PRECEDENTIAL

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

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No. 21-1695

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PYROTECHNICS MANAGEMENT, INC.

v.

*XFX PYROTECHNICS LLC; FIRETEK,
Appellants

*Dismissed Pursuant to Clerk Order dated 12/29/21.

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On Appeal from the United States District Court
for the Western District of Pennsylvania
(D.C. No. 2:19-cv-00893)
District Judge: Honorable Robert J. Colville

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Argued on April 27, 2022

Before: HARDIMAN, NYGAARD, and FISHER, *Circuit Judges*.

(Filed: June 29, 2022)

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OPINION OF THE COURT

HARDIMAN, *Circuit Judge*.

This appeal arises under the copyright laws of the United States. The parties are competitors in the fireworks business. Appellee Pyrotechnics Management, LLC (Pyrotechnics) sued Appellant fireTEK under 17 U.S.C. § 106, claiming fireTEK violated Pyrotechnics's copyright in the communication protocol it uses to control fireworks displays. Pyrotechnics sought, and received, a preliminary injunction preventing fireTEK from distributing its allegedly infringing product. fireTEK contends here, as it did in the District Court, that Pyrotechnics's copyright in the protocol is invalid. We agree, so we will vacate the preliminary injunction entered by

the District Court and remand the case for the District Court to dismiss Pyrotechnics's copyright claim.

I

A Pennsylvania company, Pyrotechnics manufactures and sells hardware and software that control fireworks displays under the "FireOne" brand. fireTEK App. 71–72. The FireOne system includes two main devices: a control panel and a field module. The control panel accepts user input, creates digital messages, and converts the digital messages to analog signals that it sends to a field module over two wires. On receipt of the analog signal, the field module decodes the message and performs the assigned task—for example, the message may instruct the field module to ignite a particular firework. Sometimes the field module sends a response message to the control panel. Since around 1995, Pyrotechnics's control panels and field modules have used a proprietary protocol to communicate with each other. Pyrotechnics developed the protocol to enable the FireOne system to precisely—and safely—control complex fireworks displays, which can involve tens or hundreds of field modules.

Pyrotechnics's Romanian competitor, fireTEK, reverse-engineered Pyrotechnics's hardware to learn its communication protocol. In 2018, fireTEK developed a router that could send analog signals to Pyrotechnics's field module just like those sent by Pyrotechnics's control panel. In early 2019, fireTEK began promoting its router as a replacement for Pyrotechnics's control panel. Pyrotechnics responded by sending fireTEK a letter claiming the router infringed Pyrotechnics's copyright in its communication protocol.

In June 2019, Pyrotechnics filed a seven-page document describing its protocol (the Deposit Copy) with the United States Copyright Office and received from the Office a Certificate of Registration. Though the Certificate indicates the copyrighted work is "text," fireTEK App. 60, Pyrotechnics asserts that it submitted the Deposit Copy as "identifying material" for its protocol under 37 C.F.R. § 202.20(c)(2)(viii) (permitting submission of specified representative "identifying material" for certain "[m]achine-readable" electronic works). Pyrotechnics claims the protocol was first published when it was embedded inside its hardware in 1995.

With its Certificate of Registration in hand, Pyrotechnics sued fireTEK—and its United States distributor, XFX Pyrotechnics, LLC—for copyright infringement, tortious interference with prospective contractual relations, and unfair competition. *See* 17 U.S.C. § 411(a). Shortly after filing its complaint, Pyrotechnics moved for a preliminary injunction prohibiting fireTEK and XFX from selling or distributing fireTEK's router.

After hearing testimony from the principal of each company and Pyrotechnics's electrical engineering expert witness, the District Court granted Pyrotechnics's motion and enjoined fireTEK and XFX. *Pyrotechnics Mgmt., Inc. v. XFX Pyrotechnics LLC*, 2021 WL 925812, at *17 (W.D. Pa. Mar. 11, 2021). The District Court held that Pyrotechnics was likely to prevail on its infringement claim because the company's "command codes" (a part of the communication protocol) are protected by copyright and fireTEK's router infringed that copyright. *Id.* at *12, *15. The District Court rejected fireTEK's contentions that (1) the protocol was not copyrightable, (2) Pyrotechnics had not properly registered its protocol, (3) the merger and scènes à faire doctrines barred

extending protection to the protocol, and (4) fireTEK's implementation of the protocol was fair use.[1] *Id.* at *8 & n.7, *9–11, *13–15. fireTEK timely appealed.[2]

II

The District Court had jurisdiction over Pyrotechnics's copyright infringement claim under 28 U.S.C. §§ 1331 and 1338. We have jurisdiction over this interlocutory appeal under 28 U.S.C. § 1292(a)(1). We review findings of fact for clear error, legal conclusions de novo, and the Court's decision to grant the preliminary injunction for abuse of discretion. *Osorio-Martinez v. Att'y Gen.*, 893 F.3d 153, 161 (3d Cir. 2018) (citation omitted).

