

Electro Optic Systems

Aerospace and defence
5 November 2024

Growth from defence

Electro Optic Systems (EOS) is an optic technology company specialising in defence applications, primarily remote weapons systems (RWS) and maritime communications. The company is benefiting from increased defence spending, is well-positioned in the new frontier of drone warfare and brings optionality in future battlefield arenas of high-energy laser weapons (HELWs) and space. Improved H1 results, a strong balance sheet and an extensive pipeline position EOS to benefit from such dynamics.

Positioned for the new battlefield

Current global conflicts and tensions are leading to increased global defence spend. These conflicts are also witnessing full-scale adoption of drone warfare, including drone swarms, leveraging the low cost, extensive capability and unmanned nature of drones. This is creating a new requirement for anti-drone systems capable of ‘disarming’ multiple incoming drones at an economic cost, traditional missile systems being too expensive. Further out, EOS’s optical technology positions the group for adoption of HELWs and the anticipated activity in space given the importance of communications witnessed in the recent conflicts.

Pipeline of over A\$1bn

The core RWS business has a pipeline of around A\$1bn. The short-term horizon includes a contract (over A\$100m) to supply the new Australian infantry fighting vehicle and conversion of a c A\$181m contingent order for Ukraine. There are a number of smaller contracts and, of particular note, an early-stage discussion Middle East contract with a value of over A\$500m. Advanced negotiations continue on development contracts for HELWs and space (note H1 contract wins of A\$19m), areas where management has stated it will only undertake to expand into with external funding given the scale and timing of the opportunities.

Recent results

EOS reported strong H1 sales growth of 92% to A\$143m, with a gross margin of 43.6%, up from 34.9% in H123, generating an operating profit of A\$3.0m from a loss of A\$22.2m. PBT was negative A\$3.6m, a 90% reduction from the previous year. In the period the company raised A\$35.4m from a share issue to purchase of long lead time items and repaid A\$20.5m of debt on schedule. EOS ended H124 with cash of A\$52m (net cash position of A\$5.9m). The order book stood at A\$386m (before A\$181m of conditional orders). Q3 suggest a steady performance (no P&L is reported), with net cash generation of A\$2.8m bring gross cash to A\$55m.

Consensus estimates

Year end	Revenue (A\$m)	PBT* (A\$m)	EPS* (c)	DPS (c)	P/E (x)	Yield (%)
12/22	138	(62.9)	(35.8)	0.0	N/A	N/A
12/23	219	(40.2)	(20.9)	0.0	N/A	N/A
12/24e	242	(19.1)	(9.8)	0.0	N/A	N/A
12/25e	291	9.5	4.6	0.0	29.8	N/A

Source: LSEG Data & Analytics consensus (15 October 2024). Note: *PBT and EPS as reported.

Price **A\$1.37**
Market cap **A\$264m**

Share price graph



Share details

Code	EOS
Listing	ASX
Shares in issue	193m
Net cash at 30 June 2024	A\$5.9m

Business description

Electro Optic Systems develops advanced technology products and services for the global defence and space domains. Its core products include remote weapon and counter-drone systems, on-the-move satellite communications and advanced space technologies.

Bull

- Current growth in defence spending.
- Well-positioned in the growth of drone warfare.
- Growth opportunities in high-energy laser weapons and space.

Bear

- Large international military contracts subject to timing uncertainties.
- Reduced global conflict could lead to reduced defence spend.
- Relative scale to the larger defence primes.

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Company overview

EOS specialises in electro-optics and control platforms, which it commercialises primarily within specialist military applications. The Defence Systems division develops technology for weapon systems optimisation and integration. The key product area is RWS for accurate, rapid firing of kinetic munitions. The latest product incorporates additional Counter Unmanned Aerial Systems (C-UAS) or drone defence capabilities. The Space Systems division supplies rugged, high up-time satellite communication (SATCOM) systems for navies and the maritime sector as well as specialist space domain data from its own infrastructure and in-house developed optical capabilities. Our earlier [research](#) provides a further overview of the company.

