

Full spectrum direct reading spectrometer

ATDR-200

Features

- The whole machine adopts modular and integrated design, with simple and elegant appearance.
- Intelligent design, with automatic zero adjustment and automatic switching between high and low ranges.
- The sampling device is simple, efficient and can automatically inject samples.
- The pulse electrode furnace has a high heating temperature and adopts program-controlled power. It can provide a variety of programmed heating methods such as constant power heating, slope heating, and segmented heating.

Application

- Foundry
- Aerospace
- Environmental protection
- University scientific research
- Commodity inspection
- Shipbuilding

Description

GYOES-200 series Optosky full spectrum direct reading spectrum analyzer adopts horizontal shape, smaller size, good stability, low detection limit, fast analysis speed, low operating cost, easy operation and maintenance and other advantages.

It can be applied to quality control and element content analysis in processing in foundry, smelting, machinery, aerospace, environmental protection, university scientific research and other industries.



1. Technical parameters

Table 1 Main technical indicators of full-spectrum direct reading spectrometer

Application areas	Quality control and element content analysis in processing in foundry, smelting, machinery, aerospace, environmental protection, university scientific research and other industries
Detectable substrate	Fe, Al, Cu, Mg, Zn, Ni, Ti, Sn, Pb etc.
Optical system	Pasing-Lungrolan full-spectrum vacuum optical system; semi-submersible vacuum chamber incident lens cleaning device; Micro-displacement device for incident slit, high-precision reverse coating incident slit, 10 microns
Detection wavelength range	120-800nm
Rowland circle radius	400mm
Dispersion grating	High performance holographic diffraction grating
Detector	Imported CCD (single block up to 3648 pixels, expandable to 58368 pixels) High-resolution full spectrum acquisition
Light source	Digital light source, high energy pre-ignition technology (HEPS)
Discharge frequency	100-1000HZ
Discharge current	1-100A plasma current
Ambient temperature	External 10-30°C (Internal thermostatically controlled 34°C)
Detection time	Usually about 15-25s
Electrode type	Tungsten electrode spray electrode
Working power supply	AC220V (±10%) , 50/60HZ , 10A , 1.0KVA
Other functions	Software automatically controls vacuum monitoring, internal temperature monitoring, communication detection, automatic data collection, public standard material library, multiple control sample analysis switching
Dimensions	L684×W584×H350mm

Weight	About 70Kg
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2. Material analysis we can do

2.1 Black metal alloy

Pig iron, cast iron, cast steel, steel and steel alloys, etc. (C, Si, Mn, P, S, Ni, Cr, Ti...).

2.2 Non-ferrous metal alloys

Aluminum, zinc, copper, nickel, cobalt, magnesium, lead, etc. (Si, Fe, Cu, Mg, Mn, Ni, Pb, Sb, Bi...).