In this appeal, fireTEK challenges only one element supporting the preliminary injunction: whether Pyrotechnics has shown a likelihood of success on its copyright infringement claim. *See Dam Things From Den. v. Russ Berrie & Co.*, 290 F.3d 548, 556 (3d Cir. 2002). To succeed, Pyrotechnics must show that (1) it owns a valid copyright and (2) fireTEK copied protected, original elements without authorization.[3] *See Dun &*

[1] fireTEK did not challenge the District Court's conclusions on scènes à faire or fair use, so we do not address those issues.

[2] XFX also appealed the preliminary injunction order, but its appeal was dismissed by agreement of the parties after Pyrotechnics and XFX settled. *See* Fed. R. App. P. 42(b).

[3] Because Pyrotechnics claims that its copyrighted materials were first published in a product nearly 25 years before it registered its Deposit Copy, the presumption of validity that

Bradstreet Software Svcs., Inc. v. Grace Consulting, Inc., 307 F.3d 197, 206 (3d Cir. 2002).

III

Pyrotechnics's communication protocol and the Deposit Copy submitted to the Copyright Office are central to resolving this dispute, so we describe both in some detail. According to the Deposit Copy, the protocol includes three components: (1) a custom digital message format; (2) specified individual messages that conform to the format and communicate specific information; and (3) a transmission scheme that describes how an individual digital message is converted into an analog signal that can be sent over the wires that connect the control panel and field module.

The Deposit Copy states that each digital message must conform to a twelve-byte format. A byte is a series of eight bits, where each bit is a digital 0 or 1, so each twelve-byte digital message is a series of ninety-six bits. The first two bytes of each message are designated "header bytes" that contain synchronization information. The last byte of each message is a "cyclic redundancy check," whose value is calculated based on the values of the other eleven bytes. The cyclic redundancy check byte is used to ensure there are no errors in the transmitted message. Pyrotechnics acknowledges that using synchronization header bytes and cyclic redundancy check bytes are standard communication practices. The remaining

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normally attaches to a Certificate of Registration does not apply. 17 U.S.C. § 410(c). Pyrotechnics thus bears the burden of proving its copyright is valid. *See Montgomery v. Noga*, 168 F.3d 1282, 1289 (11th Cir. 1999).

nine bytes of Pyrotechnics's digital messages have different values depending on the message being communicated.

According to Pyrotechnics, its twelve-byte digital message format can generate more than four billion distinct digital messages. Yet Pyrotechnics's Deposit Copy identifies only four individual messages: three that the control panel can send to the field module (Enable Fire Power, Cue Test, and Fire Cue(s)) and one that the field module can send to the control panel (response to the Cue Test message). The Deposit Copy graphically depicts how each message is constructed by showing the values of specified bytes using a hexadecimal number.[4] For example, the Deposit Copy describes the Enable Fire Power message this way:

0	1	2	3	4	5	6	7	8	9	10	11
0x23	0x23	X	X	X	X	X	X	X	FPE	X	CRC

See XFX App. 197; fireTEK App. 77. The second row indicates the value assigned to the byte number indicated in the first row. *See* XFX App. 197.