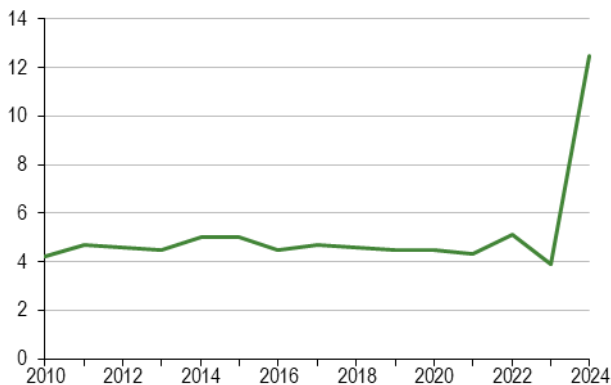
Current opportunities

We see three key drivers supporting EOS's growth prospects.

Increased defence spending

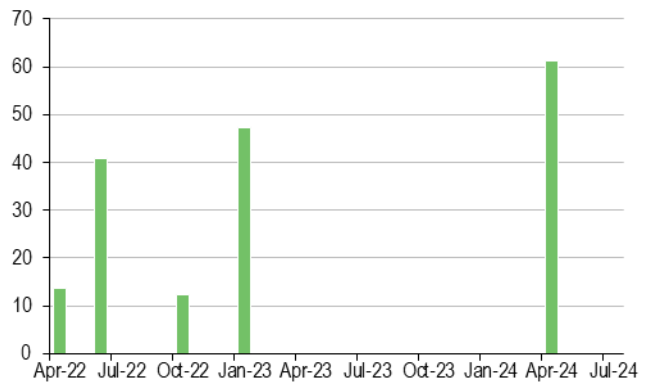
According to the Stockholm International Peace Research Institute, global defence expenditure rose 9.0% (6.8% at constant prices) in 2023 to US\$2.4tn. This was driven by a range of factors, including rising global conflicts, primarily in Ukraine and the Middle East, rising geopolitical tensions in areas such as the China Sea and increasing political pressure, particularly within NATO. Exhibits 1 and 2 highlight the increased US expenditure to support the two key areas of conflict.

Exhibit 1: US aid for Israel by fiscal year (US\$bn, inflation adjusted)



Source: USAID, Congressional Research Service, Bureau for Economic Analysis

Exhibit 2: US budget expenditure on Ukraine (US\$bn)



Source: Congressional Budget Office

Growth in drone warfare

Drones provide a threat in both the military and civil arena. Through its RWS capabilities EOS is focused on the military market. The use of drones has accelerated in recent conflicts and this is expected to continue, as highlighted by NATO's Joint Air Competence Centre, which estimates that the C-UAS systems market will grow from US\$1.29bn in 2024 to US\$7.51bn by 2032, a CAGR of 25%.

Drone warfare has changed battlefield tactics. Drones are relatively cheap depending on the intended use, as low as US\$100 for small reconnaissance drones. Along with the unmanned element (ie no loss of personnel), this has made drones a new dispensable tool for the battlefield. This has led to new challenges for defence systems, which have traditionally been designed for single larger missile attacks. Firstly, drones are significantly cheaper than traditional anti-missile

systems at up to US\$1m per launch, providing an economic dimension, and secondly, the emergence of drone swarm tactics that 'out-capacity' traditional defence systems, ensuring penetration of a proportion of drones to their intended target. Exhibit 3 highlights the general classification of drones.

Exhibit 3: Drone classification			
Class	Category	Altitude	Range
Class 1	MICRO <2kg	up to 200ft	5km
	MINI 2–20kg	up to 3,000ft	25km
Class 2	SMALL >20kg	up to 5,000ft	40km
	150–600kg	up to 10,000ft	200km
Class 3	>600 kg	up to 65,000ft	Unlimited

Source: NATO

Defence systems come in two categories:

- Safe 'soft kill' systems. These systems look to interfere with the ground control or internal control systems to stop the drone from reaching its intended mission. This involves jamming the control systems from the ground or spoofing the drone to redirect it. Different systems are utilised across the electromagnetic spectrum, from radio to infrared and optical. Such systems are relatively cheap to utilise and can be used against drone swarms. They are generally effective over shorter distances (<1km).
- Kinetic 'hard kill' systems. These use physical intervention to capture or destroy the drone. Technology includes air-based counter drones able to capture attacking drones, ground-based traditional kinetic weapons systems and high-energy weapons systems using lasers and microwave systems. They are generally effective over longer distances (>1km).