2.3 Other special metal alloys

3. Analysis curve working range

3.1 Aluminum matrix

	Low alloy aluminum	Al-Si	Al-Si-Cu	Al-Cu	Al-Mg	Al-Zn	Al-Mn
Si	0.0005-0.8	0.8-25.0	0.8-25.0	0.0005-3.0	0.0005-1.0	0.0005-0.6	0.0005-0.8
Fe	0.0005-2.5	0.0005-1.0	0.0005-2.5	0.0005-2.5	0.0005-0.8	0.0005-1.0	0.0005-1.0
Cu	0.0002-0.2	0.0002-0.3	0.001-5.0	1.0-15.0	0.001-0.2	0.005-0.5	0.0002-0.2
Mn	0.0003-0.9	0.0003-0.8	0.0003-0.8	0.0003-1.0	0.0003-1.0	0.0003-0.6	0.0003-1.5
Mg	0.0001-1.0	0.0001-2.0	0.0001-1.8	0.0001-2.5	1.0-15	0.0001-3.0	0.0001-1.0
Cr	0.0001-0.1	0.0001-0.2	0.0001-0.5	0.0001-0.12	0.0001-0.3	0.0001-0.7	0.0001-0.1
Zn	0.0005-0.5	0.0005-0.5	0.0005-3.0	0.0005-3.0	0.0005-0.3	0.5-12.0	0.0005-0.5
Ni	0.0002-0.08	0.0002-1.0	0.0002-2.0	0.0002-3.0	0.0002-0.1	0.0002-0.1	0.0002-0.1
Ti	0.0002-0.1	0.0002-0.3	0.0002-0.3	0.0002-0.2	0.0002-0.2	0.0002-0.2	0.0002-0.1
V	0.0005-0.2	0.0005-0.05	0.0005-0.2	0.0005-0.05	0.0005-0.05	0.0005-0.2	0.0005-0.2
Pb	0.0002-0.1	0.0005-0.1	0.0005-0.25	0.0005-2.0	0.0005-0.1	0.0005-0.2	0.005-0.1
Sn	0.0005-0.1	0.001-0.1	0.001-0.25	0.001-0.4	0.001-0.08	0.001-0.2	0.001-0.1
Hg	0.0005-0.01	0.0005-0.01	0.0005-0.01	0.0005-0.01	0.0005-0.01	0.0005-0.01	0.0005-0.01
In	0.0005-0.2	0.0005-0.2	0.0005-0.2	0.0005-0.2	0.0005-0.2	0.0005-0.2	0.0005-0.2
B	0.0001-0.03	0.0001-0.03	0.0001-0.03	0.0001-0.03	0.0001-0.03	0.0001-0.03	0.0001-0.03

3.2. Iron matrix

	Cast iron	Nickel hard cast iron	Nickel resistant cast iron	High P cast iron	Carbon steel and medium and low alloy steel
C	1.3-4.5	1.3-4.5	1.3-4.5	1.3-4.5	0.0005-1.6
Si	0.001-7.0	0.001-3.5	0.001-7.0	0.001-3.5	0.0005-3.0
Mn	0.0005-3.0	0.001-2.2	0.001-6.8	0.001-2.2	0.0005-5.0
P	0.0005-0.5	0.0005-0.5	0.0005-0.5	0.0005-1.5	0.0005-0.2
S	0.0005-0.2	0.0005-0.2	0.0005-0.2	0.0005-0.2	0.0005-0.1
Cr	0.0005-40.0	0.0005-9.0	0.0005-9.0	0.0005-1.5	0.0005-8.0
Ni	0.0005-2.6	0.002-7.0	2.5-45.0	0.002-2.6	0.0005-5.0
Mo	0.0005-1.5	0.001-3.5	0.001-3.5	0.001-1.2	0.0005-2.0
Cu	0.0005-1.8	0.0005-1.5	0.1-8.5	0.0005-1.5	0.0005-1.0
Ti	0.0005-0.3	0.0005-0.3	0.0005-0.3	0.001-0.3	0.0005-1.5
Nb	0.0005-0.8	0.001-0.8	0.002-0.8	0.002-0.06	0.0005-2.0
Al	0.0005-0.15	0.0005-0.15	0.0005-0.1	0.002-0.1	0.0005-1.8
Co	0.0005-0.2	0.001-0.2	0.001-0.2	0.002-0.2	0.0005-1.0
V	0.001-0.8	0.001-0.8	0.001-0.8	0.001-0.8	0.0005-1.0
W	0.0003-0.1	0.003-0.1	0.003-0.1	0.003-0.1	0.0003-2.5

	Cr/Ni steel	Stainless steel	Tool steel	Free cutting steel	High manganese steel
C	0.0005-3.2	0.0005-2.0	0.003-2.5	0.002-1.6	0.001-1.7
Si	0.0005-1.5	0.0005-1.0	0.1-2.5	0.001-1.7	0.002-2.0
Mn	0.001-20.0	0.001-20.0	0.001-20.0	0.001-3.0	0.002-20.0