As shown, for the Enable Fire Power message the Deposit Copy specifies the values of only four of the twelve message bytes: it specifies the same hexadecimal number (0x23) for the first two synchronization header bytes; "CRC" for the last byte, which is the cyclic redundancy check value;

[4] Hexadecimal is an alphanumeric code that uses the numbers 0 through 9 and the letters "a" through "f" as shorthand to represent the eight bits—the 0's and 1's—in each byte. *See, e.g.*, *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37, 43–44 (D. Mass. 1990).

and "FPE" for the tenth byte, which the Deposit Copy explains is the hexadecimal number 0x46 when fire power is enabled. XFX App. 197; fireTEK App. 77. The remaining eight bytes are labeled "X," which the Deposit Copy explains are "Don't care[s]," meaning those bytes are not used for that message. XFX App. 197; fireTEK App. 106–07. Pyrotechnics's expert testified that, in practice, the "Don't care" bytes must have a value of 0 for the control panel and field module to understand the message. fireTEK App. 106–07. For the other three messages, the Deposit Copy shows the contents of some bytes rather than specifying particular values. For example, the Deposit Copy shows that one byte of the Cue Test message contains the "address" of the module to which the message is directed, without specifying the particular value of that address. XFX App. 197, 199.

Finally, the Deposit Copy describes how the digital messages are converted to an analog signal that can be transmitted along the wires connecting the control panel and field module. The Deposit Copy states that the 0's and 1's of the message bits are encoded through frequency shift keying (FSK)—a standard modulation technique—using two non-standard frequencies at a specified data rate. Pyrotechnics selected the frequencies to avoid interference with other broadcast signals.

We have described what the Deposit Copy contains. But what the Deposit Copy *omits* is also relevant. The Deposit Copy does not reproduce any digital message verbatim (*i.e.*, it does not state the complete series of ninety-six bits for any message in either binary or hexadecimal formats). And though the parties and the District Court refer to the digital messages as "command codes," the Deposit Copy does not contain any

source code or object code.[5] *See, e.g.*, *Pyrotechnics Mgmt.*, 2021 WL 925812, at *4; Pyrotechnics Br. 19–20; fireTEK Br. 9. Instead, the Deposit Copy reads like a manual, instructing a user how to generate digital messages—and convert those digital messages to analog signals—that Pyrotechnics's control panel and field module can send and understand.

IV

Having described the essential facts of the case, we turn to the applicable law. Copyright protection is available for "original works of authorship fixed in any tangible medium of expression." 17 U.S.C. § 102(a). "[A] valid copyright," however, "extends only to copyrightable subject matter." *Star Athletica, L.L.C. v. Varsity Brands, Inc.*, 137 S. Ct. 1002, 1008 (2017). Congress expressly excluded certain subjects from copyright protection, no matter how original they might be. Those exclusions include "any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described." 17 U.S.C. § 102(b).

[5] "Source code" refers to the human-readable statements—written in a syntax defined by a programming language like JavaScript or Python—that make up a computer program. *See Apple Comput., Inc. v. Franklin Comput. Corp.*, 714 F.2d 1240, 1243 (3d Cir. 1983). "Object code" is a translation of source code into a binary machine language (0's and 1's) that is readable by a computer. *Id.* While both source and object code are copyrightable, *see id.* at 1249, Pyrotechnics has not sought protection for the source or object code of any computer program.

The copyright statute thus limits the scope of our inquiry. When determining copyrightability, we cannot consider elements of Pyrotechnics's protocol related to the transmission scheme: the use of FSK modulation, the selection of non-standard frequencies, or the duration of each bit (the data rate). These elements constitute a "method of operation" ineligible for copyright. *Id.* And since Pyrotechnics did not register a copyright in any computer program, we have no cause to consider whether any source code or object code is protected. To the extent the District Court relied on non-copyrightable elements to determine copyrightability and characterized the digital messages as copyrightable object code, it erred. *See Pyrotechnics Mgmt.*, 2021 WL 925812, at *9, *1.

So the question becomes: are the digital message format and the individual messages copyrightable? We conclude not. As we will describe, Pyrotechnics's digital message format is an uncopyrightable idea and the individual digital messages described in the Deposit Copy are insufficiently original to qualify for copyright protection.[6]

[6] Even if Pyrotechnics's Certificate represents a valid copyright in the Deposit Copy's *text* as a literary work, that copyright could not prevent fireTEK—or anyone else—from using the digital message format or individual messages described in the Deposit Copy. *Baker v. Selden*, 101 U.S. 99, 102, 107 (1879) (an author's copyright for a book explaining an accounting system and containing blank accounting forms did not give the author the exclusive right to use the art or method).