Drone developments include technology to circumvent soft-kill systems and jammers, such as using pre-programmed AI-based systems to eliminate the need for direct ground communication and control. Hence the military's preference for hard-kill systems.

EOS anti-drone systems are an extension of its capabilities within its RWS portfolio. The Slinger counter-drone system is based on the proven R400 RWS platform increased to 4-axis multidirectional capability, incorporating radar diagnostics and dedicated software along with specialist ammunition to provide a range of up to 1km. It is priced at less than A\$1.5m per system, with a per engagement cost of A\$100 to A\$1,000 depending on the type of ammunition used. The Dazzler uses a non-lethal, zero-collateral laser to degrade, deny and destroy the electro-optical sensors on typical unmanned aerial systems. The system is compatible with EOS current RWS software. Such cost-effective systems are becoming key defence hardware.

Exhibit 4: EOS Slinger system with anti-drone capabilities



Source: EOS

Exhibit 5: R800 RWS with laser dazzler for countering air and seaborne threats



Source: EOS

Next-generation battleground and technology

The military world is continually advancing in technology to gain a tactical advantage. Two key areas where EOS hopes to participate are HELWs and space warfare.

High-energy laser weapon systems

EOS intends to focus its HELW systems on the 50–150kW domain, the most relevant power range for C-UASs. Larger primes such as Northrup dominate the higher energy levels (up to 350kW), which are being developed for the hypersonic missile market, in particular long-range missiles. This will combine EOS expertise from its RWS business along with its capabilities in laser technology. Developing such a system will be costly, with the timeframe to commercialisation unclear. Hence, EOS intends to seek third-party funding and partnerships.

The sector is developing rapidly. We note that Tactical Advanced Laser Optical Systems (Talos), a consortium led by France-based laser and optics company Cilas, recently won €25m funding for [Talos-Two](#) as one of 54 programmes supported by the European Defence Fund. The three-year programme aims to develop two prototype 100kW-class laser weapons with a fully field-ready product targeted for 2030.

Space wars

The war in Ukraine has highlighted the importance of communications in the battlefield, and hence the importance of satellites and space. Regulations are currently limited, with Russia vetoing the US proposal to ban nuclear weapons in space and the US vetoing Russia's proposal for a ban on counterspace weapons. Also, the US recently accused Russia of launching 'a satellite into low Earth orbit that we assess is likely a counterspace weapon'. A further indication of the increased importance comes from the US Department of Defense (DoD) 2025 budget request, which included US\$33.7bn for space programmes, including US\$4.2bn for more resilient and protected satellite communications, US\$4.7bn to develop new missile warning and tracking architectures and US\$12.3bn for a range of other capabilities aimed at increasing the resiliency of the DoD's existing space architectures.

EOS clearly has capabilities from its space surveillance and intelligence services data along with its subsidiary KiwiStar's optical systems expertise. The level of investment, as highlighted by the DoD budget, and timeframes have led management to look for external funding to develop this business.

Future key opportunities

The order intake in the first half of the year was a little behind plan, but the timing of contracts, particularly in the defence sector given the additional regulatory hurdles, tends to be somewhat variable. The pipeline remains strong at over A\$1bn of opportunities at various stages of negotiation, as highlighted in Exhibit 6. Of particular note are:

- RWS – Australian contract (>A\$100m) for the Land 400 Phase 3 project to supply 129 of Hanwha's state-of-the-art Redback infantry fighting vehicles to replace M113 armoured personnel carriers. The total contract value is A\$7–9bn. The vehicles are to be fitted with Northrup Mk44 Stretch Bushmaster chain guns (Mk44S), which are compatible with EOS's RWS systems.
- RWS – Ukraine orders (c A\$181m). These conditional orders were placed in H123. Work continues turning these into delivery contracts.
- RWS – Middle East (>A\$500m). This is at an early stage, but having supplied the R400, management believes it is in a strong position. Clearly this would be an exceptionally large contract if awarded.

- HELW – Europe/Middle East (A\$50–100m). This space is developing rapidly having received Talos-Two funding from the EU, while in the UK Raytheon recently announced the successful firing of its HELW from a British Army Wolfhound armoured vehicle.

