



# ROLLING JONES

WHY DID THE GUARDIANS TRADE FOR OUTFIELDER NOLAN JONES, WHOM THEY TRADED AFTER THE 2022 SEASON? TERRY PLUTO OFFERS AN INSIDE LOOK AT THE DEAL. C1



## 4G MODULES

# First U.S.-made 4G cell modules being made here

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The one-two punch of upcoming restrictions on certain electronic imports from China set during the final days of the Biden administration and the threat of tariffs under Donald Trump could be a boon for a fledgling company just outside Cleveland.

They tie into an opportunity an investment group known as the O.H.I.O. Fund began pursuing about a year ago as it looked for ways to bring high-tech business to the state.

The new company, Eagle Electronics, created in September largely by the O.H.I.O. Fund, boasts of starting production this month on the first 4G modules ever made in the United States.

The modules are small computer components that connect any number of things to the internet through cell towers. Cars, medical tracking devices and even hunting cameras are examples.

If things go as planned, 3 million modules a year — often about an inch square — eventually will roll off the first of what could be many production lines at the facility in Glenwillow, just southeast of Cleveland.

“We want to be the leader in the American market. We have pre-orders that are significant, in the tens of millions of dollars,” co-founder and CEO TJ Dembinski said last week during a facility tour, cut short because a prospective customer had arrived for a meeting.

The Eagle modules are in the testing phase, still needing OKs from the FCC and individual cell carriers, Eagle officials said. The hope is to start full production this summer.

Eagle is using designs licensed from Chinese-based Quectel to replicate Quectel modules so they can be used interchangeably, amid uncertainty over the future use of Chinese-produced electronic products in the United States. Quectel is reported to have nearly a third of the module market.

Biden, citing national security risks, in January announced finalized rules long in the making to prohibit remotely connected



Components from the white strips are added to boards like those shown below during the process of making Eagle Electronics cellular modules in Glenwillow, just southeast of Cleveland. Rich Exner, [cleveland.com](mailto:cleveland.com)

vehicle hardware and software systems made by Chinese or Russian companies, starting with software in auto model year 2027 and hardware in model year 2030.

Separately, Quectel, has long been on the radar of federal officials concerned about national security. The Defense Department included it on a list of Chinese military companies, an allegation Quectel “vigorously” denies, saying it “is not owned, controlled or affiliated with the Chinese military or any Chinese government body.”

### WHY PRESIDENTIAL ACTIONS MATTER

Biden’s rules for future automobiles and Trump’s threat of tariffs both stand to benefit Eagle, said Ray Leach, president of the

O.H.I.O. Fund, which he said invested \$14 million in creating Eagle and is the company’s biggest investor.

By licensing the Quectel designs, Quectel is removed from the production. These are Eagle products produced in Ohio, Leach said. And Trump-imposed tariffs, he added, would make buying from overseas more expensive.

One of the early customers announced was Cherish, a Boston company that makes remote health monitoring devices. Cherish founder and CEO Sumit Nagpal in a news release said that buying American-produced components like those from Eagle would help deepen trust with users.

“Our customers trust us to invite our products into their homes to monitor the health and safety of loved ones,” Nagpal said.

### A FAST STARTUP IN SUBURBAN CLE

But security concerns and trade rules are not the only reasons module manufacturing can return to the United States after long-ago moving exclusively overseas, said Joel Young, Eagle’s chief technology officer.

“With automation, we can bring it back into the U.S. and be cost competitive,” Young said.

The process has become so refined that only six or seven workers are needed on the production line, doing almost no hands-on work.

Largely automated, the production in steps involves starting with a circuit board, soldering on components, laser engraving logos and parts numbers, programming the module, calibrating the radio frequency, testing the module and auto packing the final product.

The equipment, which forms a 265-foot, U-shaped production line, cost \$4.5 million, Dembinski said.

Eagle did not have to build a factory. Instead, Eagle partnered with electronics manufacturer CO-AX Technologies for both space in an industrial park building and staffing support. CO-AX has been in business for about 30 years, the last 10 at its current location, making circuit boards and other products.

Additionally, Eagle learned in choosing the site that it is in a designated Foreign Trade Zone, reducing custom duties and excise taxes. “It ended up being one more reason we went with the location,” CEO Dembinski said.

Eagle eventually could employ hundreds of people. But more importantly, Leach said, Eagle could serve as a springboard for other new investments in the area.

“If we can show that Eagle can come here and be successful, we could have hundreds of companies” showing interest, Leach said. “There are hundreds of Chinese companies looking to manufacture in the U.S.”

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