A

"It is axiomatic that copyright does not protect ideas, but only expressions of ideas." *Whelan Assocs., Inc. v. Jaslow Dental Lab'y*, *Inc.*, 797 F.2d 1222, 1234 (3d Cir. 1986); *see also Mazer v. Stein*, 347 U.S. 201, 217 (1954). "[A] patent affords protection . . . to the means of reducing an inventive idea to practice," while copyright "protects the means of expressing an idea." *Apple Comput., Inc. v. Franklin Comput. Corp.*, 714 F.2d 1240, 1250 (3d Cir. 1983) (quoting *Dymow v. Bolton*, 11 F.2d 980 (2d Cir. 1926)). So determining whether an author is claiming protection for an idea or for the expression of an idea is often dispositive to resolve copyrightability. *See, e.g.*, *Tanksley v. Daniels*, 902 F.3d 165, 174 (3d Cir. 2018) (discussing the effect of the idea-expression determination on the extent of copyright protection in a television show).

The line between uncopyrightable idea and copyrightable expression can be difficult to draw, however, particularly for utilitarian works like Pyrotechnics's communication protocol. We first examined the idea-expression distinction in the analogous computer software context nearly forty years ago. In *Apple Computer*, we adopted a test for computer programs that "focus[ed] on whether the idea is capable of various modes of expression. If other programs can be written . . . which perform the same function . . . then that program is an expression of [an] idea and hence copyrightable." 714 F.2d at 1253. But if the computer program is the sole way to perform the function, it is an uncopyrightable idea. *See id.*

We refined our idea-expression rule for utilitarian works three years later in *Whelan*. 797 F.2d at 1248. There,

we recognized that "the line between idea and expression may be drawn with reference to the end sought to be achieved by the work in question." *Id.* A work's idea, we said, is its "*purpose or function*." *Id.* "[E]verything that is not necessary to that purpose or function [is] part of the expression of the idea. Where there are various means of achieving the desired purpose, then the particular means chosen is not necessary to the purpose; hence there is [protectable] expression, not idea." *Id.* (emphasis omitted) (citations omitted). We observed in *Whelan* that, though perhaps "difficult to understand in the abstract," the rule becomes clearer in its application. *Id.* at 1248 n.28. That is true here.

The District Court identified the "purpose or function" of the protocol as "to communicate between the FireOne control panel and . . . field module." *Pyrotechnics Mgmt.*, 2021 WL 925812, at *9. But the Court also described the protocol's "idea" generically as "controlling pyrotechnics displays." *Id.* at *3–4, *10. The District Court's disparate designations conflict with *Whelan*: "the purpose or function of a utilitarian work [*is*] the work's idea." 797 F.2d at 1236 (emphasis omitted in part).

The District Court correctly identified the purpose and function of the protocol. While the purpose of the *FireOne system*—including the control panel and the field module, together—is to control fireworks displays, the *protocol* enables Pyrotechnics's control panel and field module to communicate with each other. This purpose is underscored by Pyrotechnics's repeated references to the "*communication* protocol" and the "*communication* code." *See, e.g.*, fireTEK App. 64–65 (statements of Pyrotechnics's counsel), 73–75 (statements of Pyrotechnics's President) (emphasis added). Under *Whelan*, this communicative purpose is also the protocol's idea.

Moreover, the digital message format is an essential part of this idea. Pyrotechnics admits that there is no way for the control panel to communicate with the field module without using the digital message format. Because there are no other "means of achieving the [protocol's] desired purpose" of communicating with the devices, the digital message format must be part of the uncopyrightable idea and not a protectable expression. *See Whelan*, 797 F.2d at 1236.

Our conclusion that the digital message format forms part of an uncopyrightable idea tracks our decision in *Southco, Inc. v. Kanebridge*, 390 F.3d 276, 282 (3d Cir. 2004) (en banc). In that case, fastener manufacturer Southco developed a part-numbering system to identify its products. *Id.* at 278. Its system assigned a nine-digit number to each part, with different digits (or groups of digits) signifying different relevant product characteristics—for example, screw type, thread size, screw composition, and finish. *Id*. When a competitor adopted the same numbering system, Southco alleged copyright infringement. *Id.* at 279. Before evaluating whether any individual part numbers were protected, we observed that "[b]ecause ideas may not be copyrighted, Southco does not assert any claim of copyright in its numbering system." *Id.* at 282 (emphasis omitted).