Exhibit 6: EOS key order pipeline

Geography	Potential Size (A\$m)	Maturity	Remote Weapon Systems	Geography	Potential Size (A\$m)	Maturity	High Energy Laser Weapon
Australia	>100	Advanced	Contract negotiations continue with Hanwha in relation to the supply of RWS for the Land 400 Phase 3 project.	International	50 - 100	Advanced	<ul style="list-style-type: none"> Commercial discussions continued with a number of potential customers for its High Energy Laser Weapon system. In particular, discussions with two potential international customers are at a more advanced stage. These discussions are ongoing and could result in new customer agreements being signed during 2024 or later.
Ukraine	~181	Advanced	Work continues with Ukrainian end-users and customers to allow committed orders to be placed under the conditional contracts.				
Europe	50 - 100	Evaluation	Continuing to work on opportunities to leverage demand from European countries for donation to Ukraine.				
North America	10 – 50	Evaluation	Working with a North American company looking to integrate EOS' R800 onto Stryker vehicles for potential donation to Ukraine.	Space Technologies			
North America / Middle East	<10	Evaluation	Evaluation orders for Slinger product received from customers in North America and Middle East.	Australia	<10	Evaluation	Continue to build on recently announced contracts with ADF Joint Capability Division.
Europe	>100	Preliminary	Ongoing interest from European customers for light-weight R150 solution for protection of logistics vehicles.	EM Solutions			
Middle East	>500	Preliminary	Work continues on upcoming bid for follow-on order of next-generation R400 in Middle East.	Europe / East Asia	10 - 50	Evaluation	Opportunities to sell new King Cobra terminal to multiple navies.

Maturity Definition

- Advanced: Contract under negotiation or negotiated and conditional
- Evaluation: Customer is performing assessments of product and/or discussions are underway
- Preliminary: Bid being prepared or submitted as part of initial customer discussions

Note: There is no certainty that any particular outcome or transaction will result from these discussions and negotiations.

Source: EOS

Interim results

Overview

H124 sales growth was strong at 92%, with significant gross margin improvement to 43.6% from 34.9% in H123. This fed through to a turnaround at the operating level with a profit of A\$3.0m, from the previous year's loss of A\$22.2m. After financing charges, PBT was negative A\$3.6m, a 90% reduction from the previous year. EPS showed similar improvement, albeit registering a small loss of 1.8c a share. The balance sheet improvement continued with period-end gross cash of A\$52m and a net cash position of A\$5.9m.

Exhibit 7: H124 results summary (A\$m)

	H123	H124	Change
Sales	74.3	142.6	+92%
Gross profit	26.0	62.2	+139%
Underlying EBITDA	(14.9)	10.7	N/A
Underlying EBIT	(22.2)	3.0	N/A
PBT	(35.5)	(3.6)	+90%
EPS (c)	(20.1)	(1.8)	+91%
Gross margin	34.9%	43.6%	865bp
EBITDA margin	-20.1%	7.5%	2753bp
EBIT margin	-29.8%	2.1%	3196bp
	December 23	June 24	
Cash	71.0	52.2	+24%
Net cash/(debt)	6.2	5.9	N/A

Source: EOS

Divisional performance

Defence division: Activity continued to be driven by the delivery of a contract for a large customer in the Middle East. Activity included supply of RWS units to a Western European government on the €15m extension contract announced in December 2023. Counter-drone demand continues to increase, with deliveries commencing on the €9m Slinger counter-drone systems to Diehl Defence

in Germany. Demonstration testing continues for two contracts for Ukraine, working towards placing and timing of committed orders.