P	0.0005-0.7	0.0005-0.2	0.001-0.05	0.001-0.5	0.001-0.1
S	0.0005-0.2	0.0005-0.5	0.001-0.05	0.001-0.5	0.001-0.05
Cr	8.0-35.0	5.0-40.0	0.05-25.0	0.002-8.0	0.003-8.0
Ni	0.1-30.0	4.0-50.0	0.02-5.0	0.001-5.5	0.001-4.0
Mo	0.001-10.0	0.001-10.0	0.01-11.0	0.001-2.0	0.001-2.0
Cu	0.0005-8.5	0.0005-6.5	0.0005-0.1	0.0005-1.0	0.0005-0.5
Ti	0.0005-1.5	0.0005-2.5	0.0005-1.5	0.0005-0.4	0.0005-0.5
Nb	0.001-2.0	0.001-2.0	0.001-1.0	0.001-1.5	0.001-0.5
Al	0.0005-1.8	0.0005-1.8	0.001-0.4	0.001-1.4	0.001-0.5
Co	0.001-10.0	0.001-18.0	0.001-18.0	0.0005-0.9	0.0005-1.0
V	0.01-10.0	0.01-1.5	0.05-10.0	0.001-1.0	0.001-0.3
W	0.003-2.0	0.003-4.0	0.2-25.0	0.003-1.5	0.003-0.3

3.3 Copper matrix

	Pure copper	Ordinary bronze	Lead bronze	Aluminum bronze	Ordinary brass	High alloy brass	Nickel white copper
Zn	0.0001-0.1	0.001-10.0	0.001-2.0	0.001-6.0	0.8-49.0	0.8-49.0	0.001-0.2
Pb	0.0002-0.1	0.0002-8.0	0.0002-25.0	0.0002-0.5	0.001-8.0	0.001-5.0	0.001-0.05
Sn	0.0002-0.1	0.001-18.0	0.001-18.0	0.001-0.4	0.001-2.0	0.001-4.0	0.0002-0.4
P	0.0001-0.1	0.0001-0.2	0.0001-1.0	0.0001-0.2	0.0001-0.2	0.0001-0.2	0.0001-0.02
Mn	0.0003-0.1	0.0005-0.4	0.0005-0.4	0.0005-7.0	0.0005-1.0	0.0005-7.0	0.0005-7.0
Fe	0.0005-0.1	0.0005-1.0	0.0005-0.5	0.0005-7.0	0.0005-1.0	0.0005-7.0	0.0005-2.0
Ni	0.0002-0.1	0.0002-2.0	0.0002-4.0	0.0002-6.0	0.0004-1.0	0.0004-10.0	8.0-40.0
Al	0.0005-0.1	0.001-0.2	0.001-0.2	0.001-15.0	0.001-1.0	0.001-0.2	0.001-0.15
Cr	0.0003-0.1	0.001-0.05			0.001-0.05	0.001-0.05	0.001-3.0
S	0.0001-0.15	0.0001-0.15	0.0001-0.15		0.0001-0.15	0.0001-0.15	0.0001-0.15
Ag	0.0001-1.8	0.0001-1.8	0.0001-1.8	0.0001-1.8	0.0001-1.8	0.0001-1.8	0.0001-1.8
Be	0.0001-0.1						

Cd	0.0001-0.05	0.0001-0.05	0.0001-0.05	0.0001-0.05	0.0001-0.05		
Co	0.0005-0.1	0.0005-3.5	0.0005-3.5	0.0005-3.5	0.0005-2.0	0.0005-2.0	0.0005-0.15
B	0.0005-0.02				0.0005-0.02		0.0005-0.02