Pyrotechnics's digital message format is analogous to Southco's part-numbering system. Pyrotechnics's format defines a twelve-byte message (like Southco's nine-digit part number), where different bytes (like Southco's digits) represent different functions (like Southco's product characteristics). As with Southco's part numbers, the digital messages are "produced mechanically using a [format] with fixed rules." *See id*. at 284. We observed in *Southco* that the part-numbering system was an uncopyrightable idea. *Id.* at

282. For similar reasons, we hold that Pyrotechnics's digital message format is part of an uncopyrightable idea.[7]

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[7] fireTEK also challenges the District Court's conclusion that merger did not bar copyright protection of Pyrotechnics's protocol. Under merger, "when the idea and the expression of the idea coincide, then the expression will not be protected in order to prevent creation of a monopoly on the underlying 'art.'" *Educ. Testing Servs. v. Katzman*, 793 F.2d 533, 539 (3d Cir. 1986). Though "rare," it "is generally found in works with a utilitarian function." *Kay Berry, Inc. v. Taylor Gifts, Inc.*, 421 F.3d 199, 209 (3d Cir. 2005). As "[t]he merger principle . . . is a variation of the idea/expression dichotomy," *Educ. Testing Servs.*, 793 F.2d at 539, it requires essentially the same inquiry as the *Whelan* rule, *see Apple Comput.*, 714 F.3d at 1253.

Because we conclude that Pyrotechnics's digital message format is an essential part of the protocol's idea, even if any part of the digital message format is expression, the merger doctrine bars enforcement of copyright protection for that expression. Otherwise, extending copyright protection to Pyrotechnics's digital message format would yield the very situation merger seeks to prevent: granting Pyrotechnics a monopoly on communication with its field modules. *See Silvertop Assocs., Inc. v. Kangaroo Mfg. Inc.*, 931 F.3d 215, 222 (3d Cir. 2019). To secure such a monopoly, Pyrotechnics could have sought a patent, but it did not. *See Mazer*, 347 U.S. at 217 ("Unlike a patent, a copyright gives no exclusive right to the art disclosed."); *Vaupel Textilmaschinen KG v. Meccanica Euro Italia SPA*, 944 F.2d 870, 875 (Fed. Cir. 1991) (citing 35 U.S.C. § 154) ("A patent provides its owner with the

B

We now consider the copyrightability of the individual digital messages Pyrotechnics specified in its Deposit Copy. Only "original works" are eligible for copyright protection. 17 U.S.C. § 102(a). "In order to satisfy the 'original works' requirement, a work must be original in the sense that it was not copied from another's work and in the sense that it shows creativity ('the creativity requirement')." *Southco*, 390 F.3d at 281 (citing *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 346 (1991)). The creativity requirement does not present a high bar. *Dam Things From Den.*, 290 F.3d at 563–64. But the requirement is not satisfied if "the creative spark is utterly lacking or so trivial as to be virtually nonexistent." *Southco*, 390 F.3d at 281 (quoting *Feist*, 499 U.S. at 358–59).

In *Southco*, we concluded that the manufacturer's part numbers were "not 'original' because each number [was] rigidly dictated by the rules of the [manufacturer's numbering] system." 390 F.3d at 282. Any creativity in developing the numbering system—for example, identifying relevant product characteristics and assigning particular digits to represent a given characteristic—did not reflect creativity in the individual part numbers themselves. *Id.* "Once . . . the system was in place, . . . all of the products in the class could be numbered without the slightest element of creativity"; the part numbers "result[ed] from the mechanical application of the system, not creative thought." *Id.* (citation omitted). In fact, we noted that the "utter absence of creativity" was "an essential attribute" of the part numbers. *Id*. Were the products numbered creatively

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right to exclude others from making, using, and selling the claimed invention.").

(*i.e.*, if the part numbers varied from those specified by the numbering system), customers would be unable to specify the precise fastener they wished to purchase. *Id.* We observed that it is a "basic copyright principle[]" that "protection should not be extended to part numbers that represent an 'inevitable sequence dictated by the logic of the parts system.'" *Id.* at 282–83 (quoting 1 WILLIAM F. PATRY, COPYRIGHT LAW AND PRACTICE 46 (2d ed. 2004)). Because Southco's part numbers were not original, they were not copyrightable. *Id.* at 285.