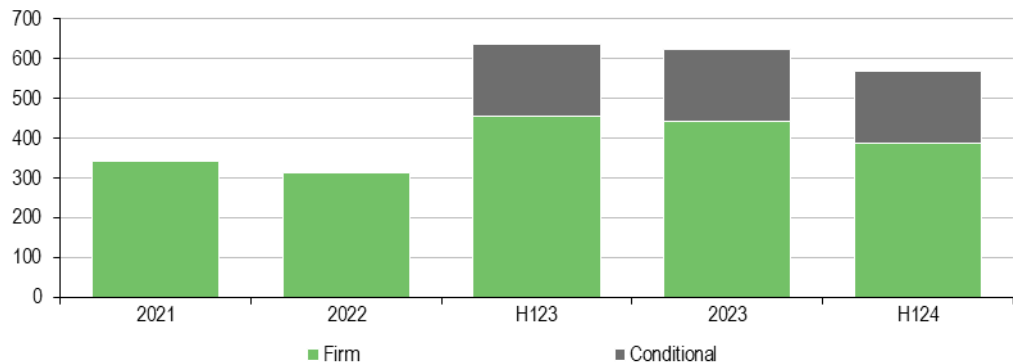
Space: EM continued to deliver against a c A\$202m long-term contract to supply terminals to the Royal Australian Navy, with two key design milestones now completed, and deliver Cobra Maritime SATCOM terminals to the Royal Australian Navy’s existing fleet and customers in Europe. Space Technologies continued to commercialise its technology delivering satellite laser ranging services to longstanding customers, along with a number of smaller contracts with international customers.

Order book and outlook

Order intake in the period was more limited than hoped, particularly in the Defence division, with Space more positive. The overall order book declined in the period, although, as discussed earlier, the pipeline remains strong. Key contract wins announced in the year to date are:

- 29 January: Defence – A\$15m contract with Diehl Defence in Germany for Slinger counter-drone systems.
- 15 April: EM Solutions – A\$19m of new orders including a A\$10m follow-on order from a European NATO navy for an additional six King Cobra satellite communication terminals, A\$5m for ground radar modules for a mining sector customer, and A\$4m from a new East Asian navy customer for Cobra terminals.
- 15 April: EOS Space Technologies – A\$5m contract with the Australian Defence Force Joint Capabilities Division to further develop space capabilities.
- 31 July: Space Technologies – A\$9m contract with the Australian Defence Force Joint Capabilities Division to further develop space capabilities. This is an addition to the contract announced in April.

Exhibit 8: Order book (A\$m)



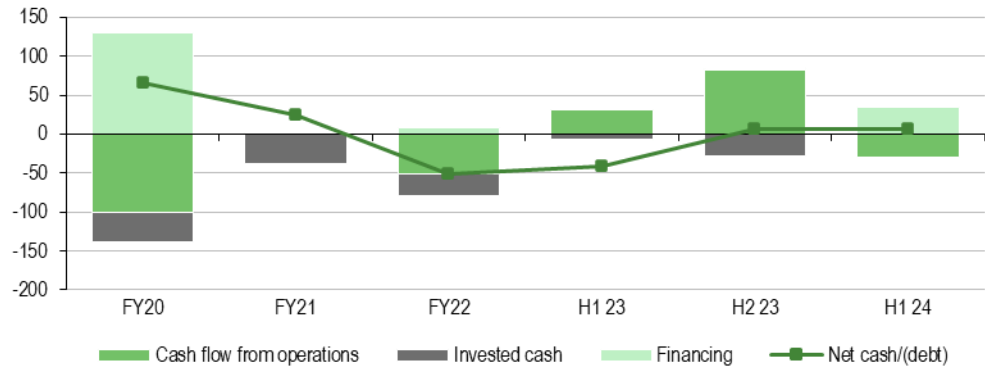
Source: EOS

Cash flow

H124 witnessed a net cash outflow from operating activities of A\$30.6m, primarily driven by additional payments to suppliers for long lead time items and an increase in the Middle East contract asset, part of a long-term contract, which is expected to be realised in H224 along with an increase in cash interest paid. During the period, the company raised net proceeds of A\$35.4m from a share issue to assist with the purchase of long lead time items, namely kinetics for the defence business.

The company repaid A\$20.5m of debt in April to the agreed schedule. EOS has now made two repayments on schedule, with the final A\$35m (A\$52.1m including capitalised interest) due in October 2025. The group finished the period with gross cash of A\$52.2m (net cash A\$5.9m).

Exhibit 9: Cash generation and net financial position (A\$m)



Source: EOS

Q3 update

The Q3 update provided limited additional information (no P&L is required), with the highlight being the lack of significant one-off items and no change to full-year guidance. Net cash from operating activities was A\$10.5m and cash used in investing activities was A\$7.6m, leading to a A\$2.8m increase in the cash balance of \$55.0m, excluding A\$64.2m of cash deposits held with banks to support bank guarantees. EOS had a gross contract asset totalling c A\$79.1m (a A\$10.6m reduction from 30 June 2024), almost entirely due to a large customer contract in the Middle East. Management expects this to be largely received in 2024 and into 2025.

