Sweden
UK
South Africa

Large Power plants : >250MW

Units –
1,2,3

| | | |
|-------------------------------------|----------------------------|-------------------------|
| Dandong Power Station, China. | 4 x OFT-7 systems | (2 boiler units) |
| Dalian Power Station, China. | 4 x OFT-7 systems | (2 boiler units) |
| Pha Lai Power station, Vietnam. | 10 x OFT-8 systems | (2 boiler units) |
| Liaoucheng Power Station, China. | 4 x OFT-5 systems | (2 boiler units) |
| Heze Power Station, China. | 4 x OFT-5 systems | (2 boiler units) |
| Wangqu Power Station, China | 4 x OFT-8 systems | (2 boiler units) |
| Farakka Power Station, India | 12 x OFT-10 systems | (3 boiler units) |
| Cockenzie Power Station, Scotland | 16 x OFT-10F systems | (4 boiler units) |
| West Burton Power Station, England | 8 x OFT-10 systems | (4 boiler units) |
| Itaqui Power Station, Brazil | 2 x OFT-13 systems | (1 boiler unit) |
| Pecem Power Station, Brazil | 6 x OFT-13 systems | (3 boiler units) |



Summing Up...

Specification:

- Camera:** Solid-state unit with 1/3" CCD sensor
PAL/NTSC format as appropriate
- Lens:** Auto-iris with 75°, 55° or 45° horizontal field of view
- Housing:** Stainless-steel double reverse flow design, with special protective coating.
Length to suit furnace wall and refractory thickness, typically 800mm
Diameter 90mm
Weight (full) approximately 15kg
- Junction Box:** Size 500mm (h) x 500mm (w) x 210mm (d) Stainless steel for corrosion resistance.
- Monitor:** (Standard) 36cm (14") picture tube metal-cased industrial unit
Size 318mm (h) x 347mm (w) x 388mm (d) - other sizes are available
- Services:**
- Water:** Minimum 5 litres/min with inlet temperature of 35° C or less
Should be reasonably free of sediment
- Air:** 240 litres (8ft³)/min free air at inlet pressure of 4-7 bar (60-100 psig)

Filters are supplied to ensure suitable air quality when fed from plant air supply.
- Electrical:**
- Junction Box:** 90-260V AC, 47-63Hz
Normal current drain less than 0.5A but local mains outlet for test equipment means that at least 2A supply should be installed.
- Monitor:** 240/110V 50Hz or 115V 60Hz as appropriate
Approximately 65 watts
- Cabling:** A 75 ohm coaxial cable is required between junction box and monitor locations; alarms will depend on local requirements, but for full duplication at remote point a 9 core cable is required.

SALIENT FEATURES

- State of the art Design
 - High Quality colour pictures are displayed
 - Views the furnace interiors with no windows to degrade the picture quality
 - Highly Efficient Air cooling System
 - Has Multilayer air jacket which provides cooling for operation at 2000 `C
 - Incorporates Automatic Retraction System to prevent damage.
 - Highly Efficient filters are provided for operation from normal plant air.
- Filters can be changed even without withdrawing the camera from the furnace.
 - Low cost with additional benefits
 - Low cost maintenance (Requires only changing the filters and occasional cycling of retraction mechanism to verify correct operation.)
 - Can be Provided with Time Stamping on DVR systems.



Thank You

SERTEL ELECTRONICS UK LIMITED

REGISTERED IN ENGLAND AND WALES

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