3.4 Zinc matrix

	Pure zinc	Zamark 200/210	Zamark 400/410	Zamark 430	Zn/Al (4-15)	Zn/Al (>15)
Al	0.0001-0.08	0.0001-3.1	0.0001-6.0	0.0001-4.5	0.01-13.5	0.10-48.0
Cd	0.0001-0.5	0.0001-0.02	0.0001-0.5	0.0001-0.01	0.0001-0.02	0.0001-0.02
Ce	0.0005-0.08	0.0005-0.08	0.0005-0.08	0.0005-0.08	0.0005-0.08	0.0005-0.08
Cr	0.0005-0.05	0.0005-0.05	0.0005-0.05	0.0005-0.05	0.0005-0.05	0.0005-0.05
Cu	0.0001-0.02	0.0001-1.3	0.0001-1.8	0.0001-3.5	0.0001-3.5	0.0001-3.5
Fe	0.0001-0.08	0.0001-0.04	0.0001-0.11	0.0001-0.01	0.0001-0.5	0.0001-0.5
La	0.0005-0.05	0.0005-0.05	0.0005-0.05	0.0005-0.05	0.0005-0.05	0.0005-0.05
Mg	0.0001-0.15	0.0001-1.5	0.0001-1.5	0.0001-1.5	0.0001-0.06	0.0005-0.05
Mn	0.0001-0.03	0.0001-0.03	0.0001-0.03	0.0001-0.03	0.0001-0.03	0.0001-0.03
Ni	0.0001-0.05	0.0001-0.05	0.0001-0.05	0.0001-0.05	0.0001-0.05	0.0001-0.05
Pb	0.0001-0.7	0.0001-0.7	0.0001-0.7	0.0001-0.7	0.0001-0.7	0.0001-0.7
Sb	0.0001-0.3	0.0001-0.3	0.0001-0.3	0.0001-0.3	0.0001-0.3	0.0001-0.3
Si	0.0001-0.1	0.0001-0.1	0.0001-0.1	0.0001-0.1	0.0001-0.1	0.0001-0.1
Sn	0.0001-0.5	0.0001-0.5	0.0001-0.5	0.0001-0.5	0.0001-0.5	0.0001-0.5
Ti	0.0001-0.05	0.0001-0.05	0.0001-0.05	0.0001-0.05	0.0001-0.05	0.0001-0.05

3.5 Magnesium matrix

	Mg/Al/Mn/Zn	Mg-Ag
Ag	0.0001-0.1	0.0001-3.0
Al	0.0005-12.0	0.0005-0.2
Be	0.0001-0.01	0.0001-0.01
Ca	0.0001-0.5	0.0001-0.5
Cd	0.0001-6.0	0.0001-6.0
Ce	0.0001-2.0	0.0001-2.0

Cu	0.0002-0.3	0.0002-0.3
Fe	0.0001-0.02	0.0001-0.02
La	0.0001-1.5	0.0001-1.5
Mn	0.0002-2.5	0.0002-0.5
Ni	0.0005-0.05	0.0005-0.05
Pb	0.0005-0.1	0.0005-0.1
Si	0.0005-1.2	0.0005-1.2
Sn	0.0005-0.15	0.0005-0.15
Ti	0.0005-0.01	0.0005-0.01

3.6 Tin matrix

	Low alloy	Sn/Sb/Cu	Sn/Pb/Ag	Lead-free solder
Ag	0.001 - 0.01	0.0001 - 0.1	0.001 - 12.0	0.0001 - 12.0
Al	0.0001 - 0.08	0.0001 - 0.08	0.0001 - 0.08	0.0001 - 0.08
As	0.0003 - 0.5	0.0003 - 0.5	0.0003 - 0.5	0.0003 - 0.5
Au	0.0005 - 0.5	0.0005 - 0.5	0.0005 - 0.5	0.0005 - 0.5
Bi	0.0001 - 0.01	0.0001 - 0.1	0.001 - 49.0	0.0001 - 49.0
Cd	0.0001 - 2.0	0.0001 - 2.0	0.0001 - 2.0	0.0001 - 2.0
Co	0.0005 - 0.1	0.0005 - 0.1	0.0005 - 0.1	0.0005 - 0.1
Cu	0.0005 - 0.1	0.001 - 12.0	0.001 - 0.3	0.0005 - 12.0
Fe	0.0001 - 0.2	0.0001 - 0.2	0.0001 - 0.2	0.0001 - 0.2
Ge	0.0001 - 1.0	0.0001 - 1.0	0.0001 - 1.0	0.0001 - 1.0
Hg	0.0005 - 0.2	0.0005 - 0.2	0.0005 - 0.2	0.0005 - 0.2
In	0.0001 - 0.05	0.0001 - 13.0	0.001 - 13.0	0.0001 - 13.0
Ni	0.0001 - 0.5	0.0001 - 0.5	0.0001 - 0.5	0.0001 - 0.5
P	0.0005 - 0.02	0.0005 - 0.02	0.0005 - 0.02	0.0005 - 0.02
Pb	0.0005 - 0.1	0.0005 - 1.0	1.0 - 49.0	0.0005 - 0.15