Exhibit 10: Financial summary

Year end 31 December	A\$m	2020	2021	2022	2023
		IFRS	IFRS	IFRS	IFRS
INCOME STATEMENT					
Revenue		180.2	212.3	137.9	219.3
Cost of Sales		(116.0)	(111.6)	(91.4)	(123.7)
Gross Profit		64.2	100.8	46.5	95.6
Admin & other costs		(67.1)	(98.7)	(89.4)	(88.7)
EBITDA		(2.9)	2.1	(42.9)	6.9
Depreciation & amortisation		(9.6)	(11.8)	(11.1)	(12.4)
Operating profit (before amort. and excepts.)		(12.5)	(9.7)	(54.0)	(5.5)
Exceptionals		(16.0)	8.0	5.4	0.9
Reported operating profit		(28.5)	(1.7)	(48.6)	(4.6)
Net Interest		(1.4)	(2.9)	(14.3)	(35.6)
Profit Before Tax (norm)		(13.9)	(12.6)	(68.2)	(41.1)
Profit Before Tax (reported)		(29.9)	(4.6)	(62.9)	(40.2)
Reported tax		4.7	(9.2)	9.3	6.1
Profit After Tax (reported) - continuing businesses		(25.2)	(13.8)	(53.6)	(34.1)
Discontinued operations		0.0	0.0	(62.0)	0.0
Reported profit for the year including discontinued operations		(25.2)	(13.8)	(115.6)	(34.1)
EPS - basic reported (c)		(19.5)	(10.0)	(35.8)	(20.9)
BALANCE SHEET					
Fixed Assets		130.7	173.4	155.7	173.7
Intangible Assets		34.6	32.0	24.8	30.6
Contracts & deposits		30.3	48.6	72.1	84.9
Tangible Assets		29.1	56.1	37.2	29.5
Investments & other		36.7	36.7	21.6	28.7
Current Assets		306.6	284.8	261.6	219.5
Stocks		67.3	74.6	74.8	73.4
Debtors		35.8	23.5	7.4	8.5
Contracts & deposits		137.6	127.2	145.5	50.2
Cash & cash equivalents		65.9	59.3	21.7	71.0
Other		0.0	0.2	12.2	16.4
Current Liabilities		70.8	96.9	104.8	115.5
Creditors		52.2	35.4	43.2	40.8
Short term borrowings including finance leases		0.0	34.4	23.3	19.9
Other		18.6	27.1	38.3	54.8
Long Term Liabilities		27.0	31.9	79.5	78.6
Long term borrowings including finance leases		17.7	24.7	69.9	63.9
Other long term liabilities		9.3	7.2	9.6	14.7
Net Assets		535.1	587.0	601.6	587.3
Minority interests					
Shareholders' equity		535.1	587.0	601.6	587.3
CASH FLOW					
EBITDA		(2.9)	2.1	(42.9)	6.9
Working capital		(110.2)	22.2	(15.2)	113.1
Exceptional & other		24.1	(21.8)	7.5	(23.6)
Tax		(12.0)	(2.6)	(1.0)	16.7
Net Operating Cash Flow		(100.9)	(0.2)	(51.6)	113.1
Investment activities		(7.3)	(8.7)	(11.2)	(31.8)
Capex		(29.7)	(29.0)	(19.3)	(2.9)
M&A/Other		0.0	0.0	2.2	0.0
Equity financing		138.6	(0.8)	14.6	0.0
Other		0.0	0.0	0.0	(4.1)
Net Cash Flow		0.7	(38.7)	(65.3)	74.3
FX		(3.3)	31.1	34.9	(29.0)
Other non-cash movements		(9.4)	1.0	(7.2)	4.0
Closing (cash)		(65.9)	(59.3)	(21.7)	(71.0)
Closing net debt/(cash) excluding finance leases		(65.9)	(24.9)	51.0	(6.2)

Source: Electro Optic Systems accounts

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