Pyrotechnics's digital messages can ignite fireworks, but like Southco's part numbers, they lack "even a spark of creativity." *See id*. at 283. The digital message format provides rules for constructing messages with particular meanings, and individual messages are generated by applying those rules mechanically. *See id.* at 283. As with Southco's part numbers, the "utter absence of creativity" is "an essential attribute" of Pyrotechnics's digital messages, *see id.* at 282. Were the messages to vary from those specified—for example, if a different bit sequence were substituted for a header byte—Pyrotechnics's devices would not recognize the messages, and the purpose of the protocol (*i.e.*, to enable Pyrotechnics's control panels and field modules to communicate) would be defeated. Thus, the messages are no more than an "inevitable sequence dictated by the logic" of the format. *Id.* at 282–83 (quoting 1 PATRY, at 46). "[B]ecause they are mechanically produced by the inflexible rules of" Pyrotechnics's digital message format, the individual digital messages "are not protected by copyright." *See id.* at 285.

Even if we were to set aside the mechanical way in which the digital messages are generated, we would still conclude that the digital messages fail to exhibit the minimal originality required for copyright protection. The *potentially*

creative copyrightable elements include the organization and sequencing of the bytes, as well as the precise byte values that Pyrotechnics selected. *Cf. Whelan*, 797 F.2d at 1239, 1241 (court may consider both literal and non-literal elements, like sequence and ordering, when determining copyrightability of computer programs). But using leading header bytes for synchronization and a trailing byte as a cyclic redundancy check are standard communication practices, not creative sequencing. And Pyrotechnics fails to specify values for many other bytes, instead labeling them "Don't care" or showing the type of information the byte contains, rather than a particular value. For example, beyond the unoriginal header and error check bytes, the Enable Fire Power message specifies a value for only one of the remaining nine bytes. Any originality in selecting a value for one of nine bytes is, in the words of *Southco*, "so trivial as to be virtually nonexistent." 390 F.3d at 281. Indeed, other courts of appeals have agreed that numeric "codes" similar to Pyrotechnics's digital messages lack the originality necessary for copyright protection. *See Mitel, Inc. v. Iqtel, Inc.*, 124 F.3d 1366, 1368, 1373 (10th Cir. 1997) (finding a company's set of over sixty four-digit numeric "command codes," in which particular digits indicated particular functions, "largely unoriginal" because the company's "arbitrary selection of . . . numbers required de minimis creative effort"); *Toro Co. v. R & R Products Co.*, 787 F.2d 1208, 1213 (8th Cir. 1986) (finding manufacturer's part numbering system "lacks the requisite originality" because numbers are "arbitrarily assign[ed] to a particular . . . part").

We "must determine whether the author's creativity is enough to overcome a charge of triviality." *Dam Things From Den.*, 290 F.3d at 564. In this case, we disagree with the District Court: the creativity in the individual digital messages

is, at most, de minimis. *See Pyrotechnics Mgmt.*, 2021 WL 925812, at *9. So it cannot support the broad protections afforded by copyright.[8]

V

In sum, neither Pyrotechnics's digital message format nor its individual messages are copyrightable. So it cannot prevail on its copyright infringement claim. The injunction must be vacated for want of likelihood of success on the merits, and we will remand to the District Court with instruction to dismiss with prejudice Pyrotechnics's copyright infringement claim against fireTEK.[9] Because they are not before us in this

[8] fireTEK also contends that the digital messages are not "fixed in [a] tangible medium of expression," as required for copyright protection, 17 U.S.C. § 102(a). The District Court found that they were fixed, observing that the digital messages "that are transmitted on wires to the field modules also occur in the microprocessor of [Pyrotechnics's] controller." *Pyrotechnics Mgmt.*, 2021 WL 925812, at *10. "Occurring" in a microprocessor is not, however, the same as being "fixed in [a] tangible medium." Pyrotechnics's President stated that the messages are "not source code that resides in a computer or in a microprocessor somewhere," but are "the message[s] that flow[] from one device to another." fireTEK App. 73. Pyrotechnics has not explained where, or how, these "flow[ing]" digital messages are "fixed" in a microprocessor, memory device, or other component of its control panel or field module.

[9] Because we will vacate the preliminary injunction, we do not address fireTEK's challenge to the injunction bond's

appeal, we express no opinion on the merits of Pyrotechnics's remaining claims.

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adequacy. *See Sprint Comms. Co. v. CAT Comms. Int'l, Inc.*, 335 F.3d 235, 241 (3d Cir. 2003).