3.7 Lead matrix

	Pure lead	Pb/Sb	Pb/Ca	Pb/Sn
Ag	0.0001-0.03	0.0001-3.5	0.0001-3.5	0.0001-3.5
Al	0.0005-0.05	0.0005-0.05	0.0005-0.05	0.0005-0.05

As	0.0002-0.05	0.0002- 1.5		0.0002-0.05
Bi	0.0001-0. 1	0.0002-50.0	0.0002-50.0	0.0002-50.0
Ca	0.0001-0.5		0.0001-0.5	
Cd	0.0001-0.6	0.0001-0.6	0.0001-0.01	0.0001-0.6
Cu	0.0001-0.05	0.0001-2.0	0.0001-0.04	0.0001-2.0
Fe	0.0001-0.01	0.0001-0.01	0.0001-0.01	0.0001-0.01
In	0.0001-0.4	0.0001-0.4	0.0001-0.4	0.0001-0.4
Ni	0.0001-0.02	0.0001-0.02	0.0001-0.02	0.0001-0.02
P	0.0005-0.025	0.0005-0.025	0.0005-0.025	0.0005-0.025
Pd	0.0001-0.01	0.0001-0.01	0.0001-0.01	0.0001-0.01
S	0.0005-0.02	0.0005-0.02	0.0005-0.02	0.0005-0.02
Sb	0.0001-0.05	1.0-30.0	0.0001-0.01	0.0001-7.0
Se	0.001-0.005	0.001-0.005	0.001-0.005	0.001-0.005

3.8 Titanium matrix

	Ti-Mn	Ti-Al-V
Al	0.0001-0.4	0.0025-8.0
C	0.0005-0.05	0.0005-0.05
Cr	0.0005-2.0	0.0005-2.0
Cu	0.0005-0.6	0.0005-0.6
Fe	0.001-28.0	0.001-28.0
Mn	1.0-5.0	0.001-0.05
Mo	0.0005- 1.2	0.001-7.0
Ni	0.0005-0.02	0.0005-0.02
Si	0.0005-0.3	0.0005-0.3
Sn	0.001-2.0	0.001-2.0
V	0.001- 1.3	0.01-6.0
Zr	0.001-5.0	0.001-0. 1
Mg	0.0005-0.01	0.0005-0.01
Nb	0.0005-0.01	0.0005-0.01
S	0.001-0.005	0.001-0.005

Product data information is current as of publication data. Products conform to specifications per the terms of Optosky Standard warranty.

3.9 Nickel matrix

	Medium and low alloy nickel	Ni-manganese alloy	Inconel	Monel	Hastelloy B	Hastelloy C,X,G	Inkology
C	0.0005-0.5	0.0005-0.3	0.0005-0.5	0.0005-0.5	0.0005-0.15	0.0005-0.25	0.0005-0.10
Si	0.001-0.5	0.001-1.0	0.001-1.3	0.001-8.0	0.001-1.1	0.001-1.3	0.001-2.7
Mn	0.0005-3.2	0.0005-1.5	0.0005-9.0	0.0005-3.0	0.0005-1.25	0.0005-1.4	0.0005-1.5
P	0.0005-0.02	0.0005-0.02	0.0005-0.02	0.0005-0.02	0.0005-0.02	0.0005-0.02	0.0005-0.02
S	0.001-0.02	0.001-0.02	0.001-0.02	0.001-0.02	0.001-0.02	0.001-0.02	0.001-0.02
Cr	0.0005-1.0	5.0-25.0	5.0-49.0	0.0005-1.0	0.001-1.1		0.001-49.0
Fe	0.0005-2.0	0.001-3.5	0.001-22.0	0.0005-4.0	0.001-8.5	2.0-20.0	20-55.0
Mo	0.001-2.0	0.001-10.0	0.001-12.0		0.001-33.0	0.001-22.0	
Cu	0.0005-2.0	0.0005-0.5	0.0005-1.0	15.0-35.0		0.0005-2.0	0.0005-3.0
Co	0.001-2.0	0.001-22.0	0.001-22.0	0.001-0.2	0.001-2.5	0.001-2.0	0.001-1.0
Al	0.0005-2.0	0.0005-6.0	0.001-6.0	0.001-4.0			0.001-0.35
Nb	0.0005-2.0	0.0005-6.0	0.0005-6.0		0.0005-1.0	0.0005-2.5	0.0005-1.0
Ti	0.0005-2.0	0.001-6.0	0.001-6.0	0.001-1.5	0.001-0.1	0.001-0.7	0.0005-3.5
V	0.0005-1.0	0.0005-1.0	0.0005-1.0	0.0005-0.1	0.0005-0.1	0.0005-1.0	0.0005-0.02
W	0.001-1.0	0.001-12.0	0.001-12.0	0.001-0.1	0.001-0.1	0.001-0.1	0.001-0.1

3.10 Diamond matrix

	Stellite alloy 6,25,31	Stellite alloy 8,W152	Stellite alloy 188 F
Al	0.0005-0.2	0.0005-0.2	0.0005-0.2
B	0.0001-0.02	0.0001-0.1	0.0001-0.1
C	0.0005-1.8	0.0005-1.8	0.0005-2.7
Cr	0.001-32.0	0.001-32.0	0.001-32.0
Cu	0.0005-2.0	0.0005-0.05	0.0005-0.05
Fe	0.001-25.0	0.0001-1.7	0.0001-0.5
Mn	0.0005-1.5	0.0005-1.0	0.0005-0.3
Mo	0.0005-1.0	0.001-4.0	0.001-8.0
Nb	0.0005-0.15	0.001-4.0	0.001-4.0

Ni	0.001- 12.0	0.001-40.0	0.001-40.0
P	0.0005-0.05	0.0005-0.05	0.0005-0.05
S	0.0005-0.05	0.0005-0.05	0.0005-0.05
Si	0.0001- 1.0	0.0001- 1.0	0.0001- 1.0
Sn	0.001-0.2	0.001-0.2	0.001-0.2
Ti	0.0001- 1.2	0.0001- 1.2	0.0001- 1.2

4. Instrument configuration list

Table 2 Full spectrum direct reading spectrometer host configuration list

Serial number	Content description	Quantity	Remark
1	Full spectrum direct reading spectrometer host	1 set	
2	Analyze matrix	1	
3	Working curve	2 item	
4	Data package and software (U disk)	1 set	
5	Computer (Dell)	1 set	
6	Printer (HP)	1 set	
7	Pressure reducing valve	1 set	
8	Electrode brush	1	
9	Gauge (3MM)	1	3MM
10	Fuse(10)	4	
11	Trachea (3M)	1	
12	Filter	1	
13	User manual (instrument instruction manual)	1 serving	
14	Base height mark	1 set	Optional
15	Vacuum pump	1 set	Aluminum base does not match

(Note: The specific content is subject to the delivery list)

Serial			
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number	Option name	Quantity	Remark
1	High purity argon (purity $\geq$ 99.999%)	1 bottle	Essential, can only be purchased locally by the customer
2	Small air conditioner 1~1.5p	1 set	Indoor temperature is 5-35 degrees (optional)
3	Power Supply	1 set	Required when the voltage is unstable (optional), can be purchased by yourself or on an agent
4	Argon purifier	1 set	Required when argon is impure (optional), can be purchased by yourself or on an agent
5	Spectrum grinder or grinder	1 set	Essential, used for iron matrix, self-purchased or purchased on behalf of others
6	Small lathe	1 set	Essential, aluminum base used, self-purchased or purchased on behalf of others
7	Santak UPS power supply (uninterruptible power supply)	1 set	It is needed when the factory is prone to power outages (optional purchase). You can purchase it yourself or on an agent.

(Note: The items you choose to purchase depend on your actual situation. If you need us to purchase on your behalf, please communicate with the project leader for confirmation)

(Note: Our standard configuration is high and low standard samples. Customers need to purchase appropriate grade control products based on the product grades they need to test. Like this, if you need us to purchase on behalf of you, please communicate with the project leader for confirmation)